

1. 进程管理

- free: 打印系统情况和内存情况
 - -b | k | m | g 以字节, KB, M, G 显示
 - -o 忽略缓冲区调节列
 - -s second: 每隔seconds执行一次
 - -h 以可读形式显示

```
yali@ip-172-31-2-107 ~ % free
              total        used        free      shared  buff/cache   available
Mem:           976168        156224        246356          768        573588        637156
Swap:              0             0             0
yali@ip-172-31-2-107 ~ % free -h
              total        used        free      shared  buff/cache   available
Mem:           953M        152M        240M          768K        560M        622M
Swap:              0B             0B             0B
yali@ip-172-31-2-107 ~ % free -s 2
              total        used        free      shared  buff/cache   available
Mem:           976168        156216        246356          768        573596        637164
Swap:              0             0             0
              total        used        free      shared  buff/cache   available
Mem:           976168        156224        246348          768        573596        637156
Swap:              0             0             0
              total        used        free      shared  buff/cache   available
Mem:           976168        156224        246348          768        573596        637156
Swap:              0             0             0
```

- top: 显示当前系统进程情况, 内存, cpu等信息

```
yali@ip-172-31-2-107 ~ % top
top - 10:34:21 up 18:23, 1 user, load average: 0.00, 0.00, 0.00
Tasks: 101 total, 1 running, 57 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.0 us, 0.0 sy, 0.0 ni,100.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 976168 total, 245324 free, 157076 used, 573768 buff/cache
KiB Swap: 0 total, 0 free, 0 used. 636288 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM    TIME+  COMMAND
    1 root        20   0   159776    7528   5124 S   0.0   0.8   0:04.58 systemd
    2 root        20   0         0         0        0 S   0.0   0.0   0:00.00 kthreadd
    3 root         0 -20         0         0        0 I   0.0   0.0   0:00.00 rcu_gp
    4 root         0 -20         0         0        0 I   0.0   0.0   0:00.00 rcu_par_gp
    6 root         0 -20         0         0        0 I   0.0   0.0   0:00.00 kworker/0:0H-kb
    9 root         0 -20         0         0        0 I   0.0   0.0   0:00.00 mm_percpu_wq
   10 root        20   0         0         0        0 S   0.0   0.0   0:00.18 ksoftirqd/0
   11 root        20   0         0         0        0 I   0.0   0.0   0:00.91 rcu_sched
   12 root        rt    0         0         0        0 S   0.0   0.0   0:00.27 migration/0
   13 root        20   0         0         0        0 S   0.0   0.0   0:00.00 cpuhp/0
   14 root        20   0         0         0        0 S   0.0   0.0   0:00.01 cpuhp/1
   15 root        rt    0         0         0        0 S   0.0   0.0   0:00.27 migration/1
   16 root        20   0         0         0        0 S   0.0   0.0   0:00.19 ksoftirqd/1
   18 root         0 -20         0         0        0 I   0.0   0.0   0:00.00 kworker/1:0H-kb
   19 root        20   0         0         0        0 S   0.0   0.0   0:00.00 kdevtmpfs
   20 root         0 -20         0         0        0 I   0.0   0.0   0:00.00 netns
   21 root        20   0         0         0        0 S   0.0   0.0   0:00.00 rcu_tasks_kthre
```

- -b 以批处理模式操作
- -c 显示完整命令
- -d seconds 屏幕刷新闻隔时间

- o -s 以安全模式运行
- o -S 累计模式
- o -u uname 指定username
- o -p pid 指定PID
- o -n nums 循环显示次数
- o -q root 时，给尽可能高的优先级
- dstat 实时监控磁盘，cpu，网络等

```
yali@ip-172-31-2-107 ~ % dstat [127]
You did not select any stats, using -cdngy by default.
--total-cpu-usage-- -dsk/total- -net/total- ---paging-- ---system--
usr sys idl wai stl | read writ | recv send | in out | int csw
0 0 100 0 0 | 44k 129k | 0 0 | 0 0 | 20 30
0 0 100 0 1 | 0 0 | 120B 310B | 0 0 | 20 21
0 0 100 0 0 | 0 0 | 134B 224B | 0 0 | 16 19
0 0 100 0 0 | 0 0 | 1195B 241B | 0 0 | 32 33
0 0 100 0 0 | 0 0 | 1115B 1400B | 0 0 | 35 33
0 0 100 0 0 | 0 0 | 60B 2410B | 0 0 | 13 13
0 0 100 0 0 | 0 0 | 60B 118B | 0 0 | 17 26
0 0 100 0 0 | 0 0 | 60B 1264B | 0 0 | 12 11
0 0 100 0 0 | 0 0 | 60B 118B | 0 0 | 14 22
0 0 100 0 0 | 0 0 | 60B 1264B | 0 0 | 9 7
0 0 100 0 0 | 0 0 | 60B 118B | 0 0 | 11 15
0 0 100 0 0 | 0 0 | 60B 118B | 0 0 | 10 13
0 0 100 0 0 | 0 0 | 60B 118B | 0 0 | 12 15
0 0 100 0 0 | 0 0 | 60B 118B | 0 0 | 8 9
0 0 100 0 0 | 0 0 | 60B 118B | 0 0 | 15 24
0 0 100 0 0 | 0 0 | 60B 1264B | 0 0 | 11 11
```

- o num1: 每num1秒更新一次
- o num1 num2: 每num1 秒更新一次，更新num2次
 - 例子：每10秒更新一次，更新5次

```
yali@ip-172-31-2-107 ~ % dstat 10 5
You did not select any stats, using -cdngy by default.
--total-cpu-usage-- -dsk/total- -net/total- ---paging-- ---system--
usr sys idl wai stl | read writ | recv send | in out | int csw
0 0 100 0 0 | 43k 128k | 0 0 | 0 0 | 20 30
0 0 100 0 0 | 0 0 | 60B 121B | 0 0 | 18 22
0 0 100 0 0 | 0 0 | 102B 156B | 0 0 | 16 17
0 0 100 0 0 | 0 0 | 60B 116B | 0 0 | 13 15
0 0 100 0 0 | 0 8192B | 60B 120B | 0 0 | 15 17
```

- o --list: 列出内部和外部插件名称

```
yali@ip-172-31-2-107 ~ % dstat --list [0]
internal:
aio, cpu, cpu-adv, cpu-use, cpu24, disk, disk24, disk24-old, epoch, fs, int, int24, io, ipc, load, lock, mem, mem-adv, net, page, page24, proc, raw,
socket, swap, swap-old, sys, tcp, time, udp, unix, vm, vm-adv, zones
/usr/share/dstat:
battery, battery-remain, condor-queue, cpufreq, dbus, disk-avgrq, disk-avgrq, disk-svctm, disk-tps, disk-util, disk-wait, dstat, dstat-cpu, dstat-ctxt,
dstat-mem, fan, freespace, fuse, gpfs, gpfs-ops, helloworld, innodb-buffer, innodb-io, innodb-ops, lustre, md-status, memcache-hits, mysql-io,
mysql-keys, mysql5-cmds, mysql5-conn, mysql5-innodb, mysql5-innodb-basic, mysql5-innodb-extra, mysql5-io, mysql5-keys, net-packets, nfs3, nfs3-ops,
nfsd3, nfsd3-ops, nfsd4-ops, nfsstat4, ntp, postfix, power, proc-count, qmail, redis, rpc, rpcd, sendmail, snmp-cpu, snmp-load, snmp-mem, snmp-net,
snmp-net-err, snmp-sys, snooze, squid, test, thermal, top-bio, top-bio-adv, top-childwait, top-cpu, top-cpu-adv, top-cputime, top-cputime-avg, top-int,
top-io, top-io-adv, top-latency, top-latency-avg, top-mem, top-oom, utmp, vm-cpu, vm-mem, vm-mem-adv, vmk-hba, vmk-int, vmk-nic, vz-cpu, vz-io, vz-ubc,
wifi, zfs-arc, zfs-l2arc, zfs-zil
```

- o --output: 结果输出为csv文件

- -a : 显示每个程序的完整指令
- -n : 使用PID排序
- -p : 显示PID
- -u : 显示用户名
- -l : 使用长列格式显示树状

- pgrep查找进程PID

- -o: 起始进程号
- -n: 结束进程号
- -l: 显示进程名称
- -P pid: 指定父进程
- -g gid: 指定进程组
- -t tty: 指定开启的进程终端
- -u uid: 指定uid

```
yali@ip-172-31-2-107 ~ % pgrep sshd
3267
4872
4874
5069
5080
yali@ip-172-31-2-107 ~ % pgrep -o sshd
3267
yali@ip-172-31-2-107 ~ % pgrep -n sshd -l
5080 sshd
```

- kill 删除执行中的程序和工作

- -a: 处理当前进程时， 不限制命令名和进程号的对应关系
- -l 信号ID: 不加信号ID，则列出全部信号
- -p pid: 给pid的进程只打印相关进程号，而不发送任何信号
- -s 信号ID | 信号name: 指定要发出的信号
- -u: 指定用户

!!! 一般记住下面两个命令

kill -9 pid 强制杀死

kill pid 杀死

Ctrl+c挂起

- pkill 删除执行中的程序和工作（一般不用这个）

- o: 起始pid
- n: 结束pid
- p pid: 指定父进程信号发送信号
- g: 指定进程组

-t tty: 指定终端

!!! kill & pkill的区别

Kill用来杀死确定的进程ID

pkill用来杀死相应的名字（杀的时候传递的这个名字是一个模糊匹配，root用户时慎用）

2.简答题

假设你在你的云主机上安装了MySQL数据库，请问你要如何确认它是否在正确运行，以及如果它在运行的话，应该如何结束它？

回答：用 `ps -ef | grep mysql` 检查MySQL是否在后台运行

用 `pkill -9 mysql` 强制杀死此进程