

## UNIX Reference Card

### Warnings!!

When a file has been **DELETED** it can only be restored from a backup. The original is gone!

When a file is **OVERWRITTEN** it has been changed forever! It can only be restored from a backup.

### Directory Abbreviations

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

### Communication

#### ssh [options] hostname

Ssh (Secure Shell) a program for logging into a remote host. Replaces telnet, rlogin, and rsh

options:

-l *login\_name* specifies the user to log in on the remote machine

#### scp [options] user@host1:file1 user@host2:file2

Secure copy files between hosts on a network; uses ssh for data transfer.

options:

-p preserve modification times  
 -r recursively copy entire directories

### Comparison

#### diff [options] file1 file2

Compare two text files.

options:

-a treat all files as text files  
 -b ignore repeating blanks and end-of-line blanks; treat successive blanks as one  
 -i ignore case in text comparison  
 -q output only whether files differ

### File Management

#### cat [options] [files]

Read one or more *files* and print them on standard output. Use the > operator to combine several files into a new file; use >> to append files to an existing file.

options:

-n print the number of the output line to the line's left  
 -s squeeze out extra blank lines

#### cd [dir]

Change working directory to dir; default is the users home directory.

#### chgrp *newgroup files*

Change the group of one or more *files* to *newgroup*. *newgroup* is either a group ID number of a group name. Only the owner can change the group.

options:

-c print information about those files that are affected  
 -R recursively apply changes to subdirectories

#### chmod [options] *mode files*

Change the access *mode* (permissions) of one or more *files*. Only the owner of a file or a privileged user may change its mode.

options:

-c print information about affected files  
 -R recursively apply changes to subdirectories

mode:

can be numeric

4 read  
 2 write  
 1 execute

or an expression of the form *who opcode permission*. *who* is optional (if missing, default is **a**)

*who*

u user  
 g group  
 o other  
 a all (default)

*opcode*

+ add permission  
 - remove permission  
 = assign permission

*permission*

r read  
 w write  
 x execute  
 X set execution permission only if executable by user

#### cp [options] file1 file2

#### cp [options] files directory

Copy *file1* to *file2*, or copy one or more *files* to the same names under *directory*.

options:

-a preserves attributes of original files  
 -f remove existing files in the destination  
 -i prompt before overwriting destination files  
 -r recursively copy directories  
 -s make symbolic links instead of copying

#### file [options] files

Classify the named *files* according to the type of data they contain.

#### less [options] [filename]

A program for browsing or paging through files or other output. Can use arrow keys for scrolling forward or backward.

options:

see **man** pages for options ( type: **man less** )

#### ln [options] sourcename [destname]

#### ln [options] sourcenames destdirectory

Create links for files, allowing them to be accessed by different names.

options:

-b backup files before removing originals  
 -i prompt for permission before removing files  
 -s create a symbolic link. This lets you see the name of the link when you run **ls -l** (otherwise there is now way to know the name that a file is linked to).

#### ls [options] [names]

List the contents of a directory. If no *names* are given, the files in the current directory are listed.

options:

-a list all files, including hidden files  
 -c list files by status change time  
 -l long format listing (permissions, owner, size, modification time)

#### mkdir [options] directories

Create one or more directories.

options:

-m *mode* set the access *mode* for new directories. See **chmod** for *mode* formats.  
 -p create intervening parent directories if they don't exist

#### more [options] [files]

Display the content of the named *files* one screen at a time. See less for an alternative.

options:

see **man** pages for options ( type: **man more** )

#### pwd

Print the full pathname of the current working directory.

#### scp [options] user@host1:file1 user@host2:file2

Secure copy files between hosts on a network; uses ssh for data transfer.

options:

-p preserve modification times  
 -r recursively copy entire directories

#### mv [options] sources target

Move or rename files and directories. The *source* and *target* determine the result.

<i>source</i>	<i>target</i>	<i>result</i>
file	<i>name</i>	rename file as <i>name</i>
file	existing	overwrite existing file
	file	with source file
directory	<i>name</i>	rename directory as
	<i>name</i>	
directory	existing	move directory to be a
directory	subdirectory of	existing directory

options:

-b back up files before moving  
 -f force the move  
 -i query user before removing files

## rm [options] files

Delete one or more *files*. Once a file or directory has been removed it can only be retrieved from a backup!

options:

- d remove directories, even if they are not empty
- f remove files without prompting
- i prompt for file removal
- r recursively remove an entire directory and its contents, including subdirectories. *Be very careful with this option.*

## Miscellaneous

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**!** Repeat the last command

**!string** Repeat the last command beginning with *string*.

**cal [-jy] [[month] year]**

Print a 12-month calendar for the given *year* or a one-month calendar of the given *month* and year. No arguments, print a calendar for the current month.

options:

- j display Julian dates
- y display entire current year

**clear**

Clear the terminal display

**history**

Display list of most recently executed commands

**kill [option] IDs**

Send a signal to terminate one or more process *IDs*.

options:

- l list all signals
- signal the signal number (from **ps -f**) or name (from **kill -l**). You can kill just about any process with a signal number of 9.

**man command**

Display information from the online reference manuals.

**jobs [options] job\_id**

Display status of jobs in the current session. Simply specifying jobs returns the status of all stopped jobs, running background jobs, and all suspended jobs.

options:

- l provide more information about each job listed
- p display only the process IDs for the process group leaders of the selected jobs

**whereis command**

Locate a *command*; display the full pathname for the *command*.

**which [commands]**

List which files would be executed if the named *commands* had been run.

## Searching

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**egrep [options] [regex] [files]**

**grep [options] [regex] [files]**

Search one or more *files* for lines that match a regular expression *regex*. To include characters such as +, ?, |, (, ), blank spaces, etc. enclose these expressions in quotes. See **man** pages for the differences between **egrep**, **fgrep**, and **grep**.

options:

- c print only a count of matched lines
- i ignore case
- l list filenames but not matched lines
- n print lines and their line numbers
- v print all lines that do not match *regex*

**find [pathnames] [conditions]**

Useful for finding particular files. **find** descends the directory tree beginning at each *pathname* and locates files that meet the specified *conditions*.

options:

- name *pattern* find files whose name matches *pattern*
- print print the matching files and directories using their full pathnames

see **man** pages for options ( type: **man find** )

## Storage

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**compress [options] [files]** – compress file

**uncompress [options] [files]** – uncompress compressed file

**compress** reduces the size of the named *files*. When possible the resulting compressed file will have the file extension **.Z**.

Compressed files can be restored using **uncompress**.

options:

- d uncompress file, same as **uncompress**
- v prints the percentage reduction
- V prints the version of compress

**gzip [options] [files]** – compress file

**gunzip [options] [files]** – uncompress gzipped file

GNU compression utility. Renames compressed files *filename.gz*. Uncompress with **gunzip**.

options:

- d uncompress file, same as **gunzip**
- r recursively compress or decompress files within a directory
- v print name and percent size reduction for each file

**tar [options] [tarfile] [other-files]**

Copy *files* to or restore *files* from an archive. If any files are directories, **tar** acts on the entire subtree.

options:

- c create a new archive
- d compare the files stored in tarfile with other-files
- r append other-files to the end of an existing archive
- t print the names of files in archive
- v verbose, print filenames as they are added or extracted
- x extract *other-files* from archive, or extract all files if *other-files* not specified

## System Status

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**Control-C**

Stop (interrupt) job running in the foreground

**Control-Z**

Suspend job running in the foreground

**date [options] [+format] [date]**

Print the current date and time. You may specify a display *format*.

options:

see **man** pages for options ( type: **man date** )

**df [options] [name]**

Report the amount of free disk space available on all mounted file systems or on a given *name*.

options:

-k print sizes in kilobytes

**du [options] [directories]**

Print disk used by each named directory and its subdirectories.

options:

- k print sizes in kilobytes
- s print only the grand total for each directory

**env [option] [variable=value ...] [command]**

Display the current environment or, if an environment *variable* is specified, set it to a new *value* and display the modified environment.

option:

-u unset the specified *variable*

**ps [options]**

Report on active processes.

options:

- a list all processes except processes not associated with the terminal
- e list all processes
- l produce long format listing
- u *list* list for usernames in *list*

**quota [option]**

Display disk usage and limits

option:

-v report quotas even if they haven't been exceeded

## Contact Information

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Phone: 612-626-0802

Email: help@msi.umn.edu

WWW: http://www.msi.umn.edu

http://www.msi.umn.edu/user\_support