Manage Swap Space in Linux | Extend Swap Size in RHEL Online | Add Multiple Swaps |

```
[root@nehraclasses ~]# lsblk
NAME            MAJ:MIN RM   SIZE RO TYPE MOUNTPOINT
sda               8:0    0    20G  0 disk
├─sda1            8:1    0     1G  0 part /boot
└─sda2            8:2    0    19G  0 part
  ├─rhel-root 253:0    0    17G  0 lvm  /
  └─rhel-swap 253:1    0     2G  0 lvm  [SWAP]
sdb              8:16    0     5G  0 disk
├─sdb1           8:17    0     2G  0 part
└─sdb2           8:18    0     3G  0 part
sr0             11:0     1   6.6G  0 rom  /run/media/root/RHEL-8-0-0-BaseOS-x86_64
[root@nehraclasses ~]#
```

 # partition already Created

```
NAME            MAJ:MIN RM   SIZE RO TYPE MOUNTPOINT
sda               8:0    0    20G  0 disk
├─sda1            8:1    0     1G  0 part /boot
└─sda2            8:2    0    19G  0 part
  ├─rhel-root 253:0    0    17G  0 lvm  /
  └─rhel-swap 253:1    0     2G  0 lvm  [SWAP]
sdb              8:16    0     5G  0 disk
├─sdb1           8:17    0     2G  0 part
└─sdb2           8:18    0     3G  0 part
sr0             11:0     1   6.6G  0 rom  /run/media/root/RHEL-8-0-0-BaseOS-x86_64
[root@nehraclasses ~]#
```

 # set Type of filesystem is /dev/sdb

```
Quick connect...              2. 192.168.43.218 (root)
[root@nehraclasses ~]# fdisk /dev/sdb

Welcome to fdisk (util-linux 2.32.1).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.


Command (m for help): t
Partition number (1,2, default 2): 1
Hex code (type L to list all codes): L
```

```
7   HPFS/NTFS/exFAT 4d  QNX4.x           88  Linux plaintext de  Dell Utility
8   AIX             4e  QNX4.x 2nd part 8e  Linux LVM        df  BootIt
9   AIX bootable    4f  QNX4.x 3rd part 93  Amoeba           e1  DOS access
a   OS/2 Boot Manag 50  OnTrack DM       94  Amoeba BBT       e3  DOS R/O
b   W95 FAT32       51  OnTrack DM6 Aux 9f  BSD/OS           e4  SpeedStor
c   W95 FAT32 (LBA) 52  CP/M             a0  IBM Thinkpad hi ea  Rufus alignment
e   W95 FAT16 (LBA) 53  OnTrack DM6 Aux a5  FreeBSD          eb  BeOS fs
f   W95 Ext'd (LBA) 54  OnTrackDM6       a6  OpenBSD          ee  GPT
0   OPUS            55  EZ-Drive         a7  NeXTSTEP         ef  EFI (FAT-12/16/
1   Hidden FAT12    56  Golden Bow       a8  Darwin UFS       f0  Linux/PA-RISC b
2   Compaq diagnost 5c  Priam Edisk      a9  NetBSD           f1  SpeedStor
4   Hidden FAT16 <3 61  SpeedStor        ab  Darwin boot      f4  SpeedStor
6   Hidden FAT16    63  GNU HURD or Sys af  HFS / HFS+       f2  DOS secondary
7   Hidden HPFS/NTF 64  Novell Netware  b7  BSDI fs          fb  VMware VMFS
8   AST SmartSleep  65  Novell Netware  b8  BSDI swap        fc  VMware VMKCORE
b   Hidden W95 FAT3 70  DiskSecure Mult bb  Boot Wizard hid fd  Linux raid auto
c   Hidden W95 FAT3 75  PC/IX            bc  Acronis FAT32 L fe  LANstep
e   Hidden W95 FAT1 80  Old Minix        be  Solaris boot    ff  BBT
ex code (type L to list all codes): 8
```

```
Hex code (type L to list all codes): 82

Changed type of partition 'Linux swap / Solaris' to 'Linux swap / Solaris'.

Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.

[root@nehraclasses ~]# partprobe
Warning: Unable to open /dev/sr0 read-write (Read-only file system).  /dev/sr0 has
 been opened read-only.
[root@nehraclasses ~]# c
```

create PV + vol-grp

```
[root@nehraclasses ~]# pvcreate /dev/sdb1
  Physical volume "/dev/sdb1" successfully created.
[root@nehraclasses ~]# vgcreate VolGrpSwap /dev/sdb1
  Volume group "VolGrpSwap" successfully created
[root@nehraclasses ~]#
```

now Create the SWAP using Logical Volume

```
[root@nehraclasses ~]# lvcreate -L 2000M -n Swap1 VolGrpSwap
WARNING: xfs signature detected on /dev/VolGrpSwap/Swap1 at offset 0. Wipe it? [y/
n]: y
  Wiping xfs signature on /dev/VolGrpSwap/Swap1.
  Logical volume "Swap1" created.
[root@nehraclasses ~]#
```

Create the swap partition

```
[root@nehraclasses ~]# mkswap /dev/VolGrpSwap/Swap1
Setting up swapspace version 1, size = 2 GiB (2097147904 bytes)
no label, UUID=3329aaa9-c477-4014-a2e9-b0c5e0319a58
[root@nehraclasses ~]#
```

```
[root@nehraclasses ~]# free -m
              total        used        free      shared  buff/cache   available
Mem:           1806        1245         101          12         458         390
Swap:          2047           9        2038
[root@nehraclasses ~]# lsblk
NAME              MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda                 8:0    0   20G  0 disk
├─sda1              8:1    0    1G  0 part /boot
└─sda2              8:2    0   19G  0 part
  ├─rhel-root     253:0    0   17G  0 lvm  /
  └─rhel-swap     253:1    0    2G  0 lvm  [SWAP]
sdb                8:16    0    5G  0 disk
├─sdb1             8:17    0    2G  0 part
  └─VolGrpSwap-Swap1
                  253:2    0    2G  0 lvm
└─sdb2             8:18    0    3G  0 part
sr0                11:0    1  6.6G  0 rom  /run/media/root/RHEL-8-0-0-BaseOS-x86_64
[root@nehraclasses ~]#
```

==# SWAP created not enabled - to enable it use swapon==

```
[root@nehraclasses ~]# swapon /dev/mapper/VolGrpSwap-Swap1
[root@nehraclasses ~]# lsblk
NAME              MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda                 8:0    0   20G  0 disk
├─sda1              8:1    0    1G  0 part /boot
└─sda2              8:2    0   19G  0 part
  ├─rhel-root     253:0    0   17G  0 lvm  /
  └─rhel-swap     253:1    0    2G  0 lvm  [SWAP]
sdb                8:16    0    5G  0 disk
├─sdb1             8:17    0    2G  0 part
  └─VolGrpSwap-Swap1
                  253:2    0    2G  0 lvm  [SWAP]
└─sdb2             8:18    0    3G  0 part
sr0                11:0    1  6.6G  0 rom  /run/media/root/RHEL-8-0-0-BaseOS-x86_64
[root@nehraclasses ~]#
```

==UUID for swap parttition==

```
[root@nehraclasses ~]# blkid /dev/mapper/VolGrpSwap-Swap1
/dev/mapper/VolGrpSwap-Swap1: UUID="3329aaa9-c477-4014-a2e9-b0c5e0319a58" TYPE="sw
ap"
[root@nehraclasses ~]#
```

==# for permanent ,, make entry in==

```
[root@nehraclasses ~]# vim /etc/fstab
```

```
#
# /etc/fstab
# Created by anaconda on Wed May 20 09:58:06 2020
#
# Accessible filesystems, by reference, are maintained under '/dev/disk/'.
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
# After editing this file, run 'systemctl daemon-reload' to update systemd
# units generated from this file.
#
/dev/mapper/rhel-root     /                       xfs     defaults        0 0
UUID=79eb153c-6fe8-4be1-a49a-cd30eb6f9bf2 /boot              xfs     default
      0 0
/dev/mapper/rhel-swap     swap                    swap    defaults        0 0
UUID=3329aaa9-c477-4014-a2e9-b0c5e0319a58 swap default 0 0
~
~
                                                     15,58         All
```

```
[root@nehraclasses ~]# lsblk
NAME              MAJ:MIN RM   SIZE RO TYPE MOUNTPOINT
sda                   8:0    0   20G  0 disk
├─sda1                8:1    0    1G  0 part /boot
└─sda2                8:2    0   19G  0 part
  ├─rhel-root       253:0    0   17G  0 lvm  /
  └─rhel-swap       253:1    0    2G  0 lvm  [SWAP]
sdb                  8:16    0    5G  0 disk
├─sdb1               8:17    0    2G  0 part
│ └─VolGrpSwap-Swap1
                    253:2    0    2G  0 lvm  [SWAP]
└─sdb2               8:18    0    3G  0 part
sr0                  11:0    1  6.6G  0 rom  /run/media/root/RHEL-8-0-0-BaseOS-x86_64
[root@nehraclasses ~]#
```

 # Extend the swap -- turn the swap off

```
[root@nehraclasses ~]# lsblk
NAME              MAJ:MIN RM   SIZE RO TYPE MOUNTPOINT
sda                   8:0    0   20G  0 disk
├─sda1                8:1    0    1G  0 part /boot
└─sda2                8:2    0   19G  0 part
  ├─rhel-root       253:0    0   17G  0 lvm  /
  └─rhel-swap       253:1    0    2G  0 lvm  [SWAP]
sdb                  8:16    0    5G  0 disk
├─sdb1               8:17    0    2G  0 part
│ └─VolGrpSwap-Swap1
                    253:2    0    2G  0 lvm  [SWAP]
└─sdb2               8:18    0    3G  0 part
sr0                  11:0    1  6.6G  0 rom  /run/media/root/RHEL-8-0-0-BaseOS-x86_64
[root@nehraclasses ~]#
```

 # inactive

```
[root@nehraclasses ~]# swapoff /dev/dm-2
[root@nehraclasses ~]# lsblk
NAME              MAJ:MIN RM   SIZE RO TYPE MOUNTPOINT
sda                   8:0    0   20G  0 disk
├─sda1                8:1    0    1G  0 part /boot
└─sda2                8:2    0   19G  0 part
  ├─rhel-root       253:0    0   17G  0 lvm  /
  └─rhel-swap       253:1    0    2G  0 lvm  [SWAP]
sdb                  8:16    0    5G  0 disk
├─sdb1               8:17    0    2G  0 part
│ └─VolGrpSwap-Swap1
                    253:2    0    2G  0 lvm
└─sdb2               8:18    0    3G  0 part
sr0                  11:0    1  6.6G  0 rom  /run/media/root/RHEL-8-0-0-BaseOS-x86_64
[root@nehraclasses ~]#
```

```
[root@nehraclasses ~]# lvs
  LV    VG          Attr       LSize    Pool Origin Data%  Meta%  Move Log Cpy%Sync
Convert
  Swap1 VolGrpSwap -wi-a-----   1.95g

  root  rhel       -wi-ao---- <17.00g

  swap  rhel       -wi-ao----   2.00g

[root@nehraclasses ~]# vgs
  VG          #PV #LV #SN Attr   VSize    VFree
  VolGrpSwap   1   1   0 wz--n-  <2.00g 44.00m
  rhel         1   2   0 wz--n- <19.00g      0
[root@nehraclasses ~]#
```

Extend

```
[root@nehraclasses ~]# fdisk /dev/sdb

Welcome to fdisk (util-linux 2.32.1).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.


Command (m for help): t
Partition number (1,2, default 2): 2
Hex code (type L to list all codes): 82

Changed type of partition 'Linux' to 'Linux swap / Solaris'.

Command (m for help): w
The partition table has been altered.
Syncing disks.

[root@nehraclasses ~]# partprobe
Warning: Unable to open /dev/sr0 read-write (Read-only file system).  /dev/sr0 has
 been opened read-only.
[root@nehraclasses ~]#
```

```
[root@nehraclasses ~]# lsblk
NAME           MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda              8:0    0   20G  0 disk
├─sda1           8:1    0    1G  0 part /boot
└─sda2           8:2    0   19G  0 part
  ├─rhel-root  253:0    0   17G  0 lvm  /
  └─rhel-swap  253:1    0    2G  0 lvm  [SWAP]
sdb              8:16   0    5G  0 disk
├─sdb1           8:17   0    2G  0 part
│ └─VolGrpSwap-Swap1
│              253:2    0    2G  0 lvm
└─sdb2           8:18   0    3G  0 part
sr0             11:0    1  6.6G  0 rom  /run/media/root/RHEL-8-0-0-BaseOS-x86_64
[root@nehraclasses ~]#
```

Extend the vol-grp

```
[root@nehraclasses ~]# vgextend VolGrpSwap /dev/sdb2
  Physical volume "/dev/sdb2" successfully created.
  Volume group "VolGrpSwap" successfully extended
[root@nehraclasses ~]# vgs
  VG          #PV #LV #SN Attr   VSize    VFree
  VolGrpSwap   2   1   0 wz--n-   4.99g <3.04g
  rhel         1   2   0 wz--n- <19.00g      0
```

```
[root@nehraclasses ~]# lvextend -L 5000M /dev/VolGrpSwap/Swap1
  Size of logical volume VolGrpSwap/Swap1 changed from 1.95 GiB (500 extents) to 4
.88 GiB (1250 extents).
  Logical volume VolGrpSwap/Swap1 successfully resized.
[root@nehraclasses ~]#
```

now Activate using swap on Cmd

```
[root@nehraclasses ~]# swapon /dev/mapper/VolGrpSwap-Swap1
[root@nehraclasses ~]# lsblk
NAME                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda                     8:0    0   20G  0 disk
├─sda1                  8:1    0    1G  0 part /boot
└─sda2                  8:2    0   19G  0 part
  ├─rhel-root         253:0    0   17G  0 lvm  /
  └─rhel-swap         253:1    0    2G  0 lvm  [SWAP]
sdb                    8:16    0    5G  0 disk
├─sdb1                 8:17    0    2G  0 part
│ └─VolGrpSwap-Swap1
│                     253:2    0  4.9G  0 lvm  [SWAP]
└─sdb2                 8:18    0    3G  0 part
  └─VolGrpSwap-Swap1
                      253:2    0  4.9G  0 lvm  [SWAP]
sr0                   11:0    1  6.6G  0 rom  /run/media/root/RHEL-8-0-0-BaseOS-x86_64
[root@nehraclasses ~]#
```

Create Virtual Hard Drive Partition in Linux | Create & Format Virtual Partition

```
[root@localhost ~]# dd if=/dev/zero of=VHD.img bs=1M count=1200
1200+0 records in
1200+0 records out
1258291200 bytes (1.3 GB) copied, 1.62335 s, 775 MB/s
[root@localhost ~]# mkfs -t ext4 /root/VHD.img
mke2fs 1.42.9 (28-Dec-2013)
/root/VHD.img is not a block special device.
Proceed anyway? (y,n) y
Discarding device blocks: done
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
76800 inodes, 307200 blocks
15360 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=314572800
10 block groups
32768 blocks per group, 32768 fragments per group
7680 inodes per group
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912
```

```
Allocating group tables: done
Writing inode tables: done
Creating journal (8192 blocks): done
Writing superblocks and filesystem accounting information: done
```

Mount in the Dir

```
[root@localhost ~]# mkdir /mnt/VHD
[root@localhost ~]#
[root@localhost ~]#
[root@localhost ~]# mount -t auto -o loop /root/VHD.img /mnt/VHD/
[root@localhost ~]# df -hT
Filesystem              Type      Size  Used Avail Use% Mounted on
devtmpfs                devtmpfs  894M     0  894M   0% /dev
tmpfs                   tmpfs     910M     0  910M   0% /dev/shm
tmpfs                   tmpfs     910M   11M  900M   2% /run
tmpfs                   tmpfs     910M     0  910M   0% /sys/fs/cgroup
/dev/mapper/rhel-root   xfs        17G  3.9G   14G  23% /
/dev/sda1               xfs      1014M  182M  833M  18% /boot
tmpfs                   tmpfs     182M     0  182M   0% /run/user/0
tmpfs                   tmpfs     182M   12K  182M   1% /run/user/42
/dev/loop0              ext4      1.2G  3.6M  1.1G   1% /mnt/VHD
[root@localhost ~]#
```

1GB created

```
[root@localhost ~]# cd /mnt/VHD
[root@localhost VHD]# touch a  bc
[root@localhost VHD]# ls -l
total 16
-rw-r--r--. 1 root root     0 Mar  8 16:49 a
-rw-r--r--. 1 root root     0 Mar  8 16:49 bc
drwx------. 2 root root 16384 Mar  8 16:46 lost+found
[root@localhost VHD]# cal > d
[root@localhost VHD]# ll
total 20
-rw-r--r--. 1 root root     0 Mar  8 16:49 a
-rw-r--r--. 1 root root     0 Mar  8 16:49 bc
-rw-r--r--. 1 root root   136 Mar  8 16:49 d
drwx------. 2 root root 16384 Mar  8 16:46 lost+found
[root@localhost VHD]#
```

packages copied in this dir

```
[root@localhost VHD]# cp -r /opt/Packages/* .
^C
[root@localhost VHD]# ls
389-ds-base-1.3.9.1-10.el7.x86_64.rpm              comps-extras-7-2.el7.noarch.rpm
389-ds-base-libs-1.3.9.1-10.el7.x86_64.rpm         conman-0.2.8-1.el7.x86_64.rpm
a                                                  conntrack-tools-1.4.4-5.el7.x86_64.rpm
abattis-cantarell-fonts-0.0.25-1.el7.noarch.rpm    control-center-3.28.1-4.el7.i686.rpm
abrt-2.1.11-55.el7.x86_64.rpm                      control-center-3.28.1-4.el7.x86_64.rpm
abrt-addon-ccpp-2.1.11-55.el7.x86_64.rpm           control-center-filesystem-3.28.1-4.el7.x86_64.rpm
abrt-addon-kerneloops-2.1.11-55.el7.x86_64.rpm     convmv-1.15-2.el7.noarch.rpm
abrt-addon-pstoreoops-2.1.11-55.el7.x86_64.rpm     coolkey-1.1.0-40.el7.i686.rpm
abrt-addon-python-2.1.11-55.el7.x86_64.rpm         coolkey-1.1.0-40.el7.x86_64.rpm
abrt-addon-vmcore-2.1.11-55.el7.x86_64.rpm         copy-jdk-configs-3.3-10.el7_5.noarch.rpm
abrt-addon-xorg-2.1.11-55.el7.x86_64.rpm           coreutils-8.22-24.el7.x86_64.rpm
abrt-cli-2.1.11-55.el7.x86_64.rpm                  cpio-2.11-27.el7.x86_64.rpm
abrt-console-notification-2.1.11-55.el7.x86_64.rpm cpp-4.8.5-39.el7.x86_64.rpm
```

```
[root@localhost VHD]# df -hT
Filesystem            Type     Size  Used Avail Use% Mounted on
devtmpfs              devtmpfs 894M     0  894M   0% /dev
tmpfs                 tmpfs    910M     0  910M   0% /dev/shm
tmpfs                 tmpfs    910M   11M  900M   2% /run
tmpfs                 tmpfs    910M     0  910M   0% /sys/fs/cgroup
/dev/mapper/rhel-root xfs       17G  4.5G   13G  27% /
/dev/sda1             xfs     1014M  182M  833M  18% /boot
tmpfs                 tmpfs    182M     0  182M   0% /run/user/0
tmpfs                 tmpfs    182M   12K  182M   1% /run/user/42
/dev/loop0            ext4     1.2G  587M  487M  55% /mnt/VHD
/dev/sr0              iso9660  4.2G  4.2G     0 100% /opt
[root@localhost VHD]#
```

```
[root@localhost VHD]# cd
[root@localhost ~]# umount /mnt/VHD/
[root@localhost ~]# df -h
Filesystem            Size  Used Avail Use% Mounted on
devtmpfs              894M     0  894M   0% /dev
tmpfs                 910M     0  910M   0% /dev/shm
tmpfs                 910M   11M  900M   2% /run
tmpfs                 910M     0  910M   0% /sys/fs/cgroup
/dev/mapper/rhel-root  17G  4.5G   13G  27% /
/dev/sda1            1014M  182M  833M  18% /boot
tmpfs                 182M     0  182M   0% /run/user/0
tmpfs                 182M   12K  182M   1% /run/user/42
/dev/sr0              4.2G  4.2G     0 100% /opt
```

now Remove

```
[root@localhost ~]# ll
total 631088
-rw-r--r--. 1 root root        177 Mar  7 12:11 1
-rw-------. 1 root root       2207 Mar  7 17:23 anaconda-ks.cfg
-rw-------. 1 root root       5292 Mar  7 20:27 dead.letter
drwxr-xr-x. 2 root root          6 Mar  7 17:26 Desktop
drwxr-xr-x. 2 root root          6 Mar  7 17:26 Documents
drwxr-xr-x. 2 root root          6 Mar  7 17:26 Downloads
-rw-r--r--. 1 root root       2300 Mar  7 17:25 initial-setup-ks.cfg
drwxr-xr-x. 2 root root          6 Mar  7 17:26 Music
drwxr-xr-x. 2 root root          6 Mar  7 17:26 Pictures
drwxr-xr-x. 2 root root          6 Mar  7 17:26 Public
drwxr-xr-x. 2 root root          6 Mar  7 17:26 Templates
-rw-r--r--. 1 root root 1258291200 Mar  8 16:52 VHD.img
drwxr-xr-x. 2 root root          6 Mar  7 17:26 Videos
[root@localhost ~]# rm VHD.img
rm: remove regular file 'VHD.img'? y
[root@localhost ~]#
```