GNU and Linux commands

About my favourite file manager Linux for Teachers

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5, 6 December 2005

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Comparing GNU commands with DOS

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- Don't file managers make all that obsolete
- Doesn't it take so much longer to type all those crazy commands?
- "Aren't you just telling us all this crap to waste our precious time we could spend learning something useful?"
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- You may be better with a file manager than I am
- you may have had more practice than I have...
- ▶ ... because my favourite file manager is the command line
 - ... keeps umbrella handy to protect against the expected shower of rotten tomatoes
- ► Still here? Hmm, okay, I'll tell you why.

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- Allows you to automate things
- Provides quick ways of getting at things similar to what you did before
- quicker than pulling down menus

Comparing GNU commands with DOS

- You are nearly as old as I am,
- so many of you are familiar with DOS commands.
- If you were just out of school, this comparison would be useless

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Action	GNU	DOS
list files (short)	ls	dir /s
list files (long)	ls -1	dir
copy files	cp 〈 sourcefile 〉 〈target〉	copy (sourcefile) (target)
move files	mv 〈sourcefile〉	move (sourcefile) (target)
rename files	mv (sourcefile) (target)	ren (sourcefile) (target)

GNU ↔ DOS

Action	GNU	DOS
change directory make directory	cd ⟨dirname⟩ mkdir ⟨dirname⟩ 	cd ⟨ <i>dirname</i> ⟩ md ⟨ <i>dirname</i> ⟩
remove directory	rmdir ⟨ <i>dirname</i> ⟩	rd (<i>dirname</i>)
show current directory	pwd	cd
show content of text file	cat $\langle \emph{file} angle$	type $\langle \emph{file} \rangle$

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Bash shell provides command-line editing

- $\blacktriangleright \ \, \mathsf{Move:} \ \, \overline{\mathsf{Home}}, \overline{\mathsf{End}}, \overline{\longleftarrow}, \overline{\rightarrow}$
- ► Delete words: Esc D, Esc Backspace
- Delete to end of line: (Control-k)
- ▶ tab completion
 - ► type the first few characters of a command, file,... and press the Tab key: the shell will complete the name
- A history of previous commands
 - ▶ press (↑), (↓
- ▶ Reverse search through history
 - type any characters from a previous command and press
 Control-R repeatedly until you see the command you want

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```
Doing it even faster with loops
```

- command line editing, tab-completion and history all make the command line fast...
- but the real speed comes with automation
- We can automate things with loops
- Here are the last few things I did with loops:
- list PDF documents I wrote, with the number of pages:

```
$ for i in *trans.pdf;do o="$(pdfinfo $i|egrep
'^Pages:|^Author:|^Title:')";if echo $0| egrep -q
'Author: +Nick'; then echo $i:; echo "$o"; fi; done ←
```

Set timestamp correctly in family photos: \$ for i in 2005_09_11 2005_09_12 2005_09_13

2005 09 14 2005 09 15 2005 09 16 2005 09 17 2005_09_18; do pushd \$i; pwd; exif-timestamp-adjust.pl

*. ipg; popd; done ←

View all my teaching handouts:

```
$ for i in *slides-beamer-handout.pdf;do xpdf $i&done
```

Pretty-print my C++ programs:

```
$ for i in *.cpp;do pretty-print-cpp $i| lpr;done ←
```

Make a hundreds table for my son:

```
$ for ((i=1;i<=100;++i));do echo -n "$i "; if ((i %
10 == 0)); then echo '
';else echo -n '& ';fi;done > hundreds-table.tex =
```

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- A few commands are built into the bash shell; you can get help for these by typing \$ help ←
- ▶ The other commands are in /bin, /usr/bin
- you can go there and have a look
- each one has a "man page"
- ▶ To read the page for ls, you can do \$ man ls ←
- ► To search for \(\langle word \rangle\) in the man page, type \(\langle \langle word \rangle\)
- ► To quit, type: (q)

But where is the woman command? Isn't this sexist?

"man" is short for "manual"

What's the GNU, anyway?



- GNU stands for "GNU's Not Unix"
- It's the project started by Richard Stallman
- Aims to provide all we need without contaminating our computers with non-free software
- ▶ Enables membership of the Church of Emacs.

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- Write a for loop to count up to 100: \$ for ((i = 0; i <= 100; ++i)); do echo \$i; done ←</p>
- See all the man pages for programs in /bin: \$ cd /bin; for i in *;do man \$i;done ←
- ▶ Do the same thing for the commands in /usr/bin
- Note: pressing (Control-C) will interrupt a loop that gets stuck going "forever"

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- You write to anything under your home directory, or in /tmp with your own account
- ... but to write anywhere else, you need to be the system administrator and have root access.
- I highly recommend that you use sudo to become the system adminstrator.
- ► To do that you can follow the separate guide available at http://nicku.org/lpic102/lpic/ general-linux-2/lab/sudo/sudo.pdf

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- You can use yum to install new software
- You can become root by either:
 - ▶ using sudo ✔
 - ► ... or by typing \$ su ← and then entering the root password X
- ► Then do: \$ sudo yum -y update

 # yum -y update
- ► To install Blender, do:
 - \$ sudo yum -y install blender \hookleftarrow
- ▶ To install Scribus, do:
 - \$ sudo yum -y install scribus \hookleftarrow

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Dr. Peter Salus.

The Daemon, the GNU & the Penguin.

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