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# **Free Command:**

* Free command provides information about different types of memory usage and free memory space.
* Command: free



* All figures (numbers) in output of free command is in KB by default.
* As shown in picture, there are three lines:
* Line 1: Mem: Physical Memory (RAM): indicates total available RAM, used RAM, Shared RAM, RAM used for buffers and RAM used for cache
* Line 2: buffer/cache memory: indicates total buffer/cache memory used and free memory
* Line 3: Swap memory: indicates total Swap memory available, used Swap and free Swap memory.

## **Line 1: Mem**

* Total: 1882172 KB is total RAM available for the system
* Used: 97264 KB is amount of RAM used by the system including buffers/cached memory.
* Free: 1784908 KB is amount of RAM free and available for new process.
* Shared: 0 KB: means no shared memory for the system
* Buffers: 9140 KB is amount of RAM buffered by different applications in Linux.
* Cached: 23952 KB is amount of RAM used for caching of data.

## **Difference between Buffer and Cache**

|  |  |
| --- | --- |
| Buffer | Cache |
| It is only a part of physical memory storage (RAM). | It can be part of RAM or secondary storage like hard disk. |
| It is used to hold data temporarily when data is being moved from one place to another. | It is used to hold data temporarily for faster access. |
| It is normal speed storage area. | It is high speed storage area. |
| It is mostly used for input/output processes. | It is mostly used for reading/writing processes from the disk. |

## **Line 2: -/+ buffers/cache**

* Used: 64172 KB is amount of actual RAM used

Used RAM: +97264

Used Buffers: -9140

Used Cache: -23952

Actual RAM used= RAM used-used buffers-used cache

=97264-9140-23952

=64172

* Free: 1818000 KB is amount of actual RAM available/free

Total RAM: +1882172

Actual RAM used: -64172

Actual RAM free=Total RAM-actual RAM used

=1882172-64172

=1882172

## **Line 3: Swap**

* Total: 0 KB is total Swap memory available for the system
* Used: 0 KB Swap memory used by the system
* Free: 0 KB Swap memory free

## **More options with Free Command:**

* To display memory information in KB,

Command: free -k

* To display memory information in MB,

Command: free -m

* To display memory information in GB,

Command: free -g

* To display combined size of RAM and Swap,

Command: free -t

* To monitor memory usage after certain intervals,

Command: free -s 1

It displays output after every 1 second.

Command: watch free

## **Reference:**

* <http://www.chrisjohnston.org/ubuntu/why-on-linux-am-i-seeing-so-much-ram-usage>