

Quick Command Reference

Notational Conventions

Commands are typed at a *shell prompt*, usually the percent character. In sample commands below, the prompt is shown for reference, but should not be typed.

*nix shells use the space character to separate their arguments, so file names should not contain spaces. Filenames containing spaces are allowed, but must be treated with care. The examples below assume file names do not contain spaces.

*nix commands typically consist of the command name, zero or more options (each flagged with a dash), and one or more arguments. Generic parts of a command are enclosed in angle brackets, optional portions of a command are enclosed in square braces. Thus, a generic command is written

```
% <command> [<options>] [<arguments>]
```

Specific commands are denoted like this:

```
% ls [<options>] <files>
% tar [<options>] <package>.tar <files>
```

Multiple options can be combined; “ls -a -l -t” and “ls -alt” have the same effect, for example. In the second command, “package” may be any valid file name, but the extension must be “.tar”.

GNU versions of commands often provide options in two forms: a one-character Unix-compatible form, and a “long” version consisting of two dashes and a word or phrase. Alternative forms will be denoted by a comma-separated list, such as -h,--help.

Manipulating Files and Directories

- **(ls)** % ls [-aRt] [<files>]
List names of files and directories. If no names are specified, list files in the working directory.
 - a,--all List “hidden” files, whose names begin with a period.
 - l “Long” listing; show permissions, number of links, owner and group, size, and modification date.
 - R,--recursive List files in subdirectories.
 - t Sort by modification time a period.
- **(cp)** % cp [-ifpu] <source> <dest>
Copy source to dest. If multiple sources, dest must be a directory.
 - f,--force Don’t prompt before overwriting existing dest.
 - i,--interactive Prompt before overwriting existing dest.
 - p Preserve permissions, ownership, timestamps.
 - u,--update Copy iff source is newer than dest or dest does not exist.
- **(rm)** % rm [-Rfi] <files>
Remove specified files or directories.
 - f,--force Don’t prompt before removing.
 - i,--interactive Prompt before removing.
 - R,--recursive Descend into subdirectories.
- **(cat)** % cat <files>
Scroll (concatenate) contents of files in terminal.
- **(less)** % less <file>
Page contents of file in terminal; “SPACE” for next screen, “q” to quit. (Named in response to the less-featureful Unix utility “more”: “less” is more!)
- **(cd)** % cd <directory>
Change working directory
- **(pwd)** % pwd
Print working directory
- **(df)** % df
Show available space in all disk drives
- **(du)** % du [<directory>]
Show disk use in directory and subdirectories (working directory by default).
- **(mkdir)** % mkdir <directory>
Create directory.
- **(rmdir)** % rmdir <directory>
Remove empty directory.

Searching

- **(find)** % `find <dir> <criteria>`
Print filenames in `dir` that match `criteria`. See man page for details.
% `find . -name "*.tex"`
Print names of `.tex` files in the current directory.
% `find ~/Teach -mtime -1`
Print names of files in `Teach` subdirectory of `HOME` directory that have been modified in the past day (24 hours).
- **(grep)** % `grep <string> <files>`
Print line(s) of files that contain `string`. (From `get` regular expression.)
% `grep "documentstyle" "*.tex"`
Reveal obsolete L^AT_EX 2.09 files.

Archiving and Compressing

- **(tar)** % `tar {-t,x}[v]f <file>.tar`
% `tar -c[v]f <file>.tar <files>`
% `tar -z{t,x}[v]f <file>.tar.gz`
% `tar -j{t,x}[v]f <file>.tar.bz2`
% `tar -jc[v]f <file>.tar.bz2 <files>`
Tape archive; create or unpack an archive file, with optional compression.

-ctx Use exactly one; c = create, t = list, x = extract.
-v, --verbose Show files being (un)packed.
-f Next argument is name of archive file.
-j Use bzip2 (de)compression.
-z Use gzip (de)compression.

```
tar -jxvf epix-1.0.25.tar.bz2
Verbosely unpack bzip2 archive.
tar -zcf backup.tar.gz oldfiles
Quietly create a gzip-ed archive of oldfiles.
```

(g[un]zip) % `gzip <file>`, % `gunzip <file>.gz`
Compress or uncompress a file using GNU zip.

(b[un]zip2) % `bunzip2 <file>.bz2` and
% `bzip2 <file>`
(Un)compress file using block compression.

Remote Login

- **(ssh)** % `ssh [-X] [user@]host [<command>]`
Securely log on to `host` as `user`, or execute `<command>` on remote machine. `user` may be omitted if account name is the same as on the local machine.

-X Enable remote graphical display.

`ssh ahwang@radius.holycross.edu rm foo`
Remove `foo` from `ahwang`'s `radius` account.
- **(scp)** % `scp [-p] [u@][h:]<src> [u@][h:]<dest>`
Securely copy file from one machine to another. Usernames (`u`) and hosts (`h`) may be different. If a username on a remote host is the local username, the corresponding argument may be omitted. If, in addition, either host is the local machine, the corresponding host argument may be omitted.

-p Preserve file permissions, ownership, timestamp.

`scp -p file radius.holycross.edu:.`
Copy `file` on local machine to file of the same name in user's `radius` account, preserving permissions. (Account name on `radius` must be same as on local machine.)

`scp radius:Teach/foo hwang@pooh:bar`
Copy `foo` from the `Teach` directory of user's `radius` account to `bar` in `hwang`'s `pooh` account.

Miscellaneous Idioms

- **(~)** `HOME` directory of current user. (As a file suffix, indicates an `emacs` backup copy.)
- **(. and ..)** The current and parent directory.
A single dot in a `cp`, `mv`, or `ssh` command stands for "the same file name as the first argument", as in % `cp /etc/hosts ~/.` (which copies a system file to the `HOME` directory).
- **(* and ?)** "Wildcard" characters; the first matches any string, the second matches exactly one character. (*q.v.* regular expression.)