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vmstat

The first line of `vmstat` represents a summary of information since boot time. To obtain useful real-time statistics, run `vmstat` with a time step (eg `vmstat 30`).

The `vmstat` output columns are as follows use the `pagesize` command to determine the size of the pages):

- **procs/r**: Run queue length.
- **procs/b**: Processes blocked while waiting for I/O.
- **procs/w**: Idle processes which have been swapped.
- **memory/swap**: Free, unreserved swap space (Kb).
- **memory/free**: Free memory (Kb). (Note that this will grow until it reaches `lotsfree`, at which point the page scanner is started. See "[Paging](#)" for more details.)
- **page/re**: Pages reclaimed from the free list. (If a page on the free list still contains data needed for a new request, it can be remapped.)
- **page/mf**: Minor faults (page in memory, but not mapped). (If the page is still in memory, a minor fault remaps the page. It is comparable to the `vflts` value reported by `sar -p`.)
- **page/pi**: Paged in from swap (Kb/s). (When a page is brought back from the swap device, the process will stop execution and wait. This may affect performance.)
- **page/po**: Paged out to swap (Kb/s). (The page has been written and freed. This can be the result of activity by the pageout scanner, a file close, or `fsflush`.)
- **page/fr**: Freed or destroyed (Kb/s). (This column reports the activity of the page scanner.)
- **page/de**: Freed after writes (Kb/s). (These pages have been freed due to a pageout.)
- **page/sr**: Scan rate (pages). Note that this number is not reported as a "rate," but as a total number of pages scanned.
- **disk/s#**: Disk activity for disk # (I/O's per second).
- **faults/in**: Interrupts (per second).
- **faults/sy**: System calls (per second).
- **faults/cs**: Context switches (per second).
- **cpu/us**: User CPU time (%).
- **cpu/sy**: Kernel CPU time (%).
- **cpu/id**: Idle + I/O wait CPU time (%).
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`vmstat -i` reports on hardware interrupts.

`vmstat -s` provides a summary of memory statistics, including statistics related to the

DNLC, inode and rnode caches.

`vmstat -S` reports on swap-related statistics such as:

- **si**: Swapped in (Kb/s).
- **so**: Swap outs (Kb/s).

(Note that the man page for `vmstat -s` incorrectly describes the swap queue length. In Solaris 2, the swap queue length is the number of idle swapped-out processes. (In SunOS 4, this referred to the number of active swapped-out processes.)

Solaris 8

`vmstat` under Solaris 8 will report different statistics than would be expected under an earlier version of Solaris due to a different [paging algorithm](#):

- Page Reclaim rate higher.
- Higher reported Free Memory: A large component of the filesystem cache is reported as free memory.
- Low Scan Rates: Scan rates will be near zero unless there is a systemwide shortage of available memory.

`vmstat -p` reports paging activity details for applications (executables), data (anonymous) and filesystem activity.

Further reading

See Adrian Cockcroft's [articles](#) and his [book](#) on Solaris tuning for more information.

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