Subject: Memory usage
Posted by eugeniopacheco on Thu, 06 Apr 2006 10:31:12 GMT
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Hi,

I'm a big fan of openvz, I think it's wonderful, but as I'm a newbie at it I don't fully know how it works...

Well... I'm running openvz on a Celeron 3,066 1024MB RAM 160GB HD and it's working fine, but, I used vzsplit -n 10 -f vps.10 and used this config file with vzctl set VPSID --applyconfig vps.10 --save

I'm running only 3 VPS and when I run top on the host it shows this:

Cpu(s): 1.2% us, 0.0% sy, 0.0% ni, 98.8% id, 0.0% wa, 0.0% hi, 0.0% si
Mem: 1025084k total, 1002164k used, 22920k free, 95024k buffers

Is it supposed to look like that? To have the memory all used up like that? Does openvz by default use the entire memory and then split into the VPS's? Is that how it works?

Here's what my vzmemcheck shows:

```
[root@t248 ~]# vzmemcheck
Output values in %
 LowMem  LowMem     RAM MemSwap MemSwap   Alloc   Alloc   Alloc
   util  commit    util    util  commit    util  commit   limit
   0.81   28.58    5.57    5.57   28.04   23.29   28.04  124.97
[root@t248 ~]# vzmemcheck -A
Output values in Mbytes
 LowMem  LowMem     RAM MemSwap MemSwap   Alloc   Alloc   Alloc
   util  commit    util    util  commit    util  commit   limit
   2.63   93.45   55.74   55.74  280.68  233.10  280.68 1251.05
 326.00  326.00 1001.00 1001.00 1001.00 1001.00 1001.00 1001.00
[root@t248 ~]# vzmemcheck -Av
Output values in Mbytes
veid       LowMem  LowMem     RAM MemSwap MemSwap   Alloc   Alloc   Alloc
           util  commit    util    util  commit    util  commit   limit
101          2.15   24.79   49.62   49.62   87.20  199.25   87.20  358.57
104          0.28   34.33    3.92    3.92   96.74   30.81   96.74  446.24
105          0.21   34.33    2.21    2.21   96.74    3.05   96.74  446.24
 ------------------------------------------------------------ -------------
Summary:      2.63   93.45   55.74   55.74  280.68  233.10  280.68 1251.05
        326.00  326.00 1001.00 1001.00 1001.00 1001.00 1001.00 1001.00
[root@t248 ~]# vzmemcheck -v
Output values in %
veid       LowMem  LowMem     RAM MemSwap MemSwap   Alloc   Alloc   Alloc
           util  commit    util    util  commit    util  commit   limit
```

101	0.66	7.58	4.96	4.96	8.71	19.90	8.71	35.82
104	0.09	10.50	0.39	0.39	9.66	3.08	9.66	44.58
105	0.06	10.50	0.22	0.22	9.66	0.30	9.66	44.58
Summary:	0.81	28.58	5.57	5.57	28.04	23.29	28.04	124.97

I read the User manual and it says that if any of these numbers is over 1 it's a problem with configuration... Here's what my vps.10 config template looks like:

```
# Configuration file generated by vzsplit for 10 VPS
# on HN with total amount of physical mem 1001 Mb
# low memory 817 Mb, swap size 0 Mb, Max treads 8000
# Resourse commit level 0:
# Free resource distribution. Any parameters may be increased
# Primary parameters
NUMPROC="800:800"
AVNUMPROC="209:209"
NUMTCPSOCK="800:800"
NUMOTHERSOCK="800:800"
VMGUARPAGES="15977:2147483647"

# Secondary parameters
KMEMSIZE="17141514:18855665"
TCPSNDBUF="2437038:5713838"
TCPRCVBUF="2437038:5713838"
OTHERSOCKBUF="1218519:4495319"
DGRAMRCVBUF="1218519:1218519"
OOMGUARPAGES="15977:2147483647"
PRIVVMPAGES="95862:105448"

# Auxiliary parameters
LOCKEDPAGES="836:836"
SHMPAGES="9586:9586"
PHYSPAGES="0:2147483647"
NUMFILE="6688:6688"
NUMFLOCK="668:734"
NUMPTY="80:80"
NUMSIGINFO="1024:1024"
DCACHESIZE="3740085:3852288"
NUMIPTENT="200:200"
DISKSPACE="5242880:6242880"
DISKINODES="593396:622736"
CPUUNITS="13738"
```

Is this all right?

Also, here is what vzcpucheck looks like:

[root@t248 vz-scripts]# vzcpucheck
Current CPU utilization: 42664
Power of the node: 151267

I haven't got any shortage on memory, but I'm affraid that if I run more stuff on the VPS's or if I add more VPS's then I'm gonna get memory shortage... By the way, what's the configuration for RAM memory limitation? Is it oomguarpages or vmguarpages? I read the user manual and I believe it's one of these...

Regards and thanks for having such a wonderful software for free:)

Subject: Re: Memory usage
Posted by dev on Sat, 08 Apr 2006 19:17:09 GMT
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eugeniopacheco, thanks a lot for such a detailed information, it really helps and wish all the users were doing so!

AFAICS, from your message this line makes you worry:
Mem: 1025084k total, 1002164k used, 22920k free, 95024k buffers
correct?

It is fully ok. This _doesn't_ mean, that memory is used by VPSs or its processes. Most likely your memory is used for caches. You can check this in cat /proc/meminfo output.
Kernel dynamically uses memory for disk caches, so "free" memory is _totally_ unused memory (22Mb in your case), while "used" memory includes caches which are reclaimed when needed automatically.

Now about UBC settings. oomguarpages and vmguarpages are _guarantees_, not limits. oomguarpages guarantees that Out-Of-Memory killer won't try to kill processes in the VPS if it uses less than guaranteed memory pages. vmguarpages guarantees that OS will allow VPS to mmap such amount of private pages.
And the limit your are looking for is 'privvmpages' I think.

Subject: Re: Memory usage
Posted by eugeniopacheco on Mon, 10 Apr 2006 20:51:57 GMT
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Hi,

Thanks a lot for your answer...

Yes, I do believe that the limit would be the privvmpages setting... What is the unit used by privvmpages? I had a VPS running with 95862:105448 and I couldn't run 1 ircd, 1 shoutcast and

30 eggdrops... It got memory shortage. Is that suppose to be like that? I'm not sure how much memory an eggdrop or a shoutcast uses... Here is what my ps aux showed:

```
[root@t248 ~]# vzctl exec 104 ps aux
USER       PID %CPU %MEM   VSZ  RSS TTY      STAT START   TIME COMMAND
root         1  0.0  0.0  1504  512 ?        Ss   Apr08   0:00 init
root      6126  0.0  0.0  1560  592 ?        Ss   Apr08   0:00 /sbin/syslogd
root      6134  0.0  0.1  3468 1520 ?        Ss   Apr08   0:01 /usr/sbin/sshd
nobody    7255  0.0  0.2  4068 2092 ?        Ss   Apr08   0:00 proftpd: (accepting connections)
daemon    7258  0.0  0.0  1684  628 ?        Ss   Apr08   0:00 /usr/sbin/atd
root      7261  0.0  0.0  1764  816 ?        Ss   Apr08   0:00 /usr/sbin/cron
ircd      7328  0.0  0.4  5936 4892 ?        Ss   Apr08   0:10 ./ircd
egg      11789  0.0  0.2 12376 2660 ?        S    Apr08   0:00 ./eggdrop-1.6.17 egg1.conf
bonan    20451  0.0  0.2 29740 2152 ?        S    Apr08   0:00 ./sc_serv
egg      27810  0.0  0.2 12376 2664 ?        S    Apr08   0:00 ./eggdrop -m eggdrop.conf
egg      27844  0.0  0.2 12376 2684 ?        S    Apr08   0:00 ./eggdrop -m eggdrop.conf
egg      14291  0.0  0.2 12376 2736 ?        S    Apr09   0:01 ./eggdrop -m v2sis.conf
egg       1421  0.0  0.2 12376 2740 ?        S    Apr09   0:00 ./eggdrop -m 01.conf
egg       1904  0.0  0.2 12376 2740 ?        S    Apr09   0:00 ./eggdrop -m 02.conf
egg       8083  0.0  0.2 12364 2632 ?        S    01:47   0:00 ./eggdrop -m egg11.conf
egg       9346  0.0  0.2 12376 2720 ?        S    02:00   0:00 ./eggdrop -m egg13.conf
egg       9806  0.0  0.2 12376 2664 ?        S    02:05   0:00 ./eggdrop -m egg14.conf
egg      10096  0.0  0.2 12376 2736 ?        S    02:28   0:00 ./eggdrop -m egg15.conf
egg      10099  0.0  0.2 12376 2740 ?        S    02:28   0:00 ./eggdrop -m egg16.conf
egg      10102  0.0  0.2 12364 2716 ?        S    02:29   0:00 ./eggdrop -m egg17.conf
egg      10105  0.0  0.2 12376 2748 ?        S    02:29   0:00 ./eggdrop -m egg18.conf
egg      10223  0.0  0.2 12376 2740 ?        S    02:30   0:00 ./eggdrop -m egg19.conf
egg      10232  0.0  0.2 12364 2712 ?        S    02:32   0:00 ./eggdrop -m egg20.conf
egg      10235  0.0  0.2 12364 2716 ?        S    02:32   0:00 ./eggdrop -m egg21.conf
egg      10239  0.0  0.2 12364 2716 ?        S    02:33   0:00 ./eggdrop -m egg22.conf
egg      11268  0.0  0.2 12364 2712 ?        S    02:35   0:00 ./eggdrop -m egg23.conf
egg      11302  0.0  0.2 12364 2716 ?        S    02:35   0:00 ./eggdrop -m egg24.conf
egg      11311  0.0  0.2 12364 2716 ?        S    02:37   0:00 ./eggdrop -m egg25.conf
egg      11342  0.0  0.2 12364 2712 ?        S    02:39   0:00 ./eggdrop -m egg26.conf
egg      11408  0.0  0.2 12376 2740 ?        S    02:40   0:00 ./eggdrop -m egg27.conf
egg      11424  0.0  0.2 12376 2740 ?        S    02:42   0:00 ./eggdrop -m egg28.conf
egg      11428  0.0  0.2 12376 2740 ?        S    02:43   0:00 ./eggdrop -m egg29.conf
egg      11431  0.0  0.2 12376 2728 ?        S    02:44   0:00 ./eggdrop -m egg30.conf
egg      11465  0.0  0.2 12376 2732 ?        S    02:45   0:00 ./eggdrop -m egg31.conf
egg      11470  0.0  0.2 12376 2732 ?        S    02:46   0:00 ./eggdrop -m egg32.conf
egg      11473  0.0  0.2 12376 2736 ?        S    02:46   0:00 ./eggdrop -m egg33.conf
egg      11482  0.0  0.2 12376 2740 ?        S    02:47   0:00 ./eggdrop -m egg34.conf
egg      11485  0.0  0.2 12376 2732 ?        S    02:47   0:00 ./eggdrop -m egg35.conf
egg      11488  0.0  0.2 12376 2732 ?        S    02:48   0:00 ./eggdrop -m egg36.conf
egg      11491  0.0  0.2 12376 2736 ?        S    02:48   0:00 ./eggdrop -m egg37.conf
egg      11494  0.0  0.2 12376 2616 ?        S    02:49   0:00 ./eggdrop -m egg38.conf
egg      11497  0.0  0.2 12376 2740 ?        S    02:49   0:00 ./eggdrop -m egg39.conf
egg      11563  0.0  0.2 12376 2736 ?        S    02:53   0:00 ./eggdrop -m egg42.conf
```

root 2791 0.0 0.0 2492 840 ? Rs 20:43 0:00 ps aux

And here is the user_beancounters:

[root@t248 ~]# vzctl exec 104 cat /proc/user_beancounters
Version: 2.5

uid	resource	held	maxheld	barrier	limit	failcnt
104:	kmemsize	2829599	3083390	5141514	8855665	0
	lockedpages	0	0	836	836	0
	privvmpages	90317	97727	95862	105448	81
	shmpages	0	1632	9586	9586	0
	dummy	0	0	0	0	0
	numproc	82	90	800	800	0
	physpages	10135	10804	0	2147483647	0
	vmguarpages	0	0	15977	2147483647	0
	oomguarpages	10135	10804	15977	2147483647	0
	numtcpsock	116	122	800	800	0
	numflock	2	8	668	734	0
	numpty	0	2	80	80	0
	numsiginfo	1	5	1024	1024	0
	tcpsndbuf	93576	373564	2437038	5713838	0
	tcprcvbuf	0	1021384	2437038	5713838	0
	othersockbuf	80208	142592	1218519	4495319	0
	dgramrcvbuf	0	12040	1218519	1218519	0
	numothersock	72	101	800	800	0
	dcachesize	204480	226064	3740085	3852288	0
	numfile	1305	1358	6688	6688	0
	dummy	0	0	0	0	0
	dummy	0	0	0	0	0
	dummy	0	0	0	0	0
	numiptent	10	10	200	200	0

Subject: Re: Memory usage
Posted by eugeniopacheco on Mon, 10 Apr 2006 22:04:24 GMT
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Hello again,

I was reading the user manual for OpenVZ and I read that the Alloc Memory is a Virtual memory, so theoretically it shouldn't have a limitation right?

Let me rephrase that... I meant that the total shouldn't have a limit, right? I noticed that the privvmpages limits this Alloc limit... Currently my vzmemcheck shows the following:

[root@t248 ~]# vzmemcheck -Av
Output values in Mbytes

```
veid       LowMem  LowMem     RAM MemSwap MemSwap   Alloc   Alloc   Alloc
           util  commit   util   util  commit   util  commit   limit
101          2.49   34.33   62.55   62.55   96.74  212.12   96.74  368.11
102          0.25   24.79    7.15    7.15   87.20    8.57   87.20  436.70
104          2.89   24.79   42.45   42.45   87.20  355.48   87.20  436.70
105          0.21   24.79    2.21    2.21   87.20    3.05   87.20  436.70
 ------------------------------------------------------------ -------------
Summary:     5.84  108.71  114.36  114.36  358.35  579.21  358.35 1678.21
       326.00  326.00 1001.00 1001.00 1001.00 1001.00 1001.00 1001.00
[root@t248 ~]# vzmemcheck -v
Output values in %
veid       LowMem  LowMem     RAM MemSwap MemSwap   Alloc   Alloc   Alloc
           util  commit   util   util  commit   util  commit   limit
101          0.76   10.50    6.25    6.25    9.66   21.19    9.66   36.77
102          0.08    7.58    0.71    0.71    8.71    0.86    8.71   43.62
104          0.89    7.58    4.24    4.24    8.71   35.51    8.71   43.62
105          0.06    7.58    0.22    0.22    8.71    0.30    8.71   43.62
 ------------------------------------------------------------ -------------
Summary:     1.79   33.25   11.42   11.42   35.80   57.86   35.80  167.64
```

The question is, is the 1001.00 the maximum that should be used? I mean, take a look at the vzmemcheck -Av, it shows that the sum is actually 1678,21, but it shows underneath that number, 1001,00. But the RAM is still unused... It's only using 114,36 MB of RAM, so I can make privvmpages larger, without problems, even though it sums over the 1001,00, right?

Regards, and again thanks for all your help;)

Subject: Re: Memory usage
Posted by dev on Tue, 11 Apr 2006 08:04:55 GMT
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privvmpages is in pages i.e. 4Kb units.
but you can set this settings in Kb or Mb in vzctl, using 'k' or 'm' suffix.

each eggdrop consumes ~3Mb of RAM and 12Mb of Virtual Space.
So I suppose everything is correct.

Subject: Re: Memory usage
Posted by eugeniopacheco on Tue, 11 Apr 2006 11:53:28 GMT
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Hi,

Ok, I got it, but then is the virtual memory limited? I mean, does it have the same limit as the

RAM?

For example... My machine has 1GB of RAM. If I advertise that my VDS has 128MB of RAM, should I limit it to 512MB of Virtual Memory? (I'm using the numbers you gave me, where the virtual space used by the eggdrop is 4 times the ram it consumes)
Can I run 7 VDS with 512MB limit of Virtual Memory and if they consume at the same time 512MB of virtual memory is my system going to get memory shortage? Notice that theoretically it would consume only 896MB of RAM (512 * 7 / 4)...

I just don't know where this Virtual Memory comes from... Sorry for asking this and thanks for your help.

Regards,

Eugenio Pacheco

Subject: Re: Memory usage
Posted by eugeniopacheco on Tue, 25 Apr 2006 00:00:29 GMT
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Hi,

Can someone please tell me if the virtual memory (privvmpages) is limited to the amount of RAM memory in the computer?

When I type the command vzmemcheck, this is what shows up:

```
[root@t248 ~]# vzmemcheck
Output values in %
 LowMem  LowMem     RAM MemSwap MemSwap   Alloc   Alloc   Alloc
   util  commit    util    util  commit    util  commit   limit
   1.44   25.67   20.96   20.96   27.09   79.90   27.09  145.31
[root@t248 ~]# vzmemcheck -A
Output values in Mbytes
 LowMem  LowMem     RAM MemSwap MemSwap   Alloc   Alloc   Alloc
   util  commit    util    util  commit    util  commit   limit
   4.72   83.92  209.80  209.80  271.15  799.86  271.15 1454.60
 326.00  326.00 1001.00 1001.00 1001.00 1001.00 1001.00 1001.00
[root@t248 ~]# vzmemcheck -Av
Output values in Mbytes
veid       LowMem  LowMem     RAM MemSwap MemSwap   Alloc   Alloc   Alloc
           util  commit    util    util  commit    util  commit   limit
101          2.55   34.33   94.67   94.67   96.74  244.85   96.74  368.11
102          1.32   24.79   62.10   62.10   87.20  498.63   87.20  649.79
105          0.97   24.79   53.14   53.14   87.20   56.50   87.20  436.70
 ------------------------------------------------------------ -------------
Summary:     4.84   83.92  209.91  209.91  271.15  799.98  271.15 1454.60
```

```
        326.00  326.00 1001.00 1001.00 1001.00 1001.00 1001.00 1001.00
[root@t248 ~]# vzmemcheck -v
Output values in %
veid       LowMem  LowMem     RAM MemSwap MemSwap   Alloc   Alloc   Alloc
           util  commit    util    util  commit    util  commit   limit
101          0.78   10.50    9.46    9.46    9.66   24.46    9.66   36.77
102          0.40    7.58    6.20    6.20    8.71   49.81    8.71   64.91
105          0.29    7.58    5.31    5.31    8.71    5.64    8.71   43.62
 ------------------------------------------------------------ -------------
Summary:     1.47   25.67   20.96   20.96   27.09   79.91   27.09  145.31
```

The thing is. It seems to me that the RAM memory is underused... It shows that it's only 21% (210MB) used. The machine I'm running openvz has 1GB of memory. But, the Alloc memory is being overused, it shows that it's 145% used (1455MB). So, my question is, can I use the Alloc memory (privvmpages) to match up the RAM to be used? I just don't know where this virtual memory comes from or what resources it uses.

Please help?

Eugenio Pacheco