

8 Notes on memtype parameter in proc.mem items

Overview

The **memtype** parameter is supported on Linux, AIX, FreeBSD, and Solaris platforms.

Three common values of 'memtype' are supported on all of these platforms: pmem, rss and vsize. Additionally, platform-specific 'memtype' values are supported on some platforms.

AIX

See values supported for 'memtype' parameter on AIX in the table.

| Supported value | Description | Source in procentry64 structure | Tries to be compatible with |
|---------------------|-------------------------------|---------------------------------|-----------------------------|
| vsize ¹⁾ | Virtual memory size | pi_size | |
| pmem | Percentage of real memory | pi_prm | ps -o pmem |
| rss | Resident set size | pi_trss + pi_drss | ps -o rssize |
| size | Size of process (code + data) | pi_dvm | "ps gvw" SIZE column |
| dsize | Data size | pi_dsize | |
| tsize | Text (code) size | pi_tsize | "ps gvw" TSIZ column |
| sdsiz | Data size from shared library | pi_sdsiz | |
| drss | Data resident set size | pi_drss | |
| trss | Text resident set size | pi_trss | |

FreeBSD

See values supported for 'memtype' parameter on FreeBSD in the table.

| Supported value | Description | Source in kinfo_proc structure | Tries to be compatible with |
|--------------------|---------------------------------------|--------------------------------------|-----------------------------|
| vsize | Virtual memory size | kp_eproc.e_vm.vm_map.size or ki_size | ps -o vsz |
| pmem | Percentage of real memory | calculated from rss | ps -o pmem |
| rss | Resident set size | kp_eproc.e_vm.vm_rssize or ki_rssize | ps -o rss |
| size ²⁾ | Size of process (code + data + stack) | tsize + dsize + ssize | |
| tsize | Text (code) size | kp_eproc.e_vm.vm_tsize or ki_tsize | ps -o tsiz |
| dsize | Data size | kp_eproc.e_vm.vm_dsize or ki_dsize | ps -o dsiz |
| ssize | Stack size | kp_eproc.e_vm.vm_ssize or ki_ssize | ps -o ssiz |

Linux

See values supported for 'memtype' parameter on Linux in the table.

| Supported value | Description | Source in /proc/<pid>/status file |
|-------------------|--|-----------------------------------|
| vsz ³⁾ | Virtual memory size | VmSize |
| pmem | Percentage of real memory | (VmRSS/total_memory) * 100 |
| rss | Resident set size | VmRSS |
| data | Size of data segment | VmData |
| exe | Size of code segment | VmExe |
| hwm | Peak resident set size | VmHWM |
| lck | Size of locked memory | VmLck |
| lib | Size of shared libraries | VmLib |
| peak | Peak virtual memory size | VmPeak |
| pin | Size of pinned pages | VmPin |
| pte | Size of page table entries | VmPTE |
| size | Size of process code + data + stack segments | VmExe + VmData + VmStk |
| stk | Size of stack segment | VmStk |
| swap | Size of swap space used | VmSwap |

Notes for Linux:

1. Not all 'memtype' values are supported by older Linux kernels. For example, Linux 2.4 kernels do not support hwm, pin, peak, pte and swap values.
2. We have noticed that self-monitoring of the Zabbix agent active check process with `proc.mem[... , ... , ... , ... , data]` shows a value that is 4 kB larger than reported by VmData line in the agent's /proc/<pid>/status file. At the time of self-measurement the agent's data segment increases by 4 kB and then returns to the previous size.

Solaris

See values supported for 'memtype' parameter on Solaris in the table.

| Supported value | Description | Source in psinfo structure | Tries to be compatible with |
|-------------------|--|----------------------------|-----------------------------|
| vsz ⁴⁾ | Size of process image | pr_size | ps -o vsz |
| pmem | Percentage of real memory | pr_pctmem | ps -o pmem |
| rss | Resident set size It may be underestimated - see rss description in "man ps". | pr_rssize | ps -o rss |

¹⁾ , ²⁾ , ³⁾ , ⁴⁾
- default value

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