GNU/Linux Basics

Topics

Installation
Basics of Using GNU/ Linux
Administration Tools

Installation

Installing Using the GUI

- Disc Partitioning
- Allocation of swap space
- Selection of packages to install
- Configuring system settings
- Setting the user account

Network Installation

- Note the network location of the Linux CDs (Say 192.168.36.3/sw/linux)
- Insert the first installation CD
- Type linux askmethod
- Select network Installation
- Provide the IP and location when asked

Installing new packages

We will show you directly how to do it !

When you get the source code of a new software. Usually follow these steps

```
./configure
make
sudo make install
```

Linux Recovery

- Insert the Linux Installation CD
- Type linux rescue
- Select the Linux version on the hard disc after it is detected
- You will be provided with a root login after the system boots up

Recovering the GRUB

If you install Windows after using Linux, this will erase and write onto the boot sector

You should use the linux recover mode as described previously

After you obtain the root login, you should type the following commands to restore the GRUB.

Type chroot /mnt/sysimage

Type grub-install /dev/hda

Basics

File System Structure /root

/home

/root

/mnt

/boot

/etc

/usr

/bin

/lib

/tmp

The home directory of the administrator user

File System Structure /home

/home

/root

/mnt

/boot

/etc

/usr

/bin

/lib

/tmp

Contains the home directories of normal users

File System Structure /mnt

/home

/root

/mnt

/boot

/etc

/usr

/bin

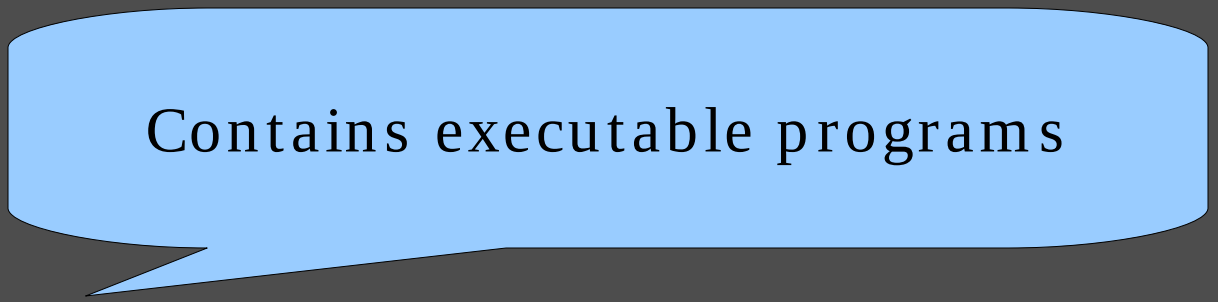
/lib

/tmp

You can access CDROM, windows hard-drives and network drives here

File System Structure /bin

/home
/root
/mnt
/boot
/etc
/usr
/bin
/lib
/tmp



File System Structure / etc

/ home
/ root
/ mnt
/ boot
/ etc
/ usr
/ bin
/ lib
/ tmp

Contains important configuration files of several programs

File System Structure /lib

/home
/root
/mnt
/boot
/etc
/usr
/bin
/lib
/tmp

Contains dynamic library modules

File System Structure /tmp

/home
/root
/mnt
/boot
/etc
/usr
/bin
/lib
/tmp

Contains temporary files.
You can also store temporary files here

File System Structure / usr

/home
/root
/mnt
/boot
/etc
/usr/lib
/bin
/lib
/tmp

Documentation

/usr/share/doc

An extra place for /lib

An extra /bin

/usr/bin

File System Structure / boot

/ home

/ root

/ mnt

/ boot

/ etc

/ usr

/ bin

/ lib

/ tmp

Navigating the Files

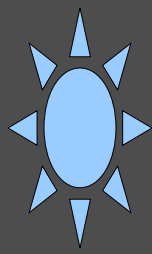
- Listing the files `ls`
- Making a new directory `mkdir`
- Changing to a directory `cd`
- Clearing the screen `clear`
- Removing a file `rm`
- Linking to a file `ln`, `ln -s`
- Moving a file `mv`

Navigating the Files

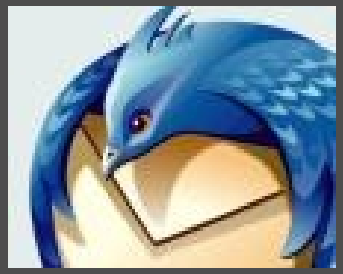
Where am I ??? pwd

The Coolest Desktops

- KDE
- Gnome- Desktop
- Try browsing the file system structures using the GUI File Browser !!!
- More fun to use than boring windows
- You can have gServelets too !



Applications Unlimited



Shell : Cooler than Desktops

How to list all jpg images whose filenames start with “t” and contain “at” in between ?

```
ls  t*at*.jpg

teens-at-sea.jpg
tatto.jpg
thatsit.jpg
tommycat.jpg
```

Shell : system properties

- What is the time ? `date`
- Show me the calendar of 2007 `cal 2007`
- How much of disc space is free ? `df -h`
- What programs am I running now ? `ps x`
- How busy is the cpu now ? `tload`
- Compare all the processes based on how they are eating memory and CPU time : `top`

Shell : redirection

How to save the list of files into a new text file ??

```
ls > files-list.txt
```

How to see what is in the file now ?

```
cat files-list.txt
```

Shell : file- search

How to search for all the jpg images that are hidden inside the subfolders of the current directory ?

```
find . -name *.jpg
```

Where in the computer are the songs of the ***athadu*** movie ?

```
locate *athadu*
```

Shell : variables

What is your home directory ? echo $HOME

I found out about this cool command called ifconfig, but it is not running.

which ifconfig /sbin/ifconfig

echo $PATH

PATH=$PATH:/sbin/

What if I have more than one shell running ? To do get the same effect in all the shells,

export PATH=$PATH:/sbin/

Shell : pipe

How to find out all the images whose file- name contains a number in between ?

```
ls *jpg *gif | grep “[0-9]”
```

How to further find out if any of these files begin with the word “James” ?

```
ls *jpg *gif | grep “[0-9]” | grep “^James”
```

Shell : Command Line Programs

How to edit a file ? emacs, vi

How to print a file ? lpr filename.pdf

How to increase the volume ? aumix

How to browse in text mode !!? links

How to listen to mp3s ? mplayer

How to check email ? pine

How to convert a file format ?

convert a.jpg a.gif

Shell : Isn't it awesome ?

Why do I need a Desktop at all !!?

Shell : Having fun with users

How to know if my friend is logged in now ?

w friend-name

How to know my friend's phone number ?

finger friend-name

How to change my phone number so my friends can see ? chfn

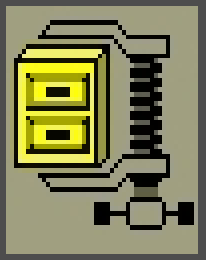
How to write to friends ? write

How to talk to friends ? talk

When did my friend last log in ??

last friend-name

Shell : How to open .zip files ??



unzip nicePicturesHeHe.zip

Also gunzip notSoNicePicsHeHe.zip

Sometimes tar -xvzf tarPics.tar.gz

Some other times tar -xvjf tarPics.tar.bz2

What if I want to put everything into an archive ?

You can do zip pics.zip pics/

You can also do tar -cvzf pics.tgz pics/

How to set permissions

- Each file has 3 types of users – owner, group of the owner and all other users.
- Each file has 3 types of permissions – read, write and execute
- How to change the permissions to a file
  chmod
- How to see the permissions set to a file
  ls -l filename

Connecting from Remotely

- You can use the telnet/ssh client putty from a Windows machine
- From a linux machine use ssh IP-address
- You can install the XServer program on your windows machine and export your linux desktop there !!!
- Let's say your IP is 192.168.36.2
- Start the XServer, connect through putty and run the following commands.

```
export DISPLAY=192.168.36.2:0.0
gnome-session &
```

Help !!!!!!

How to use a command ? man

How to use a command ? info

Why is anything not working ? Google on the error message

Where to find software to download ? www.sourceforge.net, www.rpmfind.net

Where to find more help ?

Form a mailing list !! Join other mailing lists.

Administration Tools

Managing Users

To add a new user useradd

To delete a user userdel

To change the group of a user chgrp

To assign a file or folder to a user chown

To login as that user su – user

To login as root su -

To change the password passwd

Mounting File Systems

Mounting the music on your Windows drive :

```
mkdir /mnt/win-e
df -h
mount /dev/hda6 /mnt/win-e
```

Unmounting the data

```
umount /mnt/win-e
```

Mounting the CDROM

```
mount  /dev/cdrom /mnt/cdrom
```

Unmounting `umount /mnt/cdrom`

Configuring the Network

You can set the IP using netconfig

You have to restart the network using

service network restart

You can check the IP with ifconfig

You can check if the net is working by pinging the gateway

ping 172.16.8.1

You can stop/ start the network by using

service network stop/ start

Configuring the I/O Devices

With Root Password, you can use several GUI based applications to configure the system.

system-config-soundcard

system-config-mouse

system-config-printer

system-config-display

system-config-network

Editing .conf files in /etc

/etc/grub.conf for GRUB settings

/etc/crontab for setting processes to run periodically at a time of the day

/etc/inittab for deciding how you want your computer to boot up – single user, multi user, GUI/ textmode etc.

/etc/passwd (not for editing) contains the login, group and home directory information of all the users

Happy Geeking