LINUX

LABMANUAL

Student Name: _____

Faculty Name: _____

Branch Name: _____

Batch Date : _____

LINUX

DAY WISE SCHEDULE

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DAY 11	**88-93**	**NIS Server & Booting Process.**
DAY 12	**94-99**	**FTP Server & Yum Configuration.**
DAY 13	**100-107**	**SAMBA Server & Troubleshooting.**
DAY 14	**108-113**	**DNS Server.**
DAY 15	**114-125**	**WEB Server Virualization.**
DAY 16	**126-136**	**MAIL Server & Dhcp Server.**
DAY 17	**137-147**	**LOG Server, IPBonding, KernelUpgrading and Useful Tools.**
DAY 18	**148-158**	**PROXY Server, Kickstart, Webmin & LiveSetup.**

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INSTALLATION OF LINUX OPERATING SYSTEM

Pre-requisites:

Before working on this lab, you must have

1. A Computer and LINUX Operating System DVD.

This installation guide is to install Linux without any other o/s in the present Hard disk [clean hard disk] where the existing partitions will be overwritten.

Installation Can be done in to methods

(1) Gui Mode
(2) Text Mode

Recommended Partitions of Linux

/boot = 200MB

/ = 10000MB

/home = 5000MB

/var = 10000MB

/home = 10000MB

Swap = twice to Ram size (eg: 2GBx2=4000MB)

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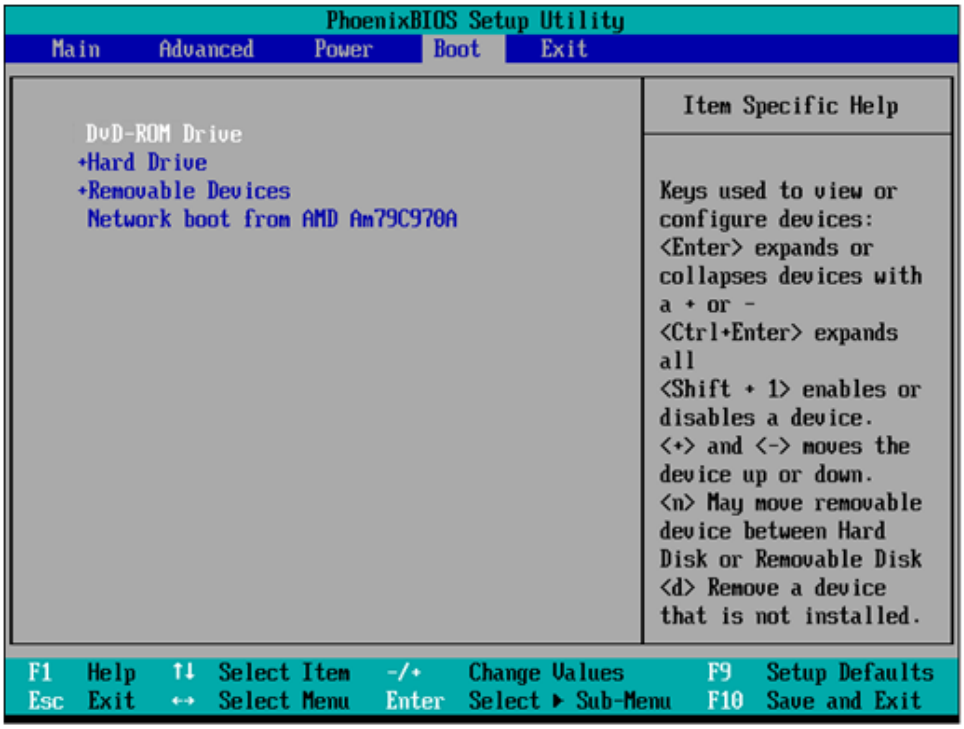
Lab – 1: INSTALLING LINUX OPERATING SYSTEM

1. Restart the System and go to **BIOS.**
2. Set the First Boot Device as **DVD ROM.**



3. Save the settings by Pressing **F10** and click **YES.**
4. Insert **LINUX DVD** and Restart the system.

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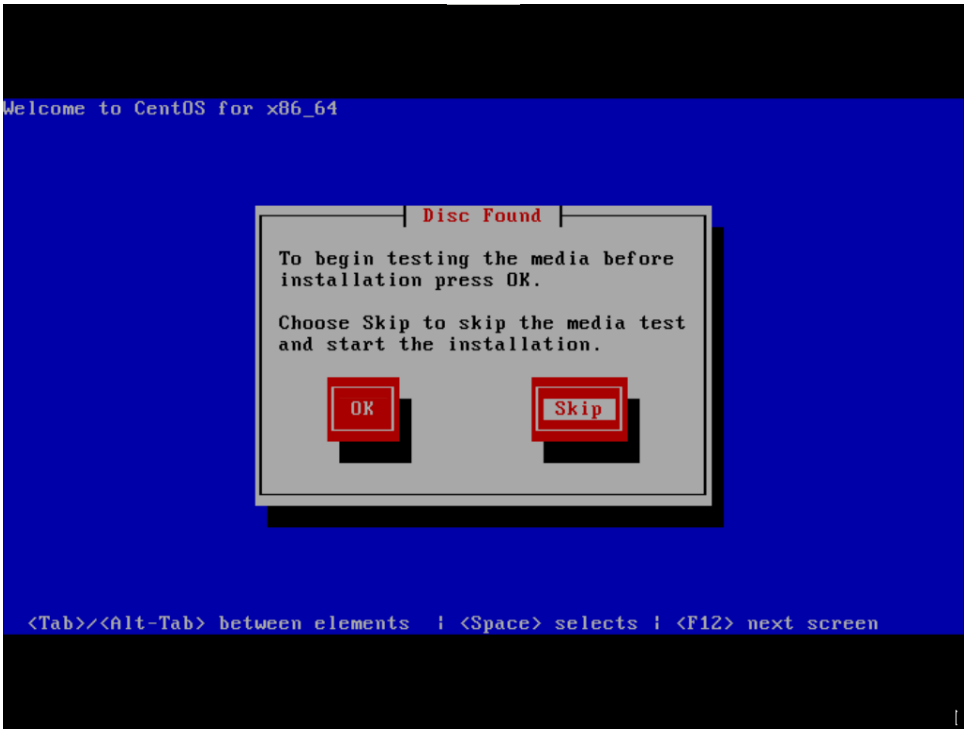
5. **Press 1st option to install new os.**

6. **Select skip to avoid media test**



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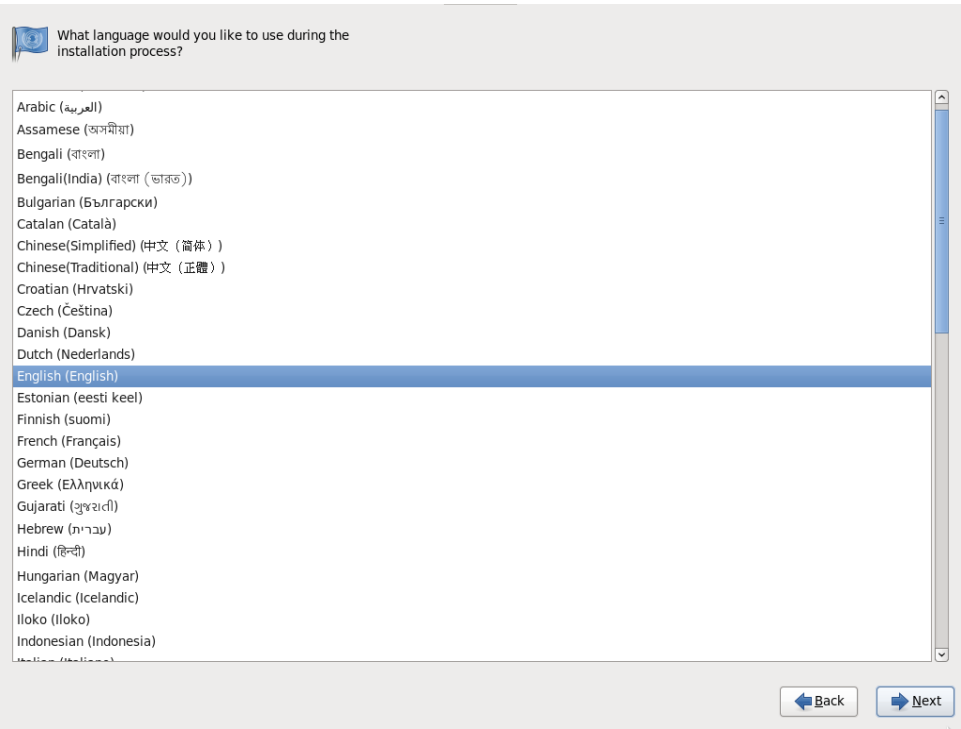
7. **Click next to proceed installation**

8. **Makesure installation language eg: English and click next**



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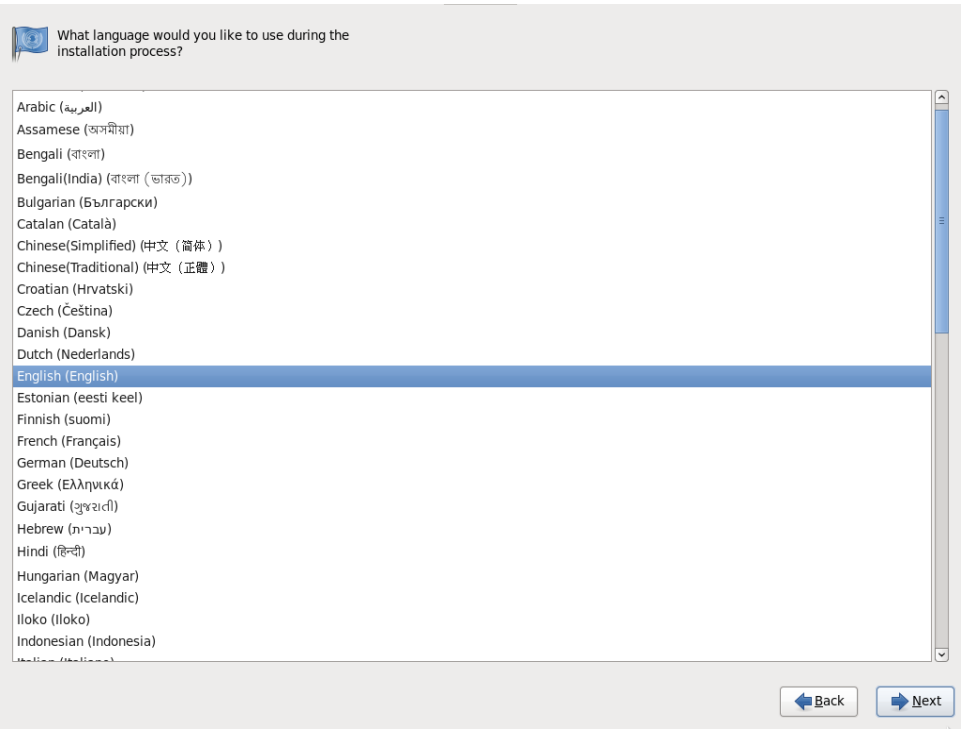
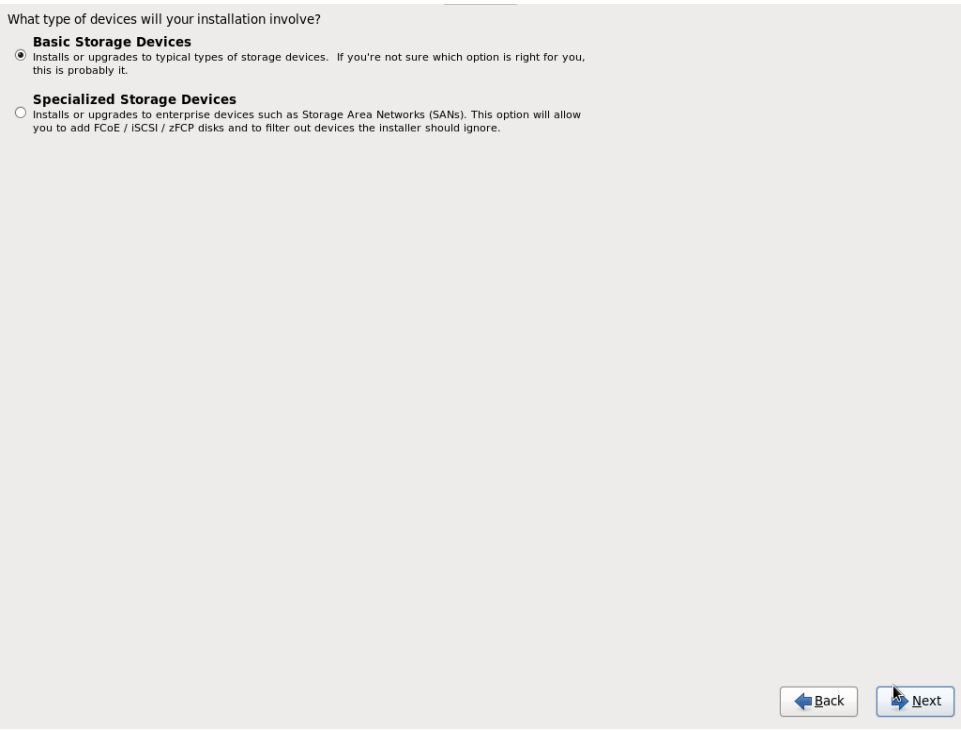
9. **Makesure installation language eg: English and click next**



10. **Select Basic Storage Devices and click next**



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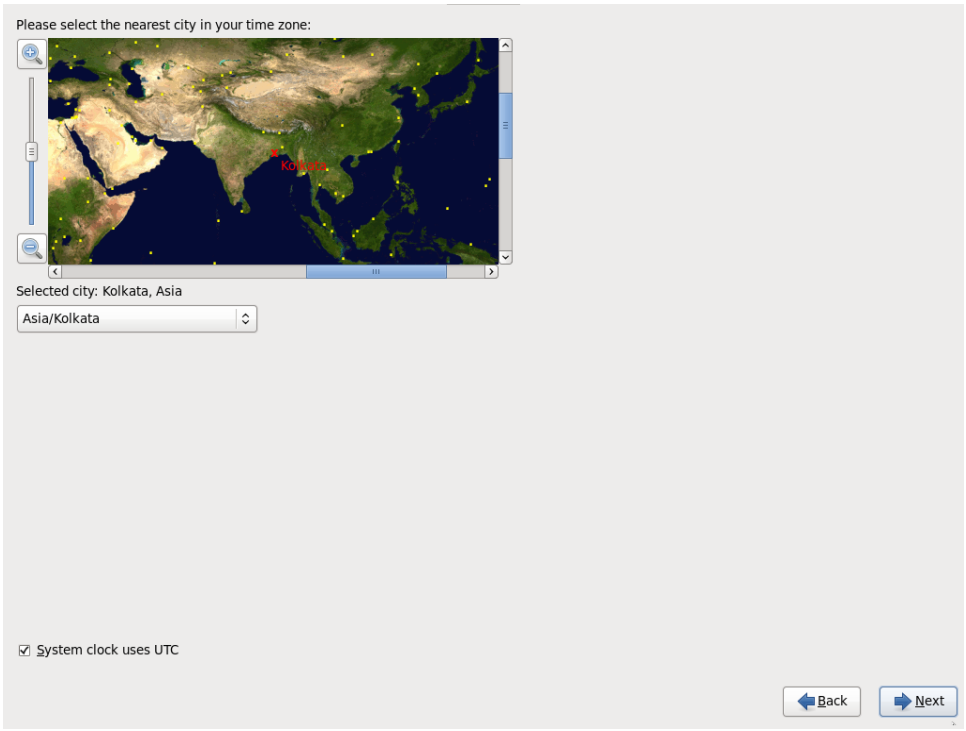
11. **Provide computer name and click next**

12. **Select time zone eg: AsiaKolkata and click next**



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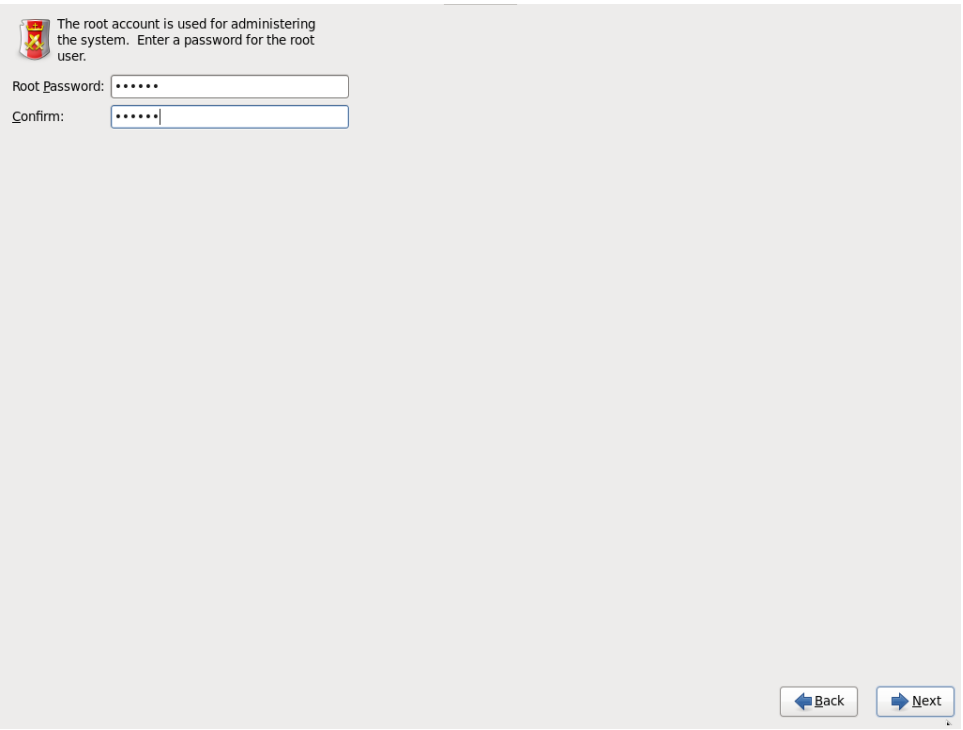
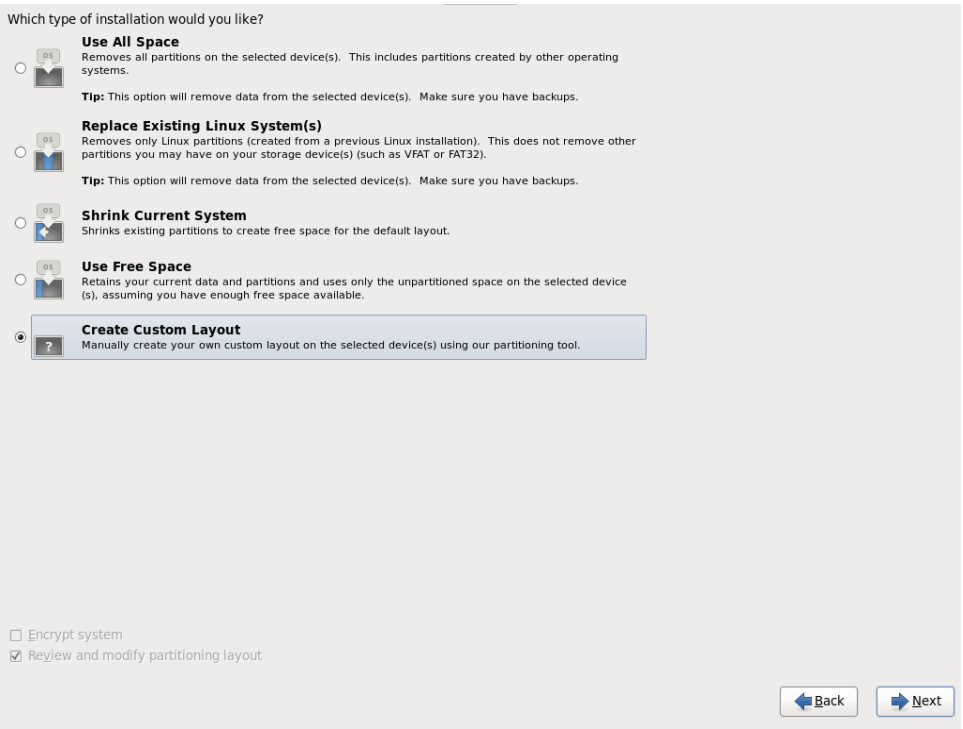
13. **Define Superuser password eg: linux and click next**



14. **Select create Custom Layout and click next**



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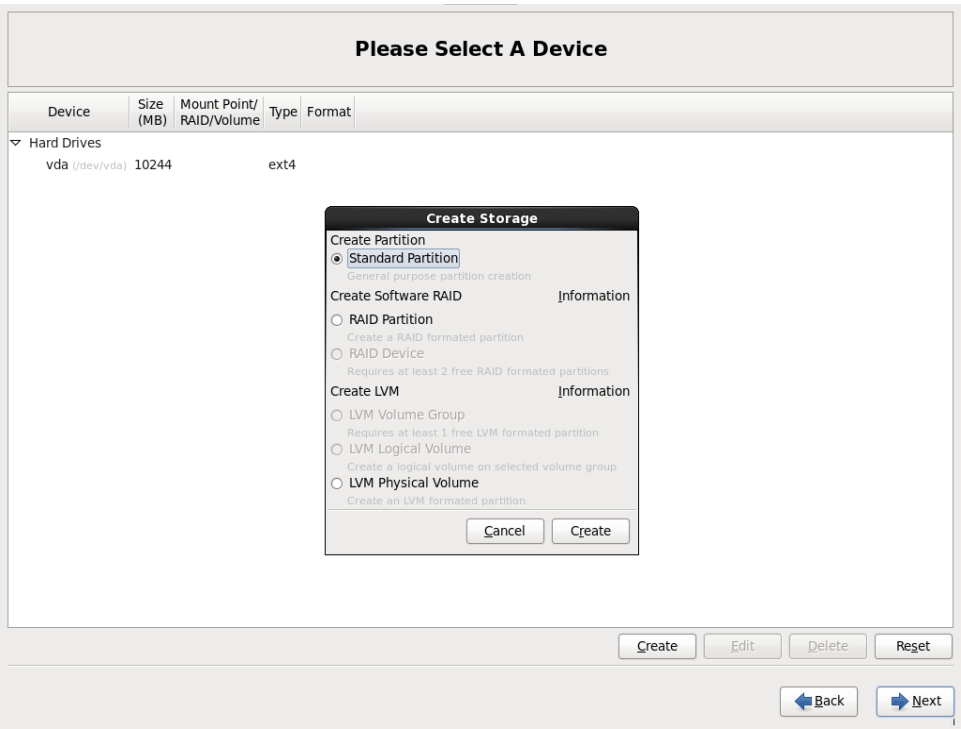
15. **Select create**

16. **Select Standard Partition**



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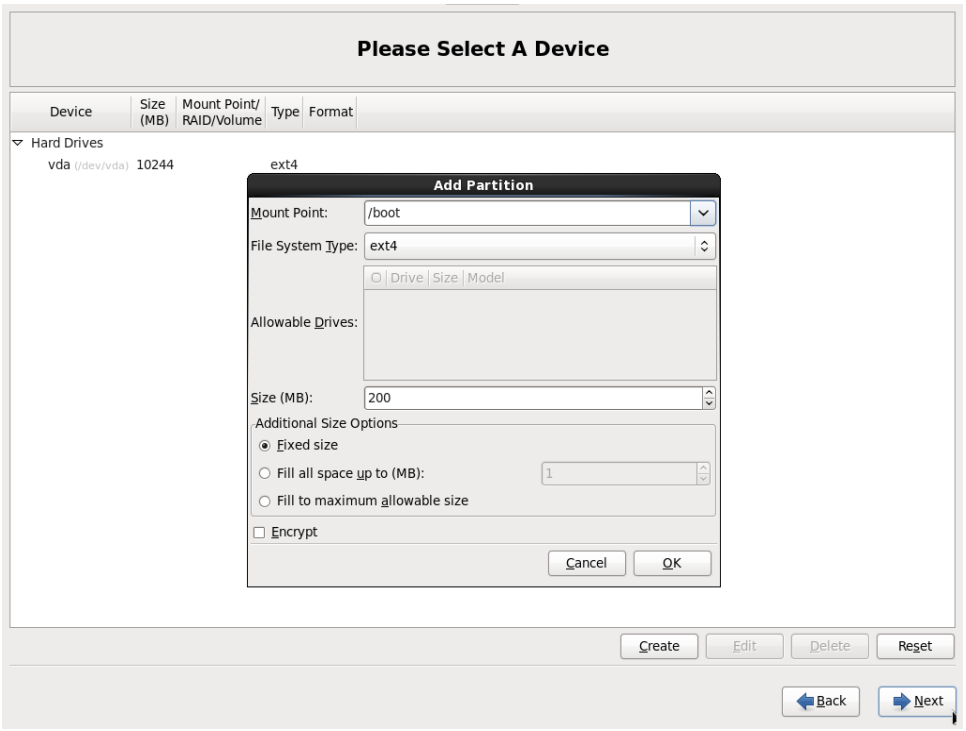
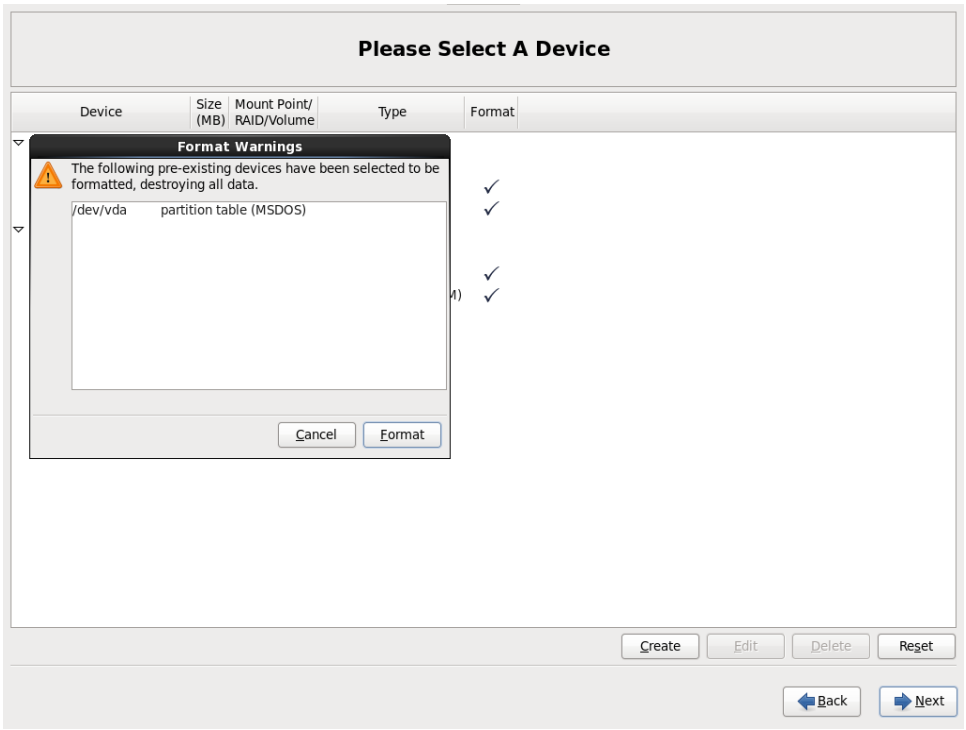
17. **Define MountPoint, filesystem, size and then click ok**



18. **Select Format**



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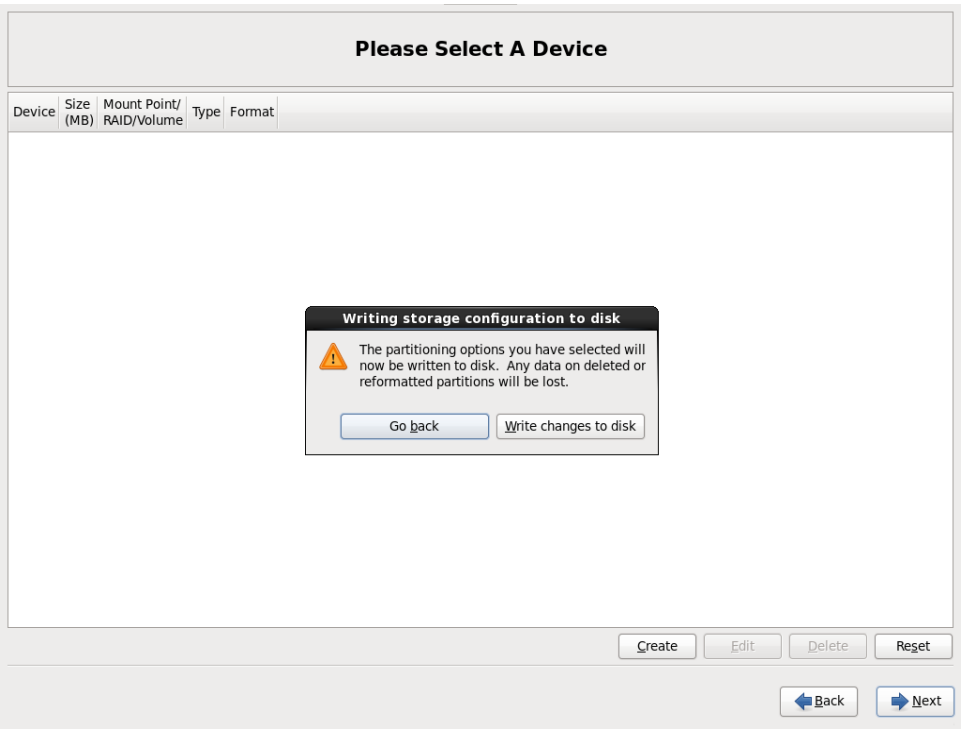
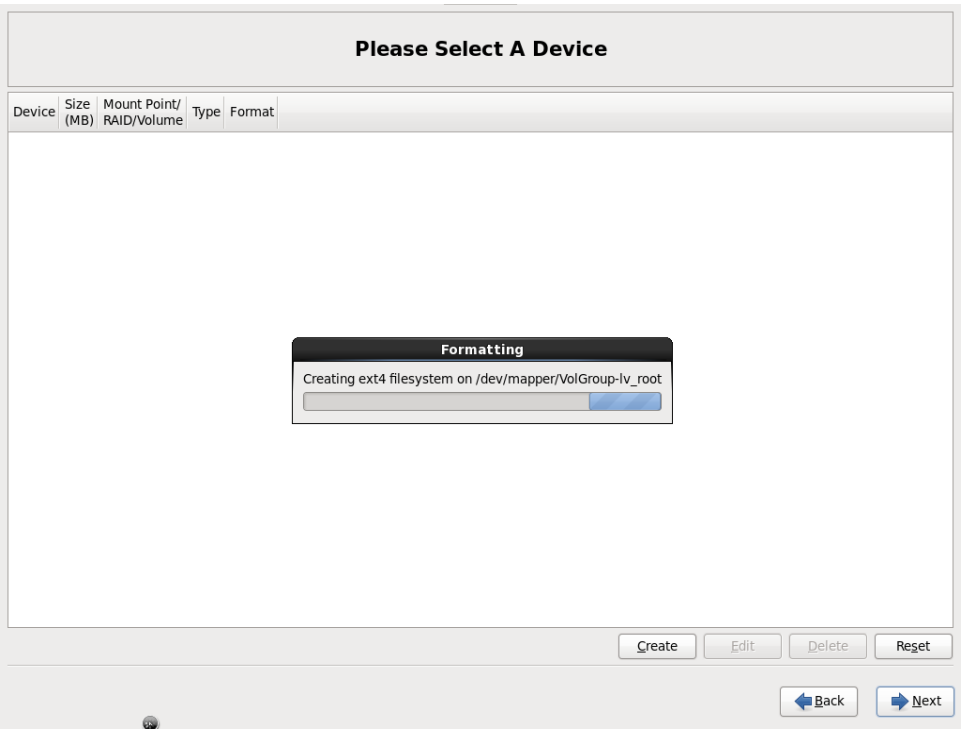
19. **Select write changes disk option**



20. **Click next it proceed installation**



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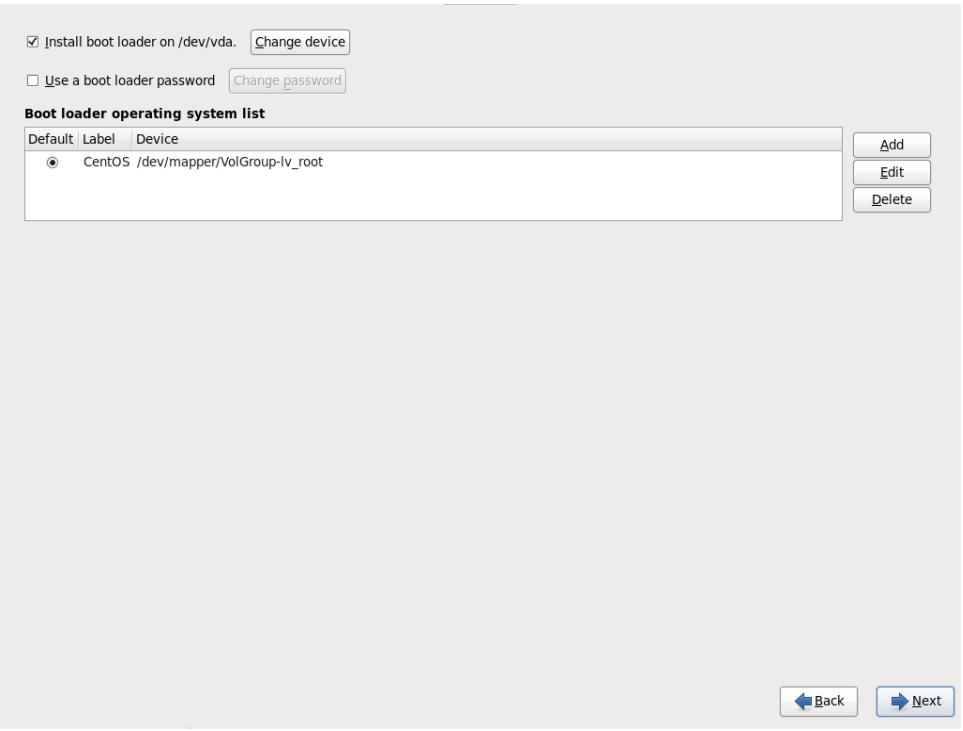
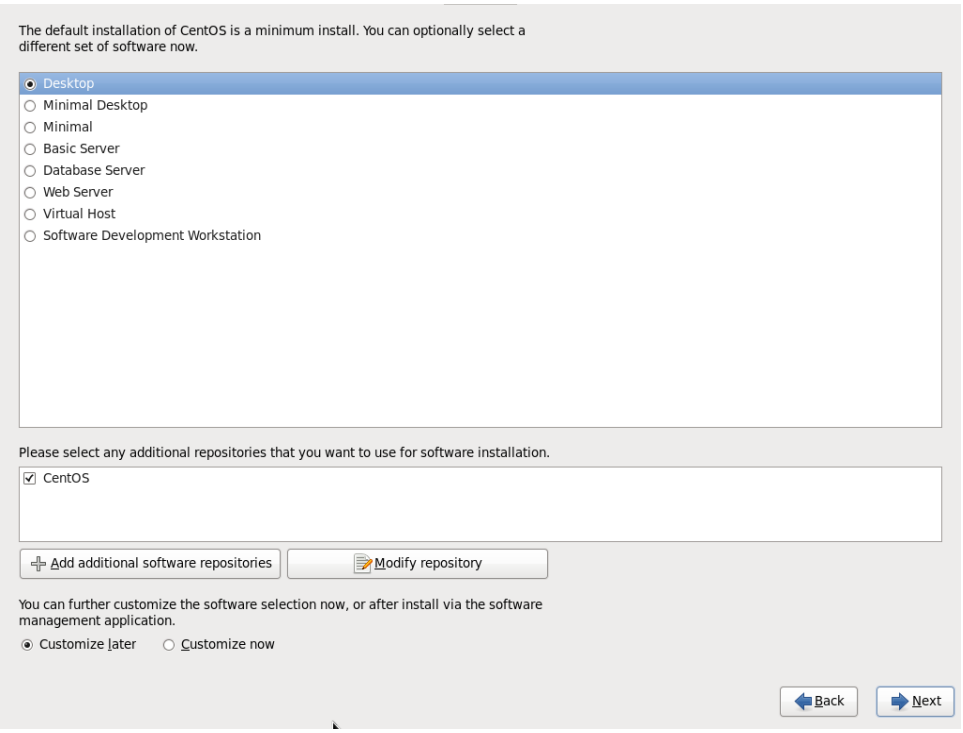
21. Click next to install bootloader



22. **Select Custamize now and click next it choose applications to install.**



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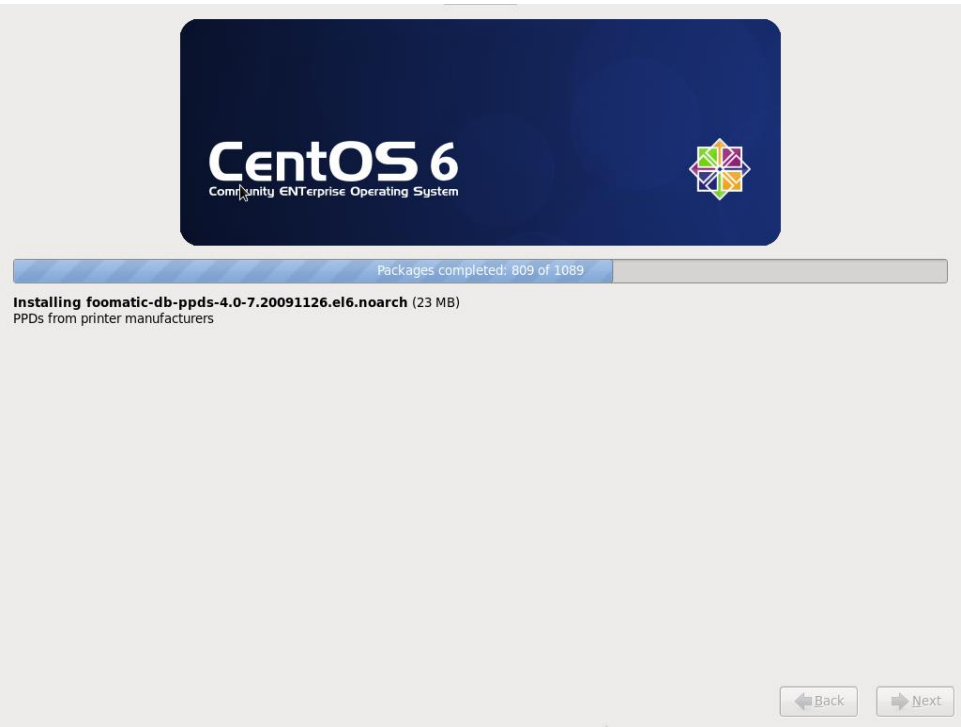
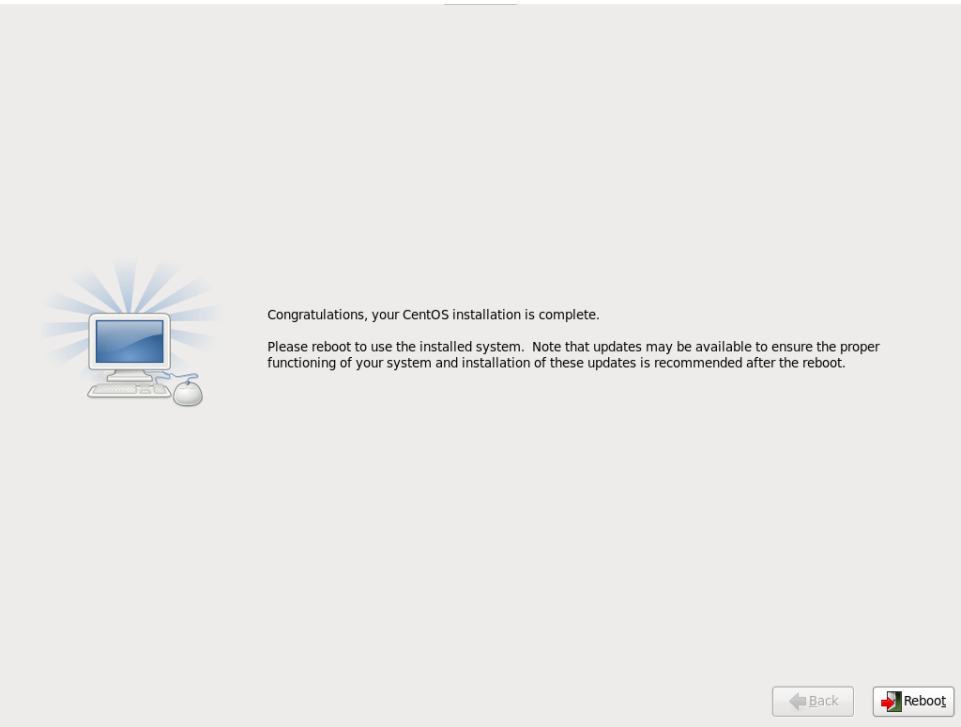
23. **Click next after it complete installation process**



24. **Reboot Select**



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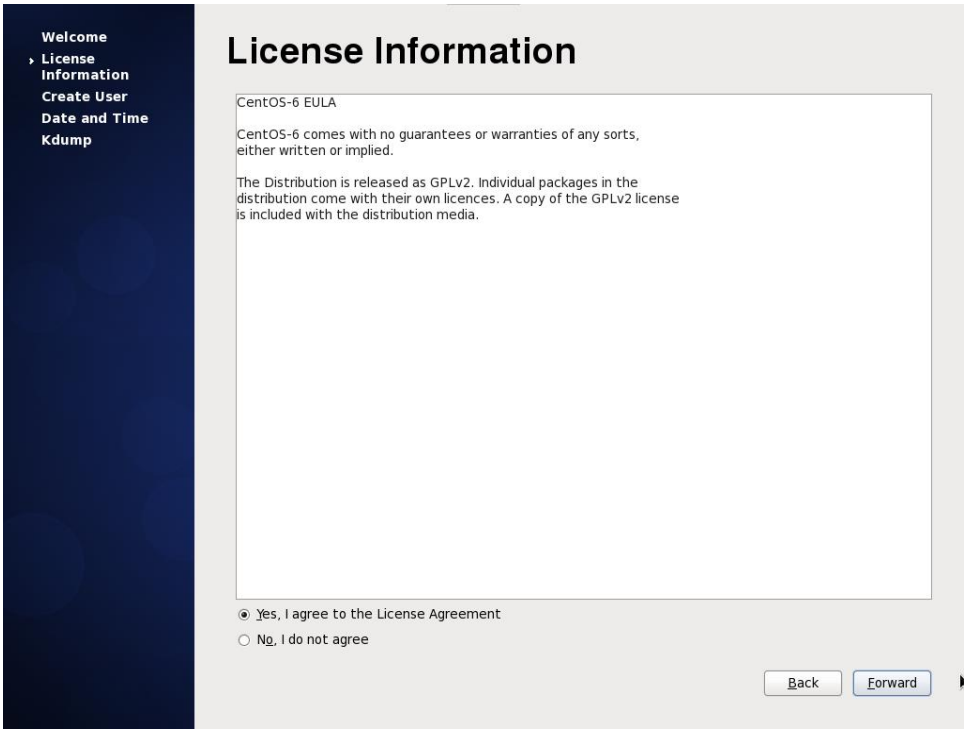
25. **Select License agreement and click forward**



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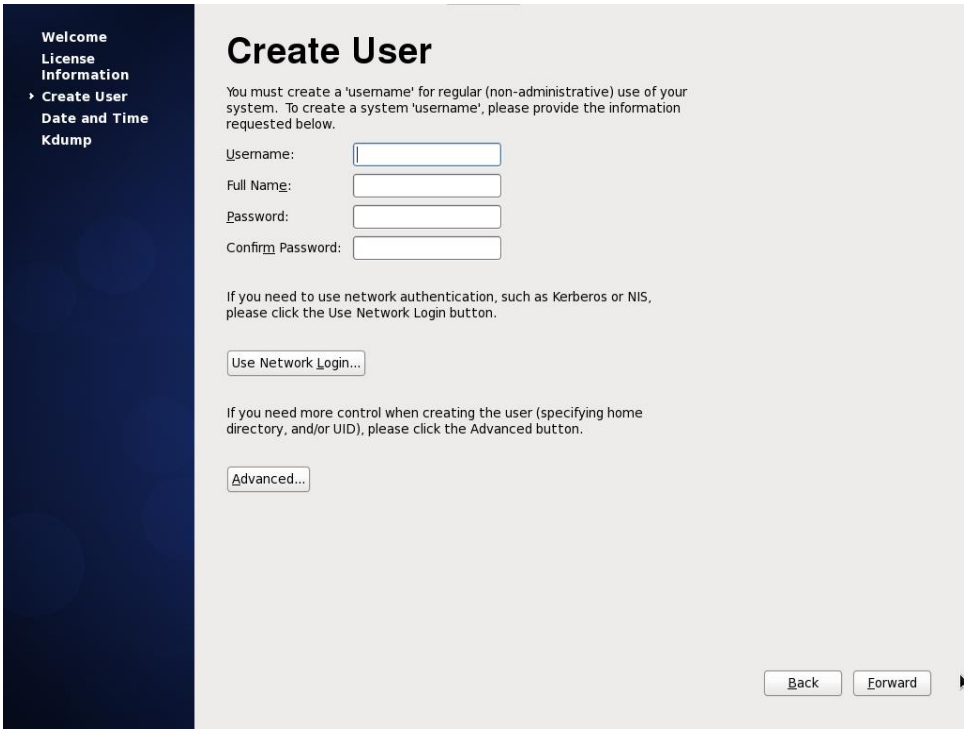
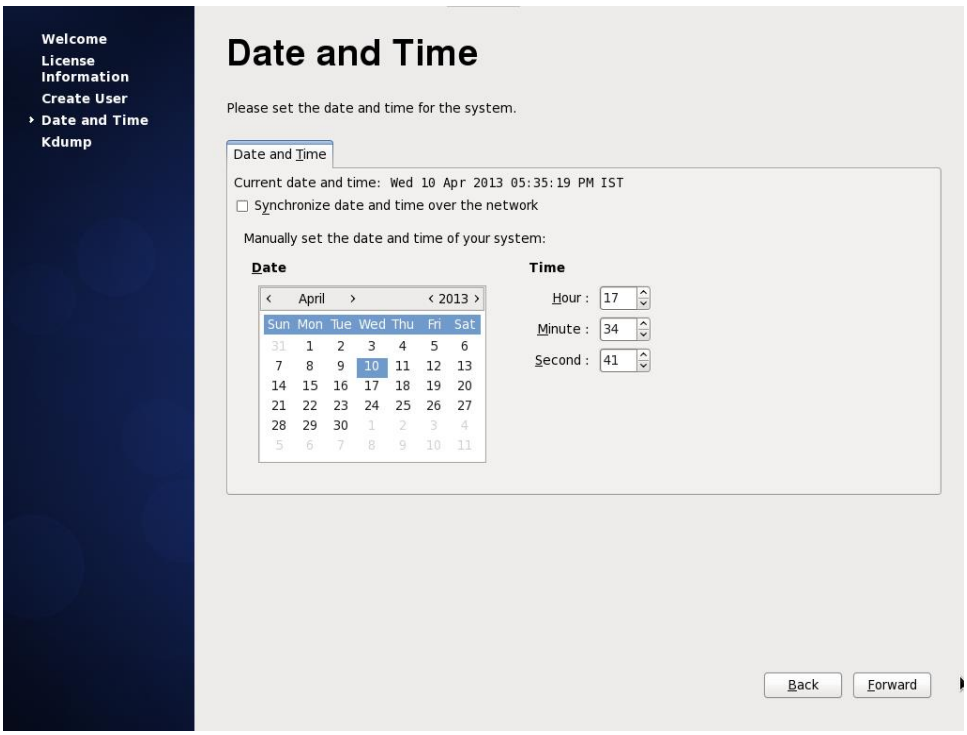
26. **Select forward adding a user in not mandatory**



27. **Define date and time and select forward**



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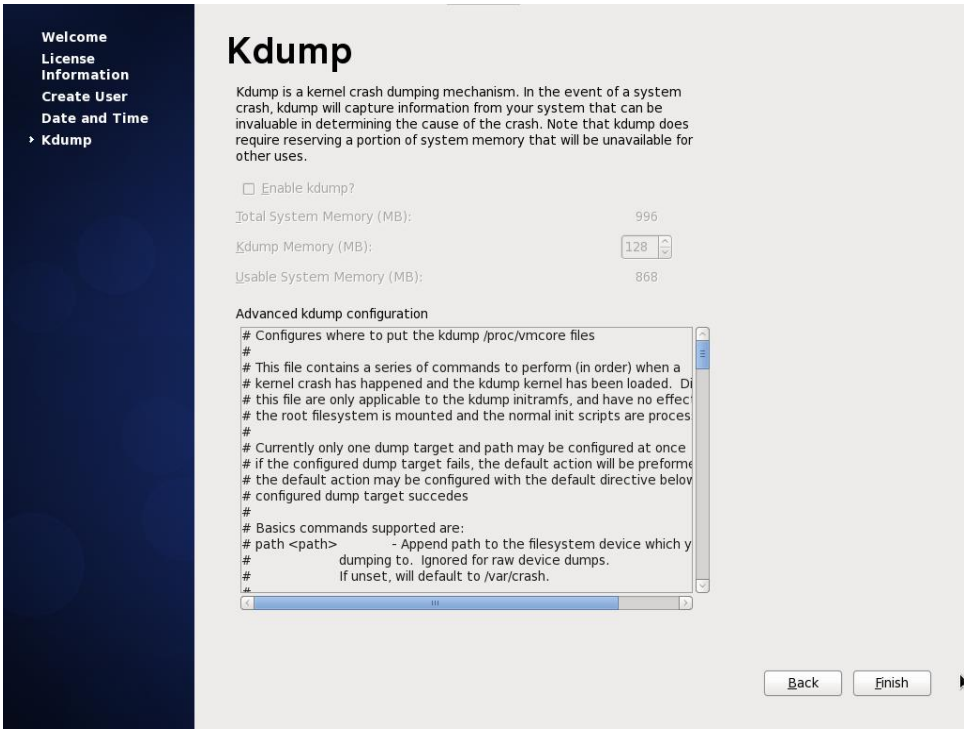
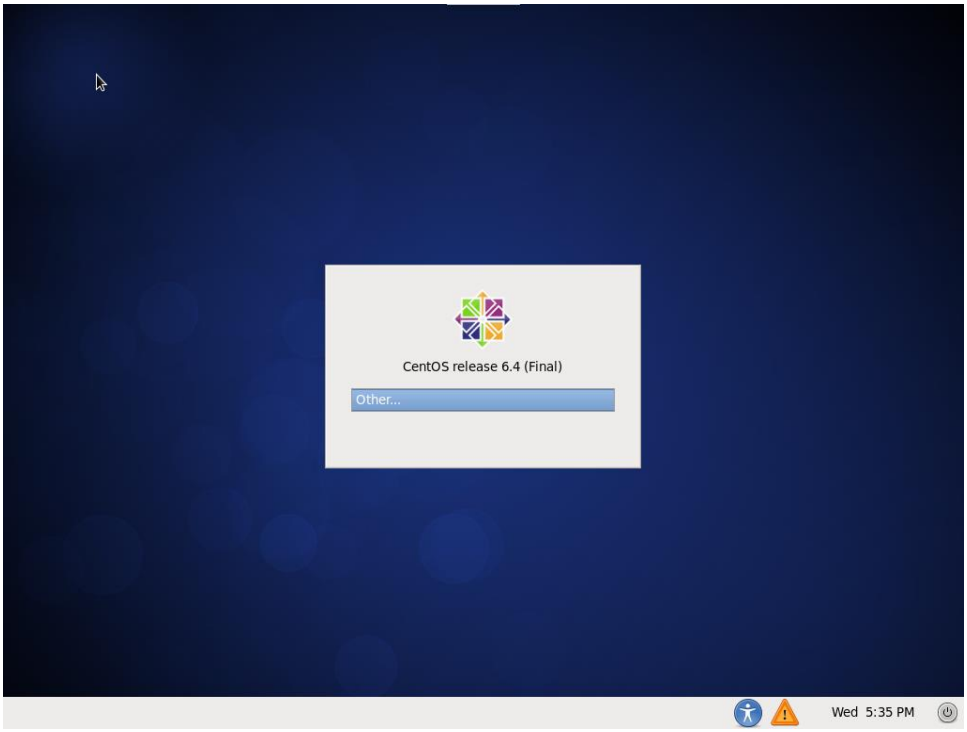
28. **Select finish**



29. **Provide username and password**



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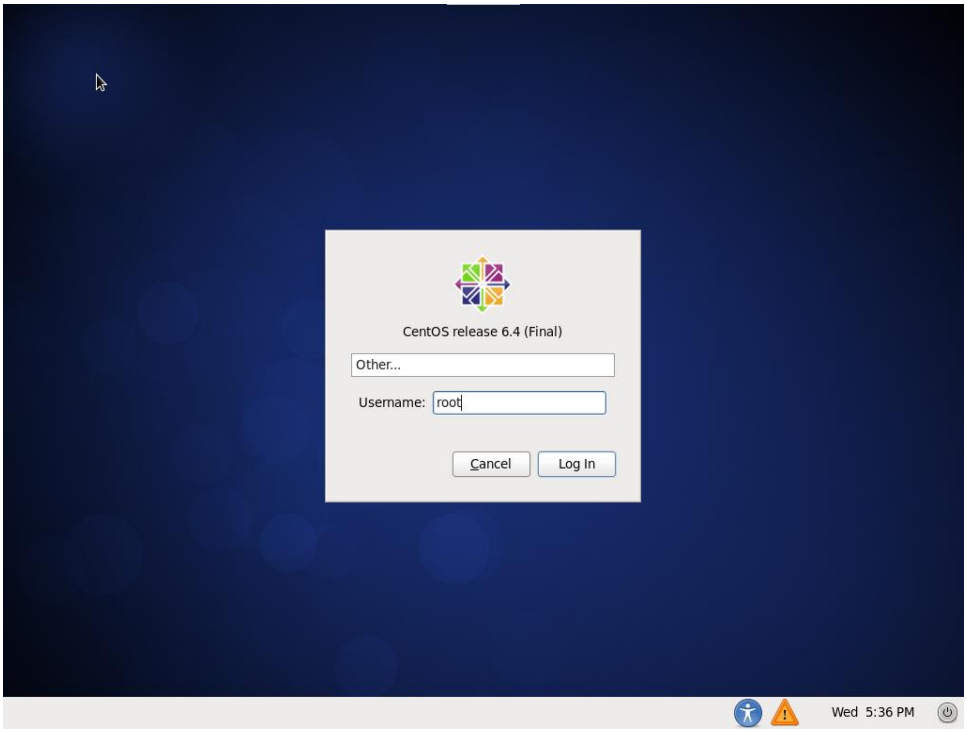
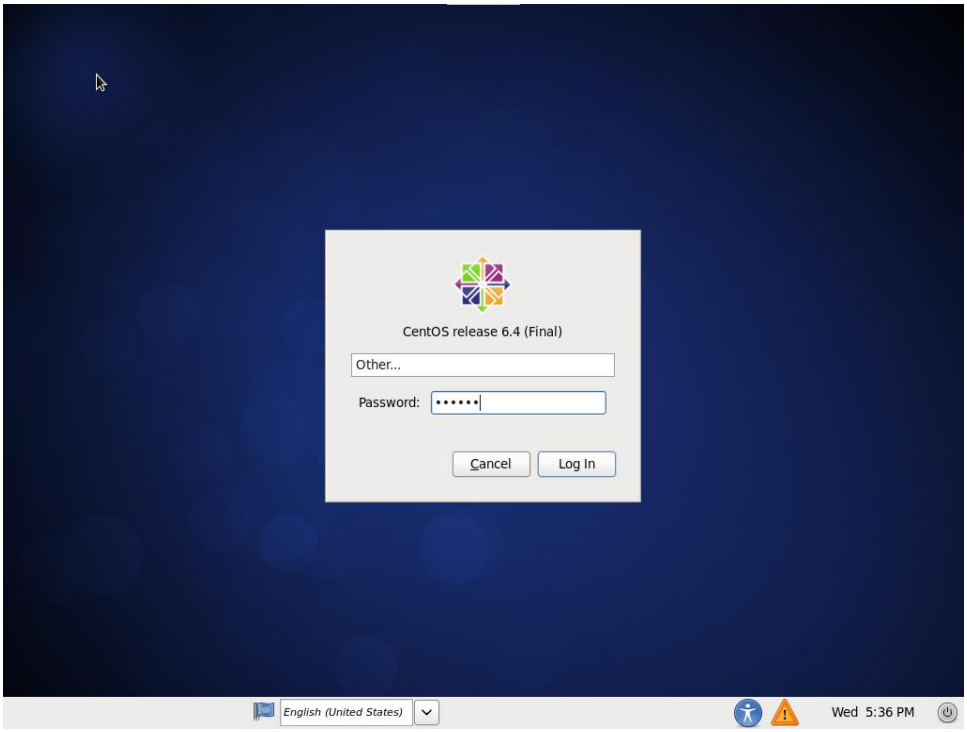
30. **Provide username eg: root**



31. Provide password eg: linux



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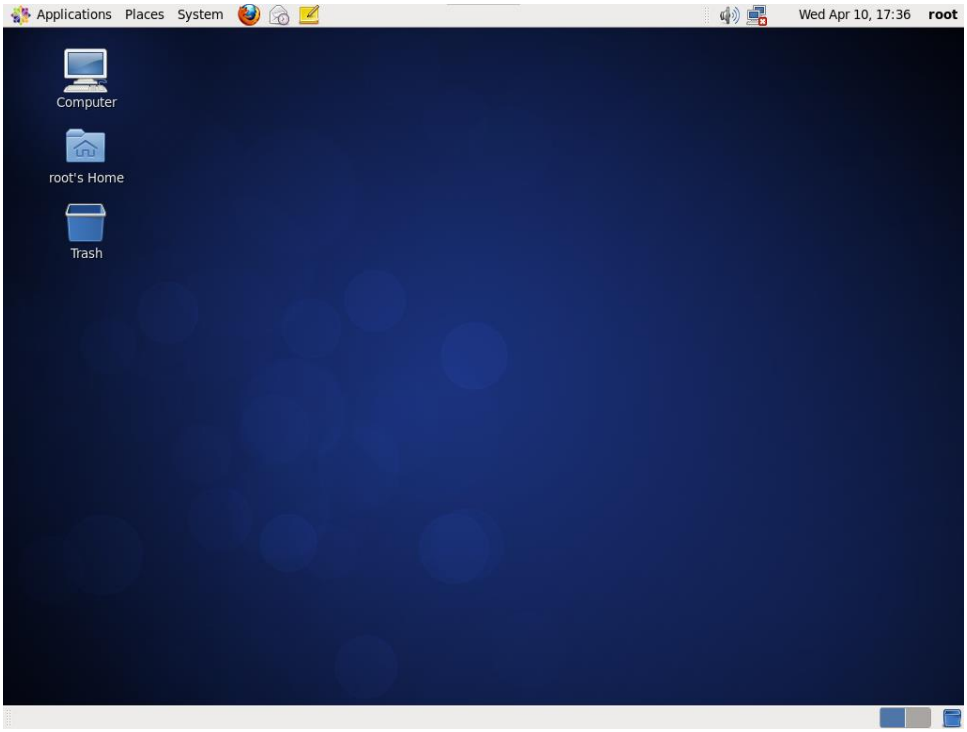
32. Explanation about Desktop Properties



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BASIC COMMANDS

Pre-requisites:

Before working on this lab, you must have

2. A Computer with LINUX Operating System.

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Lab – 2 : BASIC COMMANDS

1. **To check the present working directory**

```
[root@localhost ~]# pwd
```

Verification

```
/root
```

2. **To show the contents of a directory (folder)**

```
[root@localhost ~]# ls
```

Verification

```
anaconda-ks.cfg  Desktop  install.log  install.log.syslog
```

3. **To see more details including the permission regarding the contents of a directory (folder)**

```
[root@localhost ~]# ls –l
```

Verification

```
total 76
-rw-r--r--  1 root root  1049 Apr  2  2007 anaconda.cfg
drwxr-xr-x  2 root root  4096 Mar 14 20:13 Desktop
-rw-r--r--  1 root root 46871 Apr  2  2007 install.log
-rw-r--r--  1 root root  5175 Apr  2  2007 inst.syslog
```

```
[root@localhost ~]# ll
```

Verification

```
total 76
-rw-r--r--  1 root root  1049 Apr  2  2007 anaconda.cfg
drwxr-xr-x  2 root root  4096 Mar 14 20:13 Desktop
-rw-r--r--  1 root root 46871 Apr  2  2007 install.log
-rw-r--r--  1 root root  5175 Apr  2  2007 inst.syslog
```

4. **To see all contents including hidden files of a directory (folder)**

```
[root@localhost ~]# ls -a
```

Verification

```
.                   .camel_certs      .esd_auth
.gnome2_private     .metacity         .tcshrc
```

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```
..                  .config          .evolution
.gstreamer-0.8      .mozilla         .thumbnails
anaconda-ks.cfg     .cshrc           .fonts.cache-1
.gtkrc              .nautilus        .Trash
.bash_history       Desktop          .gconf
.gtkrc-1.2-gnome2   .recently-used   .viminfo
.bash_logout        .dmrc            .gconfd
.ICEauthority       .rhn-applet.conf .Xauthority
.bash_profile       .eggcups         .gnomeinstall.log
.rnd                .bashrc          .elinks
.gnome2             install.log      .syslog
.ssh
```

5. To see tree structure of nested directories

```
[root@localhost ~]# ls -R /opt
```

Verification

```
/opt:
zoom

/opt/zoom:
zooma

/opt/zoom/zooma:
zoomb

/opt/zoom/zooma/zoomb:
zooms

/opt/zoom/zooma/zoomb/zooms:
```

6. To see a file starting from f

```
[root@localhost ~]# ls f*
```

Verification

```
food fish fool fun final
```

7. To see a file whose lenth is 6 characters

```
[root@localhost ~]# ls ?????
```

p

Verification

Centos fedora Ubuntu packet

8. To create a file

```
[root@localhost ~]# cat > file1
hi how are you, how is your zoom
ctrl+d  (to save)
```

9. To see file content

```
[root@localhost ~]# cat file1
hi how are you how is your zoom
```

10. To append a file

```
[root@localhost ~]# cat >> file1
Iam fine, it is very nice

[root@localhost ~]# cat file1 file2 >> file3

[root@localhost ~]# cat file3
```

11. To create a file using touch command

```
[root@localhost ~]# touch f1 f2 f3 f4

[root@localhost ~]# ls
```

Verification

```
anaconda-ks.cfg  Desktop  install.log
install.log.syslog f1 f2 f3 f4
```

12. Creating a single directory

```
[root@localhost ~]# mkdir dir
```

13. Creating multiple directories

p

```
[root@localhost ~]# mkdir dir1 dir2 dir3 dir4

[root@localhost ~]# ls
```

Verification

```
anaconda-ks.cfg  dir   dir2  dir4  f2  f4     file2
install.log
labmanual
Desktop          dir1  dir3  f1    f3  file1  file3
install.log.syslog
```

14. To create nested directories

```
[root@localhost ~]# mkdir -p d1/d2/d3/d4
```

15. To see the tree structure

```
[root@localhost ~]# ls -R d1
```

Verification

```
d1:
d2

d1/d2:
d3

d1/d2/d3:
d4

d1/d2/d3/d4:
[root@localhost ~]#
```

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16. To change a directory

```
[root@localhost ~]# cd dir1

[root@localhost dir1]# cd ..

[root@localhost ~]# cd ../..

[root@localhost /]# cd -
/root

[root@localhost ~]# pwd
/root

[root@localhost ~]# cd

[root@localhost ~]# pwd
/root

[root@localhost ~]#
```

17. To remove files

```
[root@localhost ~]# rm file1

rm: remove regular file `file1'? y
```

18. To remove an empty directory

```
[root@localhost ~]# rmdir dir1

[root@localhost ~]# ls
anaconda-ks.cfg  Desktop  dir2  dir4  f2  f4     file3
install.log.syslog
d1               dir      dir3  f1    f3  file2
install.log  labmanual
```

p

19. To remove a directory

```
[root@localhost ~]# rm -rf dir
```

```
[root@localhost ~]# ls
anaconda-ks.cfg  Desktop  dir3  f1  f3  file2
install.log         labmanual
d1               dir2     dir4  f2  f4  file3
install.log.syslog
```

20. To copy files

```
[root@localhost ~]# cp anaconda-ks.cfg file1
```

```
[root@localhost ~]# cat file1
```

21. To copy folders

```
[root@localhost ~]# cp -r dir2 Desktop
```

```
[root@localhost ~]# ls Desktop
```

22. To rename directories and files

```
[root@localhost ~]# mv dir3 d4
[root@localhost ~]# ls
```

Verification

```
anaconda-ks.cfg  d4       dir2  f1  f3  file1  file3
install.log.syslog
d1               Desktop  dir4  f2  f4  file2
install.log  labmanual
```

23. To move directories and files

```
[root@localhost ~]# mv dir2 /opt
```

```
[root@localhost ~]# ls
```

Verification

p

```
anaconda-ks.cfg  d4       dir4  f2  f4     file2
install.log         labmanual
d1               Desktop  f1    f3  file1  file3
install.log.syslog
```

```
[root@localhost ~]# cd /opt
```

```
[root@localhost opt]# ls
dir2  zoom
```

24. To search a word from single or multiple file's

```
[root@localhost ~]# grep tom  /etc/passwd /etc/group
/etc/gshadow
```

```
/etc/passwd:tom:x:500:500::/home/tom:/bin/bash
/etc/group:tom:x:500:
/etc/gshadow:tom:!::
```

```
[root@localhost ~]# cat /etc/passwd | grep tom
```

25. To see the type of file

```
[root@localhost ~]# file *
```

26. To view the date

```
[root@localhost ~]# date
```

```
[root@localhost ~]# date –s"sat july 15 10:20:10 ist
2013"
          Day/mm/dd/hh:mm:ss/year
Tue Jul 15 00:06:00 EDT 2013
```

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27. To view the calendar for complete year

```
[root@localhost ~]# cal 12 200
```

28. To take help of command

```
[root@localhost ~]# man mkdir
```

29. To see the content screen wise

```
[root@localhost ~]# ls -l /bin  | less
```

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VISUAL INTERFACE

Pre-requisites:

on Before working this lab, you must have

3. A Computer with LINUX Operating System.

p

Lab – 3: VISUAL INTERFACE

1. **Modify the file by using vi command**

```
# vi test.txt
```

2. **Command Mode options**

```
i   -  inserts the text at current cursor position
I   -  inserts the text at  beginning of line
a   -  appends the text after current cursor
A   -  appends the text at end of line
o   -  inserts a line below current cursor
O   -  inserts a line above current cursor
r   -  replace a single char at current cursor
```

3. **Commands at execute mode**

```
:q      -  quit without saving
:q!     -  quit forcefully without saving
:w      -  save
:wq     -  save & quit
:wq!    -  save & quit  forcefully
:x      -  save & quit
:sh     -  Provides temporary shell
:se nu  -  Setting line numbers
:se nonu   -  Removing line numbers
:84        -  Press enter goes to line
```

4. **To find and replace words**

```
:1,$s/<findword>/<replaceword>/gc

:1,$s/world/universe/gc

 1-- To start the search at from 1st line
 $ -> End of File
 s -> substitute
 g -> global
 c -> confirmation
```

p

5. **Command's at command mode**

```
  dd       -  Deletes a line
 2dd       -  Deletes 2 lines
  yy       -  Copy a line
  2yy      -  Copies 2 lines
  p        -  put  (deleted or copied text)
  u        -  Undo (can undo 1000 times)
 Ctrl+r    -  Redo
  G        - Moves cursor to last line of file
  5G       - Moves cursor to 5th line of file
 Shift+ZZ  -  save & quit
/<findword> -  locate word
```

USER ADMINISTRATION

Pre-requisites:

Before working on this lab, you must have

4. A Computer with LINUX Operating System.

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Lab – 4: USER ADMINISTRATION

1. **Create user ali with following parameters**

u - 2001
c - "Director of Sales Dept"
d - /salesdept
s - /bin/csh
g - salesgrp/2000
G - fingrp,mrkgrp

```
[root@localhost~]# useradd -u 2001 ali

[root@localhost~]# grep ali /etc/passwd
```

2. **Create a user ali whose comment is "Mang of Sales Dept"**

```
[root@localhost~]# useradd -c "Mang of Sales Dept"
ali

[root@localhost~]# grep ali /etc/passwd
```

3. **Create a user ali whose home directory exist in /salesdept folder**

```
[root@localhost~]# mkdir /salesdept

[root@localhost~]# useradd -d /salesdept/ali
ali

[root@localhost~]# grep ali /etc/passwd
```

4. **Create a user ali whose shell is ksh**

```
[root@localhost~]# cat /etc/shells

[root@localhost~]# useradd -s /bin/ksh  ali
```

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5. To add new user with all new properties

```
[root@localhost~]# useradd -u 2000 -g salesgrp -c
"Director of Sales Dept" -d /salesdept/abdul -s /bin/csh
ram
```

6. To view user properties

```
[root@localhost~]# grep ram /etc/passwd
ram:x:2000:2000:Director of Sales
Dept:/salesdept/abdul:/bin/csh
```

7. To delete user without home directory

```
[root@localhost ~]# userdel tom

[root@localhost ~]# ls /home
```

8. To delete user with home directory

```
[root@localhost ~]# userdel -r  tom
```

9. To Modify the parameter of existing user abdul

```
[root@localhost ~]# usermod -u 3000 -g fingrp -c "Mang of
fin Dept" -d /findept/abdul -m -s /bin/ksh abdul

[root@localhost ~]# grep abdul /etc/passwd
abdul:x:3000:3000:Mang of fin Dept:/findept/abdul:/bin/ksh

[root@localhost ~]# useradd scott

[root@localhost ~]# grep scott /etc/passwd
scott:x:3001:3001::/home/scott:/bin/bash
```

10. To change login name

```
[root@localhost ~]# usermod -l tiger scott

[root@localhost ~]# grep  tiger /etc/passwd
```

p

```
tiger:x:3001:3001::/home/scott:/bin/bash
```

11. To lock the Account

```
[root@localhost ~]# passwd tom

[root@localhost ~]# usermod -L tom
```

login & check

12. To Unlock the Account

```
[root@localhost ~]# usermod -U tom
```

login & check

GROUP ADMINISTRATION

Pre-requisites:

Before working on this lab, you must have

5. A Computer with LINUX Operating System.

p

Lab - 5 : GROUP ADMINISTRATION

1. To add new group

```
[root@localhost ~]# groupadd amerpetgrp

[root@localhost ~]# grep amerpetgrp /etc/group

amerpetgrp:x:3002:
```

2. adding a new group with gid 5000

```
[root@localhost ~]# groupadd -g 5000 banjaragrp

[root@localhost ~]# grep banjaragrp  /etc/group

banjaragrp:x:5000:
```

3. modifying group with gid

```
[root@localhost ~]# groupmod  -g 6000 banjaragrp

[root@localhost ~]# grep banjaragrp  /etc/group

banjaragrp:x:6000:
```

4. Changing the name of a existing group

```
[root@localhost ~]# groupmod  -n banjarahills  banjaragrp

[root@localhost ~]# grep banjarahills   /etc/group

banjarahills:x:6000:

[root@localhost ~]# groupdel  banjarahills

[root@localhost ~]# grep banjarahills   /etc/group
```

p

5. To add users as a Secondary users in a Group

```
[root@localhost ~]# useradd  jack

[root@localhost ~]# useradd  shyam

[root@localhost ~]# useradd  wiliam

[root@localhost ~]# gpasswd  -M jack,shyam,wiliam  salesgrp

[root@localhost ~]# grep salesgrp /etc/group
salesgrp:x:2000:jack,shyam,wiliam
```

6. Removing user wiliam from group salesgrp

```
[root@localhost ~]# gpasswd  -d wiliam  salesgrp

[root@localhost ~]# grep salesgrp /etc/group

salesgrp:x:2000:jack,shyam
```

7. Adding user wiliam to group salesgrp

```
[root@localhost ~]# gpasswd  -a wiliam  salesgrp

[root@localhost ~]# grep salesgrp /etc/group

salesgrp:x:2000:jack,shyam,wiliam
```

p

PERMISSIONS

Pre-requisites:

Before working on this lab, you must have

6. A Computer with LINUX Operating System.

p

Lab – 6.1 : PERMISSIONS

1. To Apply Permissions on dir and on file

```
[root@localhost ~]# mkdir /myfolder

[root@localhost ~]# cd /myfolder/

[root@localhost myfolder]# ls

[root@localhost myfolder]# whoami

root

[root@localhost myfolder]# touch test_file

[root@localhost myfolder]# ls -ld test_file

-rw-r--r-- 1 root root 0 Jul 13 00:06 test_file
```

2. Set write permissions to the group only.

```
[root@localhost myfolder]# chmod g+w test_file

[root@localhost myfolder]# ls -ld test_file

-rw-rw-r-- 1 root root 0 Jul 13 00:06 test_file
```

3. Remove read permissions for others only.

```
[root@localhost myfolder]# chmod o-r test_file

[root@localhost myfolder]# ls -ld test_file

-rw-rw---- 1 root root 0 Jul 13 00:06 test_file
```

4. Assign read, write, execute permissions to others only.

```
[root@localhost myfolder]# chmod o=rwx test_file

p
```

```
[root@localhost myfolder]# ls -ld test_file

-rw-rw-rwx 1 root root 0 Jul 13 00:06 test_file
```

5. **Assign execute permissions to owner, group and others also.**

```
[root@localhost myfolder]# chmod +x test_file

[root@localhost myfolder]# ls -ld test_file

-rwxrwxrwx 1 root root 0 Jul 13 00:06 test_file
```

Remove execute permissions from owner, group and others also.

```
[root@localhost myfolder]# chmod -x test_file
```

6. **To check new permissions**

```
[root@localhost myfolder]# ls -ld test_file
-rw-rw-rw- 1 root root 0 Jul 13 00:06 test_file

[root@localhost myfolder]# chmod 644 test_file

[root@localhost myfolder]# ls -ld test_file
-rw-r--r-- 1 root root 0 Jul 13 00:06 test_file

[root@localhost myfolder]# pwd
/myfolder


[root@localhost myfolder]# whoami

root
[root@localhost myfolder]# mkdir dir1

[root@localhost myfolder]# ls -ld dir1
```

p

```
drwxr-xr-x 2 root root 4096 Jul 13 01:28 dir1

[root@localhost myfolder]#

[root@localhost myfolder]# chmod 777 /myfolder
```

7. To check result login as a normal user

```
[root@localhost ~]# su - tom

[tom@localhost ~]$ whoami

tom

[tom@localhost ~]$

[tom@localhost ~]$ pwd

/home/tom

[tom@localhost ~]$ ls -l

total 0

[tom@localhost ~]$ touch myfile

[tom@localhost ~]$ ls -l

total 0

-rw-rw-r-- 1 tom tom 0 Jul 12 20:20 myfile

[tom@localhost ~]$ mkdir dir1

[tom@localhost ~]$ ls -ld dir1

drwxrwxr-x 2 tom tom 4096 Jul 12 20:22 dir1
                    [tom@localhost ~]$
```

p

Lab – 6.2 : ACCESS CONTROL LIST(ACL)

1. **Create required users & Group**

```
[root@localhost ~]# useradd tom

[root@localhost ~]# groupadd salesgrp

[root@localhost ~]# groupadd fingrp

[root@localhost ~]# mkdir /salesdept

[root@localhost ~]# useradd  -g salesgrp sai

[root@localhost ~]# useradd  -g salesgrp ram

[root@localhost ~]# useradd  -G fingrp  tata

[root@localhost ~]# useradd  -G fingrp  birla
```

Note: Acl's are applied on both primary & secondary members

2. **Add a file by using 'cat' command**

```
[root@localhost salesdept]# cat >  fabc.txt
```

3. **To apply acl's on users & groups**

```
[root@localhost salesdept]# setfacl -m
u:tom:rwx,u:ram:rx,g:salesgrp:rx,g:fingrp:rw  fabc.txt
```

4. **To check acl list**

```
[root@localhost salesdept]# getfacl  fabc.txt
```

p

5. **To modify permission for user tom**

```
[root@localhost salesdept]# setfacl  -m u:tom:r  fabc.txt

[root@localhost salesdept]# getfacl  fabc.txt
```

6. **To exclude user tom ,group fingrp from ACL list**

```
[root@localhost salesdept]# setfacl  -x u:tom,g:fingrp
fabc.txt

[root@localhost salesdept]# getfacl fabc.txt
```

Note: Acl's are applied on both primary & secondary users.

p

PARTITIONS

Pre-requisites:

Before working on this lab, you must have

1. A Computer with LINUX Operating System.

p

Lab – 7.1 : PARTITIONS

1. To Create the partitions

```
[root@client1 ~]# fdisk -l

[root@client1 ~]# fdisk /dev/sda

Command (m for help): m
    d   delete a partition
    m   print this menu
    n   add a new partition
    p   print the partition table
    q   quit without saving changes
    w   write table to disk and exit

Command (m for help):

Command (m for help): n
First cylinder (1098-2434, default 1098):
Using default value 1098
Last cylinder or +size or +sizeM or +sizeK (1098-2434,
default 2434): +100M
Command (m for help): p
Command (m for help): n
Command (m for help): p
Command (m for help): n
Command (m for help): p
Command (m for help): d
Command (m for help): 10          #write the number of
partition
Command (m for help): w

[root@client1 ~]#
```

2. To update the kernel without restarting

```
[root@client1 ~]# kpartx /dev/sda
```

p

```
[root@client1 ~]# fdisk -l
```

3. Fomat th partitions by using filesystem

```
/dev/sda10[root@client1 ~]# mkfs.ext4 /dev/sda8

[root@client1 ~]# mkfs.ext4 /dev/sda9

########## OR ####################

[root@client1 ~]# mkfs.vfat /dev/sda9
```

4. Create a folder & Mount the partition to use

```
[root@client1 ~]# mkdir /mnt/song /mnt/video /mnt/music

[root@client1 ~]# mount /dev/sda8 /mnt/song

[root@client1 ~]# mount /dev/sda9 /mnt/video
[root@client1 ~]# mount /dev/sda10 /mnt/music

[root@client1 ~]# mount
```

5. Write the data inside the partition

```
[root@client1 ~]# cd /mnt/song

[root@client1 song]#

[root@client1 song]# touch myfile1 myfile2 myfile3

[root@client1 song]# mkdir hyd sec bhills ameerpet

[root@client1 song]# ls

*****************  This is the output  ********************
```

p

```
ameerpet  bhills  hyd  lost+found  myfile1  myfile2
myfile3  sec
```

Lab – 7.2 : CREATING A SWAP PARTITION

1. Create the required partition (say 9 partition)

```
[root@client1 ~]# fdisk -l

[root@client1 ~]# fdisk /dev/sda
                :p
                :n
                :t  { to change the partition ID}
                :82 { for swap partition }
                :w  { save & exit }
[root@client1 ~]#
[root@client1 ~]# kpartx /dev/sda

[root@client1 ~]# fdisk –l
```

2. Make the partition as swap

```
[root@client1 ~]# mkswap /dev/sda9
```

3. To see the status

```
[root@client1 ~]# swapon –s
```

4. To on the swap partition

```
[root@client1 ~]# swapon /dev/sda9
```

5. Again see the status

```
[root@client1 ~]# swapon -s
```

6. To put Off the swap partition

p

```
[root@client1 ~]# swapoff /dev/sda9

[root@client1 ~]# swapon –s
```

Lab – 7.3 : LABELS

1. To check the label

```
[root@client1 ~]# e2label /dev/sda8

To assign the labels

[root@client1 ~]# e2label /dev/sda8 linux

[root@client1 ~]# e2label /dev/sda8
linux
```

2. Permanent Mounting

```
[root@client1 ~]# vi /etc/fstab

LABEL=linux /myfolder  ext4   defaults   0 0

:wq

[root@client1 ~]# mount

[root@client1 ~]# mount -a

[root@client1 ~]# mount
```

3. Mounting the dvdrom

```
[root@client1 ~]# mkdir /media/dvdrom

[root@client1 ~]# mount /dev/media /media/dvdrom

p
```

4. **To see the disk space**

```
[root@client1 ~]# df -h
```

5. **To see the block size.**

```
[root@client1 ~]# blockdev --getbsz /dev/sda8
1024

[root@client1 ~]# blockdev --getbsz /dev/sda3
4096
```

DISKQUOTA CONFIGURATION

Pre-requisites:

Before working on this lab, you must have

7. A Computer with LINUX Operating System.

p

Lab - 8.1 CONFIGURATION OF DISKQUOTA

1. Apply Quota on users & Group Create required users & Group

```
[root@localhost ~]# useradd tom

[root@localhost ~]# groupadd salesgrp

[root@localhost ~]# groupadd fingrp

[root@localhost ~]# mkdir /salesdept

[root@localhost ~]# useradd  -g salesgrp sai

[root@localhost ~]# useradd  -g salesgrp ram

[root@localhost ~]# useradd  -G fingrp  tata

[root@localhost ~]# useradd  -G fingrp  birla
```

2. Create a required partition

```
[root@localhost ~]# fdisk -l

[root@localhost ~]# fdisk /dev/sda
              :n
            :w

[root@localhost ~]# partx /dev/sda

[root@localhost ~]# mkdir /salesdept

[root@localhost ~]# mkfs.ext4  /dev/sda9
```

Mount the partition with user & group quota parameters.

p

```
[root@localhost ~]# mount  -o  usrquota,grpquota /dev/sda9
/salesdept

[root@localhost ~]# mount

[root@localhost ~]# chmod 777 /salesdept/
```

3. Create the Quota Database file

```
[root@localhost ~]# quotacheck -cugv /salesdept/

[root@localhost ~]# ls /salesdept/

aquota.group  aquota.user  lost+found
```

4. Check the quota Status

```
[root@localhost ~]# quotaon -p /dev/sda9

group quota on /salesdept (/dev/sda9) is off
user quota on /salesdept (/dev/sda9) is off
```

5. Enable the quota partition

```
[root@localhost ~]# quotaon /dev/sda9

[root@localhost ~]# quotaon -p /dev/sda9

group quota on /salesdept (/dev/sda9) is on
user quota on /salesdept (/dev/sda9) is on
```

6. Apply quota on a user tom

p

```
[root@localhost ~]# edquota -u tom
```

7. Disk quotas for user tom (uid 500):

```
Filesystem            blocks       soft       hard
inodes     soft    hard
/dev/sda9                 0          0          0
0        3        5

:wq

[root@localhost ~]# su - tom

[tom@localhost ~]$ cd /salesdept/

[tom@localhost salesdept]$ ll

[tom@localhost salesdept]$ touch tfa

[tom@localhost salesdept]$ touch tfb

[tom@localhost salesdept]$ touch tfc

[tom@localhost salesdept]$ touch tfd
sda9: warning, user file quota exceeded.

[tom@localhost salesdept]$ mkdir tda

[tom@localhost salesdept]$ mkdir tdb
sda9: write failed, user file limit reached.
mkdir: cannot create directory `tdb': Disk quota exceeded
```

8. Apply quota on a group salesgrp who has primary members as sai & ram

p

```
[root@localhost ~]# edquota -g salesgrp

[root@localhost ~]# edquota -g salesgrp
```

9. Disk quotas for group salesgrp (gid 501):

```
  Filesystem                   blocks       soft       hard
inodes     soft     hard
  /dev/sda9                         0          0          0
5        3        5
:wq!

[root@localhost ~]# cd  /salesdept/

[root@localhost salesdept]# su sai

[sai@localhost salesdept]$ groups
salesgrp

[sai@localhost salesdept]$ touch sai1 sai2 sai3

[sai@localhost salesdept]$ exit

exit

[root@localhost salesdept]# su ram

[ram@localhost salesdept]$ groups

salesgrp

[ram@localhost salesdept]$ touch ram1

sda9: warning, group file quota exceeded.

[ram@localhost salesdept]$ touch ram3

[ram@localhost salesdept]$ touch ram4
```

p

```
sda9: write failed, group file limit reached.
touch: cannot touch `ram4': Disk quota exceeded

[ram@localhost salesdept]$ ll

total 36
-rw------- 1 root root      7168 Jul 15 01:52 aquota.group
-rw------- 1 root root      7168 Jul 15 01:53 aquota.user
drwx------ 2 root root     16384 Jul 15 01:38 lost+found
-rw-r--r-- 1 ram  salesgrp     0 Jul 15 01:53 ram1
-rw-r--r-- 1 ram  salesgrp     0 Jul 15 01:53 ram3
-rw-r--r-- 1 sai  salesgrp     0 Jul 15 01:53 sai1
-rw-r--r-- 1 sai  salesgrp     0 Jul 15 01:53 sai2
-rw-r--r-- 1 sai  salesgrp     0 Jul 15 01:53 sai3

[ram@localhost salesdept]$
```

Note : Quotas are not applicable on secondary group members

p

LOGICAL VOLUME MANAGER

Pre-requisites:

Before working on this lab, you must have

1. A Computer with LINUX Operating System.

p

Lab – 8.2 :CONFIGURATION OF LOGICAL VOLUME MANAGER

1. **To view the Hard disk name and partition information**

```
[root@localhost ~]# fdisk -l

Disk /dev/sda: 40.0 GB, 40020664320 bytes
255 heads, 63 sectors/track, 4865 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes

 Device Boot      Start         End      Blocks   Id  System
/dev/sda1   *       1          13      104391   83  Linux

/dev/sda2           14         523     4096575   83  Linux

/dev/sda3           524        778     2048287+  83  Linux

/dev/sda4           779        4865    32828827+   5  Extended

/dev/sda5           779        905     1020096   83  Linux

/dev/sda6            906       1032     1020096   83  Linux

/dev/sda7           1033       1097      522081   82  Linux swap
/ Solaris

/dev/sda8           1098       2314     9775521   83  Linux
```

2. **Create 3 partitions**

```
[root@localhost ~]# fdisk /dev/sda

Command (m for help): n
First cylinder (2315-4865, default 2315):
Using default value 2315
Last cylinder or +size or +sizeM or +sizeK (2315-4865,
default 4865): +200M

p
```

```
Command (m for help): n
First cylinder (2340-4865, default 2340):
Using default value 2340
Last cylinder or +size or +sizeM or +sizeK (2340-4865,
default 4865): +200M

Command (m for help): n
First cylinder (2365-4865, default 2365):
Using default value 2365
Last cylinder or +size or +sizeM or +sizeK (2365-4865,
default 4865): +200M

Command (m for help): w
The partition table has been altered!

Calling ioctl() to re-read partition table.

WARNING: Re-reading the partition table failed with error
16: Device or resource busy.
The kernel still uses the old table.
The new table will be used at the next reboot.
Syncing disks.
```

3. Activate the partition **table**

```
[root@localhost ~]# partx /dev/sda

[root@localhost ~]# fdisk -l

Disk /dev/sda: 40.0 GB, 40020664320 bytes
255 heads, 63 sectors/track, 4865 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes

   Device Boot      Start         End      Blocks   Id
System
/dev/sda1   *           1          13      104391   83
Linux
/dev/sda2              14         523     4096575   83
Linux
```

p

```
/dev/sda3             524         778     2048287+  83
Linux
/dev/sda4             779        4865    32828827+   5
Extended
/dev/sda5             779         905     1020096   83
Linux
/dev/sda6             906        1032     1020096   83
Linux
/dev/sda7            1033        1097      522081   82
Linux swap / Solaris
/dev/sda8            1098        2314     9775521   83
Linux
/dev/sda9            2315        2339      200781   83
Linux
/dev/sda10           2340        2364      200781   83
Linux
/dev/sda11           2365        2389      200781   83
Linux
```

4. **Create Physical Volumes**

```
[root@localhost ~]# pvcreate /dev/sda9 /dev/sda10
/dev/sda11
  Physical volume "/dev/sda9" successfully created
  Physical volume "/dev/sda10" successfully created
  Physical volume "/dev/sda11" successfully created
```

5. **To view Physical Volumes**

```
[root@localhost ~]# pvdisplay
  --- Physical volume ---
  PV Name               /dev/sda9
  VG Name               vg1
  PV Size               196.08 MB / not usable 4.08 MB
  Allocatable           yes (but full)
  PE Size (KByte)       4096
  Total PE              48
  Free PE               0
  Allocated PE          48
  PV UUID               5r8qvn-GF0k-NAfo-Rhqc-I3Qn-ZWws-
zLCvks
```

p

```
  --- Physical volume ---
  PV Name               /dev/sda10
  VG Name               vg1
  PV Size               196.08 MB / not usable 4.08 MB
  Allocatable           yes
  PE Size (KByte)       4096
  Total PE              48
  Free PE               21
  Allocated PE          27
  PV UUID               ys5Wd9-YiQ5-mM7c-sjrt-Mcwb-35oF-
8mFyDW

  --- Physical volume ---
  PV Name               /dev/sda11
  VG Name               vg1
  PV Size               196.08 MB / not usable 4.08 MB
  Allocatable           yes
  PE Size (KByte)       4096
  Total PE              48
  Free PE               48
  Allocated PE          0
  PV UUID               5U81jh-Uddd-0giT-GYUT-pkvu-3MK3-
KNkZJi
```

6. **To create Volume Group**

```
[root@localhost ~]# vgcreate vg1 /dev/sda9 /dev/sda10
/dev/sda11
  Volume group "vg1" successfully created
```

7. **To display Volume Group Information.**

```
[root@localhost ~]# vgdisplay
  --- Volume group ---
  VG Name               vg1
  System ID
  Format                lvm2
```

p

```
  Metadata Areas        3
  Metadata Sequence No  2
  VG Access             read/write
  VG Status             resizable
  MAX LV                0
  Cur LV                1
  Open LV               0
  Max PV                0
  Cur PV                3
  Act PV                3
  VG Size               576.00 MB
  PE Size               4.00 MB
  Total PE              144
  Alloc PE / Size       75 / 300.00 MB
  Free  PE / Size       69 / 276.00 MB
  VG UUID               P1zXt6-yBWW-SoUq-ZeF1-K7pf-Z69D-
GVz8Up
```

8. **To create logical Volume**

```
[root@localhost ~]# lvcreate vg1 -L +300M -n lv1
  Logical volume "lv1" created
```

To view Logical Volume Information.

```
[root@localhost ~]# lvdisplay
  --- Logical volume ---
  LV Name                /dev/vg1/lv1
  VG Name                vg1
  LV UUID                ZvsfPh-Ve0c-y4Qa-VUYy-HbdR-lG3G-
66703a
  LV Write Access        read/write
  LV Status              available
  # open                 0
```

p

```
  LV Size                300.00 MB
  Current LE             75
  Segments               2
  Allocation             inherit
  Read ahead sectors     0
  Block device           253:0

[root@localhost ~]#
```

9. **Format the Logical Volume**

```
[root@localhost ~]# mkfs.ext4 /dev/vg1/lv1
mke2fs 1.39 (29-May-2006)
Filesystem label=
OS type: Linux
Block size=1024 (log=0)
Fragment size=1024 (log=0)
102400 inodes, 409600 blocks
20480 blocks (5.00%) reserved for the super user
First data block=1
Maximum filesystem blocks=67633152
50 block groups
8192 blocks per group, 8192 fragments per group
2048 inodes per group
Superblock backups stored on blocks:
        8193, 24577, 40961, 57345, 73729, 204801, 221185,
401409

Writing inode tables: done
Creating journal (8192 blocks): done
Writing superblocks and filesystem accounting information:
done

This filesystem will be automatically checked every 20
mounts or
180 days, whichever comes first.  Use tune2fs -c or -i to
override.

[root@localhost ~]# mkdir /mylvm
```

p

```
[root@localhost ~]# mount /dev/vg1/lv1 /mylvm

[root@localhost ~]# mount
/dev/sda3 on / type ext4 (rw)
proc on /proc type proc (rw)
sysfs on /sys type sysfs (rw)
devpts on /dev/pts type devpts (rw,gid=5,mode=620)
/dev/sda1 on /boot type ext4 (rw)
tmpfs on /dev/shm type tmpfs (rw)
/dev/sda5 on /home type ext4 (rw)
/dev/sda2 on /usr type ext4 (rw)
/dev/sda6 on /var type ext4 (rw)
/dev/sda8 on /dada type ext4 (rw)
none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)
sunrpc on /var/lib/nfs/rpc_pipefs type rpc_pipefs (rw)
/dev/mapper/vg1-lv1 on /mylvm type ext4 (rw)
```

10. **To resize the Logical Volume**

```
[root@localhost ~]# lvresize -L +100M  -n /dev/vg1/lv1

Extending logical volume lv1 to 400.00 MB
Logical volume lv1 successfully resized

  --- Logical volume ---
  LV Name                /dev/vg1/lv1
  VG Name                vg1
  LV UUID                ZvsfPh-Ve0c-y4Qa-VUYy-HbdR-lG3G-
66703a
  LV Write Access        read/write
  LV Status              available
  # open                 0
  LV Size                400.00 MB
  Current LE             100
  Segments               3
  Allocation             inherit
```

p

```
  Read ahead sectors     0
  Block device           253:0

[root@localhost ~]# cd /mylvm

[root@localhost mylvm]# ls
lost+found

[root@localhost mylvm]# touch file1 file2 file3

[root@localhost mylvm]# mkdir hyd sec

[root@localhost mylvm]# ls
file1  file2  file3  hyd  lost+found  sec
```

To remove logical Volume

```
[root@localhost ~]# cd

[root@localhost ~]# umount /mylvm

[root@localhost ~]# lvremove /dev/vg1/lv1

Do you really want to remove active logical volume "lv1"?
[y/n]: y
Logical volume "lv1" successfully removed
```

```
[root@localhost ~]# fdisk /dev/sda

The number of cylinders for this disk is set to 4865.
There is nothing wrong with that, but this is larger than
1024,
and could in certain setups cause problems with:
```

p

```
1) software that runs at boot time (e.g., old versions of
LILO)
2) booting and partitioning software from other OSs
   (e.g., DOS FDISK, OS/2 FDISK)

Command (m for help): n
First cylinder (2390-4865, default 2390): +300M
Value out of range.
First cylinder (2390-4865, default 2390): w
First cylinder (2390-4865, default 2390):
Using default value 2390
Last cylinder or +size or +sizeM or +sizeK (2390-4865,
default 4865): +300M

Command (m for help): w
The partition table has been altered!

Calling ioctl() to re-read partition table.

WARNING: Re-reading the partition table failed with error
16: Device or resource busy.
The kernel still uses the old table.
The new table will be used at the next reboot.
Syncing disks.
[root@localhost ~]# partx /dev/sda



[root@localhost ~]# fdisk -l

Disk /dev/sda: 40.0 GB, 40020664320 bytes
255 heads, 63 sectors/track, 4865 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes

   Device Boot      Start         End      Blocks   Id
System
/dev/sda1   *           1          13      104391   83
Linux
/dev/sda2              14         523     4096575   83
Linux


p
```

```
/dev/sda3             524         778     2048287+  83
Linux
/dev/sda4             779        4865    32828827+   5
Extended
/dev/sda5             779         905     1020096   83
Linux
/dev/sda6             906        1032     1020096   83
Linux
/dev/sda7            1033        1097      522081   82
Linux swap / Solaris
/dev/sda8            1098        2314     9775521   83
Linux
/dev/sda9            2315        2339      200781   83
Linux
/dev/sda10           2340        2364      200781   83
Linux
/dev/sda11           2365        2389      200781   83
Linux
/dev/sda12           2390        2426      297171   83
Linux
```

```
[root@localhost ~]# pvcreate /dev/sda12

  Physical volume "/dev/sda12" successfully created
```

To extend the volume group.

```
[root@localhost ~]# vgextend vg1 /dev/sda12
  Volume group "vg1" successfully extended

[root@localhost ~]# vgdisplay

  --- Volume group ---
  VG Name               vg1
  System ID
```

p

```
  Format                lvm2
  Metadata Areas        4
  Metadata Sequence No  5
  VG Access             read/write
  VG Status             resizable
  MAX LV                0
  Cur LV                0
  Open LV               0
  Max PV                0
  Cur PV                4
  Act PV                4
  VG Size               864.00 MB
  PE Size               4.00 MB
  Total PE              216
  Alloc PE / Size       0 / 0
  Free  PE / Size       216 / 864.00 MB
  VG UUID               P1zXt6-yBWW-SoUq-ZeF1-K7pf-Z69D-
GVz8Up
```

p

RAID

Pre-requisites:

Before working on this lab, you must have

1. A Computer with LINUX Operating System.

p

p

Lab - 9.1 : RAID

1. **Install the required packages**

```
[root@client1 ~]# yum install mdadm* -y
```

2. **Create the required partition**

```
[root@client1 ~]# mdadm -C /dev/md0 -n3 /dev/sda11
/dev/sda12 /dev/sda13 -l5
mdadm: array /dev/md0 started.
```

3. **To see the detail information of /dev/md0**

```
[root@client1 ~]# mdadm -D /dev/md0
```

4. **Format the raid meta device**

```
[root@client1 ~]# mkfs.ext4 /dev/md0
```

5. **Mount the partition**

```
[root@client1 ~]# mount /dev/md0 /raid_dir

[root@client1 ~]# mount

[root@client1 ~]# cd /raid_dir/

[root@client1 raid_dir]# ls

lost+found
```

6. **Write some content inside the raid partition**

```
[root@client1 raid_dir]# cat > test
hello this is a test file on raid 5
```

p

```
[root@client1 raid_dir]# ls -l
```

7. **To add a new device as spare**

```
[root@client1 ~]# mdadm -a /dev/md0 /dev/sda14

[root@client1 ~]# mdadm -D /dev/md0

[root@client1 ~]# mdadm /dev/md0 -f /dev/sda12
mdadm: set /dev/sda12 faulty in /dev/md0
```

8. **To see the detail information of /dev/md0**

```
[root@client1 ~]# mdadm -D /dev/md0
```

9. **To remove the faulty device**

```
[root@client1 raid_dir]# mdadm /dev/md0 -r /dev/sda12
mdadm: hot removed /dev/sda12

[root@client1 raid_dir]# mdadm -D /dev/md0

[root@client1 raid_dir]# cd
```

10. **To stop the raid first unmount the meta device.**

```
[root@client1 ~]# umount /dev/md0

[root@client1 ~]# mdadm -S /dev/md0
mdadm: stopped /dev/md0
```

11. **To activate or assemble the raid meta device**

```
[root@client1 ~]# mdadm -A /dev/md0 /dev/sda11 /dev/sda14
/dev/sda13
mdadm: /dev/md0 has been started with 3 drives.
```

p

BACKUP AND RESTORE

Pre-requisites:

Before working on this lab, you must have

1. A Computer with LINUX Operating System.

p

Lab – 9.2 : Backup And Restore

1. **Create a folder**

```
[root@localhost myfolder]# mkdir /myfolder

[root@localhost ~]# cd /myfolder/

[root@localhost myfolder]# mkdir dir1

[root@localhost myfolder]#touch 1 test_file tom_file

[root@localhost myfolder]# ls
1  dir1  test_file  tom_file
```

2. **Use the tar command to tape archive the folder.**

```
[root@localhost ~]# tar -cvf myfolder.tar /myfolder

tar: Removing leading `/' from member names
/myfolder/
/myfolder/dir1/
/myfolder/tom_file
/myfolder/test_file
/myfolder/1

[root@localhost ~]# ls -ld myfolder.tar

-rw-r--r-- 1 root root 10240 Jul 13 03:07 myfolder.tar
```

3. **To zip the tar file.**

```
[root@localhost ~]# gzip myfolder.tar

[root@localhost ~]# ls -ld myfolder.tar.gz

-rw-r--r-- 1 root root 264 Jul 13 03:07 myfolder.tar.gz
```

p

4. **To unzip the tar file**

```
[root@localhost ~]# gunzip myfolder.tar.gz

[root@localhost ~]# ls -ld myfolder.tar

-rw-r--r-- 1 root root 10240 Jul 13 03:07 myfolder.tar

[root@localhost ~]# rm myfolder.tar
rm: remove regular file `myfolder.tar'? y
```

5. **To create a tar file with zip**

```
[root@localhost ~]# tar -cvzf myfolder.tar.gz /myfolder

tar: Removing leading `/' from member names
/myfolder/
/myfolder/dir1/
/myfolder/tom_file
/myfolder/test_file
/myfolder/1

[root@localhost ~]# ls -ld myfolder.tar.gz
-rw-r--r-- 1 root root 251 Jul 13 03:09 myfolder.tar.gz
```

6. **To view the contents of the tar file without extracting.**

```
[root@localhost ~]# tar -tvzf myfolder.tar.gz

drwxrwxrwx root/root         0 2008-07-13 01:31:34
myfolder/
drwxr-xr-x root/root         0 2008-07-13 01:28:39
myfolder/dir1/
-rw-r--r-- tom/joy          12 2008-07-13 01:29:51
myfolder/tom_file
-rw-rw-rw- root/root         0 2008-07-13 00:06:35
myfolder/test_file
```

p

```
-rw-r--r-- tom/joy           0 2008-07-13 01:31:34
myfolder/1

[root@localhost ~]# rm -r /myfolder
rm: descend into directory `/myfolder'? y
rm: remove directory `/myfolder/dir1'? y
rm: remove regular file `/myfolder/tom_file'? y
rm: remove regular empty file `/myfolder/test_file'? y
rm: remove regular empty file `/myfolder/1'? y
rm: remove directory `/myfolder'? y

[root@localhost ~]# cd /
```

To extract the tar file.

```
[root@localhost /]# tar -xvzf /root/myfolder.tar.gz
myfolder/
myfolder/dir1/
myfolder/tom_file
myfolder/test_file
myfolder/1

[root@localhost /]# ls -ld myfolder
drwxrwxrwx 3 root root 4096 Jul 13 01:31 myfolder

[root@localhost /]# ls /myfolder/
1  dir1  test_file  tom_file

[root@localhost ~]# cd /myfolder/
```

To copy files to archive.

```
[root@localhost myfolder]# ls | cpio -ov > myfolder.cpio
1
dir1
myfolder.cpio
test_file
tom_file
```

p

```
1 block

[root@localhost myfolder]# ls
1  dir1  myfolder.cpio  test_file  tom_file

[root@localhost myfolder]# ls

1  dir1  myfolder.cpio  test_file  tom_file

[root@localhost myfolder]# rm -r *

rm: remove regular empty file `1'? y
rm: remove directory `dir1'? y
rm: remove regular file `myfolder.cpio'? n
rm: remove regular empty file `test_file'? y
rm: remove regular file `tom_file'? y
```

To copy files from archive.

```
[root@localhost myfolder]# cpio -iv < myfolder.cpio
1
dir1
cpio: myfolder.cpio not created: newer or same age version
exists
myfolder.cpio
test_file
tom_file
1 block

[root@localhost myfolder]# ls

1  dir1  myfolder.cpio  test_file  tom_file

[root@localhost ~]# cat > test
test file for scp
```

Copy the test file to a remote systems /root directory

p

```
[root@localhost ~]# scp -r test 192.168.0.23:/root/

root@192.168.0.23's password:

test
100%   18     0.0KB/s   00:00

[root@localhost ~]# rm  test
rm: remove regular file `test'? y
```

Copy the file on a remote systems to the /root/test directory

```
[root@localhost ~]# scp -r 192.168.0.23:/root/test .

root@192.168.0.23's password:
test
100%   18     0.0KB/s   00:00

[root@localhost ~]# ls -ld test

-rw-r--r-- 1 root root 18 Jul 13 03:27 test
```

Scheduling using the job by using 'at' command

```
[root@localhost ~]# at 5:30
at> mkdir dir1
at> <EOT>
job 2 at 2008-07-13 05:30
```

To view the at queues

```
[root@localhost ~]# atq

2       2008-07-13 05:30 a root
```

To remove the queue

p

```
[root@localhost ~]# atrm 2
```

p

DUMP

Pre-requisites:

Before working on this lab, you must have

8. A Computer with LINUX Operating System.

p

Lab - 10.1: DUMP

1. **Add a new partition by using 'fdisk' command**

```
[root @localhost ~]# fdisk /dev/sda
[root @localhost ~]# kpartx /dev/sda
[root @localhost ~]# mkfs.ext4 /dev/sda10
[root @localhost ~]# mount /dev/sda10 /media
```

2. **To take full backup add some files**

```
[root @localhost ~]# mkdir /media/a{1..5}
[root @localhost ~]# dump 0uf /media/full /mnt
[root @localhost ~]# restore –tf /media/full
```

3. **To take an increamental backup add some files**

```
[root @localhost ~]# mkdir /mnt/b{1..}
[root @localhost ~]# dump 2uf /media/1inc /mnt
[root @localhost ~]# restore tf /media/1inc
```

Note:- To take more increamental backups use above same commnds by increasing the increamental backup value.

4. **To take differential backup**

```
[root @localhost ~]# dump 1uf /media/diff /mnt
[root @localhost ~]# restore –tf /media/diff
```

5. **To restore data, if lost**

```
[root @localhost ~]# rm –rf /mnt/*
[root @localhost ~]# cd /mnt
```

p

```
[root @localhost ~]# restore –rf /media/full
[root @localhost ~]# restore –rf /media/diff
[root @localhost ~]# ls
```

6. **To view dump records**

```
[root @localhost ~]# vi /etc/dumpdates
```

Lab – 10.2 : INTRODUCTION TO NETWORKING

1. **To set the hostname temporarily**

```
[root@station9 ~]# hostname station9.example.com
```

2. **To view the hostname**

```
[root@station9 ~]# hostname
station9.example.com
```

3. **Set hostname permanently**

```
[root@station9 ~]# vi /etc/sysconfig/network
NETWORKING=yes
HOSTNAME=station9.example.com
:wq!
```

4. **Set ip address temporarily**

```
[root@station9 ~]# ifconfig eth0 192.168.0.9 netmask
255.255.255.0
```

5. **View the interfaces.**

```
[root@station9 ~]# ifconfig
eth0      Link encap:Ethernet  HWaddr 00:13:20:B7:1D:44
p
```

```
          inet addr:192.168.0.9  Bcast:192.168.0.255
          Mask:255.255.255.0
          inet6 addr: fe80::213:20ff:feb7:1d44/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:48153 errors:4 dropped:0 overruns:0 frame:4
          TX packets:21992 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:39512670 (37.6 MiB)  TX bytes:1720318 (1.6 MiB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:1249 errors:0 dropped:0 overruns:0 frame:0
          TX packets:1249 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:1285258 (1.2 MiB)  TX bytes:1285258 (1.2 MiB)
```

6. **Set permanent ip address**

```
[root@station9 ~]# setup
```

Select yes and press the enter key

Press tab and select the text box for IP address

Enter the new IP address similarly enter the subnet mask, default gateway and primary nameserver.

Select OK and press enter.

7. **Restart the service to activate the new ip address**

```
[root@station9 ~]# service network restart
```

8. **To set or view the network parameters.**

```
[root@station9 ~]# ethtool eth0
```

9. **To Enable the lan card**

```
[root@station9 ~]# ifup eth0
```

10. **To Disable lan card**

```
[root@station9 ~]# ifdown eth0
```

p

11. **To Remove an ip**

```
[root@station9 ~]# cd /etc/sysconfig/network-scripts/

[root@station9 network-scripts]# ls
ifcfg-eth0      ifdown-isdn   ifup-ipsec  ifup-routes
ifcfg-eth0:1    ifdown-post   ifup-ipv6   ifup-sit
ifcfg-lo        ifdown-ppp    ifup-ipx    ifup-sl
ifdown          ifdown-sit    ifup-isdn   ifup-wireless
ifdown-aliases  ifdown-sl     ifup-plip   init.ipv6-global
ifdown-ippp     ifup          ifup-plusb  network-functions
ifdown-ipsec    ifup-aliases  ifup-post   network-
functions-ipv6
ifdown-ipv6     ifup-ippp     ifup-ppp

[root@station9 network-scripts]# cat ifcfg-eth0
DEVICE=eth0
ONBOOT=yes
BOOTPROTO=static
IPADDR=192.168.0.9
NETMASK=255.255.255.0
GATEWAY=192.168.0.254

[root@station9 network-scripts]# rm -rf ifcfg-eth0
DEVICE=eth0:1
ONBOOT=yes
BOOTPROTO=static
IPADDR=192.168.1.9
NETMASK=255.255.255.0
GATEWAY=192.168.1.254
[root@station9 network-scripts]#
```

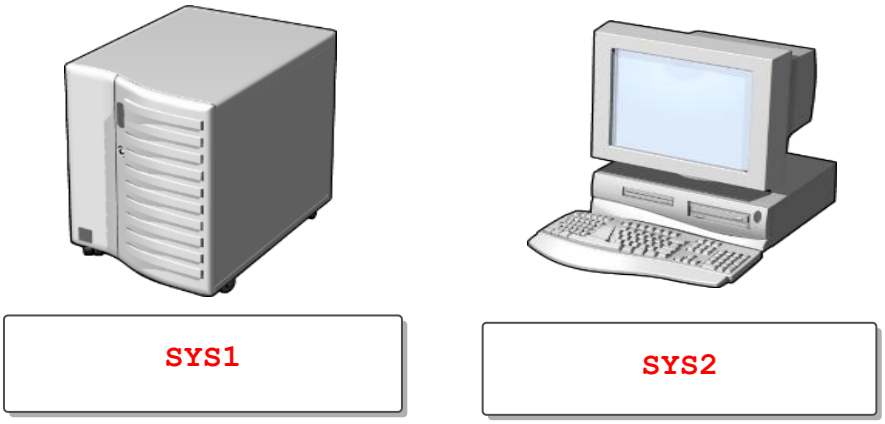
p

Lab – 10.3: PACKAGE MANAGEMENT

Pre-requisites:

Before working on this lab, you must have

1. A computer running LINUX Operating System
2. A computer running LINUX Operating System



SYS1	**SYS2**
RPM OR YUM Server	**Client**
IP Address 192.168.0.250	192.168.0.x

Note:- RPM and YUM servers are already configured in Lab just practicals need to do in seleted working system as a client.

Installation of Packages through RPM or YUM

1. **To install from DVD go to packages location generally in /media/dvd/Packages.**

p

2. **To install from server by using 'NFS' service**

```
[root@client mnt]# mount192.168.0.250:/var/ftp/pub/Packages
/mnt

[root@client mnt]# mount

[root@client mnt]# cd /mnt

[root@client mnt]# ls
```

3. **To install packages**

```
[root@client mnt]# rpm -ivh    vsftpd*  --force
```

4. **To remove the packages**

```
[root@client mnt]# rpm -e vsftpd

[root@client mnt]# rpm -e vsftpd

[root@client mnt]# rpm -e samba --nodeps
```

5. **To query the packages**

```
[root@client mnt]# rpm -qa

[root@client mnt]# rpm -qa | sort | less

[root@client mnt]# rpm -q samba

[root@client mnt]# rpm -qa samba*

[root@client mnt]# rpm -qi samba

[root@client mnt]# rpm -ql samba

[root@client mnt]# rpm -qd samba
```

p

```
[root@client mnt]# rpm -qc samba

[root@client mnt]# rpm -qs samba
```

6. **To install applications from server with 'YUM'**

At client side edit the yum configuration file, provide the path of repository.

```
[root@client ~]# vi /etc/yum.repos.d/CentOS-Base.repo

[core]
name= Linux $releasever - $basearch - Debug
baseurl=ftp://192.168.0.250/pub/Packages
enabled=1
gpgcheck=1
gpgkey=file:///etc/pki/rp
:wq!
```

7. **Installing through yum**

```
[root@client ~]# yum list

[root@client ~]# yum list installed

[root@client ~]# yum list installed samba*

[root@client ~]# yum install vsftpd* samba*

[root@client ~]# yum remove vsftpd* samba*

[root@client ~]# yum grouplist

[root@client ~]# yum groupinstall "Mail Server"

[root@client ~]# yum groupremove  "Mail Server"

[root@client ~]# cd /media/cdrom/Server
```

p

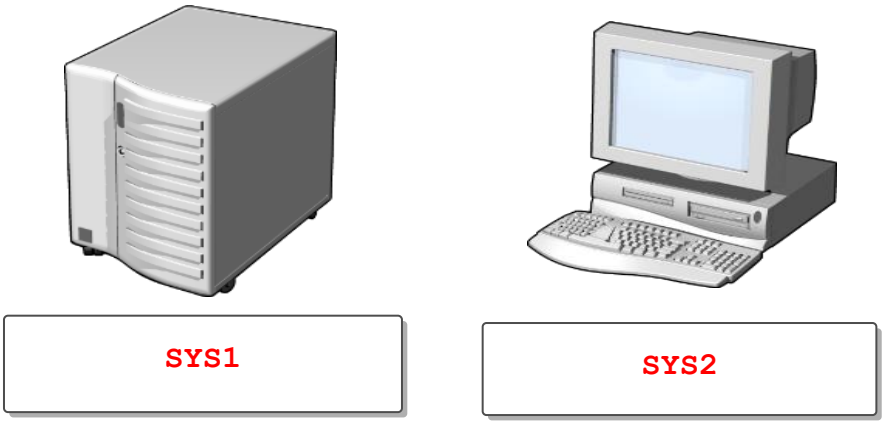
```
[root@client ~]# yum localinstall vsftpd*
```

CONFIGURATION OF NIS SERVER

Pre-requisites:

Before working on this lab, you must have

1. A computer running LINUX Operating System
2. A computer running LINUX Operating System



SYS1	**SYS2**
NIS Server	**NIS Client**
IP Address 192.168.0.x	192.168.0.x

p

Lab - 11.1 : NIS SERVER CONFIGURATION

1. **CHECK IP & NIS DOMAIN ENTRIES**

```
[root@nisserver ~]# ifconfig

[root@nisserver ~]# nisdomainname zoom.com

[root@nisserver ~]# hostname nisserver.zoom.com

[root@nisserver ~]# hostname
nisserver.zoom.com
```

2. **CHECK & INSTALL THE PACKAGES**

```
[root@nisserver ~]# rpm -qa  yp*
or
[root@nisserver ~]# yum list installed  yp*

[root@nisserver ~]# yum remove yp* -y

[root@nisserver ~]# rm  -r   /var/yp*
```

3. **Install the packages**

```
[root@nisserver ~]# yum  install yp* -y
```

4. **Edit Main Configuration File**

```
[root@station9 ~]# vi /var/yp/Makefile
Change NOPUSH=false into NOPUSH=true
In 23rd line number
:wq!
```

5. **Restart the services**

```
[root@nisserver ~]# service ypserv restart

p
```

```
[root@nisserver ~]# service yppasswdd restart
```

6. **Create NIS database**

```
[root@nisserver ~]# /usr/lib/yp/ypinit –m (Master)
```

NOTE : NIS database is stored in /var/yp

7. **Create new users**

```
[root@nisserver ~]# useradd tom

[root@nisserver ~]# useradd joy

[root@nisserver ~]# passwd tom

[root@nisserver ~]# passwd joy
```

Note:- If a new user/group/password's are created or modified, then the NIS database has to be manually updated.

Eg:

```
[root@nisserver ~]# cd /var/yp

[root@nisserver ~]# ls

[root@nisserver ~]# make
```

Lab – 11.2 : NFS SERVER CONFUGURATION

```
[root@nisserver ~]# yum install nfs*  -y

[root@nisserver ~]# vi /etc/exports

/home            192.168.0.0/24(rw,sync)
```

p

```
:wq!

[root@nisserver ~]# service nfs restart

[root@nisserver ~]# showmount -e  192.168.0.X     ## X is
NFS servers IP
```

Lab – 11.3 : CLIENT SIDE CONFIGURATION

1. **CHECK IP & HOST ENTRIES**

```
[root@nisclient ~]# ifconfig

[root@nisclient ~]# setup

[root@nisclient ~]# service network restart

[root@nisclient ~]# ping 192.168.0.0 -b

[root@nisclient ~]# vi  /etc/sysconfig/network
NETWORKING=yes
HOSTNAME=nisclient.zoom.com
NISDOMAIN=zoom.com

:wq!

[root@nisclient ~]# vi /etc/hosts

127.0.0.1       localhost.localdomain   localhost
192.168.0.1     nisclient.zoom.com      nisclient

:wq!
[root@nisclient ~]# hostname nisclient.zoom.com
```

2. **Make the client Machine as Member of NIS-Server**

p

```
[root@nisclient ~]# authconfig-tui

    Select [*]  Use NIS
                    [ OK ]
    Select
            Domain  => India.com
            Server  => 192.168.0.100
```

3. **To share home dir of user mount to NFS exported dir**

```
[root@nisclient ~]# mount 192.168.0.20:/home /home
```

4. **To check result log in as a NIS server user**

```
[root@nisclient ~]# su - tom

[tom@nisclient ~]$
```

Lab – 11.4 : Boot Process Practicals

1. **To view the default runlevel on boot**

```
[root@client24 ~]# vi /etc/inittab

id:5:initdefault:          line no 18
```

2. **To view the present runlevel**

```
[root@client24 ~]# runlevel
N 5
```

3. **To switch to another runlevel**

p

```
[root@client24 ~]# init 3

[root@client24 ~]# init 0

[root@client24 ~]# init 1

[root@client24 ~]# init 6
```

4. **To view the grub configuration file**

```
[root@client24 ~]# cat /boot/grub/grub.conf
```

To view the status of the services in all runlevels.

```
[root@client24 ~]# chkconfig --list
```

5. **To view the status of a particular service**

```
[root@client24 ~]# chkconfig --list kudzu
kudzu  0:off   1:off   2:off   3:on    4:on    5:on
6:off
```

6. **To set the status of a service**

```
[root@client24 ~]# chkconfig bluetooth on

[root@client24 ~]# chkconfig --list bluetooth
bluetooth 0:off   1:off   2:on    3:on    4:on    5:on
6:off

[root@client24 ~]# chkconfig bluetooth off
bluetooth 0:off   1:off   2:off   3:off   4:off   5:off
6:off

[root@client24 ~]# service bluetooth restart
```

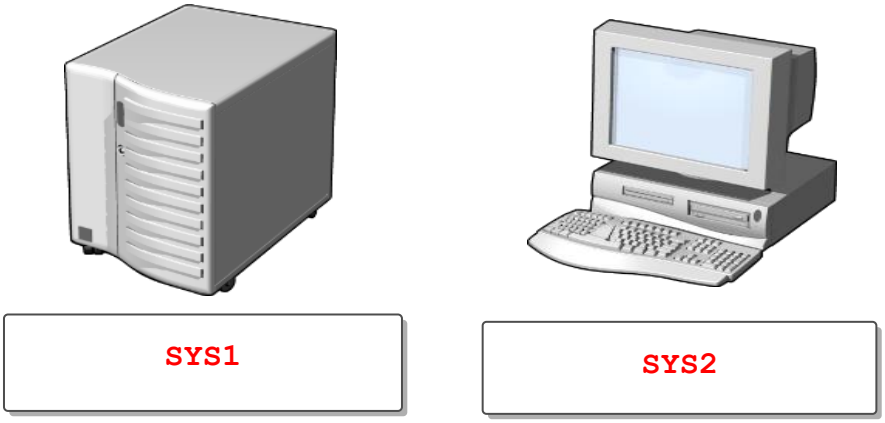
p

CONFIGURATION OF FTP SERVER

Pre-requisites:

Before working on this lab, you must have

1. A computer running LINUX Operating System
2. A computer running LINUX OR WINDOWS Operating System



SYS1	SYS2
FTP Server	**FTP Client**
IP Address 192.168.0.x	IP Address 192.168.0.x

p

Lab – 12.1 : FTP Server Configuration for Downloading Files

1. **Create the resources files, dir's and users.**

```
[root@ftpserver ~]# useradd  tom

[root@ftpserver ~]# useradd  joy

[root@ftpserver ~]# passwd tom

[root@ftpserver ~]# passwd joy
```

2. **Add some files of any extentions inside /var/ftp/pub**

```
[root@ftpserver ~]# cd /var/ftp/pub

[root@ftpserver pub]# touch fa.txt fb.txt music.mp3

[root@ftpserver pub]# ls

joy

:wq!
```

3. **Start the service**

```
[root@ftpserver ~]# service vsftpd restart
```

p

Lab – 12.2 : Client Side Configuration For Downloading Files

1. **Makesure ftp Clients Applications**

   ftp

   gftp

   browser

```
[root@ftpclient ~]# ftp  192.168.0.253

Name (192.168.0.253:root): ftp
331 Please specify the password.
Password:
230 Login successful.

ftp> ls
drwxr-xr-x    3 0        0            4096 Jul 11 20:44 pub
drwxrwxrwx    2 0        0            4096 Jul 11 21:05
zoomupload
```

2. **To download a single/multiple file use get/mget command**

```
ftp> cd pub

ftp> ls
-rw-r--r--    1 0        0               0 Jul 11 20:42
fa.txt
-rw-r--r--    1 0        0               0 Jul 11 20:42
fb.txt
-rw-r--r--    1 0        0               0 Jul 11 20:42
music.mp3

ftp>mget <download file name>
```

p

3. **To check downloaded files, move to client home directory**

```
[root @ftpclient ~]# ls /root
```

Lab –12.3 : FTP Server Configuration For Uploading Files

4. **Add new directory in ftp default directory**

```
[root@ftpserver ~]# mkdir /var/ftp/upload
```

1. **Give full permissions on new dir**

```
[root@ftpserver ~]# chmod 777 /var/ftp/upload
```

2. **Edit the ftp file as follows..**

```
[root@ftpserver ~]# vi /etc/vsftpd/vsftpd.conf

12  anonymous_enable=YES
15  local_enable=YES
27  anon_upload_enable=YES
35  dirmessage_enable=YES
83  ftpd_banner=Welcome to Zoom Linux.

:wq!
```

2. **Restart the ftp service**

```
[root@ftpserver ~]# service vsftpd restart
```

Lab – 12.4 : FTP Client Side Configuration For Uploading Files

1. **Makesure ftp Clients Applications**

ftp

p

```
        gftp
        browser

[root@ftpclient ~]# ftp  192.168.0.253

Name (192.168.0.253:root): ftp
331 Please specify the password.
Password:
230 Login successful.

ftp> ls
drwxr-xr-x    3 0        0            4096 Jul 11 20:44 pub
drwxrwxrwx    2 0        0            4096 Jul 11 21:05
upload
```

2. **TO upload a single/multiple file use put/mput command**

```
ftp> pwd
ftp> cd ..
ftp> cd zoomupload
ftp> pwd
ftp> mput  <upload file name>
ftp> ls
ftp> bye
```

3. **To check Uploaded files, move to ftp server and check**

```
[root@ftpserver ~]# ls /var/ftp/upload
```

4. **To block the ftp server users (for eg:-- joy) write the user name in**

```
[root@ftpserver ~]# vi /etc/vsftpd/ftpusers
```

p

Lab - 12.5 : YUM SERVER CONFIGURATION

In Yum Server Configuration

1. **Creating a repository at server side where all rpms are copied**

```
[root@YumServer ~]# cd /var/ftp/pub/Packages

[root@YumServer ~]# rpm -ivh createrepo-0.4.4-
2.fc6.noarch.rpm  --force
```

2. **Remove the old repodata**

```
[root@YumServer ~]# rm -rf repodata/
```

3. **Create a new repodata**

```
[root@YumServer ~]# createrepo –g
/media/dvd/Packages/repodata/repomd.xml
/var/ftp/pub/Packages

[root@YumServer ~]# cd

[root@YumServer ~]#
```

4. **At client side edit the yum configuration file, provide the path of repository**

```
[root@YumClient ~]# vi /etc/yum.repos.d/CentOS-Base.repo

[core]
name= Linux $releasever - $basearch - Debug
baseurl=ftp://192.168.0.250/pub/Packages
enabled=1
gpgcheck=1
gpgkey=file:///etc/pki/rpm
:wq!
```

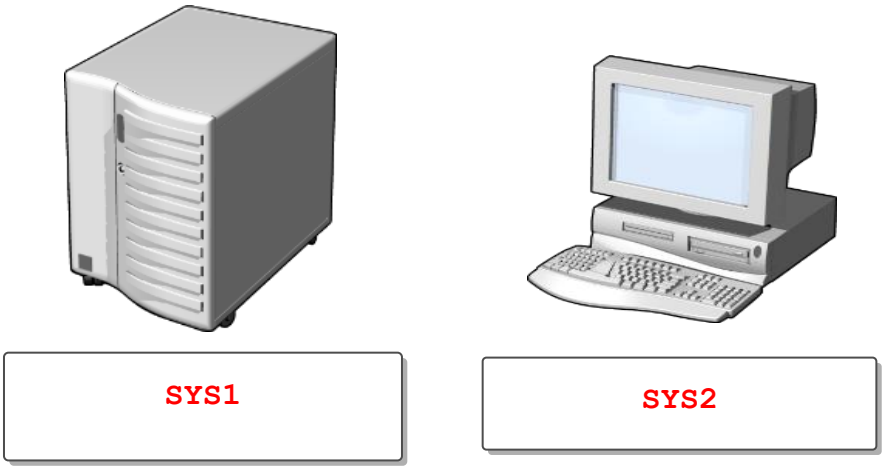
p

CONFIGURATION OF SAMBA SERVER

Pre-requisites:

Before working on this lab, you must have

1. A computer running LINUX Operating System
2. A computer running LINUX OR WINDOWS Operating System



SYS1

SAMBA SERVER

IP Address 192.168.0.x

SYS2

SAMBA Linux Client

IP Address 192.162.0.x

SYS3

SAMBA Windows Client IP Address 192.168.0.x

p

LAB – 13.1 : SAMBA SERVER CONFIGURATION

1. **CHECK & INSTALL PACKAGES**

```
[root@smbserver ~]# rpm -qa  | grep samba
            OR
[root@smbserver ~]# yum list installed  | grep samba

[root@smbserver ~]# yum remove samba*  -y

[root@smbserver ~]# rm -r /etc/samba*

[root@smbserver ~]# yum install  samba*  -y
```

2. **Create the resources on Samba server (file/folders & users)**

```
[root@smbserver ~]# useradd  tom

[root@smbserver ~]# useradd  joy

[root@smbserver ~]# passwd tom

[root@smbserver ~]# passwd joy

Create  or Copy some files inside /var/zoom

[root@smbserver ~]# mkdir /var/zoom

[root@smbserver ~]# chmod 777 /var/zoom

[root@smbserver ~]# cd /var/zoom

[root@smbserver zoom ]# touch fa.txt fb.txt music.mp3

[root@smbserver zoom ]# ls
```

3. **Edit the Main Configuration File**

p

```
[root@smbserver ~]# vi /etc/samba/smb.conf

# Go to end of file copy last 8 lines 8yy and press p to
paste
[salesshare]
comment = This share is for sales dept
path = /var/zoom
valid users = tom joy
public = no
writable = yes
printable = no
create mask = 0765
:wq!
```

4. **Provide a separate samba password for samba users.**

```
[root@smbserver ~]# smbpasswd -a tom

[root@smbserver ~]# smbpasswd -a joy
```

5. **Check the syntax of configuration file**

```
[root@smbserver ~]# testparm
```

6. **Start the services**

```
[root@smbserver ~]# service smb restart
```

Lab – 13.2 : Configuration For Windows Client

1. **Login to windows pc from Linux by using rdesktop command where windows ip is 192.168.0.16 and samba server's ip is 192.168.0.253**

```
[root@smbserver ~]# rdesktop {windows system ip}

p
```

Login to windows machine
Click on start button
Run
open [\\ip\sharename]

eg. [\\192.168.0.253\sharename]
provide samba username & password

Lab – 13.3 : Configuration For Linux Client

1. **To see the list linux Samba Server in network**

```
[root@client ~]# findsmb
```

2. **To see the list of Shares on Samba Server**

```
[root@client ~]# smbclient -L //192.168.0.253 -N
```

3. **To share data from server by using Mounting Method**

```
[root@client ~]# mount //192.168.0.253/salesshare /mnt -o
       username=tom
Password:

[root@client ~]# mount

[root@client ~]# cd /mnt

[root@client mnt]# ls
```

4. **To share data from server by using Smbclient Method**

p

Use put and get commands to upload and download respectively.

```
[root@client ~]# smbclient //192.168.0.253/salesshare -U tom
Password:

Domain=[SMB] OS=[Unix] Server=[Samba 3.0.23c-2]

smb: \> ls
  .                                   0  Sat Jul 12 03:29:30 2008
  ..                                  0  Sat Jul 12 03:28:54 2008
  fa.txt                              0  Sat Jul 12 03:29:30 2008
  music.mp3                           0  Sat Jul 12 03:29:30 2008
  fb.txt                              0  Sat Jul 12 03:29:30 2008

                61755 blocks of size 16384. 52294 blocks available
smb: \> exit

[root@client ~]#
```

Lab – 13.4 : To share data from Windows to Linux

NOTE:- In windows system set share name on selected folder

1. **To share data from server by using Mounting Method**

```
[root@client ~]# mount //192.168.0.16/windir1 /mnt -o username=winu1
Password:

[root@client ~]# mount
```

p

```
[root@client ~]# cd /mnt

[root@client mnt]# ls
```

2. **To share data from server by using Smbclient Method**

Use put and get commands to upload and download respectively.

```
[root@client ~]# smbclient //192.168.0.16/windir2 -U winu1
Password:

smb: \> ls
smb: \> help
smb: \> exit
```

Lab – 13.4 : PASSWORDS TROUBLESHOOTING

1. **To Recover Root Password**

Restart the PC while restarting press any key to get Grub Screen.

press 'e'

Select kernel /vmlinuz-2.6.18-8.el5 ro root=LABEL=/1
kernel /

Again press 'e' to edit

Edit kernel /vmlinuz-2.6.18-8.el5 ro root=LABEL=/1 '1'

p

press enter

press b to boot

At shell prompt type the commands

sh-3.00# passwd

2. **Assinging Grub Password**

[root@server ~]# grub-md5-crypt >> /boot/grub/grub.conf

type the passwd ## these two entries will be not visible
Retype the passwd

[root@server ~]# vi /boot/grub/grub.conf

hiddenmenu
password --md5 < encryptedpasswd > ## Add this line here
title Linux Server (2.6.18-8.el5)

:wq

3. **Recovering Root or Grub password if both are forgotten**

Boot from Bootable linux CD and type
boot : linux rescue
select keyboard-> select language ->select networking Y/N

sh-3.00# chroot /mnt/sysimage

sh-3.00# mount

sh-3.00# passwd # to remove root passwd

To remove GRUB password remove the encrypted password line from /boot/grub/grub.conf

p

```
sh-3.00#  exit
```

NOTE:- To check result, reboot an os and try to go runlevel 1 and then try to login as a root user with new set password.

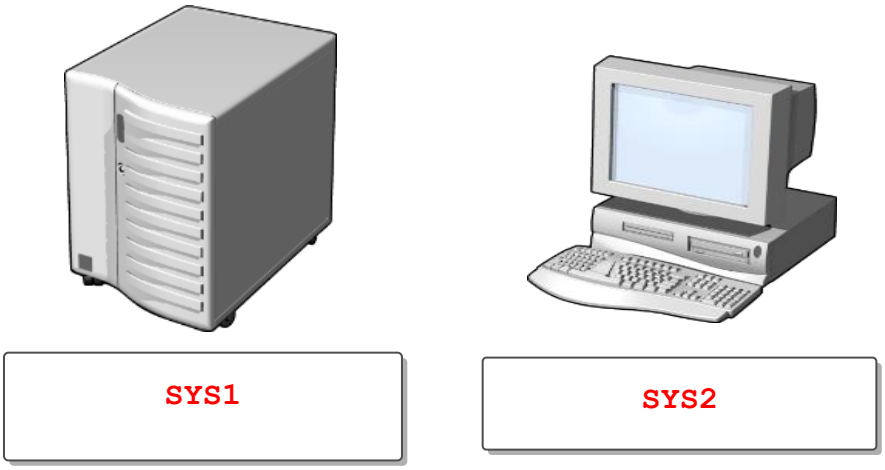
p

CONFIGURATION OF DNS SERVER

Pre-requisites:

Before working on this lab, you must have

1. A computer running LINUX Operating System
2. A computer running LINUX OR WINDOWS Operating System



SYS1	SYS2
DNS SERVER	**DNS Linux Client**
IP Address 192.168.0.x	IP Address 192.162.0.x

p

LAB – 14.1 : DNS SERVER CONFIGURATION

1. CHECK IP & HOST ENTRIES

```
[root@dns ~]# ifconfig

[root@dns ~]# setup
[root@dns ~]# service network restart

[root@dns ~]# ping 192.168.0.0 -b

[root@dns ~]# vi  /etc/sysconfig/network

NETWORKING=yes
HOSTNAME=dns.linux.com

:wq!

[root@dns ~]# vi /etc/hosts

127.0.0.1       localhost.localdomain   localhost
192.168.0.1     dns.linux.com      dns

:wq!

[root@dns ~]# hostname dns.linux.com

[root@dns ~]# hostname
dns.linux.com
```

*** NOW LOG OFF & LOG IN ***

2. CHECK & INSTALL THE PACKAGES

```
[root@dns ~]# rpm -qa | egrep -i "bind"

p
```

Or

```
[root@dns ~]# yum list installed | egrep -i "bind"

[root@dns ~]# yum remove bind* -y

[root@dns ~]# rm  -r   /etc/named*

[root@dns ~]# rm  -rf  /var/named*
```

3. **Install the packages**

```
[root@dns ~]# yum  install bind*   -y
```

4. **Edit Dns file by giving ip's**

```
[root@dns ~]# vi  /etc/named.conf

listen-on port 53 { 127.0.0.1; 192.168.0.1; };
allow-query     { localhost; 192.168.0.0/24; };

:wq!
```

5. **Edit Dns file by providing zone file names**

```
[root@dns ~]# vi  /etc/named.rfc1912.zones


zone "linux.com" IN {
type master;
file "linux.for";
allow-update { none; };
};

zone "0.168.192.in-addr.arpa" IN {
type master;

p
```

```
file "linux.rev";
allow-update { none; };
};


:wq!
```

6. **Create Forward Zone & Reverse Zone**

```
[root@dns ~]# cd /var/named
[root@dns named]# ls
[root@dns named]# cp -p  localhost.zone  linux.for
[root@dns named]# cp -p  named.local     linux.rev
[root@dns named]# ll
```

7. **Edit Forward zone file**

```
[root@dns named]# vi linux.for

$TTL    86400
@               IN SOA  dns.linux.com.       root.linux.com. (
                                        42              ; serial (d.
adams)
                                        3H              ; refresh
                                        15M             ; retry
                                        1W              ; expiry
                                        1D )            ; minimum

                IN NS           dns.linux.com.
dns             IN A            192.168.0.1
nfs             IN A            192.168.0.10
ftp             IN A            192.168.0.11
smb             IN A            192.168.0.12
mail            IN A            192.168.0.15
linux.com       IN MX 4          mail
web             IN A            192.168.0.20
www             IN CNAME        web

:wq!


p
```

8. **Edit reverse zone file**

```
[root@dns named]# vi linux.rev
$TTL    86400
@       IN      SOA     dns.linux.com. root.linux.com.  (
                                        1997022700 ; Serial
                                        28800      ; Refresh
                                        14400      ; Retry
                                        3600000    ; Expire
                                        86400 )    ; Minimum

        IN      NS      dns.linux.com.
        IN      NS      slavedns.linux.com.

1       IN      PTR     dns.linux.com.
10      IN      PTR     nfs.zoom.com.
11      IN      PTR     ftp.zoom.com.
12      IN      PTR     smb.zoom.com.
15      IN      PTR     mail.linux.com.
20      IN      PTR     web.zoom.com.
:wq!
```

9. **To Check the Syntax errors of Configuration file**

```
root@localhost ~]# named-checkconf /etc/named.conf
[root@localhost ~]# named-checkconf/etc/named.rfc1912.zones
```

10. **To Check the Zone file syntax errors**

```
[root@localhost ~]# named-checkzone linux.com
/var/named/linux.for

[root@localhost ~]# named-checkzone linux.com
/var/named/linux.rev
```

11. **Restart the Dns service**

```
[root@dns named]# service named restart
```

p

12. **Provide the IP DNS**

```
[root@dns named]# vi /etc/resolv.conf
nameserver 192.168.0.253

:wq!
```

LAB – 14.2 : DNS CLIENT CONFIGURATION

13. **Provide the DNS server ip in resolv file**

```
[root@dns named]# vi /etc/resolv.conf
nameserver 192.168.0.253
```

14. **Check the Resolution Answer by using dig or nslookup commands**

```
[root@dns named]# dig dns.linux.com
[root@dns named]# dig slavedns.linux.com
[root@dns named]# dig nfs.zoom.com
[root@dns named]# dig sales1.zoom.com
[root@dns named]# dig  -x 192.168.0.1
[root@dns named]# dig  -x 192.168.0.2
[root@dns named]# dig  -x 192.168.0.3
```

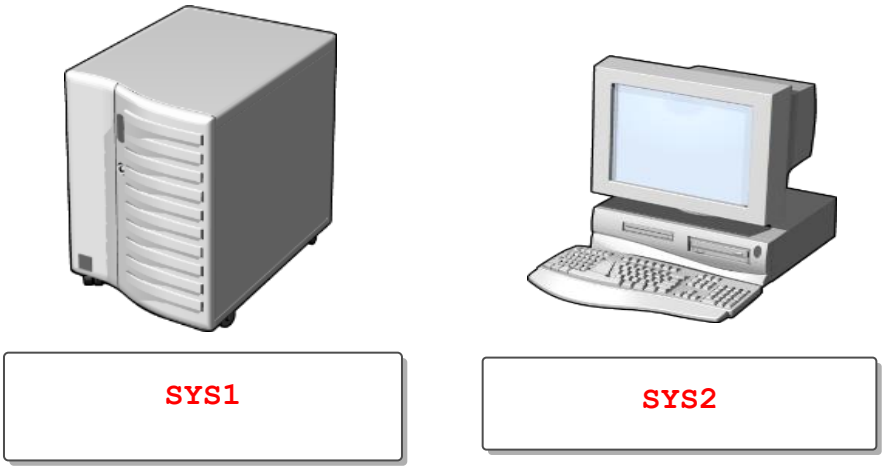
p

CONFIGURATION OF WEB SERVER(Apache)

Pre-requisites:

Before working on this lab, you must have

1. A computer running LINUX Operating System
2. A computer running LINUX OR WINDOWS Operating System



SYS1	SYS2
WEB SERVER	**WEB Linux Client**
IP Address 192.168.0.x	IP Address 192.162.0.x

p

Lab – 15 : WEBSERVER CONFIGURATION

Lab – 15.1 NAME BASED HOSTING

Example:- To host 3 web sites

www.yahoo.com

www.google.com

www.rediff.com

1. **Assigning an IP**

```
[root@web ~]# setup
 [ ] Use dynamic IP configuration (BOOTP/DHCP)

        IP address:            192.168.0.X
        Netmask:               255.255.255.0
        Default gateway (IP): 192.168.0.254
        Primary nameserver:    192.168.0.1

                        OK
[root@web ~]# service network restart

[root@web ~]# ifconfig
```

2. **Makesure the hostfile configuration**

```
[root@web ~]# vi /etc/hosts

127.0.0.1       localhost.localdomain   localhost
192.168.0.X1    www.yahoo.com
```

p

```
192.168.0.X1    www.google.com
192.168.0.X2    www.rediff.com
 :wq!
```

3. **Edit the Main Configuration File**

```
[root@web ~]# vi /etc/httpd/conf/httpd.conf
     At end of line write the following settings

############ NAME BASED ######################
<VirtualHost *:80>
    ServerAdmin root@yahoo.com
    DocumentRoot /var/www/html
    ServerName www.yahoo.com
    DirectoryIndex   yahoo.html
</VirtualHost>

<VirtualHost *:80>
    ServerAdmin root@google.com
    DocumentRoot /var/www/html
    ServerName www.google.com
    DirectoryIndex  google.html
</VirtualHost>

<VirtualHost *:80>
    ServerAdmin root@rediff.com
    DocumentRoot /var/www/html
    ServerName www.rediff.com
```

p

```
    DirectoryIndex  rediff.html
</VirtualHost>
     Wq:
```

4. **Create the files with .html extention**

```
[root@web ~]# cd /var/www/html
[root@web ~]# vi   yahoo.html
<html>
<body bgcolor=yellow>
        <marquee>    <h1>    THIS    IS    YAHOO    WEBSITE
    </h1></marquee>
                <h6> HOSTED IN LINUX CLASS </h6>
    </body>
</html>
```

NOTE:- Add .html files for other websites also.

5. **Start the Webservice**

```
[root@web ~]# service httpd restart
```

LAB – 15.2 : WEBSERVER CLIENT CONFIGURATION

1. **Provide the ip of DNS if DNS Server is configured.**

```
[root@webclient ~]# vi /etc/resolv.conf
```

p

O R

2. **Provide the Websites information in host file**

```
[root@webclient ~]# vi /etc/hosts
```

3. **Open the Browser & type**

```
[root@webclient ~]# firefox &
http://www.yahoo.com
http://www.google.com
http://www.rediff.com
```

Lab – 15.3 IP BASED HOSTING

1. **Assigning another Virtual IP on Ethernet device for IP Based Hosting**

```
[root@web ~]# setup
 [ ] Use dynamic IP configuration (BOOTP/DHCP)

            IP address:           192.168.0.x
            Netmask:              255.255.255.0
            Default gateway (IP): 192.168.0.x
            Primary nameserver:   192.168.0.x

                      OK

[root@web ~]# service network restart
```

p

```
[root@web ~]# ifconfig
```

2. **Makesure the hostfile configuration by providing new ip to website**

```
[root@web ~]# vi /etc/hosts

127.0.0.1       localhost.localdomain   localhost
192.168.0.x     www.yahoo.com
192.168.0.x     www.google.com
192.168.0.x     www.rediff.com
 :wq!
```

3. **Edit the webserver file by providing new ip**

```
[root@web ~]# vi /etc/httpd/conf/httpd.conf
<VirtualHost 192.168.0.x:80>
    ServerAdmin root@google.com
    DocumentRoot /var/www/html
    ServerName www.google.com
    DirectoryIndex   google.html
</VirtualHost>
    :wq
```

4. **Start the service**

```
[root@web ~]# service httpd restart
```

LAB – 15.4 : WEBSERVER CLIENT CONFIGURATION

p

1. **Provide the ip of DNS if DNS Server is configured.**

```
[root@webclient ~]# vi /etc/resolv.conf
```

O R

2. **Provide the Websites information in host file**

```
[root@webclient ~]# vi /etc/hosts
```

3. **Open the Browser & type**

```
[root@webclient ~]# firefox &
http://192.168.0.x
```

Lab – 15.5 PORT BASED HOSTING

1. **Edit the webserver file by providing port**

```
[root@web ~]# vi /etc/httpd/conf/httpd.conf
Listen 8000
<VirtualHost *:8000>
    ServerAdmin root@rediff.com
    DocumentRoot /var/www/html
    ServerName www.rediff.com
    DirectoryIndex  rediff.html
</VirtualHost>
    :wq
```

2. **Start the service**

```
[root@web ~]# service httpd restart
```

p

LAB – 15.6 : WEBSERVER CLIENT CONFIGURATION

1. **Provide the ip of DNS if DNS Server is configured.**

```
[root@webclient ~]# vi /etc/resolv.conf
```

O R

2. **Provide the Websites information in host file**

```
[root@webclient ~]# vi /etc/hosts
```

3. **Open the Browser & type**

```
[root@webclient ~]# firefox &
http://www.rediff.com:8000
O R
http://192.168.0.x:8000
```

LAB – 15.7 : WEB AUTHENTICATION

1. **To secure websites from unauthorized users.**

2. **Edit the webserver file**

```
[root@web ~]# vi /etc/httpd/conf/httpd.conf
<Directory /var/www.html/yahoo>
    AuthName "zoomauth"
    AuthUserFile /etc/httpd/conf/htpasswd
    AuthType Basic
    Require  valid-user
```

p

```
</Directory>

:wq!
```

3. **Create a user and set password for web authentication**

```
[root@web ~]# useradd tom
[root@web ~]# htpasswd  -c  /etc/httpd/conf/htpasswd  tom
```

4. **Start the service**

```
[root@web ~]# service httpd restart
```

LAB – 15.8 : WEBSERVER CLIENT CONFIGURATION

1. **Provide the ip of DNS if DNS Server is configured.**

```
[root@webclient ~]# vi /etc/resolv.conf
```

O R

2. **Provide the Websites information in host file**

```
[root@webclient ~]# vi /etc/hosts
```

3. **Open the Browser & type**

```
[root@webclient ~]# firefox &
http://www.yahoo.com
http://www.google.com:5000
```

p

CONFIGURATION OF VIRTUALIZATION

Pre-requisites:

Before working on this lab, you must have

1. A Computer with LINUX Operating System.

p

LAB – 15.9 : CONFIGURATION OF VIRTUALIZATION

1. **Install the Virtualization Applications**

```
[root@virtualserver ~]# yum install qemu* kvm* virt-*
    kernel* lib* -y
```

Note: Restart the machine and boot from virtualization kernel option from the GRUB screen.

Note: According to linux versions virtualization application may get change.

2. **To create Virtual Machine**

```
[root@virtualserver ~]# virt-manager &
```

Select Xen host

Domain-0 Will be displayed on screen

Creating a new virtual system

forward

Naming your virtual system

System Name => vm1

Choosing a virtual method

(select) paravirtualized

Or

Full virtualization

Provide the path for installation server or media path

p

Install Media => ftp://192.168.0.250/pub

forward

Kickstart URL => ftp://192.168.0.250/pub/ksftp.cfg

Select the storage space

Partition => /dev/hda12

forward

Allocate memory and Cpu

VM Max Memory (MB) => 200

VM Startup Memory (MB) => 200

Please enter the number of virtual CPU's this VM

VCPUs => 2

Read the Summary if correct procceed or repeat

finish

Choose the password for new keyring

Now the intallation will start & u will get the boot screen

After Installation Start the Virtual machine.

3. **To start the virtual machine execute the following commands**

```
[root@virtualserver ~]# xm create vm1
```

O R

```
[root@virtualserver ~]# virt-manager &
```

4. **To shutdown the virtual machine**

p

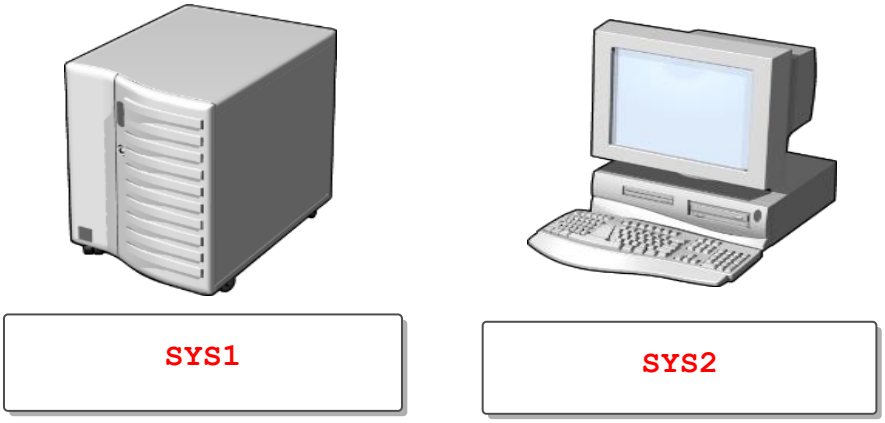
```
[root@virtualserver ~]# xm shutdown vm1
```

CONFIGURATION OF MAIL SERVER

Pre-requisites:

Before working on this lab, you must have

1. A computer running LINUX Operating System
2. A computer running LINUX OR WINDOWS Operating System



SYS1	**SYS2**
MAIL SERVER	**MAIL Client**
IP Address 192.168.0.x	IP Address 192.168.0.x
Subnet Mask 255.255.255.0	Subnet Mask 255.255.255.0

p

LAB – 16.1 : CONFIGURATION OF MAILSERVER

1. **Check and set Ip and Hostname**

```
[root@client ~]# ifconfig

[root@client ~]# setup

[root@client ~]# service network restart

[root@client ~]# ping 192.168.0.0 -b

[root@client ~]# vi  /etc/sysconfig/network

NETWORKING=yes
HOSTNAME=mail.linux.com

:wq!

[root@client ~]# vi /etc/hosts

127.0.0.1       localhost.localdomain   localhost
192.168.0.20     mail.linux.com       mail

:wq!

[root@client ~]# hostname mail.linux.com
[root@client ~]# hostname
mail.linux.com
```

*** NOW LOG OFF & LOG IN ***

2. **Check and install the applications**

```
[root@mail ~]# rpm -qa | egrep -i postfix*
```

p

p

```
[root@mail ~]# yum list installed | egrep -i "postfix"
[root@mail ~]# yum remove postfix* -y
[root@mail ~]# rm -r /etc/mail*
```

3. **Install the mail applications**

```
[root@mail ~]# yum install postfix* -y
```

4. **Edit Main Configuration File**

```
[root@mail ~]# vi /etc/postfix/main.cf

Provide [mail.linux.com]
In 76th,113th 116th
:wq!
```

5. **Start the service**

```
[root@mail ~]# service postfix restart
```

6. **Create users & test the mail at command prompt by mail client utility**.

```
[root@mail ~]# useradd tom

[root@mail ~]# useradd joy

[root@mail ~]# passwd tom

[root@mail ~]# passwd joy
```

7. **Switch to a user tom and compose a mail to joy**

```
[root@mail ~]# su - tom

[tom@mail ~]$ mail  joy@mail.linux.com

Subject: test mail from tom

p
```

```
he hello
test mail from tom
mail test 1
.               ## New row first column type dot (.) To end
the message
Cc: tom@mail.linux.com

[tom@mail ~]$

[tom@mail ~]$ exit
```

8. **Switch to a user joy & check the mails**

```
[root@mail ~]# su - joy

[joy@mail ~]$
```

9. **Type mail and see the output as below**

```
[joy@mail ~]$ mail

Mail version 8.1 6/6/93.  Type ? for help.
"/var/spool/mail/joy": 1 message 1 new
>N  1 tom@mail.linux.com     Sat Jul 12 04:54  19/601
"test mail from tom"
& 1
Message 1:
From tom@mail.linux.com  Sat Jul 12 04:54:18 2013
Date: Sat, 12 Jul 2013 04:51:38 -0400
From: tom@mail.linux.com
To: joy@mail.linux.com
Subject: test mail from tom
Cc: tom@mail.linux.com

he hello
test mail from tom
mail test 1

& x

p
```

```
You have mail in /var/spool/mail/joy

[joy@mail ~]$ exit
```

Lab - : 16.2 CONFIGURATION OF SQUIRRELMIAL

Squirrelmail is used to integrate sendmail with front end interface so that a user can logging through browser.

.**Check and install the applications**

```
[root@mail ~]# yum install httpd* perl-5*  php* curl*
dovecot* mod_ssl* hunspell-en* squirrelmail*  -y
```

1. **Edit 1st Dovecot configuration file**

```
[root@mail ~]# vi /etc/dovecot/conf.d/10-auth.conf
```

In 9th line change from ‘yes’ into ‘no’ and
In in 97th line add plain login

2. **Edit 2nd Dovecot configuration file**

```
[root@mail ~]# vi /etc/dovecot/conf.d/10-mail.conf
```

In 25th line complete the mail directory name eg: /var/spool/mail

3. **Restart the services**

```
[root@mail ~]# service postfix restart

[root@mail ~]# service httpd restart

[root@mail ~]# service dovecot restart
```

p

Lab - : 16.3 MAILSERVER CLIENT CONFIGURATION

1. **Provide the ip of DNS if DNS Server is configured.**

```
[root@mailclient ~]# vi /etc/resolv.conf
```

O R

2. **Provide the mailserver information in host file**

```
[root@mailclient ~]# vi /etc/hosts
```

3. **Open the Browser & type**

```
[root@mailclient ~]# firefox &
```

http://mail.linux.com/webmail

http://192.168.0.x/webmail

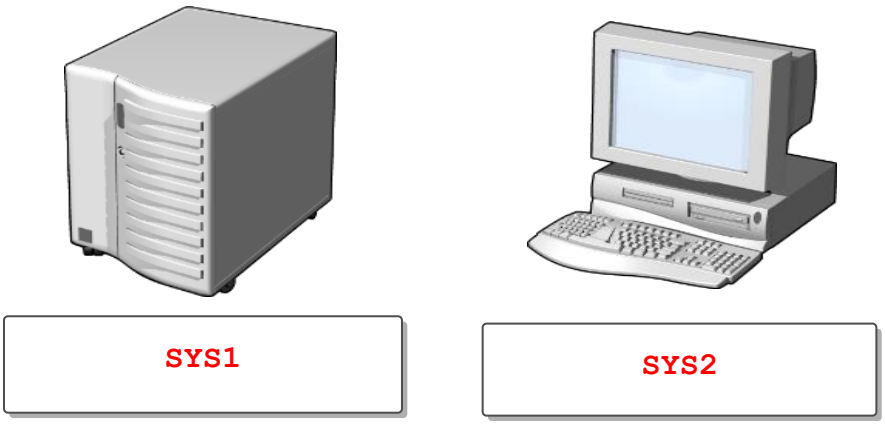
p

CONFIGURATION OF DHCP SERVER

Pre-requisites:

Before working on this lab, you must have

3. A computer running LINUX Operating System
4. A computer running LINUX OR WINDOWS Operating System



SYS1	SYS2
DHCP Localhost	**DHCP Client**
IP Address 192.168.0.x	No Ip configured in client
Subnet Mask 255.255.255.0	

p

Lab – 16.4: DHCP SERVER CONFIGURATION

1. CHECK & INSTALL THE PACKAGES

```
[root@dhcp ~]# rpm -qa  dhcp-*
      or
[root@dhcp ~]# yum list installed  dhcp-*

[root@dhcp ~]# yum remove dhcp-* -y
```

2. Now Install the packages

```
[root@dhcp ~]# yum  install dhcp-* -y
```

3. Copy the example file in configuration file

```
[root@dhcp ~]# cp -rv  /usr/share/doc/dhcp-
4.1.1/dhcpd.conf.sample  /etc/dhcp/dhcpd.conf
```

4. Edit Main Configuration File

```
[root@dhcp ~]# vi /etc/dhcp/dhcpd.conf

4  subnet 192.168.0.0 netmask 255.255.255.0 {      # Network ID
7  option routers          192.168.0.254;     # GateWay/Router IP
8  option subnet-mask              255.255.255.0;
10 option nis-domain               "zoom.com";     # NIS DOMAIN
11 option domain-name              "zoom.com";     # DNS DOMAIN
12 option domain-name-localhosts      192.168.0.1;# DNS IP
21 range dynamic-bootp 192.168.0.150 192.168.0.170# Pool of IP

31 host nfs {                              # reservation of IP
32        option host-name "nfs.zoom.com";        # OR
33           hardware ethernet aa:ab:56:78:AB:CD; # Mac binding
34         fixed-address 192.168.0.10;
35          }

36 host smb {
```

p

```
37            option host-name "smb.zoom.com";
38            hardware ethernet ad:ab:56:78:AB:CD;
39            fixed-address 192.168.0.15;
40            }

41 }


:wq
```

5. Start the service

```
[root@dhcp ~]# service dhcpd restart
```

p

Lab – 16.2: DHCP CLIENT SIDE CONFIGURATION

1. Select the Dhcp in setup command

```
[root@client ~]# setup
Select
    [*] Use dynamic IP Configuration (BOOTP/DHCP)
```

2. Start the service

```
[root@client ~]# service network restart
```

3. Now Check wheather all the Entries are comming

```
[root@client ~]# ifconfig          # to now IP

[root@client ~]# route -nv         # to check GateWay

[root@client ~]# cat /etc/resolv.conf # to check DNS entries

[root@client ~]# nisdomainname     # to check NisDomainName

[root@client ~]# hostname
```

NOTE : *Host name will not come the /etc/sysconfig/network file should have following entries ONLY*

```
[root@client ~]# vi /etc/sysconfig/network
NETWORKING=yes

:wq!
```

Reboot the machine and check the entries

p

CONFIGURATION OF IP-BONDING

Pre-requisites:

Before working on this lab, you must have

1. A Computer with LINUX Operating System.
2. A Computer with Two Ethernet Devices
3. Eth0 and Eth1

p

Lab – 17.1: CONFIGURATION OF IP-BONDING

1. **Load Kernel module**

In this example we are configuring bond0 and file name is bonding.conf

```
[root@IP-Bonding ~]# vi /etc/modprobe.d/bonding.conf
alias bond0 bonding
```

Check the new changes in new created file

```
[root@IP-Bonding ~]# cat /etc/modprobe.d/bonding.conf alias
    bond0 bonding
```

2. **create channel bonding interface**

```
[root@IP-Bonding  ~]#vi/etc/sysconfig/networkscripts/ifcfg-
    bond0
DEVICE=bond0
IPADDR=192.168.0.253
NETMASK=255.255.255.0
ONBOOT=yes
BOOTPROTO=none
USERCTL=no
Type=Ethernet 118
```

3. **Configure Network interfaces by providing Master or Slave**

```
Interface eth0 configuration
[root@IP-Bonding~]#       vi       /etc/sysconfig/network-
    scripts/ifcfg-eth0
DEVICE=eth0
ONBOOT=yes
MASTER=bond0
```

p

```
SLAVE=yes
BOOTPROTO=none
USERCTL=no
TYPE=Ethernet
```

4. Interface eth1 configuration

```
[root@IP-Bonding]#  vi/etc/sysconfig/network-scripts/ifcfg-
    eth1
DEVICE=eth1
ONBOOT=yes
MASTER=bond0
SLAVE=yes
BOOTPROTO=none
TYPE=Ethernet
```

5. **Check the result**

```
[root@IP-Bonding]# ifconfig
bond0 Link encap:Ethernet HWaddr 00:0C:29:69:31:C4
inetaddr:172.16.1.207 Bcast:172.16.1.255 Mask:255.255.255.0
inet6 addr: fe80::20c:29ff:fe69:31c4/64 Scope:Link
UP BROADCAST RUNNING MASTER MULTICAST MTU:1500 Metric:1
RX packets:19676 errors:0 dropped:0 overruns:0 frame:0
TX packets:342 errors:0 dropped:0 overruns:0 carrier:0
collisions:0    txqueuelen:0    RX    bytes:1623240    (1.5
MiB)TXbytes:42250 (41.2 KiB)

eth0 Link encap:Ethernet HWaddr 00:0C:29:69:31:C4
UP BROADCAST RUNNING SLAVE MULTICAST MTU:1500 Metric:1
```

p

```
RX packets:10057 errors:0 dropped:0 overruns:0 frame:0
TX packets:171 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:832257 (812.7 KiB) TX bytes:22751 (22.2 KiB)
Interrupt:19 Base address:0x2000

eth1 Link encap:Ethernet HWaddr 00:0C:29:69:31:C4
UP BROADCAST RUNNING SLAVE MULTICAST MTU:1500 Metric:1
RX packets:9620 errors:0 dropped:0 overruns:0 frame:0
TX packets:173 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000 RX bytes:791043 (772.5 KiB) TX
bytes:20207 (19.7 KiB) Interrupt:19 Base address:0x2080:0
dropped:0 overruns:0 frame:0 TX packets:2 errors:0dropped:0
overruns:0 carrier:0 collisions:0 txqueuelen:0 RX bytes:104
    (104.0 b) TX bytes:104 (104.0 b)
```

6. To check result, Disable one Etherface

```
[root@IP-Bonding]# ifdown eth0
```

7. Check the another interface ip

```
[root@IP-Bonding]# ifconfig
```

8. Try to ping to working interface ip

```
[root@IP-Bonding]# ping 192.168.0.x
```

p

CONFIGURATION OF KERNEL-UPGRADING

Pre-requisites:

Before working on this lab, you must have

1. A Computer with LINUX Operating System.

p

Lab – 17.2: CONFIGURATION OF KERNEL UPGRADING

1. **print kernel information**

```
[root@Kernel ~]# uname  -a
```

2. **check the available kernel**

```
[root@Kernel ~]# rpm –qa kernel*
```

3. **Upgrade the Dependencies of Kernel Packages**

```
[root@Kernel ~]# rpm -Uvh mkinitrd* SysVinit* initscripts*
```

4. **Upgrade the kernel-header and kernel-source**

```
[root@Kernel ~]# rpm -Uvh kernel-headers* kernel-source*
```

5. **Then upgrade the kernel**

```
[root@Kernel ~]# cd Downloads
```

```
[root@Kernel ~]# rpm –Uvh  kernel*  --force
```

6. **Try to Check the new kernel, but it still show old**

```
[root@Kernel ~]# uname –a
```

7. **Reboot an os to activate new upgraded kernel.**

p

```
[root@Kernel ~]#  reboot –f
```

8. To check new upgraded kernel

```
[root@Kernel ~]#  uname –a

[root@Kernel ~]#  rpm –qa kernel*
```

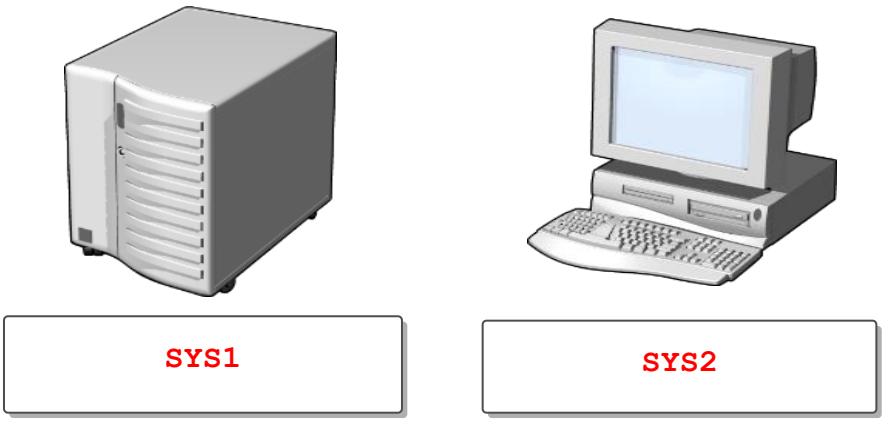
p

CONFIGURATION OF LOG SERVER

Pre-requisites:

Before working on this lab, you must have

1. A computer running LINUX Operating System
2. A computer running LINUX Operating System



SYS1	SYS2
LOG SERVER	**LOG Client**
IP Address 192.168.0.x	IP Address 192.168.0.x
Subnet Mask 255.255.255.0	Subnet Mask 255.255.255.0

p

Lab – 17.3: CONFIGURATION OF LOG SERVER

1. Install the softwares

```
[root@Logserver ~]# yum install rsyslog* -y
```

2. Edit Configuration file

```
[root@Logserver ~]#  vi /etc/rsyslog.conf
```

Remove # following lines to Enable them
13th 14th 17th 18th and in 42nd line provide new directory name
:authpriv.* /var/log/zoom
:wq

3. Restart the service

```
[root@Logserver ~]# service rsyslog restart
```

Lab – 17.4: CONFIGURATION OF LOG SERVER Client

1. **Install the software**

```
[root@Logserver ~]#  yum install rsyslog  -y
```

4. Edit the log server file

```
[root@Logserver ~]#  vi /etc/rsyslog.conf
```

In 78th line number provide log server ip address

5. Restart the service

```
[root@Logserver ~]#  service  rsyslog restart
```

Note: To check log records in Log Sever,do some new task in client and check in log server.

p

Lab – 17.5: SOME IMPORTANT TOOLS OF LINUX

1. To Configure printer

```
[root@server ~]# system-config-priter &
```

2. To check or kill certain process ID's

```
[root@server ~]# ps -aux

[root@server ~]# kill <number of proccess>

[root@server ~]# kill -9 <number of process >

[root@server ~]# kill -9 <number of process >
```

3. To see the cpu & process status

```
[root@server ~]# top
```

4. To see the open port number

```
[root@server ~]# netstat -ant
```

5. To see the remote machine open port number

```
[root@server ~]# nmap <remote_IP>
```

6. To view Process, Resources and File systems

```
[root@server ~]# gnome-system-monitor
```

7. To display or change Ethernet card settings

```
[root@server ~]# ethtool eth0
```

p

8. To view the traffic to the Ethernet card

```
[root@server ~]# iptraf
```

9. To Report RPC Information

```
[root@server ~]# rpcinfo -p
```

p

CONFIGURATION OF PROXY SERVER

Pre-requisites:

Before working on this lab, you must have

1. A computer running LINUX Operating System
2. A computer running LINUX OR WINDOWS Operating System

SYS1

SYS2

SYS1	SYS2
PROXY SERVER	**PROXY Client**
IP Address 192.168.0.x	IP Address 192.168.0.x
Subnet Mask 255.255.255.0	Subnet Mask 255.255.255.0

p

Lab – 18.1: CONFIGURATION OF PROXY SERVER

1. **Check ans set Ip-address and Hostname**

```
[root@proxy ~]# ifconfig

[root@proxy ~]# setup

[ ] Use dynamic IP configuration (BOOTP/DHCP)
                    IP address:           192.168.0.20
                    Netmask:              255.255.255.0
                    Default gateway (IP): 192.168.0.254
                    Primary nameserver:   200.200.200.200
                           OK
[root@proxy ~]# service network restart

[root@proxy ~]# ping 192.168.0.0 –b

[root@proxy ~]# hostname proxy.zoom.com
[root@proxy ~]# hostname
proxy.zoom.com

[root@proxy ~]# vi  /etc/sysconfig/network
NETWORKING=yes
HOSTNAME=proxy.zoom.com
:wq!

[root@proxy ~]# vi /etc/hosts

127.0.0.1       localhost.localdomain   localhost
192.168.0.20     proxy.zoom.com      proxy
:wq!
```

*** NOW LOG OFF & LOG IN ***

p

2. Check and set DNS ip and gateway according to ISP DNS

```
[root@proxy ~]# route -nv

[root@proxy ~]# cat /etc/resolv.conf
```

3. Makesure that Internet is coming on Proxy Server

```
[root@proxy ~]# firefox &
            http://www.yahoo.com
```

4. CHECK & INSTALL THE PACKAGES

```
[root@proxy ~]# rpm -qa  squid*
               or
[root@proxy ~]# yum list installed  squid*

[root@proxy ~]# yum remove squid* -y

[root@proxy ~]# yum  install squid* -y
```

5. Edit Main Configuration File

```
[root@proxy ~]# vi /etc/squid/squid.conf
```

NOTE A: To Configure squid as only Simple Proxy i.e Only For sharing

```
http_port 3128
visible_hostname  LINUXPROXY
```

NOTE B: To Configure squid as Caching Proxy i.e caching website in local harddisk

```
cache_dir ufs /var/spool/squid 100 16 256
```

NOTE C: To Configure squid as Proxy FireWall

```
# syntax for the firewall rule
# acl aclname acltype string1/file_name
```

p

```
 # INSERT YOUR OWN RULE(S) HERE TO ALLOW ACCESS FROM YOUR
CLIENTS


# create a rule for particular network

acl  linuxnetwork  src     192.168.0.0/24

# create a rule for blocking particular site say
www.naukri.com

acl     jobsite   url_regex       www.naukri.com

# create a rule for time duration
2530 acl     classtime time  S M T W H F A  18:30-22:30

#       http_access allow all
        http_access deny  jobsite
        http_access deny  classtime
        http_access allow linuxnetwork

:wq!
```

6. Start the service

```
[root@proxy ~]# service squid restart
```

Lab – 18.2: CONFIGURATION OF PROXY CLIENT

1. **Apply the following configuration for Linux User**

Open Firefox
-> Edit
-> Preference
-> General
-> Advanced
-> Network
-> Connections settings –

p

-> Manual Proxy
-> [Server X] port [3128]

Where X is the proxy servers IP
Now type the website names in locationbar

http://www.yahoo.com

2. Apply the following configuration for windows user.

Open Internet Explorer
Tools
->Internet Options
->Connections
-> LAN Setting
->Proxy Server
-> Address 192.168.0.X Port 3128

http://www.yahoo.com

p

Lab – 18.3 : CONFIGURATION OF WEBMIN

NOTE: -1 Webmin is a GUI based tool to configure Linux System & Network Administration

1. Download **the file from internet or copy from any source media in side /opt directory.**

2. **After downloading the software extract it**

```
[root@server ~]# cd /opt

[root@server opt]# ls
webmin-1.360.tar.gz

[root@server opt]#  tar -xvzf  webmin-1.360.tar.gz

[root@server opt]# ls

webmin-1.360  webmin-1.360.tar.gz

[root@server opt]# cd webmin-1.360

[root@server opt]# ls
```

3. **To install webmin run the following command.**

```
[root@server opt]# ./setup.sh
```

Note: Choose all the default options and provide password.

4. **Open the Browser, to access it**

```
[root@server opt]# firefox  http://localhost:10000 &
```

provide username & password and start configuration in GUI Mode

5. **To Change the admin passwd after webmin installation**

p

```
[root@server opt]# cd webmin-1.360

[root@server webmin-1.360]# ./changepass.pl /etc/webmin/
admin admin
```

6. **To Uninstall webmin**

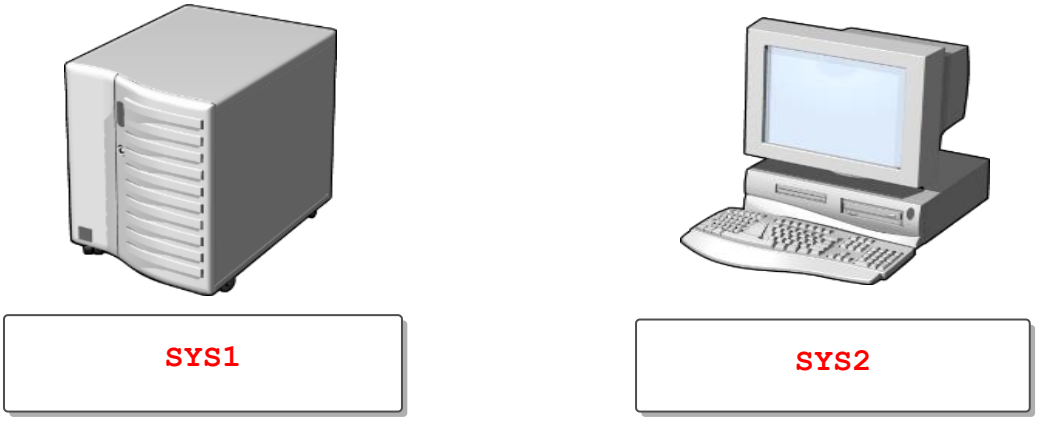
```
[root@server opt]# sh /etc/webmin/uninstall.sh
```

CONFIGURATION OF KICKSTART SERVER

Pre-requisites:

Before working on this lab, you must have

1. A computer running LINUX Operating System
2. A computer running LINUX Operating System



SYS1	SYS2
KICKSTART SERVER	KICKTART CLIENT
IP Address 192.168.0.x	IP Address 192.168.0.x
Subnet Mask 255.255.255.0	Subnet Mask 255.255.255.0

p

Lab – 18.4 : CONFIGURATION OF KICKSTART

1. **Copy all *.rpms from DVD in a ftp directory**

2. **Configure your machine as NFS,FTP & DHCP**

```
[root@server ~]# yum install nfs* vsftpd* dhcpd*
*kickstart*  -y

[root@server ~]# vi /etc/exports
/var/ftp/pub 192.168.0.0/24(ro,async)
:wq!

[root@server ~]# service nfs restart

[root@server ~]# service vsftpd restart

[root@server ~]# service dhcpd restart

[root@server ~]# chkconfig nfs on

[root@server ~]# chkconfig vsftpd on

[root@server ~]# chkconfig dhcpd on
```

3. **Create the Kickstart File by using the following command.**

```
[root@server ~]# system-config-kickstart &
```

4. **Kickstart wizard will be opened then select the following options**

   I. **Basic Configuration**

      Default Language => English (USA)

p

Keyboard => U.S english
Time Zone => Asia/Calcutta
Root Password => abc123
Confirm Password => abc123

II. **Installation Method**

Perform new installation
Select the install method

Ftp

ftp Server => 192.168.0.250
Ftp Directory => /pub

Or

Nfs

Nfs Server => 192.168.0.100
Nfs Directory => /var/ftp/pub

III. **Boot Loader Option**

Install new boot loader

IV. **Partition information**

Create the required partition

/boot = 100 MB
/ = 2000 MB
/usr = 4000 MB
/var = 1000 MB
/home = 1000 Mb
swap = Double of RAM

V. **Network Configuration**

Select DHCP

VI. **Authentication**

Editors
Graphical Internet
Text-based Internet

VII. **Base System**

Select All packages

p

VIII. * **Use shadow Passwords**

* Use Md5

IX. **Firewall Configuration**

Select Security Level => Disable firewall

Select SeLinux => Disable

X. **Display Configuration**

Select Configuration the X windows System

Color Depth = 24 Resolution 1024x768

XI. **Packages Selection**

Desktop Environment

Gnome Desktop and useful Applications

5. **Save the file at /var/ftp/pub where the of linux o/s is copied And give the the name as.**

ksftp.cfg

or

ksnfs.cfg

6. **Go to /var/ftp/pub and give execute permission to kickstart file.**

```
[root@server ~]# cd /var/ftp/pub

[root@server ~]# chmod +x  *.cfg
```

Lab - 18.5 : KICKSTART CLIENT SIDE CONFIGURATION

1. **Set the BIOS first Bootable Device CDROM.**

2. **Reboot an os press 'esc' and at the Boot prompt type following Commands.**

p

```
boot : linux ks=nfs:192.168.0.X:/var/ftp/pub/ksn.cfg
           OR
boot : linux ks=ftp://192.168.0.X/pub/ksf.cfg
```

3. **Once the installation Starts Remove the Bootable CD/DVD rest of the os will be install from server.**

p