Lab on User administration

To add user

#useradd [options] <username>

-c <comment>	Change the comment field. This is often the users full name.
-d <home dir>	Change the home directory
-e <expire date>	Set date on which the account will expire and be disabled.
-g <group>	Change the initial login group
-G <group,[…]>	A comma separated list of supplementary groups for the user.
-l <login name>	Change the login name
-s <shell>	Change the shell.
-u <uid>	Change the UID.
-L	Lock the password
-U	unlock the password.

To change the user's setting

#usermod [option] <username>

[Options]

-c <comment>	Change the comment field. This is often the users full name.
-d <home dir>	Change the home directory
-e <expire date>	Set date on which the account will expire and be disabled.
-g <group>	Change the initial login group
-G <group,[…]>	A comma separated list of supplementary groups for the user.
-l <login name>	Change the login name
-s <shell>	Change the shell.
-u <uid>	Change the UID.
-L	Lock the password
-U	unlock the password.

To delete user

#userdel [option] <username>

[Options]

-r to delete directory of user when user is deleted.

To change group o file

#chgrp <groupname> <filename>

To add group

gourpadd [option] <groupname>

groupdel <groupname>

groupmod <groupname>

To change the age of user (expire date)

#chage [options] <username>

[Options]

-m	minimum days between password changes
-M	maximum days between password changes
-I	number of days inactive since password expired before locking account
-E <date>	expire the account on this date (YYYY-MM-DD format)
-W	number of days before a required change to start warnings

Login Shell Scripts

/etc/profile
It is executed every time a user logs into the system containing environmental variables settings.

/etc/profile.d/*.sh
It contains initialization scripts specific to software packages installed by RPMS called by /etc/profile.

~/.bash_profile
It is a script which runs next which typically calls ~/.bashrc and /etc/bashrc. It contains system wide environment variable settings.

~/.bashrc
It allows users to customize their own aliases and functions without the intervention of the administrator. It runs whenever a user starts up a non-login interactive shell, and the default user.

~/.bash_profile
It is executed once at login time. It is usually used to set environment variables and to start programs at login.

Switching Accounts

su
To allow user to be another temporary. root is the default user.

```
su [-] [user]
su [-] [user] –c command
```

sudo
Users listed in /etc/sudoers.and execute commands with:

An effective user id of 0
Group id of root's group

Note: An administrator will be contacted if a user not listed in /etc/sudoers attempts to use sudo

To assign sudo permission to users

```
#visudo
#vi /etc/sudours
User_Alias LIMITEDTRUST=user1,user2
Cmnd_Alias MINIMUM=/etc/rc.d/init.d/httpd, /sbin/ifconfig
Cmnd_Alias SHELLS=/bin/sh,/bin/bash
LIMITEDTRUST ALL=MINIMUM
%wheel station1=ALL,!SHELLS
```

SUID and SGID

SUID and/or SGID bits set on an executable file cause it to run under the user and/or group even though the file is run be another users. If Setgid (SGID) mod activate for a directory the files created in the directory will belong to same group of parent directory.

```
#chmod u+s <filename> (SUID)
#chmod g+s <filename> (GUID)
```

Sticky bit

By setting sticky bit only the owner of the file can erase the file but not the other group member even though the read/write/execute permission is provide to group member.

#chomd o+t <directory>

Example

Scenario

Each department for which you create a group also needs a shared directory. Ths will allow users in each department to share files, but will prevent users in other departments from altering, or even seeing those files.

Adding groups

#groupadd sales
#groupadd hr
#groupadd web

Adding users in each group

#useradd –G sales ram
#passed ram
#useradd –G sales sita
#passed sita

#useradd –G hr hari
#passed hari

#useradd –G sales gita
#passed gita

#useradd –G sales waza
#passed waza

#useradd –G sales rani
#passed rani

#useradd –G hr,web,sales manager
#passwd manager

Create depts. Directory and its sub directories salesdir, hrdir, webdir

#mkdir –p /depts/{salesdir,hrdir,webdir}

Change the permission to 775, all to user, read and execute to group/other

#chgrp sales /depts./sales
#chmod 755 /depts.

Change the file permission to all access to user/group, and no access to other

#chmod 770 /depts./salesdir
#chmod 770 /depts./hrdir
#chmod 770 /depts./webdir

Or

#chmod 770 /depts./*

Set GID bit on in each departmental directories so that the files group is same as that of parent directory.

#chmod g+s /depts/*

Set Sticky bit, so that only owner can delete the file.

```
#chmod o+t /depts/*
```

Experiment by logging in as each user and create file in each directories. Only manager should be able to enter all the directories.

Lab on Kernel Services

To have information about running kernel
#uname [option]
Example
#uname –r
-a provide all infrmation
-s print the kernel name
-n print the network node hostname
-r print the kernel release
-v print the kernel version
-m print the machine hardware name
-p print the processor type or "unknown"

/lib/modules: Kernel modules reside on /lib/modules/<kernel_ver>

Show the status of modules in the Linux Kernel
#lsmod

To attach module on runtime
#modprobe <modulename>

/etc/modprobe.conf file contains modules that should be loaded on runtime

Example:
To disable use storage device
#vi /etc/modprobe.conf
Install usb_storage wall “Not Allowed USB”
To enable ip forwarding (user for routing) at runtime
#echo “1” > /proc/sys/net/ipv4/ip_forward

To enable ip forwarding permanently
#vi /etc/sysctl.conf
net.ipv4.ip_forward = 1

To apply change in /etc/sysctl.conf file
#sysctl -P

To turning off ping responses
#echo “1” >/proc/sys/net/ipv4/icmp_echo_ignore_all
or
#vi /etc/sysctl.conf
net.ipv4.icmp_echo_ignore_all = 1
To apply change in /etc/sysctl.conf file
#sysctl -P

To view/edit hardware device
#vi /etc/sysconfig/hwconf
- Find the hardware and delete the setting for particular hardware for example [NETWORK]
- Save and exit.
- Run kudzu to auto detect the deleted hardware.

To view hardware information
#hwbroswer

Lab on Filesystem Management

Making filesystem

#mke2fs [options] /dev/<hd_>

[Options]
-b block size in bytes
-c interval
-I interval
-L Volume label
-j ext3 journaling

Mount

#mount [-t fstype] [options] <device/network> mountpoint

To mount all devices in fstab

#mount –a

To unmount all devices in fstab

#umount –a

To display what or who is acting on mount_point

#fuser –v mount_point

To kill the user/process on mount_point

#fuser –km mount_point

Remounting filesystem say /dev/hda5 as read/write, currently mounted as readonly.

#mount –o remount,rw /dev/hda5 /

Labeling file systems
To set disk label of /dev/hda7 to dbdisk

#e2label /dev/hda7 dbdisk

To view label of /dev/hda7

#e2label /dev/hda7

mount filesystem using label

#mount –t vfat –o uid=515,gid=515 LABEL=dbdisk /mnt/dbdisk

To mount already mounted filesystem as another

#mount –bind /mnt/dbdisk /mnt/dbdisk_new

To show the share folders of nfs server

#showmount –e remote_server

To show the share point of windows file share or SMB

#smbclient –L remote_server –U <username>

To mount nfs share directories

#mount remote_server:/shareddirectory_path /mnt/nfsmount

To mount samba shared directories

#mount //remote_smbServer/share /mnt/remote_smb

About /etc/fstab

It is the file from where linux system reads the filesystem information on startup.

Virtual Memory

#mkswap /dev/hda6
#vi /etc/fstab

```
/dev/hda6      swap   swap   defaults 0 0
#swapon –a
#swapon -s
```

To create swap file

```
#dd if=/dev/zero of=/swapfile bs=1024K count=1024
#mkswap /swapfile
#vi /etc/rc.d/rc.local
#swapon /swapfile
```

Note: /etc/rc.d/rc.local is always runs at the os boot process, before user login.

Lab on Network Configuration

To view the ethernet configuration

#ifconfig
#ifconfig eth0

Network Configuration files are stored on

#cd /etc/sysconfig/network-scripts/

For DHCE client

#vi ifcfg-eth0

```
DEVICE=eth0
BOOTPROTO=dhcp
ONBOOT=yes
```

To shutdown the eth0

#ifdown eth0

To startup the eth0

#ifup eth0

For Static

#vi ifcfg-eth1

```
DEVICE=eth0
BOOTPROTO=static
IPADDR=192.168.0.133
NETMASK=255.255.255.0
ONBOOT=yes
```

To create virtual ethernet

#vi ifcfg-eth0:0

```
DEVICE=eth0
BOOTPROTO=static
IPADDR=192.168.0.134
NETMASK=255.255.255.0
ONBOOT=yes
```

Adding range of IPs for same NIC

#vi ifcfg-eth0-range0

```
IPADDR_START=192.168.0.2
IPADDR_END=192.168.0.22
CLONENUM_START=0
```

Network configuration Utilities

#netconfig
#neat
#system-config-network

To set temporary IP

#ifconfig eth0 add 192.168.0.1 netmask 255.255.255.0

To allow user-control of network configuration

#vi ifcfg-eth0

```
USERCTL=yes
```

To set Global network parameters

#vi /etc/sysconfig/network

```
NETWORK=yes
HOSTNAME=Shiba.cba.com
GATEWAY=192.168.0.1
```

To set hostname of the sytem

#hostname st1.cba.com

To view hostname

#hostname

DNS client

#vi /etc/resolv.conf

search wlink.com.np

nameserver 192.168.0.1

DNS utilities

#host www.example.com

#host –a cba.com

#dig hotmail.com

#nslookup hotmail.com

Ping command

#ping

To set alias of host name

#vi /etc/hosts

Ipaddr hostname aliases

To track MAC address

#arp

To view network status

#netstat –nT

To trace route path

#traceroute www.hotmail.com

To verify physical link of cable or reset other tx base

#mii-tool

#ifdown eth0

#ifup eth0

#service network restart

Router Configuration

#vi /etc/sysconfig/network-scripts/router-eth0

102.168.0.0/24 via 192.168.1.128

#route -nr