

UNIX Quick Reference

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1 Command Reference

Many of these commands have many more options than the ones displayed here. Most also take the option `-h` or `--help`, which displays help on the command (e.g. `date --help`).

1.1 Basic Commands

apropos *subject*

Searches for commands related to the given subject.

cal *[[date] year]*

Displays a formatted calendar for the current month; with the optional arguments, displays the specified month and year, or an entire year.

date

Displays the current date and time.

fortune

Prints out a random fortune.

man *command*

Shows help on a command.

weather

FAS-Specific

Prints current weather information and forecasts.

1.1.1 Printing

The *printer-name* argument is the UNIX name of a printer; there is a list of them on Eureka.

enscript *[-2rG] [-DDuplex:true] -Pprinter-name [file...]*

Prints a plain text file. The `-2rG` option prints the file in a two-column format preferred by many computer science courses; the `-DDuplex:true` prints on two sides of the paper (when the printer has that ability). With no files given, reads standard input.

lpq *-Pprinter-name*

Displays the queue of print jobs waiting on the specified printer.

lpr *-Pprinter-name [file...]*

Prints files or standard input to a printer. The file(s) must be either plain text or in PostScript format (the first line of the file should read "PS-Adobe-*x.y*").

1.1.2 Network

The argument *dns-name* can be either an IP address or a valid DNS hostname.

hostname

Displays the hostname of the current machine (e.g. `is05`).

nslookup *dns-name*

Looks up the DNS hostname by IP address, or vice versa.

ping *dns-name*

Pings the specified computer. If no output seems to be generated (other than the headers), then the computer is probably not on the network. Press Ctrl-C to stop.

traceroute *dns-name*

Displays diagnostic network information in an attempt to ping the given computer.

1.2 E-mail Commands

blockmail

FAS-Specific

Blocks e-mail by sending address or subject line.

forwardmail

FAS-Specific

Sets a forwarding e-mail address and/or vacation message.

pine [email-address. . .]

With no arguments, checks e-mail; with arguments, sends e-mails to the specified recipients.

procmail *Not actually a command*

Mail processing system; please refer to:

<http://www.people.fas.harvard.edu/~cduan/technical/procmail/>

1.3 FAS/UA Commands

fixdotfiles

FAS-Specific

Remakes basic account initialization files to their defaults; to be used in case there are account login problems.

fixfinger

FAS-Specific

Sets up file permissions to make the .plan file readable by others; see the **finger** command.

fixwebfiles

FAS-Specific

Sets up file permissions to make the web directory tree under public.html usable by the webserver.

nofinger

FAS-Specific

Prevents people from fingering you; see the **finger** command.

quota

Displays available and used disk space; sizes are in kilobytes.

sudo *command [arguments. . .]*

Runs a special UA command; see Eureka for a list of available ones.

usage

FAS-Specific

Displays print budget usage.

1.4 Multi-User, Multi-Process Commands

The FAS network has several machines, but many of these commands only act on the machine currently being used. If you would like to view information for a different server, you may use the command “ssh *server-name*” to connect to that server.

1.4.1 User-Related

finger *user*[@*hostname*]

Displays various information regarding a user. These include the user's full name and location information, current logins to all FAS machines, and the user's plan, which is the contents of their .plan file (which thus must be world-readable; see **fixfinger**). You may finger users on *other* UNIX machines as well, such as mit.edu, but their information may differ.

last [*user*]

Displays information on recent logins to the current machine. With a user argument, only displays information on that user.

ph *full-name*

FAS-Specific

Looks up information on a person at Harvard.

rwho [*user...*]

FAS-Specific

Finds a user's login sessions across *all* Harvard servers. Note that it is delayed by about thirty seconds.

users

Displays list of users on the current machine.

who [am i]

Normally displays login information for users on the current machine; "who am i" (or any other two words) displays information on just yourself.

1.4.2 Process-Related

Processes are programs.

bg [%*job-number*]

"Background" a suspended process; it will run in the background, but you will not be able to provide input to it until you foreground it with **fg**. The job number is acquired with the **jobs** command.

fg [%*job-number*]

"Foreground" a process which was suspended with Ctrl-Z or **bg**. The job number is acquired with the **jobs** command.

jobs

Displays all of your suspended and backgrounded jobs and their job numbers.

kill [-KILL] (*process-number* | %*job-number*)

Terminates a process, by process number (given by **ps**) or job number (given by **jobs**). The -KILL option will forcibly kill the job if it is not responding. Processes may be killed through any of your connections to the same machine; it does not have to be from the same shell which is running the program.

ps [aux]

Shows currently running process information. With no options, displays just your own process numbers and names; "ps aux" displays all processes on the current machine, with extra information.

w [*user*]

"Who is doing what": shows users on the current machine and their currently running program.

1.5 Communication Commands

mesg y | n

Permit or deny people to use **write** or **talk** with you.

talk *user*[@*machine*]

Initiates a two-way conversation with the given user on the specified machine (or the current machine if none is given). When done, press Ctrl-C to stop.

write *user*[@*machine*]

Writes a message to the given user. If no machine (e.g. is02) is specified, then the current machine is assumed. Type in the message, and press Ctrl-D on an empty line to stop.

1.6 File System Commands

1.6.1 Browsing

cd [*directory*]

Changes the current directory to the specified directory, or your home directory if none is specified. Note that, since “.” refers to the directory immediately above the current directory, “cd ..” will take you one directory level up.

ls [*directory...*]

List the files in the specified directory or directories, or the current directory if none is specified.

ll [*directory...*]

Produce a detailed listing of all files, including hidden ones, in the specified directory or directories, or the current directory if none is specified. This is in fact just an alias to “ls -la”.

pwd

Print the full path of the current directory.

1.6.2 Manipulating

chmod *mode file...*

Sets the permissions on the files to the given mode.

cp *file1 file2*

Copies *file1* to *file2*.

cp *file... directory*

Copies all of the files into the specified directory.

mkdir *directory*

Creates a directory with the specified name.

mv *file1 file2*

Renames *file1* to *file2*.

mv *file... directory*

Moves all of the files into the specified directory.

rm [-r] *file...*

Deletes the specified file or files. With the -r option, deletes recursively down subdirectories and removes the subdirectories as well.

rmdir *directory*

Removes the specified directory, which must be empty.

1.6.3 Viewing and Editing

cat [*file...*]

Prints the specified file or files out in succession, or prints out standard input with no arguments (not too useful).

head [-*number*] *file*

Prints the specified number of lines from the start of the file (ten lines by default).

grep [-r] [-i] *pattern [file...]*

Searches through the specified files for a pattern and prints out lines containing that pattern. With the -i option, the search is case-insensitive; with the -r option, subdirectories are searched as well. The pattern may be as simple as a single word; more complex patterns, known as *regular expressions*, may also be used.

less *file*

Shows a file, page by page. It is much like **more**, but it has extra functionalities, detailed in the man page. Accepts arrow keys to move up and down; type “q” to quit.

more *file*

Shows a file, page by page. Press Space to go on to the next page once a page is displayed.

tail [-n *number*] *file*

Prints the specified number of lines from the end of the file (ten lines by default).

vim [*file...*]

Edits the specified file or files (with no arguments, opens a blank unnamed document). To learn to use Vim, please see:

<http://www.people.fas.harvard.edu/~cduan/technical/vi/>

2 File Permission Modes

2.1 Permission Types

Remember, for one to read, write, or execute a file, one must be able to execute all of that file's containing directories.

Level	For Files	For Directories	ll	chmod
read	Read file contents	List files in directory	r	4
write	Change file contents	Create/delete files in directory	w	2
execute	Run file as program	Use files in directory	x	1

2.2 Account Permission Types

Person Type	Description
Self	Yourself
Group	People within the same predetermined UNIX group as you, such as students or User Assistants
World	All people with UNIX accounts on the server

2.3 Common Permission Values

ll	chmod	Description
rw-----	600	Normal, private files
rwx-----	700	Normal, private executable programs or directories
rw-r--r--	644	Publicly readable files (e.g. web pages)
rwxr-xr-x	755	Publicly readable and accessible directories (e.g. public.html)
rwx--x--x	711	Publicly accessible directories whose contents cannot be listed

3 Making Your Life Easier

Put the following lines into the specified files.

3.1 The .aliases File

This file contains *command aliases*, which allow you to type in a command to be translated (or unaliased) into another command. Here are some useful ones:

```
alias ls ls --color=tty
```

Highlight directories and special files in colors when listing.

```
if ("$(HOST)" != 'admin') alias sudo 'ssh -t admin sudo \!*
```

If you try to use a sudo command on the wrong server, connect to the admin server and run the sudo command there.

Add your own aliases to taste.

3.2 The .cshrc File

This file contains shell initialization settings.

set prompt = "%m:%~> "

Displays the current path in your shell prompt (replacing your home directory with a tilde). This saves you from typing a lot of “pwd” commands.

setenv PATH \${PATH}:%HOME/bin

If you write or acquire a lot of executable scripts, create a directory named “bin” in your home directory, put those scripts in that directory, and put the above line into your .cshrc file.

3.3 The .login File

This file contains information you wish to have printed out upon every login session.

weather | head -16

Displays the weather report, shortened to the first 16 lines so it fits on one screen.

nfrm

Shows the senders and subject lines of your new mail.

fortune -s

Displays a short fortune message. Fun!