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Ubuntu 4GB Ram Limitation and Solution

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Q. I've total 8 GB RAM installed in my dual boot Ubuntu Linux 8.10 (32 bit) version HP workstation. But free -m command only shows 3291 (3G) memory. How do I use 8GB RAM under Ubuntu Linux?

A. You need to install Physical Address Extension (PAE) aware kernel under 32 bit Ubuntu Linux. It is a feature of x86 and x86-64 processors that allows more than 4 Gigabytes of physical memory to be used in 32-bit systems.

[1]

Without PAE kernel, you should see something as follows:

```
$ free -m
```

Sample output:

	total	used	free	shared	buffers	cached
Mem:	3291	801	2489	0	95	342
-/+ buffers/cache:		363	2927			
Swap:	1906	0	1906			

You have two options here as follows:

Option # 1: Use 64 bit Ubuntu Linux

64 bit Linux kernel will take care of 4G or more memory. Just grab latest 64 bit version and install it.

Option #2: Install PAE enabled kernel

Open terminal and type the following command:

```
$ sudo apt-get update
$ sudo apt-get install linux-headers-server linux-image-server linux-server
```

Once kernel images installed, just reboot your workstation, type:

```
$ sudo reboot
```

After reboot, login into your system and type the following command to verify memory usage:

```
$ free -m
```

Sample output:

	total	used	free	shared	buffers	cached
Mem:	8105	1292	6812	0	38	483
-/+ buffers/cache:		770	7334			
Swap:	1906	0	1906			

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