Information Technology
Rice University
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UNIX Reference Card

USEFUL PHONE NUMBERS

Consulting Center - Mudd 103 (software questions).....x4983
Operations - Mudd Lobby (hardware problems) x4989

LAB PHONE NUMBERS

Computing Room - Mudd 101.....x4982
RAVL - 218 Anderson x5153
Ryon - 102.....x2293
Mechanical Engineering - 241.....x3615
Abercrombie Lab - A121.....x2613
Abercrombie Lab - B223 .....x3379
Physics Lab- 221.....x2517

ANATOMY OF A UNIX COMMAND

command-name -option(s) *filename(s)* or *arguments*

Example: **wc -l** *sample*

The first word of the command line is usually the command name. This is followed by the options, if any, then the filenames, directory name/names, or other arguments, if any, and then a RETURN. Options are usually preceded by a dash and you may use more than one option per command.

The examples on this reference card use **bold** case for command names and options and *italics* for arguments and filenames.

Important Note about UNIX Commands

UNIX commands are case sensitive. Type commands exactly as shown; most UNIX commands are lower case. File and directory names can be lower, upper, or mixed case but must be typed exactly as listed.

ON-LINE DOCUMENTATION

whatis *command* - display a one-line summary about *command*
man *command* - display on-line manual pages about *command*

FILE SYSTEM MANIPULATION

MAKE (OR CREATE) DIRECTORY

mkdir *directory-name* - create a directory called *directory-name*

LOOK AT A FILE

more *filename* - display the file contents one screen at a time
head *filename* **-** display first few lines of a file
tail *filename* **-** display last few lines of a file

PRINT A FILE

setenv PRINTER *printer* - set the default printer
lpr *option filename* - print file
lpq *option* - check status of print queue
lprm *option* - remove jobs from printer queue
fpr *option filename* - print Fortran file
options: **-P***printer* - specify a printer other than the default

LIST FILES AND DIRECTORIES

ls *directory-name* - list contents of directory

options**:**

- **-a** list all files including invisible files
- -l long list - shows ownership, permission, and links
- -t list files chronologically
- **-f** append "*" to executable file name, "/" to directory name
- **-d** list directories
- **-u** list files using time of last access instead of time of last modification
- **-F** mark directories with forward slash, mark executables with an @-sign.
- **-g** lists ownership of each file or directory

pwd -display the name of present working directory

CHANGE WORKING DIRECTORY

cd	to change to your home directory
cd *directory-name*	to change to another directory

examples:

cd ~	change to home directory
cd test	change to directory test

(CONTINUED)

DIRECTORY ABBREVIATION

~	home directory (tilde)
~*username*	another user's home directory
.	current or working directory
..	parent of working directory

MOVE (OR RENAME) FILES AND DIRECTORIES

mv *present-filename new-filename* to rename a file
mv *source-filename destination-directory* to move a file into another directory
options: **-i** interactive mode. Must confirm file overwrites.

COPY FILES

cp *source-filename destination-filename* to copy a file into another filename
cp *source-filename destination-directory* to copy a file into another directory
options: **-i** interactive mode. Must confirm overwrites.

REMOVE (OR DELETE) FILE

rm filename to remove a file
rmdir *directory-name* to remove an empty directory
options: **-i** interactive mode. Prompt for confirmation.

CHANGE FILE ACCESS PERMISSIONS

chmod [*who op permission* **]** *filename*
who can be any combination of:

- **u** (user)
- **g** (group)
- **o** (other)
- **a** (all) (i.e. **ugo**)

op adds or takes away permission, and can be:

- **+** (add permission),
- **-** (remove permission), or
- **=** (set to exactly this permission).

permission can be any combination of

- **r** (read)
- **w** (write)
- **x** (execute)

Example: **chmod a+x** *filename* - makes *filename* executable by everyone

SHELL TOOLS

Wild Cards

?	single character wild card
*	arbitrary number of characters

HISTORY: COMMAND REPETITION

history	display list of most recent commands
!!	repeat the entire last command line at any point in the current command line
!$	repeat the last word of previous command line at any point in current command line
!: *n*	repeat the *n*th argument from previous line at any point in current command line
!^	repeat first argument from previous command line at any point in the current command line
! *n*	repeat command line *n*
!!:p	display previous command
!*string*	command beginning with *string*
!*	repeat all arguments to previous command

COMMAND I/O

>	command output redirection (create new)
>>	command output redirection (append)
<	command input redirection (from file)
<<	command input (from script or standard input)

ALIAS

alias *alias-string command-string*

Alias abbreviates a command string with an alias string. For multi-command strings, enclose commands in quotes.

Example: **alias** shut chmod go-rwx

To use the new aliased command shut on a file, and turn off read, write, and executable permissions for all users except yourself, type shut *filename*.

WINDOWING ENVIRONMENTS

openwin	enter the Open Windows window environment (not available on X terminals)
startx	enter the X window environment (not required on X terminals)
startx -m	enter the Motif window environment (to enter Motif from the login window of an X terminal, type your userid, RETURN, your password and then F4)

PROCESS CONTROL

PROCESS STATUS

ps - display the status of the current processes
options:

-a	include information about processes owned by other users
-g	display all processes
-u	display user-oriented processes
-x	include processes with no controlling terminals
-gx	display all of your local processes

kill *id-number* - terminate a process owned by you
id-number (PID-Process ID) can be found by first using the ps command.

RUN COMMAND IN BACKGROUND: JOB CONTROL

To run a command in the background, as opposed to the more common method of running commands in the foreground, append an & to the end of a command string. Then, you can type more commands to the command prompt, or even run more commands in the background for simultaneous command execution.

Control-Z	stop (interrupt) foreground job
jobs	list of background jobs
bg	run a stopped job in the background
fg	resume stopped job in the background

FILE OPERATIONS

SEARCH FOR PATTERNS IN FILES

grep *search-string filename* [*filename...*] to find and type out lines containing the string in a file

options: **-v** type out lines that don't contain the string (invert the search)

COUNTING WORDS IN A FILE

wc *filename(s)* counts the number of words, lines, and characters in a file

COMPARE FILES

diff *filename1 filename2* compares contents of *filename1* and *filename2* on a line-by-line basis

FILE TRANSFER

mail *address* sends mail to user at address
address format is *user@host.domain*

ftp *host.domain* use file transfer protocol to connect to remote host computer
Type ? for commands

COMPRESS FILES

compress *filename*	compress file and rename it *filename.Z*
uncompress *filename.Z*	uncompress file and rename *filename*

PROGRAM COMPILATION

f77 ***filename.f***	FORTRAN compiler
cc *filename.c*	C compiler
pc *filename.p*	Pascal compiler

options:

-o *filename*	direct output of program to filename
-l *library*	include *library* in program compilation

USER INFORMATION AND HELPFUL COMMANDS

env	lists your environment settings
who	lists users on the local system
finger *username@host.domain*	looks up information on an other user
whois *username*	display real name of user
clear	clears screen
leave	reminds you when you have to leave
ntalk *username@host.domain*	talk to another user
lprloc	shows names and locations of printers
stty sane	resets terminal characteristics to a usable set
stty	display terminal characteristics
date	displays current time and date
cal *year*	for yearly calendar
cal *month-year*	for monthly calendar
tn3270 ricevm1	full-screen remote login to mainframe
tn3270 library	full-screen remote login to Fondren Library Card Catalog. At the VM/SP screen, press the RETURN key, and then enter **dial libris** after the screen clears. Hit RETURN again. To exit the LIBRIS system, enter CONTROL-] (Hold down the CONTROL key, and type the close bracket character), and then enter close at the TN3270 prompt.
rlogin *host.domain*	log into remote host computer
telnet *host.domain*	user interface to a remote system
whereis *command*	locate a command; display its pathname
spell *filename*	report spelling errors
ispell *filename*	interactive spell-checker
echo $path	inspect your search path
pacinfo	displays your current printing charges (IS systems only)
bc	basic calculator (Control-D to exit)
du	display the number of disk blocks used per directory or file
du -s	display your total disk usage
quota -v	display your disk quota and usage