grep Search text lines

START HERE

`grep "<text>" <file>`
Lines containing text

`grep -c "<text>" <file>`
Count matching lines

`grep -i "<text>" <file>`
Ignore case

`grep -l "<text>" <files>`
Only file names

`grep -rn "<text>" <dir>`
Search a tree, show lines

`grep -v "<text>" <file>`
Lines without it

`grep -C 3 "<text>" <file>`
Show surrounding lines

`grep -E "<a>|<b>" <file>`
Either pattern

Input files or stdin → `pattern` → **Match** per line → `options` → **Select** -v, -m, -w, -x → `format` → **Output** -n, -o, -c, -l

CONCEPTS

grep selects whole lines. Add -o to print only the matched part.

Quote patterns in single quotes so the shell leaves *, $ and | alone.

Exit status: 0 = a line matched, 1 = none, 2 = error. Handy in if.

MATCHING

`grep "<pattern>" <file>`
Lines matching a pattern

`grep -i "<pattern>" <file>`
Ignore case

`grep -v "<pattern>" <file>`
Invert: lines that do not match

`grep -w "<word>" <file>`
Match whole words only
Matches only if the neighbours are not letters, digits or underscore.

`grep -x "<line>" <file>`
Match whole lines only

`grep -F "<text>" <file>`
Fixed string, no regex
Use it for text full of dots or brackets.

`grep -E "<a>|<b>" <file>`
Extended regex, alternation

`grep -e <a> -e <b> <file>`
Several patterns

MATCHING (cont.)

`grep -f <patterns> <file>`
Read patterns from a file
An empty line in the pattern file matches everything.

`grep -P "<regex>" <file>`
Perl-style regex
GNU-specific; not available in every build. Gives \d, lookaround, lazy quantifiers.

`grep -m <n> "<pattern>" <file>`
Stop after n matching lines

`grep -e "-v" <file>`
Search for a pattern starting with -

OUTPUT

`grep -n "<pattern>" <file>`
Prefix line numbers

`grep -c "<pattern>" <file>`
Count matching lines
Counts lines, not occurrences. Use -o and wc -l for those.

`grep -l "<pattern>" <files>`
List files with a match

`grep -L "<pattern>" <files>`
List files without a match

`grep -o "<regex>" <file>`
Print only the matched text

`grep -q "<pattern>" <file>`
Silent, exit status only

OUTPUT (cont.)

`grep -H "<pattern>" <file>`
Always show file name

`grep -h "<pattern>" <files>`
Never show file name

`grep -b "<pattern>" <file>`
Show byte offsets

`grep --color=always "<pattern>" <file>`
Force highlighting
Needed when piping to less -R.

`grep -s "<pattern>" <files>`
Hide file errors

`grep -Z -l "<pattern>" <files>`
NUL-separate file names
Pair with xargs -0.

CONTEXT

`grep -A <n> "<pattern>" <file>`
n lines after each match

`grep -B <n> "<pattern>" <file>`
n lines before each match

`grep -C <n> "<pattern>" <file>`
n lines on both sides
-<n> is a shorthand, for example -3.

`grep --no-group-separator -C 2 "<p>" <f>`
Drop the -- between groups

CONTEXT (cont.)

Output prefixes

Sign	Meaning
`file:12:`	matching line
`file-12-`	context line
`--`	gap between groups

FILES & RECURSION

`grep -r "<pattern>" <dir>`
Search a directory tree
Without a path, -r searches the current directory.

`grep -R "<pattern>" <dir>`
Recurse and follow all symlinks
-r follows only symlinks named on the command line.

`grep -r --include="*.py" "<p>" <dir>`
Only files matching a glob

`grep -r --exclude="*.min.js" "<p>" .`
Skip files matching a glob

`grep -r --exclude-dir=<dir> "<p>" .`
Skip a directory
Repeat the option for several directories.

`grep -I "<pattern>" <files>`
Skip binary files

`grep -a "<pattern>" <file>`
Treat binary as text

`grep "<pattern>" -`
Read from stdin explicitly

FILES & RECURSION (cont.)

`grep -z "<pattern>" <file>`
NUL-separated records
With -P, (?s) then lets . match newlines.

git grep is faster inside a repository and skips ignored files.

REGEX SYNTAX

Basic building blocks

Syntax	Matches
`.`	any one character
`*`	zero or more of previous
`^ $`	start / end of line
`[abc] [^abc]`	one of / none of
`[a-z]`	a range
`[[:digit:]]`	POSIX class
`\< \>`	word start / end
`\b`	word boundary

ERE (-E) additions

Syntax	Matches
`a|b`	a or b
`( )`	group
`+`	one or more
`?`	zero or one
`{n,m}`	n to m repeats
`\1`	back-reference to group 1

BRE vs ERE
In plain grep (BRE) write \| \+ \? \(\) \{ \} for the special forms. -E drops the backslashes.

`grep -P "\d+" <file>`
PCRE shorthand classes

REGEX SYNTAX (cont.)

`grep -oP "<before>\K<value>" <file>`
Print only text after a marker
\K drops everything matched so far from the output.

`grep -P "<a>(?=<b>)" <file>`
Lookahead: a followed by b

`grep -E "^(.).*\1$" <file>`
Lines that begin and end alike

RECIPES

Find a symbol in source

```
grep -rnw --include="*.c"
"<name>" src/
# add --exclude-dir=build to
skip output
```

Filter a process list

```
ps aux | grep "[n]ginx"
# [n] stops grep from matching
itself
```

Count unique matches

```
grep -oE "[0-9]+\.[0-9]+\.
[0-9]+\.[0-9]+" access.log |
  sort | uniq -c | sort -rn |
head
```

Use the result in a script

```
if grep -q "^<user>:" /etc/
passwd; then
  echo "user exists"
fi
```

Files with one word but not another

```
grep -rl "<a>" . | xargs grep -
L "<b>"
```