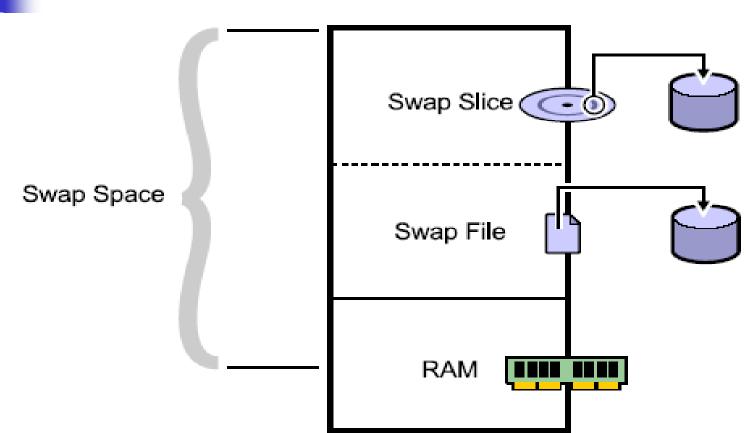# SWAP CONFIGURATION

- Swap space in Linux is used when the amount of physical memory (RAM) is full.

- Swap space can be a swap partition, a swap file ,or a combinations of swap partitions and swap files.

- If the system needs more memory resources and the RAM is full, inactive pages in memory are moved to the swap space.

- While swap space can help machines with a small amount of RAM, it should not be considered a replacement for more RAM.

- Swap space is located on hard drives, which have a slower access time than physical memory.

To Monitor swap space

- Cat /proc/swaps
- free –k/g/m
- swapon –s
- top
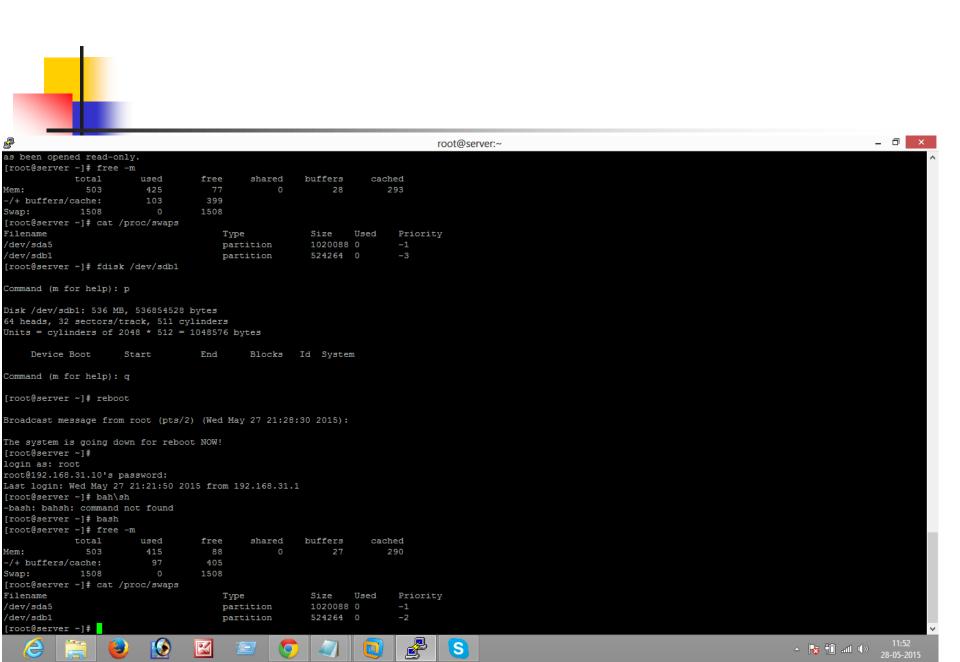
Swap configuration

- step1- create a partition & set its partition id to swap

  /dev/sdb disk is created

- step2-format it using mkswap, so format /dev/sdb now using mkswap

  free –m

- do the partitions for the disk /dev/sdb

  fdisk   /dev/sdb

  press **n** for new partition

  press **p** for primary partition and then **t** for filesystem type

  use **hex code 82 for swap** and then press **w** for saving

  partprobe for updating kernel without rebooting.

- step3-on swap over it using swapon command

  mkswap /dev/sdb1

  free -m

  swapon   /dev/sdb1

- step4- test your swap memory using

  free -m

  cat /proc/swaps

- step5- now make a entry in /etc/fstab file for make it permanent

  vi /etc/fstab

  /dev/sdb1   swap swap   defaults 0 0

```
as been opened read-only.
[root@server ~]# free -m
              total       used       free     shared    buffers     cached
Mem:            503        425         77          0         28        293
-/+ buffers/cache:        103        399
Swap:          1508          0       1508
[root@server ~]# cat /proc/swaps
Filename                        Type            Size     Used     Priority
/dev/sda5                       partition       1020088  0        -1
/dev/sdb1                       partition       524264   0        -3
[root@server ~]# fdisk /dev/sdb1

Command (m for help): p

Disk /dev/sdb1: 536 MB, 536854528 bytes
64 heads, 32 sectors/track, 511 cylinders
Units = cylinders of 2048 * 512 = 1048576 bytes

    Device Boot      Start         End      Blocks   Id  System

Command (m for help): q

[root@server ~]# reboot

Broadcast message from root (pts/2) (Wed May 27 21:28:30 2015):

The system is going down for reboot NOW!
[root@server ~]#
login as: root
root@192.168.31.10's password:
Last login: Wed May 27 21:21:50 2015 from 192.168.31.1
[root@server ~]# bah\sh
-bash: bahsh: command not found
[root@server ~]# bash
[root@server ~]# free -m
              total       used       free     shared    buffers     cached
Mem:            503        415         88          0         27        290
-/+ buffers/cache:         97        405
Swap:          1508          0       1508
[root@server ~]# cat /proc/swaps
Filename                        Type            Size     Used     Priority
/dev/sda5                       partition       1020088  0        -1
/dev/sdb1                       partition       524264   0        -2
[root@server ~]#
```

Use a File for Additional Swap Space

- myswapfile" under /root directory with a size of 1024MB (

- # dd if=/dev/zero of=/root/myswapfile bs=1M count=1024 (1GB).

- Change the permission of the swap file so that only root can access it.

- # chmod 600 /root/myswapfile

- Make this file as a swap file using mkswap command.

- # mkswap /root/myswapfile

- Enable the newly created swapfile.

    # swapon /root/myswapfile

- To make this swap file available as a swap area even after the reboot, add the following line to the /etc/fstab file.

- # cat /etc/fstab

    /root/myswapfile swap swap defaults 0 0

- verify whether the newly created swap area is available for your use.

- **swapon -s**
- Filename   Type   Size   Used   Priority
- /dev/sda2   partition 4192956 0   -1
  /root/myswapfile file   1048568 0   -2
- # **free -k**
-          total   used   free   shared   buffers cached
- Mem: 3082356 3022364 59992 0   52056 2646472
- -/+ buffers/cache: 323836 2758520
- Swap: 5241524   0   5241524

How to remove swap

- 1.first remove line from /etc/fstab

   vi /etc/fstab

  # /dev/sdb1   swap swap   defaults 0 0

- 2.then swapoff /dev/sdb

-   free -m

- 3.delete partition

   fdisk /dev/sdb

   d-delete

   w-save

- 4.partprobe

How do I set swappiness on a Linux server?

- The value in /proc/sys/vm/swappiness file controls how aggressively the kernel will swap memory pages.
- Higher values increase agressiveness, lower values descrease aggressiveness. The default value is 60.
- To make changes permanent add the following line to /etc/sysctl.conf
- The syntax is:
  # sysctl vm.swappiness=VALUE
  # sysctl vm.swappiness=20
  OR
  # echo VALUE > /proc/sys/vm/swappiness
  # echo 30 > /proc/sys/vm/swappiness
- **echo** 'vm.swappiness=30' >> /etc/sysctl.conf

Empty Linux Buffer Cache

sync; echo 3 > /proc/sys/vm/drop_caches