

# Extend disk space of a vm in centos7

## 1. Increase the physical volume

Open VMware or virtualbox setting of the VM, choose the disk and increase the size to your desired size. Boot up your vm, you need first alter the physical volume of your partition.

```
# Normally, your linux has a /dev/sda, you should have the following lines
by typing
$ lsblk
      sda               8:0    0 200G  0 disk
      └─sda1            8:1    0   1G  0 part /boot
         └─sda2         8:2    0  39G  0 part
            ├─centos-root 253:0    0  37G  0 lvm  /
            └─centos-swap 253:1    0   2G  0 lvm  [SWAP]
# You can notice the sda partition has 200G, but sda2 use only 39 G. We want
to increase sda2 from 37G to 199G.
```

To do this, there are three steps to make:

- alter your partition table so sda2 ends at the end of disk
- reread the partition table (will require a reboot)

### 1.1 - Alter the Partition table

```
# Open the disk partition management tool
$ fdisk /dev/sda

# 1. Issue p to print your current partition table and copy that output to
some safe place.
# 2. Issue d followed by 2 to remove the second partition.
# 3. Issue n to create a new second partition. Make sure the start equals
the start of the 2nd partition table you printed earlier. Make sure the end
is at the end of the disk (usually the default).
# 4. Issue t followed by 2 followed by 8e to toggle the partition type of
your new second partition to 8e (Linux LVM, In Linux , LVM(Logical Volume
Manager) provides the facility to increase and reduce the file system
size.).
# 5. Issue p to review your new partition layout and make sure the start of
the new second partition is exactly where the old second partition was. If
everything looks right,
# 6. Issue w to write the partition table to disk.

# You will get an error message from partprobe that the partition table
couldn't be reread (because the disk is in use).
```

## 1.2 Reboot your system

This step is necessary so the partition table gets re-read.

## 2. Resize the LVM

```
# After your system rebooted invoke
$ pvresize /dev/sda2

# Now you should see your sda2 has 199G
$ lsblk
```

sda	8:0	0	200G	0	disk
└─sda1	8:1	0	1G	0	part /boot
└─sda2	8:2	0	199G	0	part
└─centos-root	253:0	0	37G	0	lvm /
└─centos-swap	253:1	0	2G	0	lvm [SWAP]

```
# Now, we can create or extend logical volumes to use the free space which
are not assigned.
# In our case,the partition centos-root under /dev/sda2 has 37G. We want to
extend it to 197G
```

### 2.1 Resize the LVM

```
# 1. Check available space.
$ vgdisplay centos
# 2. Use lvextend command to increase the size.
$ lvextend -L +160G /dev/mapper/centos-root
# 3. Finally perform an online resize to resize the logical volume.
$ xfs_growfs /dev/mapper/centos-root
```

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