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GNU and Linux commands

About my favourite file manager
Linux for Teachers

Nick Urbanik <nicku@nicku.org>

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5, 6 December 2005

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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?"
- ▶ I'll tell you a secret

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My Dirty Secret

- ▶ 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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Advantages of the Command Line

- ▶ 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

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- ▶ 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)	<code>ls</code>	<code>dir /s</code>
list files (long)	<code>ls -l</code>	<code>dir</code>
copy files	<code>cp <sourcefile> ... <target></code>	<code>copy <sourcefile> <target></code>
move files	<code>mv <sourcefile> ... <target></code>	<code>move <sourcefile> <target></code>
rename files	<code>mv <sourcefile> <target></code>	<code>ren <sourcefile> <target></code>

GNU ↔ DOS

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Action	GNU	DOS
change directory	<code>cd <dirname></code>	<code>cd <dirname></code>
make directory	<code>mkdir <dirname></code> ...	<code>md <dirname></code>
remove directory	<code>rmdir <dirname></code> ...	<code>rd <dirname></code>
show current directory	<code>pwd</code>	<code>cd</code>
show content of text file	<code>cat <file></code>	<code>type <file></code>

Doing it fast

- ▶ Bash shell provides command-line editing
 - ▶ Move: `Home`, `End`, `←`, `→`
 - ▶ 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 `↑`, `↓`
- ▶ **R**everse 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 $o| 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  
*.jpg;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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How can I get help with these commands?

- ▶ 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 `<word>` in the `man` page, type `/<word>`
- ▶ 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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Some things to do

- ▶ Write a `for` loop to count up to 100: `$ for ((i = 0; i <= 100; ++i));do echo $i;done ↵`
- ▶ See all the `man` pages for programs in `/bin`: `$ 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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Being the system administrator

- ▶ 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 administrator.
- ▶ 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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Getting more software

- ▶ 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 ✗
- ▶ Then do: `$ sudo yum -y update ↵` or `# yum -y update ↵`
- ▶ To install Blender, do:
`$ sudo yum -y install blender ↵`
- ▶ To install Scribus, do:
`$ sudo yum -y install scribus ↵`

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Resources



Dr. Peter Salus.

The Daemon, the GNU & the Penguin.

Groklaw 2005.

[http://www.groklaw.net/staticpages/index.php?page=20051013231901859.](http://www.groklaw.net/staticpages/index.php?page=20051013231901859)



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