Some commands & concepts that are useful in many unexpected situations

- Not the only useful commands
- Not even the most useful
- Just some I like
- Mixture of easy & advanced
In – links hard & symbolic

- The Unix equivalent of gaffer tape
- Hard links \texttt{ln} \texttt{from} \texttt{to}
- Symbolic links \texttt{ln} -\texttt{s} \texttt{from} \texttt{to}
  - Can go across mounts
  - Can link to directories
- Don't always behave as expected
  - Editors
  - \texttt{cp}, backup programs
- Library tricks
Copy example with `ln`

- `mkdir a; cd a`
- `echo hello > x`
- `ln -s x y`
- `ln x z`
- `ls -l`

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<tr>
<td>x</td>
<td>-rw-r--r--</td>
<td>2</td>
<td>6</td>
<td>2011-04-09 18:46</td>
<td>dg</td>
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<tr>
<td>y</td>
<td>lrwxrwxrwx</td>
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- `cp -a a b; ls -l b`

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- `cp -r a c; ls -l c`

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Wireshark (nee Ethereal)

- Network & USB debugging – grab packets & see what's really going on:
ImageMagick

- Old collection of image tools
- Handles almost any image format
- 'convert' is most useful
  - Convert formats – `convert blah.png blah.jpg`
  - Screen grab – `convert X: wireshark.png`
  - Simple enhancements – `convert -enhance in.jpg out.jpg`
  - Resize – `convert in.jpg -resize 400x300 out.jpg`
  - 100s of options!
  - Script resizes/conversions/etc on whole directories
Not just convert
- display – simple display program (outdated)
- identify – tell you everything about an image file
- composite – overlap images
- And a few more

Can deal with animated gifs, vector->bitmap conversion and lots more
Pretty raw copying of data with some conversion and size tricks

- `dd if=infile of=outfile someflags`
- `dd if=/dev/zero of=1megfile bs=1024k count=1`
- `dd if=afile of=another bs=1024 count=10 skip=100`
  - Copy 10k from 100k in
- `dd if=/dev/sda of=mbrcopy bs=512 count=1`
- Simple disk wipes! Be careful with parameters if & of especially!
udisks

- A layer on top of kernel->udev->udisks for managing disks
- Can often be run by normal users
- Used by gnome etc to mount disks
- `udisks --mount /dev/whatever`
- `udisks --enumerate-device-files`
  - See device by path, id, uuid, etc
- `udisks --show-info /dev/sda`
  - Type of drive, vendor, model, whether SSD or not, last SMART data
apt-file, locate, apt-cache, dpkg -S

- Find the package a file is in:
  - dpkg -S /bin/ls

- Which package to install a file from:
  - apt-file search tux.png
  - apt-file update

- Where did I put that file:
  - locate 10usefulcommandments
  - Update in cron ~once/day

- Which package to...
  - apt-cache search electrical
ltrace & strace

- See what a program is doing
  - ltrace for Library calls / strace for System calls

- ltrace /bin/ls

```c
readdir(0x018e7c20) = 0x018e8180
strlen("index.html") = 10
malloc(11) = 0x018efe10
memcpy(0x018efe10, "index.html", 11) = 0x018efe10
```

- strace /bin/ls

```c
open("/usr/lib/locale/locale-archive", O_RDONLY) = 3
fstat(3, {st_mode=S_IFREG|0644, st_size=2772576, ...}) = 0
```

- -p for attach to existing processes
- -f for follow forks (child processes)
- -T time spent in calls
procmail

- Filter a mail stream, add/remove headers, sort into folders, run through other things
  - Some mailers will run this for you if you just create a .procmailrc
- e.g. Put folders from a particular address in a particular folder:

  :0:
  * ^From.*dave@treblig.org
daves-mail
  :0:
  * ^X-Spam-Level: \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*
almost-certainly-spam
Find information from BIOS about your machine

- `sudo dmidecode`

Base Board Information
- Manufacturer: ASRock
- Product Name: P55M Pro

Memory Module Information
- Socket Designation: DIMM0
- Bank Connections: 0 1
- Current Speed: Unknown
- Type: DIMM SDRAM
- Installed Size: 2048 MB (Double-bank Connection)
- Enabled Size: 2048 MB (Double-bank Connection)
- Error Status: OK

- Only as good as your BIOS + system vendor
- My laptop claims to be 91inch high with 18 power cords
chvt, /dev/vcs*

- chvt – equivalent of ctrl-alt-fn
  - Can be useful if keyboard has hung to remotely get out of X
- cat /dev/vcs1
  - Displays the text contents of a console
- Useful for seeing remotely what is on the console of a machine.