

Swap is a space on a disk that is used when the amount of physical RAM memory is full.

When a Linux system runs out of RAM, inactive pages are moved from the RAM to the swap space.

Swap space can take the form of either a dedicated swap partition or a swap file.

In most cases when running CentOS on a virtual machine a swap partition is not present so the only option is to create a swap file.

Automatic partitioning while installation - The swap partition size is based on the amount of RAM in your system. The maximum size is 10% of the hard drive

### Creating a Swap Partition

```
#fdisk /dev/sdb
```

```
#lsblk
```

```
#mkswap /dev/sdb1
```

```
#swapon /dev/sdb1
```

### Check the swap space

```
#swapon --summary
```

(The Priority column in the output of the swapon --show command indicates the order in which swap devices are used when swapping data)

priority is a value between -1 and 32767. Higher numbers indicate higher priority.

```
#free -m
```

### For enabling swap space on boot time

```
#vi /etc/fstab
```

```
/dev/sdb1      swap          swap defaults    0 0
```

### Creating a Swap File

```
#fallocate -l 2G /swapfile01
```

(or)

```
#dd if=/dev/zero of=/swapfile01 bs=1G count=10
```

```
#chmod 600 /swapfile01
#mkswap /swapfile01
#swapon /swapfile01
#vi /etc/fstab
/swapfile01 swap swap defaults 0 0
(or)
/swapfile swap swap pri=10 0 0

#swapon --show (or) swapon -s (or) swapon --summary
#free -h
# cat /proc/swaps
```

### Adjusting the Swappiness Value

Swappiness is a Linux kernel property that defines how often the system will use the swap space.

Swappiness can have a value between 0 and 100. A low value will make the kernel to try to avoid swapping

whenever possible while a higher value will make the kernel to use the swap space more aggressively.

The default swappiness value on CentOS 7 is 30.

The default swappiness value on CentOS 9 is 60.

swappiness 10

100-10 = RAM 90%

swappiness 90

100-90 =10%RAM

Command to check the current swappiness value

```
# sysctl vm.swappiness
```

```
#cat /proc/sys/vm/swappiness
```

Temporary swappiness value change

```
# echo 40 > /proc/sys/vm/swappiness
```

```
#sysctl -w vm.swappiness=50
```

Permanent swappiness value change

```
#vi /etc/sysctl.conf
```

```
vm.swappiness=50
```

```
#sysctl -p
```

Removing a Swap space

```
#swapoff /dev/sdb1
```

```
#swapoff -v /swapfile
```

remove the swap file entry in fstab

```
/swapfile swap swap defaults 0 0 from the /etc/fstab file.
```

```
#rm /swapfile
```

Red Hat SWAP Memory Recommendation

2GB of RAM requires 2 times the amount of RAM ( 2X RAM)

2GB-8GB RAM requires Equal to the amount of RAM (= RAM)

8GB to 64GB of RAM requires 0.5 times the amount of RAM

64GB of RAM requires 4 GB of swap space