NAME

      top - display and update sorted information about processes

SYNOPSIS

      top   [**−a** | **−d** | **−e** | **−c** *<mode>*]
            [**−F** | **−f**]
            [**−h**]
            [**−i** *<interval>*]
            [**−l** *<samples>*]
            [**−ncols** *<columns>*]
            [**−o** *<key>*] [**−O** *<skey>*]
            [**−R** | **−r**]
            [**−S**]
            [**−s** *<delay>*]
            [**−n** *<nprocs>*]
            [**−stats** *<keys>*]
            [**−pid** *<processid>*]
            [**−user** *<username>*]
            [**−U** *<username>*]
            [**−u**]

DESCRIPTION

      The **top** program periodically displays a sorted list of system processes. The default sorting key is pid, but other keys can be used instead. Various output options are available.

OPTIONS

      Command line option specifications are processed from left to right. Options can be specified more than once. If conflicting options are specified, later specifications override earlier ones. This makes it viable to create a shell alias for **top** with preferred defaults specified, then override those preferred defaults as desired on the command line.

      −a   Equivalent to -c a.

      −c *<mode>*

            Set event counting mode to *<mode>*. The supported modes are:

            a   Accumulative mode. Count events cumulatively, starting at the launch of **top**. Calculate CPU usage and CPU time since the launch of **top**.

            d   Delta mode. Count events relative to the previous sample. Calculate CPU usage since the previous sample. This mode by default disables the memory object map reporting. The memory object map reporting may be re-enabled with the -r option or the interactive r command.

            e   Absolute mode. Count events using absolute counters.

            n   Non-event mode (default). Calculate CPU usage since the previous sample.

      −d   Equivalent to -c d.

      −e   Equivalent to -c e.

      −F   Do not calculate statistics on shared libraries, also known as frameworks.

      −f   Calculate statistics on shared libraries, also known as frameworks (default).

      −h   Print command line usage information and exit.

      −i *<interval>*

            Update framework (-f) info every *<interval>* samples; see the **PERFORMANCE vs. ACCURA-CY** section below for more details.

–l *<samples>*

    Use logging mode and display *<samples>* samples, even if standard output is a terminal. 0 is treated as infinity. Rather than redisplaying, output is periodically printed in raw form. Note that the first sample displayed will have an invalid %CPU displayed for each process, as it is calculated using the delta between samples.

–ncols *<columns>*

    Display *<columns>* when using logging mode. The default is infinite. The number must be > 0 or an error will occur.

top -n 10 -o mem按照内存占用显示前10

–n *<nprocs>*

    Only display up to *<nprocs>* processes.

–O *<skey>*

    Use *<skey>* as a secondary key when ordering the process display. See **-o** for key names (**pid** is the default).

–o *<key>*

    Order the process display by sorting on *<key>* in descending order. A **+** or **-** can be prefixed to the key name to specify ascending or descending order, respectively. The supported keys are:

pid	Process ID (default).
command	Command name.
cpu	CPU usage.
cpu_me	CPU time charged to me by other processes.
cpu_others	CPU time charged to other processes by me.
csw	Number of context switches.
time	Execution time.
threads	alias: **th** Number of threads (total/running).
ports	alias: **prt** Number of Mach ports.
mregion	alias: **mreg, reg** Number of memory regions.
mem	Internal memory size.
rprvt	Resident private address space size.
purg	Purgeable memory size.
vsize	Total memory size.
vprvt	Private address space size.
kprvt	Private kernel memory size.
kshrd	Shared kernel memory size.
pgrp	Process group id.
ppid	Parent process id.
state	alias: **pstate** Process state.

top -o mem

uid	User ID.
wq	alias: **#wq, workqueue** The workqueue total/running.
faults	alias: **fault** The number of page faults.
cow	alias: **cow_faults** The copy-on-write faults.
user	alias: **username** Username.
msgsent	Total number of mach messages sent.
msgrecv	Total number of mach messages received.
sysbsd	Total BSD syscalls.
sysmach	Total Mach syscalls.
pageins	Total pageins.
boosts	The number of boosts held by the process. This is followed by the number of times the process has transitioned from unboosted to boosted in brackets. An asterisk before the value indicates that the process was able to send boosts at some point since the previous update. For more information about boosts, see xpc_transaction_begin(3).

–R   Do not traverse and report the memory object map for each process.

–r   Traverse and report the memory object map for each process (default).

–S   Display the global statistics for swap and purgeable memory.

–s *<delay>*
          Set the delay between updates to *<delay>* seconds. The default delay between updates is 1 second.

–stats *<keys>*
          Only display the comma separated statistics. See the -o flag for the valid *<keys>*.

–pid *<processid>*
          Only display *<processid>* in top.

–user *<user>*
          Only display processes owned by *<user>*.

–U *<user>*
          This is an alias for -user.

–u   This is an alias equivalent to: -o cpu -O time.

DISPLAY

The first several lines of the **top** display show various global state. All of the information is labeled. Following is an alphabetical list of global state fields and their descriptions.

CPU	Percentage of processor usage, broken into user, system, and idle components. The time period for which these percentages are calculated depends on the event counting mode.
Disks	Number and total size of disk reads and writes.
LoadAvg	Load average over 1, 5, and 15 minutes. The load average is the average number of jobs in the run queue.

MemRegions
Number and total size of memory regions, and total size of memory regions broken into private (broken into non-library and library) and shared components.

Networks   Number and total size of input and output network packets.

PhysMem   Physical memory usage, broken into wired, active, inactive, used, and free components.

Procs   Total number of processes and number of processes in each process state.

SharedLibs   Resident sizes of code and data segments, and link editor memory usage.

Threads   Number of threads.

Time   Time, in H:MM:SS format. When running in logging mode Time is in YYYY/MM/DD HH:MM:SS format by default, but may be overridden with accumulative mode. When running in accumulative event counting mode, the Time is in HH:MM:SS since the beginning of the top process.

VirtMem   Total virtual memory, virtual memory consumed by shared libraries, and number of pageins and pageouts.

Swap   Swap usage: total size of swap areas, amount of swap space in use and amount of swap space available.

Purgeable   Number of pages purged and number of pages currently purgeable.

Below the global state fields, a list of processes is displayed. The fields that are displayed depend on the options that are set. The pid field displays the following for the architecture:

+   for 64-bit native architecture, or **-** for 32-bit native architecture, or ***** for a non-native architecture.

INTERACTION

When **top** is run in interactive (non-logging) mode, it is possible to control the output of **top**, as well as interactively send signals to processes. The interactive command syntax is terse. Each command is one character, followed by 0 to 2 arguments. Commands that take arguments prompt interactively for the arguments, and where applicable, the default value is shown in square brackets. The default value can be selected by leaving the input field blank and pressing enter. **^G** escapes the interactive argument prompt, and has the same effect as leaving the input field blank and pressing enter.

The following commands are supported:

?   Display the help screen. Any character exits help screen mode. This command always works, even in the middle of a command.

^L   Redraw the screen.

c<*mode*>
Set output mode to <*mode*>. The supported modes are:

    a   Accumulative mode.

    d   Delta mode.

    e   Event mode.

    n   Non-event mode.

O<*skey*>
Use <*skey*> as a secondary key when ordering the process display. See the **-o** option for key names.

o<*key*>
Order the process display by sorting on <*key*> in descending order. A **+** or **-** can be prefixed to the key name to specify ascending or descending order, respectively. The supported keys and alises

are listed with the -o option above.

q   Quit.

r   Toggle traversal and reporting of the memory object map for each process.

S<*signal*><*pid*>

Send <*sig*> to <*pid*>. <*sig*> can be specified either as a number or as a name (for example, **HUP**). The default signal starts out as **TERM**. Each time a signal is successfully sent, the default signal is updated to be that signal. <*pid*> is a process id.

s<*delay*>

Set the delay between updates to <*delay*> seconds.

U<*user*>

Only display processes owned by <*user*>. Either the username or uid number can be specified. To display all processes, press enter without entering a username or uid number.

PERFORMANCE vs. ACCURACY

Calculating detailed memory statistics is fundamentally resource-intensive. To reduce the cpu usage in top, the $-i$ parameter has been introduced to allow the user to tune this tradeoff. With the default value of 10, framework stats will be updated once every 10 samples. Specifying $-i$ 1 will result in the most accurate display, at the expense of system resources.

N/A - Not Available

When this occurs in a stat it's caused by the memory object map reporting being disabled. Memory object map reporting is disabled by default in delta mode, but may be optionally enabled via -r or the interactive **r** command. To enable the -r option use it after any -c mode options.

EXAMPLES

top -o cpu -O +rsize -s 5 -n 20

Sort the processes according to CPU usage (descending) and resident memory size (ascending), sample and update the display at 5 second intervals, and limit the display to 20 processes.

top -c d Run top in delta mode.

top -stats pid,command,cpu,th,pstate,time

Display only the specified statistics, regardless of any growth of the terminal. If the terminal is too small, only the statistics that fit will be displayed.

SEE ALSO

kill(2), vm_stat(1), signal(3), vmmap(1)