Expand virtual machine storage

Dr. Yihsiang Liow (December 18, 2025)

Contents

1 Expand virtual machine storage

In shell, run

```
df
```

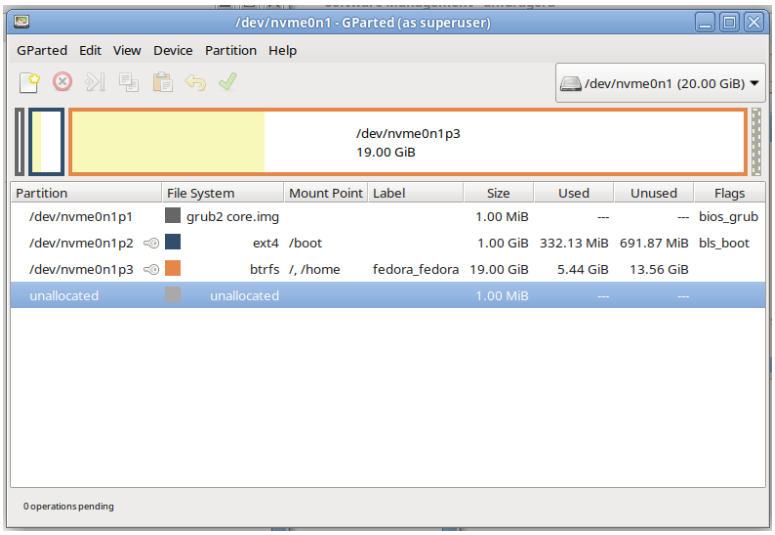
For F31, you'll see something like this:

```
Filesystem              1K-blocks      Used Available Use% Mounted on
devtmpfs                  1976800         0   1976800   0% /dev
tmpfs                     1997076         0   1997076   0% /dev/shm
tmpfs                     1997076      1652   1995424   1% /run
/dev/mapper/fedora-root  73390080  46464148  26925932  64% /
tmpfs                     1997076        64   1997012   1% /tmp
/dev/sda1                 1038336    241528    796808  24% /boot
tmpfs                      399412        76    399336   1% /run/user/1000
vmhgfs-fuse             245791740 236583704   9208036  97% /home/student/shares
```

For F40, you'll see something like

```
Filesystem     1K-blocks    Used Available Use% Mounted on
/dev/nvme0n1p3  19919872 6000576  13583728  31% /
devtmpfs            4096       0      4096   0% /dev
tmpfs             978916       0    978916   0% /dev/shm
tmpfs             391568    1400    390168   1% /run
tmpfs             978920      44    978876   1% /tmp
/dev/nvme0n1p2    996780  288304    639664  32% /boot
/dev/nvme0n1p3  19919872 6000576  13583728  31% /home
tmpfs             195780     144    195636   1% /run/user/1000
```

For F31, user files are probably stored in `/dev/mapper/fedora-root` which should be in the `/dev/sda2/` partition. For f40, user files are probably stored in `/dev/nvme0n1p3`. Run `su` to become root and then run `gparted` and you'll see the following partitions of your HD:

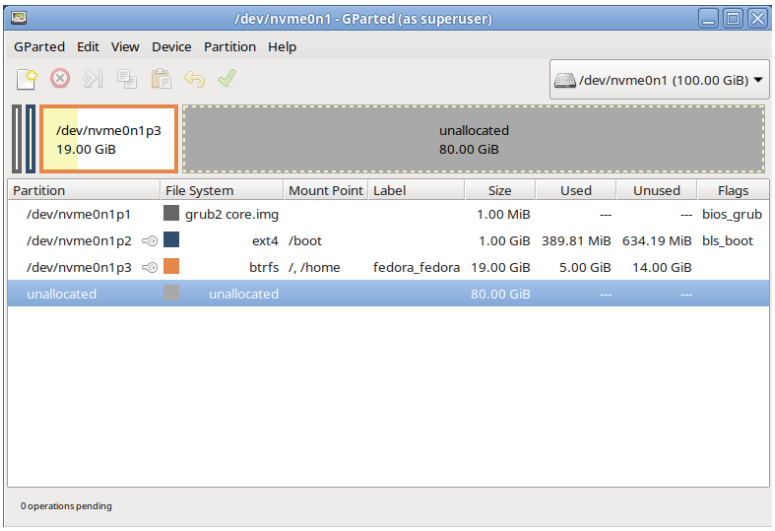


Note the biggest partition is about 19GB and take note the name.

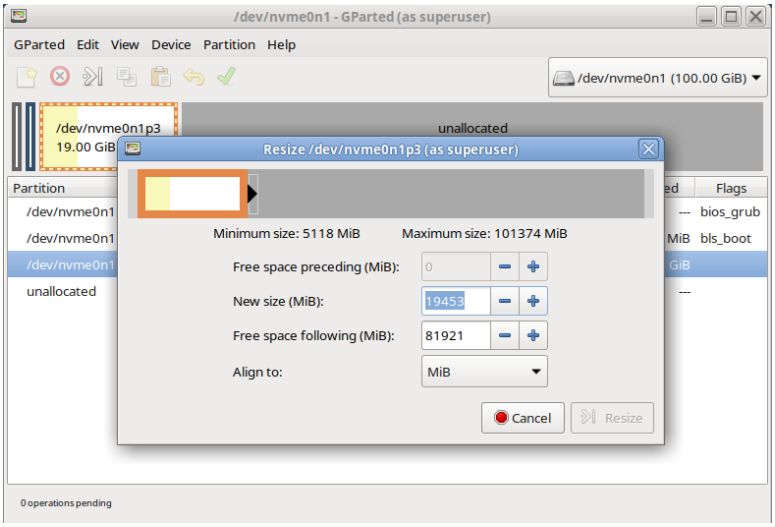
To expand your HD, do the following:

- Shutdown your virtual machine.
- Run VMware workstation.
- Click on Hard Disk. (For F31 next to the Hard Disk is SCSI. For F40 you see NVMe.) You'll see "Capacity: Maximum size 20GB".
- (You might want to click on Compact.)
- Click on "Expand" and then choose Maximum disk size (say 100.0)
- Run your virtual machine.

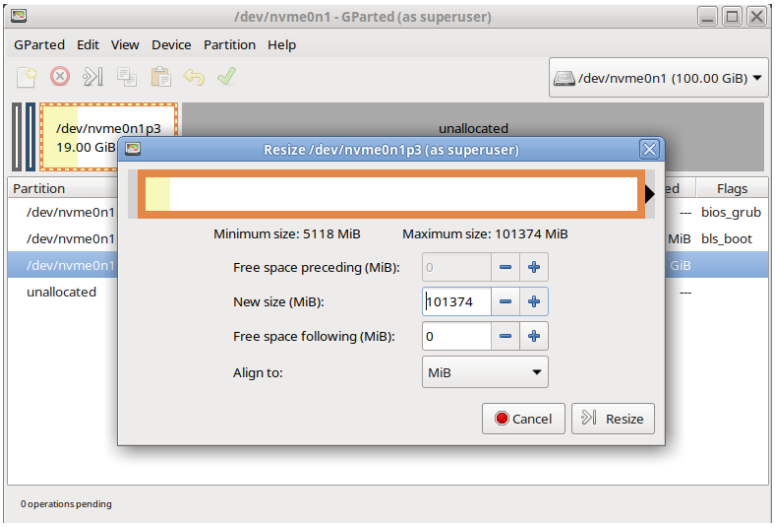
In your bash shell, run `su` to be root. Run `gparted`:



Right click on `/dev/nvme0n1p3` (the largest partition) and select Resize/Move:

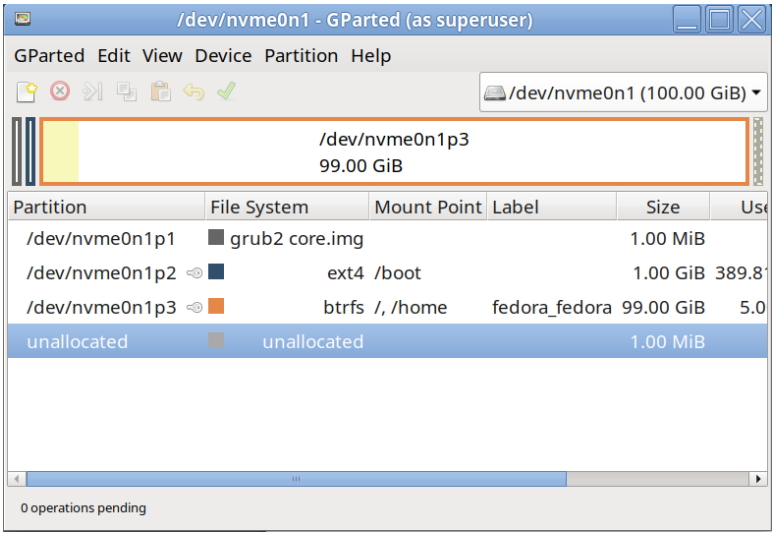


Make this partition as large as possible:



Click on the green arrow and Apply All Operations.

Run `gparted` again and you'll see:



Note the size of the largest partition is now largest. And `df` gives

```
Filesystem     1K-blocks     Used Available Use% Mounted on
/dev/nvme0n1p3 103805952 5637244  97872372   6% /
devtmpfs             4096       0      4096   0% /dev
tmpfs              976956       0    976956   0% /dev/shm
tmpfs              390784    1392    389392   1% /run
tmpfs              976960      36    976924   1% /tmp
/dev/nvme0n1p2     996780  347368    580600  38% /boot
/dev/nvme0n1p3 103805952 5637244  97872372   6% /home
tmpfs              195388     144    195244   1% /run/user/1000
```

For F31, you'll also need to do the following. In your bash shell, run

```
lvm lvresize --verbose --resizefs -L 70G /dev/mapper/fedora-root
```

replacing 70G with whatever is appropriate. Run

```
df
```

again and check that `/dev/mapper/fedora-root` is larger.