UNIX COMMANDS

This handout is a quick reference for useful unix commands. It is not complete nor is it intended to replace manual pages or unix books.

Recomended Reference : Unix in a Nutshell.

FILE COMMANDS

touch

Create a new file.
Usage: touch <filename>
Usage:

cp

Copy files.
Usage: cp [options] <source-filename> <destination-filename>
cp [options] <source-filepath > <destination filepath>
Options: -r recursively copy directory structures.

mv

Move or Rename files or directories.
Usage: mv [options] <old-filepath> <new-filepath>
mv [options] <old-filename> <new-filename>
Options: -i query user for confirmation.

rm

Remove files.
Usage: rm [options] <filname>
Options: -r recursively remove directory structures.
-i query user for confirmation.

cat

View complete file content.
cat <filename>

more

View file contents in sections determined by the size of the terminal.
Usage: more <filename>

less

View file contents in sections determined by the size of the terminal. Has more options and search features than more.
Usage: less [options] <filename>

compress

Reduces the size of the file. and adds the extension .Z
Usage: compress <filename>.

uncompress / zcat

Restores a compressed file.
Usage: uncompress <filename>
Usage: zcat <filename>

DIRECTORY COMMANDS

cd Change directory.
Usage: cd <filename>
Eg: cd my-directory
cd go to home directory
cd .. go up one directory

pwd Print working directory on the terminal.

ls List the content of a directory.
Usage: ls [options] or ls [options] <directory-path>
Options: -l list all files in long format.
(permissions, users, filesize,date, and time are displayed).
-a list all files including those beginning with a "."
-F list files distinguishing
directories/ executables* symbolic links@
-R recursively list subdirectories encountered.

mkdir Create a new directory.
Usage: mkdir <directory-path>

rmdir Remove a directory if its empty.
Usage: rmdir <directory-path>

SYMBOLIC LINKS

ln Create symbolic links between files or between directories.
Usage: ln [options] <file-to-be-linked> <new-file>
ln [options] <directory-to-be-linked> <my-directory>
Options: -s allows linking across file systems and allows the display of the link's name upon ls -l.
Eg: ln -s course-file myfile
Eg: ln -s course-directory myspace

TERMINAL COMMANDS

clear Clears the terminal.

echo: Write a string to standard output.
Usage: echo “string” or
echo ‘string’

repeat Repeats commands.
Usage: repeat <number> <command>

HELP COMMANDS

man Displays the manual page for the selected command.
Usage: man <command-name>

help Opens the default web browser in the andrew unix help web site.
http://polaris.andrew.cmu.edu/help/sys=sun4_55/env=gamma/Top-Page

rtfm Displays the man page and help files ont he terminal.
Usage: rtfm <command-name>

INFORMATION COMMANDS

history Lists the commands typed during the session.
Options: -r displays the list in reverse.

hostname Displays the computer’s or server’s name on the terminal.

who Displays who is on the system.

who am i Displays the invoking user.

wc Counts and displays the number of lines, words and characters of a file.

Usage: wc [options] <filename>

Options: -c count character only.
-l count lines only.
-w count words only.

date Exercise >> to be completed by students.

cal Exercise >> to be completed by students.

whatis Displays the command description.

Usage: whatis <command>

whereis Exercise >> to be completed by students.

which Exercise >> to be completed by students.

apropos Exercise >> to be completed by students.

id Displays the user id and the group id of the invoking user.

tty Displays users terminal name.

USEFUL CSHELL SYMBOLS

| Pipe the output of a command to be processed by another command.

Usage: command1 |command2
Eg: ls -l | more
more file-name | grep pattern
more filename | wc

> Redirect output..... to file (overwrite).

Usage: command > filename
Eg: wc filename > new-file

>> Append (the result of the command) to the end of the file.

Usage: command >> file-name
Eg: pwd >> existing-file

< Take the input for the command from a file.

Usage: command1 < filename.

& Run process in the backgound so that the shell remains active.

Usage: program-name &
program-name filename &

; Separate commands on the same line.

Usage: command1 ; command2
Eg: pwd ; ls

***** Match a string of zero or more characters.

Eg:	cp *	copy all files
	cd publ*	go to any directory that begins with publ
	cd *tory	go to any directory which ends with tory
	cp *.*	copy all files that contain a dot

? Match a single character.

Eg: grep d?n filename display all lines that contain
dan, don, din, dgn, ect.

[ ] Match any of the enclosed characters.
Eg: grep [abc] filename
grep [a-z] filemane Hyphen is used to specify a range.

$var Anything thats starts with a $ is a variable.

Begin comments (used in the Cshell script files).

~ Home directory symbol.
Eg: cd ~ go to home directory of the current user.
cd ~rob go tot home directory of user rob.

$home Home directory .

! The history commands.
!! Redo last command.
!str Redo the last command that starts with str.
!23 Redo the 23rd command.
!-2 Redo the (last command -2)

^ Quick modifier for the last command.
Usage: ^mistake^correction.

&& The logical and symbol : execute first command then if successful, the second command.
Usage: <command1> && <command2>

|| The OR symbol : executes the first command or, if it fails, the second command.
Usage: <command1> || <command2>

./ Runs a compiled program.
Usage: ./ program-name

PERMISSIONS AND FILE STORAGE (UNIX)

chmod Set the permission on a file or a directory.

Usage: chmod [options] <who> <opcode> < permission> <file-name>

Options: -R Recursively updates permisions within a directory structure.

Who:
- **u** user
- **g** group
- **o** other
- **a** all

Opcode:
- **+** add permission.
- **-** remove permission.

Permission:
- **r** read
- **w** write
- **x** execute

Eg: chmod a +rwx public-file
adds permissions of read write and execute to all.

Eg: chmod go -wx my-file
removes write and execute to group and others.

passwd Change the password.

df Displays the amount of free and used disk space.

du Displays the amount of disk usage.

quota Displays the amount of disk space used.

Options: -v Display user's quota on all file systems.

PERMISSIONS AND FILE STORAGE (ANDREW)

fs quota Checking your percentage disk usage on your andrew account.

fs lq Lists the amount and percentatge of disk usage on your andrew account.

fs la Lists access control lists for directories.
Usage: fs la or fs la <directory-name>

fs sa Sets access control lists for directories.
Usage: Usage: fs sa <directory> <user> <permission>
Eg: Eg: fs sa <directory-name > system:anyuser rl.

Permissions:

r	read
l	list
i	insert
d	delete
w	modify
a	administrative

PROCESSES

ps Displays the active processes.
Includes the process number, process name and process time.
Options: -a

kill Terminates a process.
Usage: kill [options] <process-number>

Options: -9 absolute kill.

control z Stops a current process.

bg Restarts process in the baground.

exec Executes a command in place of the current shell which terminates.
Usage: exec command-name.

PRINTING

lpr Sends a job to the printer.
Usage: lpr- P <printer-name> <file-name>
Options: -n specifies the number of copies.
Eg: lpr -P triglyph -3 myfile
prints 3 copies of myfile on trilyph

lpq Displays the printer queue including the job number.
Usage: lpq -P <printer-name>

lprm Removes a job from the printer queue.
Usage: lprm -P <printer-name> <job-number>

print Sends the job to the printer.
Usage: print -P <printer-name> <file-name>

ENVIRONMENT

env Show all the environment variables.

Usage: env

Some Environment variables:

HOME : home directory
PATH: search path for commands
TERM: terminal type
USER: username
DISPLAY: the name of the machine to which the display is sent.
SHELL: the current shell
PWD: the current directory.
EDITOR : the default text editor

printenv Show all or specified environment variable.

Usage: printenv
printenv <variable-name> will print only this variable

setenv Sets a particular environment variable.

Usage: setenv <variable-name> <value>
Eg: setenv EDITOR emacs.
setenv DISPLAY bernini.arc.cmu.edu:0.0

CUSTOMIZING

alias Creates a shortcut for a command or series of commands.

Usage: alias displays all specified aliases.
Usage: alias <shortcut> <series of commands>
To include command line arguments in the alias
\!* for the all command line arguments
\!^ for the first argument
\!$ for the last argument

Eg: alias h ‘history’
alias janus ‘xhost + ; telnet janus.arc.cmu.edu’
alias rm ‘rm -i’
alias my-term ‘xterm -title \!* -bg ivory -fg black’

unalias Removes the alias from its bound commands.
Usage: unalias <shortcut>

set Sets variables in current shell.
Usage: set <variable>=<value>
echo $variable will print out the value of the variable.
Usage: set: displays all the set variables in the shell.

unset Removes value form the variable.
Usage: unset <variable>

stty Set the option for a terminal.
Usage: stty erase <desired-key> character erase
stty kill <desired-key> whole line erase
stty werase <desired-key> word erase

set filec If filec is set, any partially typed filename can be expanded to its full name whenever esc key is pressed.
Usage: set filec

set prompt Sets the prompt of the terminal.
Usage: set prompt=<value>.
Eg: set prompt=”[hoda]”
set prompt="\!%“ will show command number
set prompt="<`pwd`> " will show working directory

chsh Change Shell.
Usage: chch <username> <newshell>
Eg: chsh hoda tcsh.

source Reads commands from a file. Used to reload an updated .cshrc file into the current working shell.
Usage: source filename.

NETWORKING

telnet

Connects to a remote computer.
Essential telnetting steps:

xhost +
telnet <remote-hostname>
setenv DISPLAY <local-hostname>:**0.0**

Eg: telnet janus.arc.cmu.edu

xhost +

Gives permission to all clients to establish remote connections with a server and display its output to its terminal.

Usage: xhost +
xhost - removes permision from all clients.

setenv DISPLAY

Allows the remote host to display its x-applications onto the local terminal.

Usage: setenv DISPLAY <local-hostname or IP address>:**0.0**;
Eg: setenv DISPLAY bernini.arc.cmu.edu:0.0
setenv DISPLAY 128.2.120.96:0.0

ftp

File transfer program: Allows the get and put of files between computer accounts.

Usage: **ftp** <remote-hostname>
Inside ftp: **put** <local-filename>
get <remote-filename>
mget <filename>gets multiple files.
eg: mget *
mput <filename> puts multiple files.
eg mput *
lcd changes the local directory.
help lists all ftp commands.
quit or bye exits ftp.

finger

Display information about local or remote users.

Usage: finger <user-name>
finger <user-id>

talk Exercise >> to be completed by students.

write Exercise >> to be completed by students.

X-APPLICATIONS

xterm Opens a terminal window.

Options:
- -name gives a name to the terminal.
- -title displays a title on the terminal.
- -bg specifies background color.
- -fg specifies foreground color.
- -e gives a command to be executed.
- - g specifies the geometry in the format .

<length> x <width > + <x-coord> + <y-coord of top left point>

Eg:
```
xterm -name janus -title janus -bg ivory -fg blue &
xterm-e  telnet janus.arc.cmu.edu &
xterm -g 90x28+640+600 &
```

xclock Exercise >> to be completed by students

dclock Displays a digital clock.

Options:
- -bg - fg - g
- -date

Eg:
```
dclock -date "%d %m %y" &
```

xemacs Opens emacs editor.

Usage:
```
xemacs &
xemacs filename &
```

UNIX FILTERS

grep Search a file for a matching pattern or regular expression.
Usage: grep [options] <regular-expression> <file-name>
Options: -n print lines and line numbers
-v prints all the lines that do not contain the expression.
Eg: grep [a-z]*.C filename
grep *[SITE]* filename

fgrep A variation of grep that maches a text-string and does-not support regular expressions.
Eg: fgrep <string> <file-name>

spell Exercise >> to be completed by students

sort Exercise >> to be completed by students

head Exercise >> to be completed by students

tail Exercise >> to be completed by students

find Search the system for filenames.
Usage: find <pathname> <condition>
Eg: find /home/hoda -name seed

split Splits a file into several files of equal length.
Usage: split [options] <filename> <outfile>.
Options: -n specifies the number of lines per file.
Another variation of split **is csplit** which splits the file using a specified expression as a splitting point.

cmp Compare 2 files.
Usage: cmp <file1> <file2>

diff Reports the lines that differ between 2 files
Usage: diff <file> <file2>

join A database operator that joins the common lines of two sorted files.
Usage: join <file1> <file2>