# GNU grep Cheat Sheet

GNU grep finds patterns in text files and streams.

## Basics

```
grep [pattern] FILE
```

| | |
|---|---|
| `grep '^[A,E].*o' f.txt` | Find a string starting with **A** or **E** and ending in **o** |
| `grep -f pat.txt f.txt` | Scan f.txt, using contents of **pat.txt** as regex |
| `grep -i Gnu f.txt` | Find "gnu" in f.txt, ignoring capitalization |
| `grep -v gnu f.txt` | Find all lines not containing "gnu" (invert match) |
| `grep -w 'a.*o' f.txt` | Find whole word matches only, ignoring substrings |
| `grep -x 'a.*o' f.txt` | Find whole line matches only, as in **^(a.*o)$** |

## Output

| | |
|---|---|
| `-c` | Print only the number of lines containing a match |
| `--colo[u]r` | Display matches in color |
| `-l` | Print the names of files with matches |
| `-L` | Print the names of files searched that contained *no* matches |
| `-o` | Print only the matched part of a line |
| `-s` | Suppress errors (such as non-existent or unreadable files) |
| `-A n` | Print *n* number of lines *after* a matching line |
| `-B n` | Print *n* number of lines *before* a matching line |
| `-C n` | Print *n* number of lines *before and after* a matching line |

## Output prefixes

| | |
|---|---|
| `-b` | Print the byte offset of the match within the input file |
| `-H` | Print the filename containing a match |
| `-h` | Do not print the filename containing a match |
| `-n` | Print the line number of each match |
| `-T` | Print an initial Tab before matches so that output is neatly aligned |

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## File and directory selection

| | |
|---|---|
| `-a` | Process a binary file as if it were text |
| `-D <skip\|read>` | Skip or read a FIFO, device, or socket |
| `-d <skip\|read\|recurse>` | Skip, read, or recurse through a directory |
| `--exclude '*.sh'` | Do not search any file with the **.sh** suffix |
| `--exclude-from FILE` | Skip any file listed in FILE |
| `--exclude-dir *foo` | Skip any directory ending in **foo** |
| `-r` | When a directory is encountered, search files in it |
| `-R` | Search directories and follow symlinks |

## Variants

| | |
|---|---|
| `-G` | Use basic regex (this is the default) |
| `-E` | Extended regex |
| `-F` | Interpret the search pattern as a fixed string, not regex |
| `-P` | Use Perl regex (PCRE) |

## Regular expression

| | |
|---|---|
| `.` | Any single character |
| `?` | Match preceding item zero or one time |
| `*` | Match preceding item zero or more times |
| `+` | Match preceding item one or more times |
| `{2}` | Match preceding item two times |
| `{3,}` | Match preceding item three or more times |
| `{,4}` | Match preceding item at most four times |
| `{1,5}` | Match preceding item at least once, but no more than five times |
| `[A,B]` | Match A or B |
| `[3-9]` | Match all digits 3 to 9 |
| `^` | Start of a line |
| `$` | End of a line |
| `\s` | Space |

| | |
|---|---|
| `[:alnum:]` | Alphanumeric character |
| `[:alpha:]` | Alphabetic character |
| `[:digit:]` | Digits 0 through 9 |
| `[:punct:]` | Punctuation |
| `[:space:]` | Space |