TOPIC: SWAP PARTITION

Why we need to use the swap

- Whenever the physical ram got completed used to run the process to run the process temporarily we need to use the swap.

We have the default swap size of: **4095992 this also completely used means at the time how to configure the additional swap we are going to do.**

```
[root@ajaydasharath ~]# free
             total       used       free     shared    buffers     cached
Mem:        1906908     622724    1284184          0      24540     296584
-/+ buffers/cache:       301600    1605308
Swap:       4095992          0    4095992
[root@ajaydasharath ~]#
```

➢ Now I am going to create a new partition **fdisk /dev/sdb**

```
[root@ajaydasharath /]# fdisk /dev/sdb

WARNING: DOS-compatible mode is deprecated. It's strongly recommended to
         switch off the mode (command 'c') and change display units to
         sectors (command 'u').

Command (m for help): n
Command action
   e   extended
   p   primary partition (1-4)
p
Partition number (1-4): 2
First cylinder (263-1305, default 263):
Using default value 263
Last cylinder, +cylinders or +size{K,M,G} (263-1305, default 1305): +2G

Command (m for help): w
The partition table has been altered!

Calling ioctl() to re-read partition table.
Syncing disks.
[root@ajaydasharath /]#
```

➢ How to verify the 2ⁿᵈ partition has been created or not type **lsblk**

```
[root@ajaydasharath /]# lsblk
NAME     MAJ:MIN RM    SIZE RO TYPE MOUNTPOINT
sda        8:0    0     20G  0 disk
├─sda1     8:1    0    300M  0 part /boot
├─sda2     8:2    0    3.9G  0 part [SWAP]
└─sda3     8:3    0   15.8G  0 part /
sr0       11:0    1   1024M  0 rom
sdb        8:16   0     10G  0 disk
├─sdb1     8:17   0      2G  0 part
└─sdb2     8:18   0      2G  0 part
[root@ajaydasharath /]#
```

➢ sdb is the **hard disk sdb2** is the **2ⁿᵈ partition**

➢ I have created the new partition of **sdb2** that I am converting into the **swap partition.**

➢ **Partition** can be converted into the **storage** where we can store the **files and folders.**

➢ **Partition** can be converted into the **Memory** also.

➢ If we want to use for the storage we need to use the **mkfs.ext4**

➢ If we need to use for the swap means we need use this command **mkswap /dev/sdb2**

➢ **mkswap** is the command is used for creating a swap memory

```
[root@ajaydasharath /]# lsblk
NAME     MAJ:MIN RM    SIZE RO TYPE MOUNTPOINT
sda        8:0    0     20G  0 disk
├─sda1     8:1    0    300M  0 part /boot
├─sda2     8:2    0    3.9G  0 part [SWAP]
└─sda3     8:3    0   15.8G  0 part /
sr0       11:0    1   1024M  0 rom
sdb        8:16   0     10G  0 disk
├─sdb1     8:17   0      2G  0 part
└─sdb2     8:18   0      2G  0 part
[root@ajaydasharath /]# mkswap /dev/sdb2
Setting up swapspace version 1, size = 2104508 KiB
no label, UUID=1392a0c2-0a94-41e4-ba7f-2889882a2984
```

➤ Type the **free** Command to see the details of the **swap memory**

```
[root@ajaydasharath /]# free
             total       used       free     shared    buffers     cached
Mem:       1906908     662700    1244208          0      30620     300984
-/+ buffers/cache:      331096    1575812
Swap:      4095992          0    4095992
[root@ajaydasharath /]#
```

➤ The available Swap partition is **4095992**

➤ How to check if the swap is available or not: **swapon -s** it will also shows the existing swap.

```
root@ajaydasharath:/
[root@ajaydasharath /]# swapon -s
Filename                                Type            Size      Used   Priority
/dev/sda2                               partition       4095992 0       -1
[root@ajaydasharath /]#
```

➤ We are converting a swap memory into the partition **swapon -v /dev/sdb2**

```
root@ajaydasharath:/
[root@ajaydasharath /]# swapon -v /dev/sdb2
swapon on /dev/sdb2
swapon: /dev/sdb2: found swap signature: version 1, page-size 4, same byte order
swapon: /dev/sdb2: pagesize=4096, swapsize=2155020288, devsize=2155023360
[root@ajaydasharath /]#
```

➤ You will be seeing the extra swap. It will displays the two entry when you type the command **swapon -s**

```
root@ajaydasharath:/
[root@ajaydasharath /]# swapon -s
Filename                                Type            Size      Used   Priority
/dev/sda2                               partition       4095992 0       -1
/dev/sdb2                               partition       2104504 0       -2
[root@ajaydasharath /]#
```

➤ Type the **free** command now the swap size will be increased to **62004961**

```
root@ajaydasharath:/
[root@ajaydasharath /]# free
             total       used       free     shared    buffers     cached
Mem:       1906908     666008    1240900          0      30704     302868
-/+ buffers/cache:      332436    1574472
Swap:      6200496          0    6200496
[root@ajaydasharath /]#
```

➢ How to remove the swap **swapoff /dev/sdb2** now type the free command swap will be decreased

```
root@ajaydasharath:/

[root@ajaydasharath /]# swapoff /dev/sdb2
[root@ajaydasharath /]# free
             total       used       free     shared    buffers     cached
Mem:       1906908     664660    1242248          0      30700     302868
-/+ buffers/cache:      331092    1575816
Swap:      4095992          0    4095992
[root@ajaydasharath /]#
```

Example = 01

➢ I have an hard disk of 10 GB it can be dived into the four partitions.

➢ I have a one scenario I am having the hard disk of 10 gb in that 7gb has been used I want another 2gb. I am not able create the partition also and I can't use the swap memory also in that situation what to do. We can create dummy file of 2gb we can convert this as a swap file.

There is a two method of swap

1) By adding the hard disk and creating a partition and adding to a swap

2) Creating a file and adding to a swap.

Note: I want a file size should be 2GB with NO content one command is there.

➢ Type Command: **df -h**

```
root@ajaydasharath:/

[root@ajaydasharath /]# df -h
Filesystem            Size  Used Avail Use% Mounted on
/dev/sda3              16G  9.2G  5.6G  63% /
tmpfs                932M  100K  932M   1% /dev/shm
/dev/sda1            291M   36M  240M  14% /boot
[root@ajaydasharath /]#
```

➢ Type Command: **swapon -s**

```
[root@ajaydasharath /]# swapon -s
Filename                                Type            Size      Used    Priority
/dev/sda2                               partition       4095992 0        -1
/dev/sdb2                               partition       2104504 0        -2
[root@ajaydasharath /]#
```

Note: This is the Linux command which is used for creating a particular size without mentioning any content.

Type Command: <u>dd if=/dev/zero of =/var/swapfile.jun7 bs =200M count=1 dd - data dumb</u>

if – input file

zero – it will contain the null charaters.

root@ajaydasharath:/

```
[root@ajaydasharath /]# dd if=/dev/zero  of=/var/swapfile1  bs=200M count=1
1+0 records in
1+0 records out
209715200 bytes (210 MB) copied, 1.91117 s, 110 MB/s
[root@ajaydasharath /]#
```

Creating a file of 200M and convert into Swap file.

➢ Type command: **df -h**

root@ajaydasharath:/

```
[root@ajaydasharath /]# df -h
Filesystem              Size    Used  Avail Use% Mounted on
/dev/sda3                16G    9.4G  5.4G  64% /
tmpfs                   932M    100K  932M   1% /dev/shm
/dev/sda1               291M     36M  240M  14% /boot
[root@ajaydasharath /]#
```

➢ Type command: **mkswap /var/swapfile1**

root@ajaydasharath:/

```
[root@ajaydasharath /]# mkswap /var/swapfile1
Setting up swapspace version 1, size = 204796 KiB
no label, UUID=9ff979f4-d66e-4390-a4d6-d3414926aee0
[root@ajaydasharath /]#
```

➢ Type Command: **free** still its showing the dd size only <u>**6200496**</u>

```
root@ajaydasharath:/

[root@ajaydasharath /]# free
             total       used       free     shared    buffers     cached
Mem:       1906908     878428    1028480          0      31476     508208
-/+ buffers/cache:      338744    1568164
Swap:      6200496          0    6200496
[root@ajaydasharath /]#
```

➢ Type command: **swapon -s**

```
root@ajaydasharath:/

[root@ajaydasharath /]# swapon -s
Filename                                Type            Size      Used   Priority
/dev/sda2                               partition       4095992   0      -1
/dev/sdb2                               partition       2104504   0      -2
[root@ajaydasharath /]#
```

➢ Type command: **swapon -v /var/swapfile1**

```
root@ajaydasharath:/

[root@ajaydasharath /]# swapon -v /var/swapfile1
swapon on /var/swapfile1
swapon: /var/swapfile1: insecure permissions 0644, 0600 suggested.
swapon: /var/swapfile1: found swap signature: version 1, page-size 4, same byte order
swapon: /var/swapfile1: pagesize=4096, swapsize=209715200, devsize=209715200
[root@ajaydasharath /]#
```

➢ Type command: **swapon -s**

```
root@ajaydasharath:/

[root@ajaydasharath /]# swapon -s
Filename                                Type            Size      Used   Priority
/dev/sda2                               partition       4095992   0      -1
/dev/sdb2                               partition       2104504   0      -2
/var/swapfile1                          file            204792    0      -3
[root@ajaydasharath /]#
```

➢ Type command: **free**

```
root@ajaydasharath:/

[root@ajaydasharath /]# free
             total       used       free     shared    buffers     cached
Mem:       1906908     878544    1028364          0      31556     508212
-/+ buffers/cache:      338776    1568132
Swap:      6405288          0    6405288
[root@ajaydasharath /]#
```

Output now the swap file got increased to **6405288**