# HOW TO RESIZE A ROOT PARTITION IN UBUNTU (LINUX) (GPT)

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**In this article, I will teach you how to resize a root partition on Linux servers. In this scenario, according to which I have prepared the training, it is based on the fact that the partition of hard disk tables is based on GPT patition table and is non-logical (non-LVM) . Also I am teching this Article on Ubunto. Note that this method may be risky, so I recommend backing up your server data before doing so.**

**Warning: Please make a backup of your data before performing these steps. In the event of a mistake or any unforeseen error, your server may not boot again or you may lose your data.**

**Step-by-step tutorial on resize (increasing) the root partition:**

## Check Disk status with parted command

1. **Check current Disk status with gparted. (Run this command: parted )**

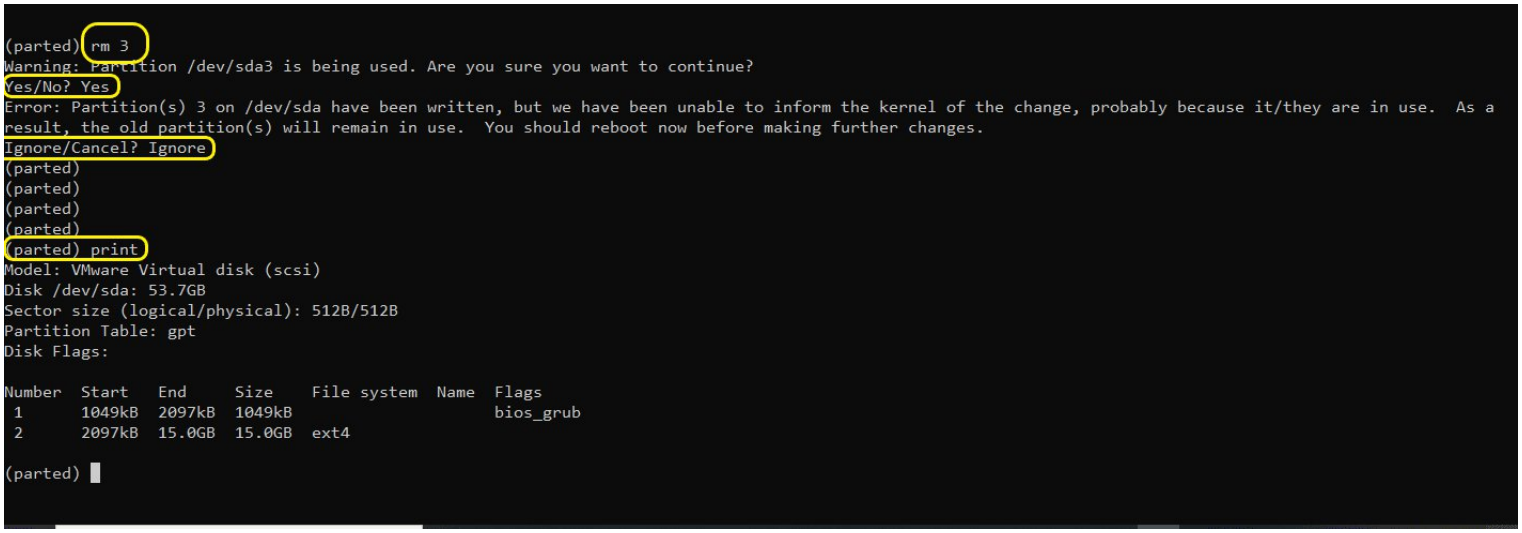
```
root@mahdi-test:~# parted
GNU Parted 3.3                                                  1
Using /dev/sda
Welcome to GNU Parted! Type 'help' to view a list of commands.
(parted) print all                                              2
Warning: Not all of the space available to /dev/sda appears to be used, you can fix the GPT to use all of the space (an extra 71303168 blocks) or continue
with the current setting?                                       3
Fix/Ignore? Fix
Model: VMware Virtual disk (scsi)
Disk /dev/sda: 53.7GB
Sector size (logical/physical): 512B/512B
Partition Table: gpt
Disk Flags:

Number  Start   End     Size    File system     Name  Flags
 1      1049kB  2097kB  1049kB                        bios_grub
 2      2097kB  15.0GB  15.0GB  ext4
 3      15.0GB  17.2GB  2147MB  linux-swap(v1)        swap


(parted)
```

## Remove Current Partition:

**2. I want to increase the root partition and the root partition is number two. Therefore, we need to delete the third partition, which is the swap partition, so that we can change the second partition. (Run this command: rm 3)**




**As you can see in the image above, the system warns you that the partition is being used by the system. Type yes. It also displays the following warning that you must type the Ignore option.**

**Error: Partition(s) 3 on /dev/sda have been written, but we have been unable to inform the kernel of the change, probably because it/they are in use. As a result, the old partition(s) will remain in use. You should reboot now before making further changes. Ignore/Cancel?**

## Create and Resize partition with parted

**3. Now we are going to resize the partition with this command: resizepart 2**

**the system warns you again :**

**Warning: Partition /dev/sda2 is being used. Are you sure you want to continue? Yes/No?**

**Type: Yes**

**End ? 51.7G**

**Now the system asks you to specify the final size of the partition. Because we need to re-create the swap partition after the root partition is resized, and I will allocate 2 GB for the swap partition, so I will reduce this amount by 2 GB of space and allocate the rest to the root partition. I have 53.7 GB of space here, the final size I consider for the root partition is 51.7 and the rest will be used to build the swap partition.**

**G is a GIGABYTE symbol and must be entered after entering a numeric value. (Capital letter) If the value is a change of terabytes, use the letter T.**

**Now you got Error Warning :**

**Error: Partition(s) 3 on /dev/sda have been written, but we have been unable to inform the kernel of the change, probably because it/they are in use. As a result, the old partition(s) will remain in use. You should reboot now before making further changes. Ignore/Cancel?**

**Type: Ignore (The system may give you this warning several times, each time typing the ignore.)**

```
(parted) resizepart 2
Warning: Partition /dev/sda2 is being used. Are you sure you want to continue?
Yes/No? Yes
End?  [15.0GB]? 51.7G
Error: Error informing the kernel about modifications to partition /dev/sda2 -- Device or resource busy.  This means Linux won't know about any changes you
made to /dev/sda2 until you reboot -- so you shouldn't mount it or use it in any way before rebooting.
Ignore/Cancel? Ignore
Error: Partition(s) 3 on /dev/sda have been written, but we have been unable to inform the kernel of the change, probably because it/they are in use.  As a
result, the old partition(s) will remain in use.  You should reboot now before making further changes.
Ignore/Cancel? Igbore
parted: invalid token: Igbore
Ignore/Cancel? Ignore
(parted) print
Model: VMware Virtual disk (scsi)
Disk /dev/sda: 53.7GB
Sector size (logical/physical): 512B/512B
Partition Table: gpt
Disk Flags:

Number  Start   End     Size    File system  Name  Flags
 1      1049kB  2097kB  1049kB                     bios_grub
 2      2097kB  51.7GB  51.7GB  ext4
```

**Rebuild the swap partition with this command :**

**parted /dev/sda**
**(parted) mkpart**
**Partition name? []?**
**File system type? [ext2]? linux-swap**
**Start? 51.7G**
**End? 53.7G**

**The system may give you this warning several times, each time typing the word ignore.**

```
Model: VMware Virtual disk (scsi)
Disk /dev/sda: 53.7GB
Sector size (logical/physical): 512B/512B
Partition Table: gpt
Disk Flags:

Number  Start   End     Size    File system  Name  Flags
 1      1049kB  2097kB  1049kB                     bios_grub
 2      2097kB  51.7GB  51.7GB  ext4


(parted) mkpart
Partition name?  []?
File system type?  [ext2]? linux-swap
Start? 51.7G
End? 53.7G
Error: Error informing the kernel about modifications to partition /dev/sda2 -- Device or resource busy.  This means Linux won't know about any changes you
made to /dev/sda2 until you reboot -- so you shouldn't mount it or use it in any way before rebooting.
Ignore/Cancel? ignore
Error: Partition(s) 3 on /dev/sda have been written, but we have been unable to inform the kernel of the change, probably because it/they are in use.  As a
result, the old partition(s) will remain in use.  You should reboot now before making further changes.
Ignore/Cancel? ignore
(parted) print
Model: VMware Virtual disk (scsi)
Disk /dev/sda: 53.7GB
Sector size (logical/physical): 512B/512B
Partition Table: gpt
Disk Flags:

Number  Start   End     Size    File system     Name  Flags
 1      1049kB  2097kB  1049kB                        bios_grub
 2      2097kB  51.7GB  51.7GB  ext4
 3      51.7GB  53.7GB  1986MB  linux-swap(v1)

(parted)
```

# Final step settings:

**Now Reboot the Server.**

**After rebooting the server, run the partition resize command: resize2fs /dev/sda2**

```
root@mahdi-test:~# df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            447M     0  447M   0% /dev
tmpfs            99M  1.1M   98M   2% /run
/dev/sda2        14G  5.1G  8.0G  40% /
tmpfs           491M     0  491M   0% /dev/shm
tmpfs           5.0M     0  5.0M   0% /run/lock
tmpfs           491M     0  491M   0% /sys/fs/cgroup
/dev/loop0       62M   62M     0 100% /snap/core20/1081
/dev/loop1       69M   69M     0 100% /snap/lxd/21039
/dev/loop2       56M   56M     0 100% /snap/core18/2128
/dev/loop3       56M   56M     0 100% /snap/core18/2074
/dev/loop4       33M   33M     0 100% /snap/snapd/12704
/dev/loop5       69M   69M     0 100% /snap/lxd/21260
/dev/loop6       28M   28M     0 100% /snap/snapd/7264
tmpfs            99M     0   99M   0% /run/user/0
```

**Before-resize**

**Now after Resize Partition : /dev/sda2**

```
root@mahdi-test:~# df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            447M     0  447M   0% /dev
tmpfs            99M  1.1M   98M   2% /run
/dev/sda2        48G  5.1G   41G  12% /
tmpfs           491M     0  491M   0% /dev/shm
tmpfs           5.0M     0  5.0M   0% /run/lock
tmpfs           491M     0  491M   0% /sys/fs/cgroup
/dev/loop0       62M   62M     0 100% /snap/core20/1081
/dev/loop1       69M   69M     0 100% /snap/lxd/21039
/dev/loop2       56M   56M     0 100% /snap/core18/2128
/dev/loop3       56M   56M     0 100% /snap/core18/2074
/dev/loop4       33M   33M     0 100% /snap/snapd/12704
/dev/loop5       69M   69M     0 100% /snap/lxd/21260
/dev/loop6       28M   28M     0 100% /snap/snapd/7264
tmpfs            99M     0   99M   0% /run/user/0
```

**After-resize**

**Note that after performing the above steps, because we deleted the swap partition and re-created it, its UUID changes, so it is better to find your swap partition new UUID with the blkid command and update it in the /etc/fstab file.**