

## The Open Source Way of Life

How to get on with life, day-by-day with the Penguin

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## Introduction to the Movement

- Started by Richard Stallman with GNU
- Linus Torvalds got cheeky one day
- Many from around the world started contributing
- Other contributions include Perl, Python, XFree86, Mozilla, OpenOffice.org, and many more packages

## The Boot Loader

- Very basis of running the computer – first program that gets run when the computer starts
- Loads and transfers control to the kernel
- Linux-based boot-loaders follow the Multiboot Specification
- GRUB or LILO?

## Co-existence

- Linux & Windows on the same drive!
- Resizing via ntfssize or GNU parted before installation
- fdisk/cfdisk/Disk Druid
- Read FAT and NTFS with no hassles
- Write to FAT wonderfully; NTFS works, still a bit buggy
- WINE

## Concept of User Accounts

- Look at the labs – don't you always login?
- Windows 2000 and Mac OS X started with the correct idea of user accounting
- Basically two important groups:
  - Root users
  - Normal users
- Has its advantages – on a single shared machine; malicious application execution isn't harmful to the system

## Windows <-> Linux Terminology

C:\	/dev/hdaX
LPT1	/dev/lp0
COM1	/dev/ttyS0
A:\	/dev/fd0
CDROM	/dev/cdrom
SCSI	/dev/sdaX

USB Keys are sometimes detected as SCSI devices, but other times are detected as USB devices too.

Real cat-and-mouse, but a USB printer for example is detected usually as /dev/usb/lp0.

Probably a good idea to start browsing /dev in your own time

## A few more things...

- Linux is case-sensitive
- File permissions in Linux turn out to be quite important
- ~ is usually your home directory. Try `cd ~`
- Things don't always work out of the box on some distributions...
- There is no one right distribution – as future computer scientists, you have to evaluate and choose the correct one for the application

## Getting help

- man pages
  - `man man`; `man ls`; etc...
- info pages
  - `info emacs`; etc...
- Google
- `monash.linux`
- Friendly folks in the CSSE Student Club Room

## Distro Choices

- There are many distributions of Linux - <http://www.distrowatch.com> – good site for reviews
- Choices of mainly:
  - Debian
  - Red Hat
  - Mandrake
  - SuSe, Slackware, Vector Linux, Knoppix

## Distro Utilities

- All distro's have different forms of configuring things – some have GUI tools, some have custom-built command tools, some have none of these!
- Generally edit the same underlying file
- Mandrake – Control Centre
- Red Hat – System Settings
- Debian – launch that text editor, and start hacking away!

## Choosing a window manager

- Many choices (as usual)
  - GNOME (my preference)
  - KDE (mature, has lots of additional utilities, sort of sponsored by the German government too)
  - XFce – been to the labs?
  - WindowMaker, AfterStep, fvwm, Blackbox, Enlightenment and heaps more
- Login display managers – `gdm`, `kdm`, `xdm`

## Installing Software – Debian

- Uses the famed APT-GET system, with `dselect` and `tasksel`
  - `apt-setup` – configure your `sources.list`
  - `apt-get update` – update changes
  - `apt-get dist-upgrade` – system wide upgrades
  - `apt-cache search <package_name>` - find a package
  - `apt-get install <package_name>` - install stuff
  - `dpkg -i`
- Aptitude (text-based); `synaptic`, `kpackage`, `gnome-apt`, etc... (GUI based); `apt-cdrom`

## Installing Software – Mandrake

- `urpmi <package_name>` - installs a package
- `urpmq <name>` - searches for a package
- `urpmf <filename>` - searches through files
- `urpmi.addmedia` – add RPM and urpmi databases
- `urpmi.update -a` – upgrades database of packages
- DrakConf has a front-end configuration tool
- <http://myweb.tiscali.co.uk/jwrobinson/docs/urpmi-howto>

## Installing Software – Red Hat

- `rpm -ivh <package.rpm>` - installs, verbosely
  - `rpm -e`
  - Doesn't do package dependencies :(ul>  - `rpmdb-redhat; --aid option`
- `up2date`
- APT-RPM – started by Connectiva
  - <http://bazar.conectiva.com.br/~godoy/apt-howto/>
- RedCarpet, yum

## Installing Software – tarballs

- Sometimes, you don't get RPM's or DEB's of your stuff
- Usually:
  - `tar -zxvpf filename.tar.gz`
  - `cd filename`
  - `./configure`
  - `make`
  - `sudo make install`
- Use `bunzip2` on `.bz2`, or `uncompress` on `.Z`

## Finding files...

- GNOME – Actions -> Search for Files
- KDE – K -> Find Files
- `find /home/username -name *.mp3`

## Editing files

- Variety of text (and HTML/code/etc...) editors
  - `vi/vim`
  - Emacs/XEmacs
  - `joe, nedit`
  - Quanta/Quanta Plus, Screem, Bluefish, Amaya
  - Conglomerate
- Freshmeat.net might be a good site to search for something that you'll end up being comfortable with

## Stuff for Uni

- You'd want to make sure you have:
  - `gcc, gdb`, and maybe even `DDD`
  - The Perl and Python interpreters
  - `Xspim/spim`
  - A sane text-editor that you know how to use
  - Some use `KDevelop`

## Backing up

- Floppies – mount them first, copy data over, then unmount them
- CDR/CDRW's – becoming the common way to backup data
  - XCDRoast, k3b, Nautilus drag&drop support
  - Needs ide-scsi emulation
    - Upgrade to kernel release 2.6, and ATAPI IDE stuff works
- Rsync, Unison

## Getting some tunes going...

- Gnome CD Player, KsCD
- XMMS, Rhythmbox, GStreamer
- Audacity – Sound Forge/Cool Edit replacement
- Grip, cdparanoia (text-mode)
- MP3's don't work out of the box on Red Hat Linux
  - <http://havar.dk.xmms.org/dist/xmms-1.2.7-rh8-rh9-rpm/>

## What about video?

- Xine, Ogle – DVD players
- VLC – VideoLan Client; great for VCD's
- mplayer - MPEG/DivX/etc...
  - Works better with GUI stuff built in
  - Xvidcore, divx4linux
- Film Gimp

## Graphics!

- The GIMP – Photoshop replacement/killer!
- GQView – slide shows, general viewer
- Dia – draw diagrams, including UML
- OpenOffice.org Draw – vector graphics galore!

## Office Software

- Most people use their PC's for this sort of reason!
- Koffice, Gnome Office
- Prefers OpenOffice.org
  - *"95% Microsoft Office, at 1% the cost"*
  - Writer, Calc, Impress, Draw, Math, HTML, Formula Editor, and more!
- Mr. Project – project management
- GNUCash – accounting software

## Internet based stuff...

- Netscape Navigator, Mozilla, Firebird, Konqueror, Galeon
- Ximian Evolution
- mutt/pine/elm – text based e-mail
- Exim, fetchmail, procmail
- wvdial/KPPP
- Pan/slrn

## Fun Software (Chat)

- BitchX, X-Chat
- Instant Messengers
  - Gaim – AIM/ICQ
  - Licq – ICQ client, does SMS support too
  - Everybuddy – Good MSN client, and has more too
  - Jabber
  - Yahoo! Instant Messenger Java client
- Goofey!

## Fun Software (games)

- TuxRacer
- FreeCell, Backgammon, Gnibbles
- Don't know much about this, but:
  - <http://www.linuxgamers.net/>
  - <http://www.linuxgames.com/>
  - <http://lgames.sourceforge.net/>
  - Loki had good games (?) but have since closed down

## Other interesting stuff

- Scribus – great for DTP use
- XPDF, alien
  - <http://linuxshop.ru/linuxbegin/win-lin-soft-en/> - The Table of Equivalents
  - Some hands on tips - <http://linuxrefresher.com/intro/migrate.htm>
  - <http://www.linuxvirgins.com/> - A gentle guide for first time users
- gkrellm; use cron to start xmms; etc...

## Connecting remotely

- SSH is the definitive way
  - `ssh -l username ra-clay.cc.monash.edu.au`
  - `ssh -l username sng.its.monash.edu.au`
  - `ssh yoyo.its.monash.edu.au`
- Copying files happen quite nicely with “scp”
- Telnet & FTP send passwords in clear text => horribly insecure
- -X turns on X11 Forwarding

## Maintenance

- Install sudo
- Distro-specific help:
  - `apt-get dist-upgrade` regularly
  - `up2date` works; `payed` up is quicker
- `/etc/inetd.conf` or `/etc/xinetd/*` control services that that the machine allows
- `netstat -l` – look at ports that are being listened to
- Keep up to date with patches/new kernels

## Webmin

- <http://www.webmin.com/>
- Takes the intimidation out of doing things
- Work-able via your web-browser
- Not highly secure (IMHO), but usable if you've got machines at home
- Burn a CD, manage SAMBA, just about do anything!
  - <http://webmin.thirdpartymodules.com/>

## More Config tools

- samba-swat – great for configuring SAMBA
  - Runs through a web browser
- Redhat-config-\*
- DrakConf
- KUser/redhat-config-users
- KCron
- Alien
- updatedb&

## Using maintenance tools through a proxy

- export http\_proxy=http://proxy.monash.edu.au:8080/
- In /etc/apt/apt.conf:
  - Acquire::http::Proxy "http://proxy.monash.edu.au:8080/

## The Quick Kernel Compile Guide!

- Get package from ftp.au.kernel.org
- Unpack it to /usr/src/<kernel\_version>
- make menuconfig
- make dep; make clean
- make zImage (or bzImage)
- make modules
- cp /usr/src/linux-2.4.21/arch/i386/boot/zImage /boot/newkernel
- make modules\_install

## Getting the boot-loaders working

- Change /etc/lilo.conf
  - image=/boot/newkernel
  - label=new-kernel
  - read-only
  - /sbin/lilo
- Change /etc/grub.conf
  - root(hd0,1)
  - kernel /boot/newkernel ro root-LABEL=/
  - grub-install /dev/hda

newkernel is normally named vmlinuz-2.4.20-13.8 or something similar to that.

It's really meant to follow the kernel release information, or what patches have been applied (like a -ac one).

## Knoppix

- Bootable CD, with a full KDE-based Debian GNU/Linux Distro, plus excellent hardware detection
- Can be installed on-to a hard disk
  - knx-hdinstall
  - And follow the on-screen instructions
- Fully apt-compliant with Debian testing/unstable
- <http://www.bytebot.net/geekdocs/debian-knoppix.html>
- Careful with partitioning and chain-loading though

## How YOU can help

- Find a project you like
- Contribute
  - Code
  - Time
  - Documentation
  - Patches
- Help the CSSE Club in their Linux Install Days
  - We are really looking for new blood
- Learn by doing (really!)

## More help available

- Compile kernels the Debian way -  
<http://articles.linmagau.org/modules.php?op=modload&name=Sections&file=index&req=viewarticle&articleid=158>
- LinMagAU - <http://www.linmagau.org/>
- LUV - <http://www.luv.asn.au/>
- MLUG - <http://www.mlug.org.au/>
- CSSE Student Club -  
[linux@club.csse.monash.edu.au](mailto:linux@club.csse.monash.edu.au)
- Very own, Tim McCoy -  
[http://members.datafast.net.au/tmccoy/Linux\\_Debian.html](http://members.datafast.net.au/tmccoy/Linux_Debian.html)
- And many more friendly folk...