top Live process monitor

START HERE

- **P** Sort by CPU
- **M** Sort by memory
- **1** Show each CPU
- **k** Kill a task
- **u** Filter by user
- **c** Full command lines
- **?** In-app help
- **q** Quit

CONCEPTS

Keys are case sensitive: P and p are different commands. Top answers to what you type, so there is no Enter after a single key.

Load average is runnable plus waiting tasks over 1, 5 and 15 minutes; compare it with your CPU count, not with 1.

CPU line

Field	Time spent on
`us / ni`	user code / niced user code
`sy`	kernel code
`id`	idle
`wa`	waiting for disk I/O
`hi / si`	hardware / software interrupts
`st`	stolen by the hypervisor

S column (task state)

Code	Meaning
`R`	running or runnable
`S`	sleeping, interruptible
`D`	uninterruptible sleep (usually I/O)
`I`	idle kernel thread
`T / t`	stopped by job control / by a debugger
`Z`	zombie, waiting for its parent

Memory: judge by avail Mem, not free. Buff/cache is reclaimable and normally large.

%CPU above 100 is normal for a multi-threaded task in Irix mode (I on); in Solaris mode (I off) it is divided by the CPU count.

SORTING

- **P** Sort by CPU
- **M** Sort by memory
- **T** Sort by cumulative CPU time
- **N** Sort by PID
- **R** Reverse sort order
- **<** / **>** Move sort column left / right
  Needs the current sort column to be visible.
- **f** Choose sort field and columns
  In the field screen: arrows move, d toggles a column, s sets the sort field, q leaves.

FILTERING AND VIEW

- **u** Show one user's tasks
  Prepend ! to exclude that user; empty input clears it.
- **c** Toggle command name / full line
- **i** Hide idle tasks
- **V** Forest (process tree) view
  Any sort key leaves forest view.
- **v** Collapse / expand children
  Forest view only.
- **H** Show threads

FILTERING AND VIEW (cont.)

- **o** Add filter, ignore case
  Format: FIELD=value, FIELD>value or !FIELD=value, e.g. COMMAND=nginx.
- **O** Add filter, case sensitive
- **Ctrl** + **O** Show active filters
- **=** Clear filters and limits
- **n** Limit number of rows
- **L** Find text in window
- **&** Find next match
- **0** Hide zero values

SUMMARY AREA

- **1** One line per CPU
- **t** Cycle CPU summary: text, bar, blocks, off
- **m** Cycle memory summary: text, bar, blocks, off
- **l** Toggle load / uptime line
- **4** Show CPUs side by side
- **E** Cycle summary memory units
- **e** Cycle task memory units
- **I** Toggle Irix / Solaris %CPU

SIGNALS AND PRIORITY

- **k** Kill a task (asks PID, signal)
  Default signal is SIGTERM; enter 9 or KILL to force. Disabled in secure mode.
- **r** Renice a task
  Ordinary users can only raise the nice value.
- **Ctrl** + **K** Show full command of first task
- **Ctrl** + **N** Show environment of first task
- **Ctrl** + **G** Show cgroups of first task
- **Ctrl** + **L** Show top's log messages
- **Ctrl** + **E** Shorten CPU time format

NAVIGATION AND CONTROL

- **Arrows** Scroll tasks / columns
- **PgUp** / **PgDn** Scroll a page
- **Home** / **End** Jump to start / end
- **d** / **s** Change refresh delay
  Fractions allowed, e.g. 0.5.
- **Space** / **Enter** Refresh now
- **?** / **h** Help

NAVIGATION AND CONTROL (cont.)

- **W** Save settings to your toprc
  Written under $XDG_CONFIG_HOME/procps or ~/.config/procps; an older ~/.toprc is still read.
- **q** Quit
- **z** Color / monochrome
- **x** Highlight sort column
- **y** Highlight running tasks
- **Z** Change colours
- **A** Alternate display with 4 windows

COMMAND LINE

- **top -b -n 1** One snapshot, no UI
- **top -d** *<secs>* Set refresh delay
- **top -p** *<pid,pid>* Watch only these PIDs
- **top -u** *<user>* Only this user's tasks
- **top -H** Start in threads mode
- **top -c** Toggle full command lines
- **top -o** *<FIELD>* Sort by a field name
- **top -O** List sortable field names

COMMAND LINE (cont.)

- **top -w** *<cols>* Set output width
  Piped batch output is cut at 80 columns unless COLUMNS is set; use this to avoid it.
- **top -E** *<k|m|g|t|p|e>* Summary memory units
- **top -e** *<k|m|g|t|p>* Task memory units
- **top -i** Toggle idle task display
- **top -s** Secure mode (no kill / renice)
- **top -1** Toggle per-CPU lines

RECIPES

Log a process over time

```
top -b -d 5 -n 120 -p <pid> > top.log
# 10 minutes at 5s steps, one block per sample
```

Top 10 memory users

```
top -b -n 1 -o %MEM -w 200 | head -n 17
# 5 summary lines, a blank line and the header, then 10 rows
```

Thread view of one process

```
top -H -p <pid>
# then P for CPU; c shows the command line
```

Find what a busy box is doing

```
top
# 1 shows per-CPU load, wa shows I/O wait
# M then P compare memory and CPU; V shows who forked what
```