Storage • Ubuntu

How to Create and Use a Ramdisk on Ubuntu 18.04

1 year ago • by Shahriar Shovon

The slowest part of a computer is the hard drive. So loading program and files from hard drive is really slow. RAM or Random Access Memory stores program data and important machine code that are current being used by your computer. RAM is very fast, hundreds of times faster than hard drives. So you may be thinking, why don't we use RAM instead of hard drives? Well, firstly RAM is not as cheap as hard drives. So your system has limited amount of RAM. The other major problem is, RAM is a temporary storage device. So when you shutdown your computer or the power goes off, all the data of your computer's RAM will be erased.

Does that mean we can't store ordinary data on RAM? Well, we actually can. If you don't care about your data being lost, then you can use RAM as disk. Which is called RAMDISK. This solution is very effective if your computer has backup power supply that can keep your computer running for a long time even when the power goes off.

There is actually a way to use RAMDISK to store files permanently. Let's say you have a 4 GB RAMDISK setup. You can store and access files here very fast. Of course, this is temporary storage. To fix that problem, we can use a hard drive and sync all the files and directories of our RAMDISK automatically with specific backup softwares. Even though hard drive is slow, and it may take a while to sync a hard drive with a RAMDISK, at least the data will be stored permanently. So when you shutdown your computer, RAMDISK will be erased. When you start your computer again, all the data will be copied from your hard drive to your RAMDISK. This process will be slow. But after the data is copied, you can again access the data very fast. So basically RAMDISK is used as a cache here.

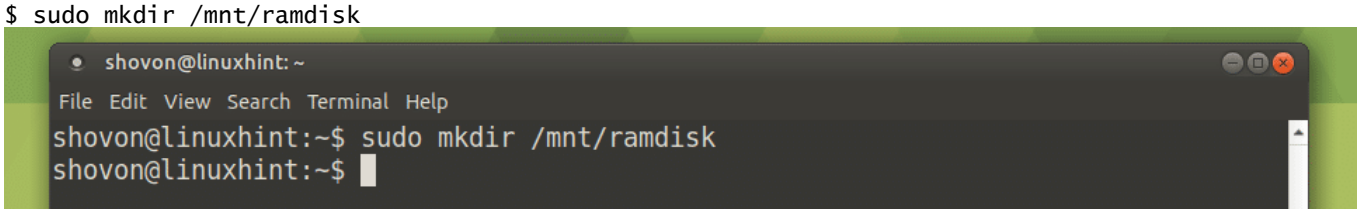
In this article, I will show you how to create and use RAMDISK on Ubuntu 18.04 LTS. Let's get started.

Creating a RAMDISK:

Creating a RAMDISK on Ubuntu 18.04 LTS is really easy. All the tools required is already pre-installed on Ubuntu 18.04 LTS.

First create a mount point where you will be mounting the RAMDISK with the following command:

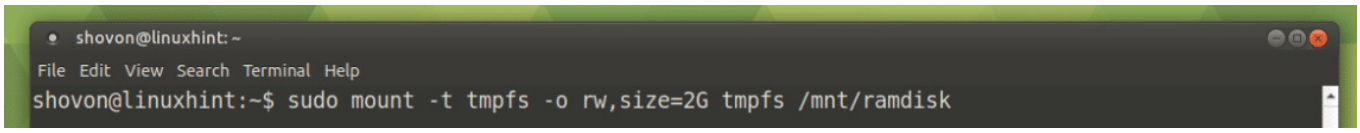
```
$ sudo mkdir /mnt/ramdisk
```



Now you can mount the RAMDISK to the /**mnt/ramdisk** mount point with the following command:

```
$ sudo mount -t tmpfs -o rw,size=2G tmpfs /mnt/ramdisk
```

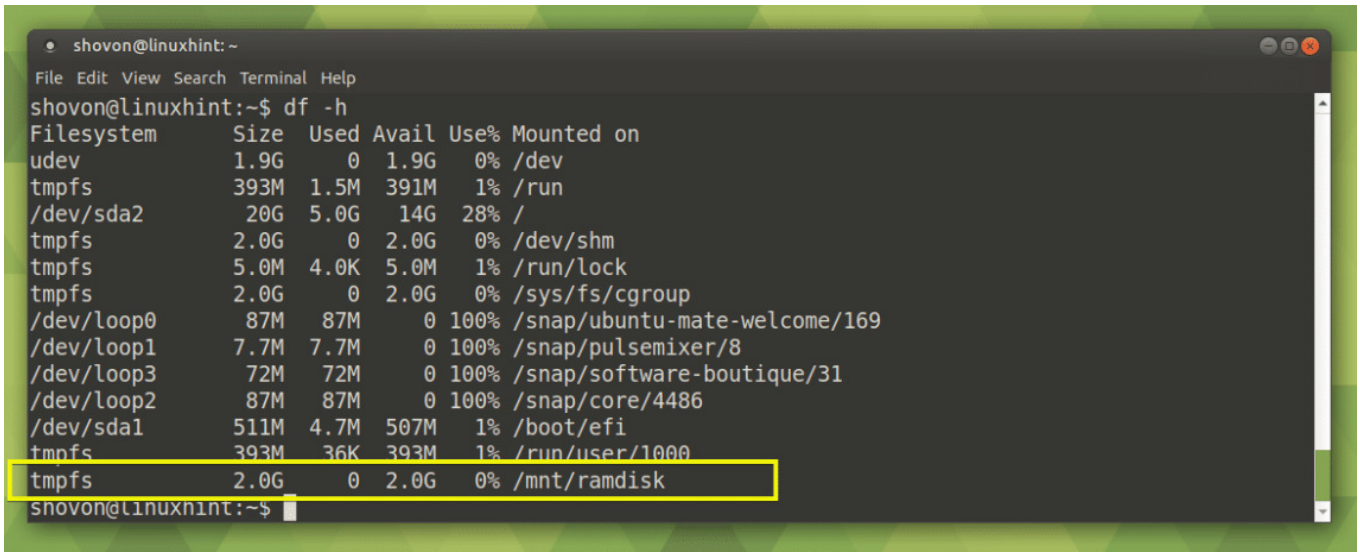
NOTE: Here, **size=2G** means, the RAMDISK will be 2 GB in size. To create RAMDISK of several MB, use **M**. For example, to create 256 MB RAMDISK, put **size=256M**



Now to verify whether the RAMDISK is created, run the following command:

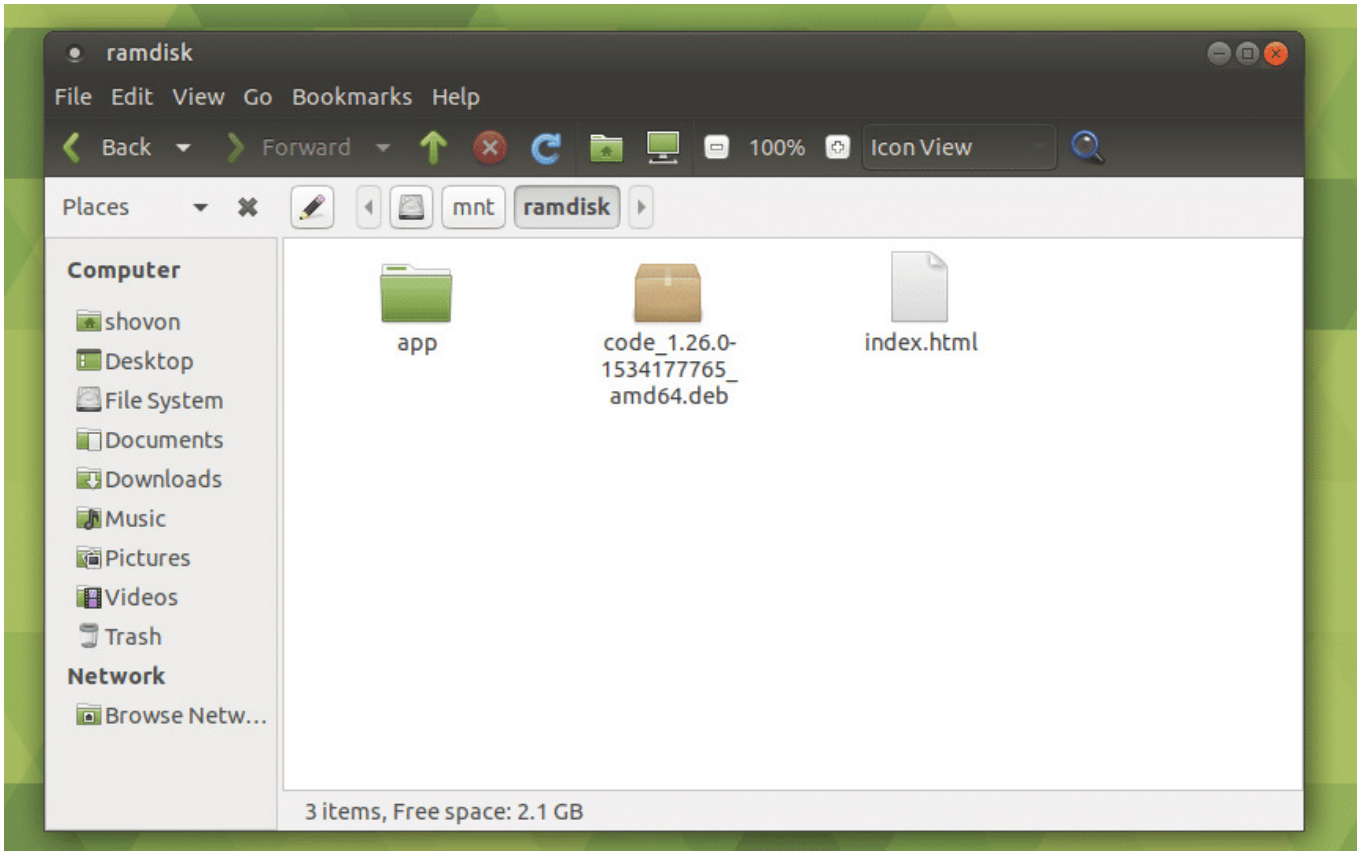
```
$ df -h
```

As you can see, the RAMDISK is created and mounted on /**mnt/ramdisk** as expected.



You can use the RAMDISK as you use ordinary hard drive partitions. As you can see from the

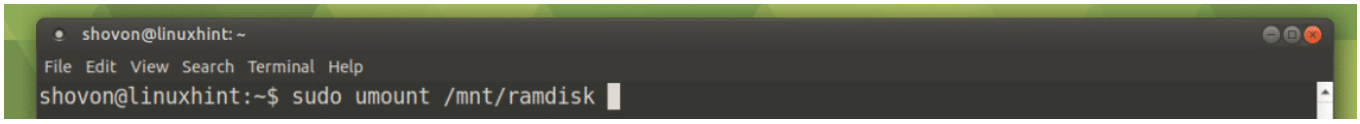
screenshot below, I copied several files and directories into the RAMDISK. I can even edit text files directly from RAMDISK.



To unmount the RAMDISK, run the following command:

```
$ sudo umount /mnt/ramdisk
```

WARNING: All the files in your RAMDISK will be lost.

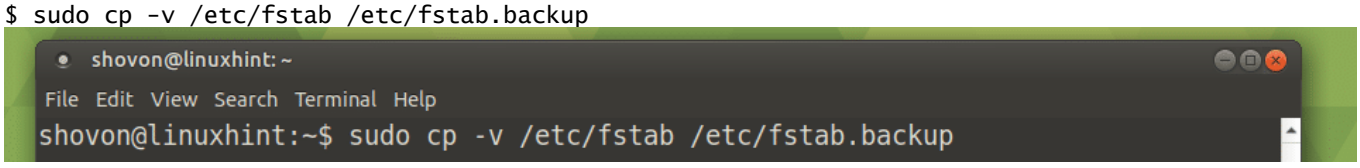


Mounting RAMDISK Automatically on System Boot:

You can use the /**etc**/**fstab** file to automatically mount the RAMDISK on system boot.

First, make a backup of /**etc**/**fstab** file with the following command:

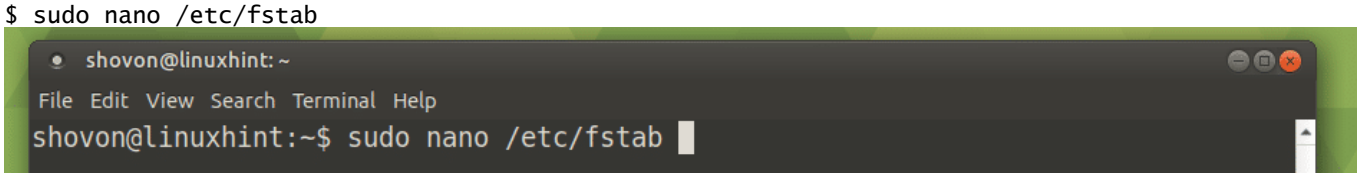
```
$ sudo cp -v /etc/fstab /etc/fstab.backup
```



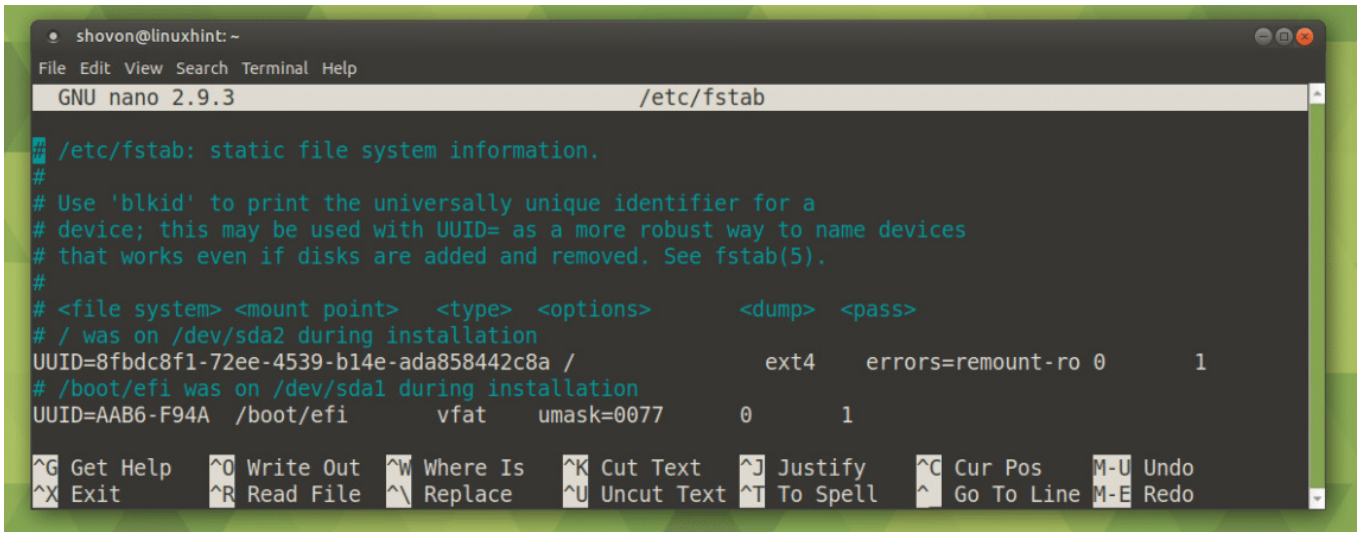
A copy of the file /**etc**/**fstab** is saved to /**etc**/**fstab.backup**. Now If anything goes wrong on the way, you can just restore the /**etc**/**fstab** file.

Now open /etc/fstab file with the following command:

```
$ sudo nano /etc/fstab
```



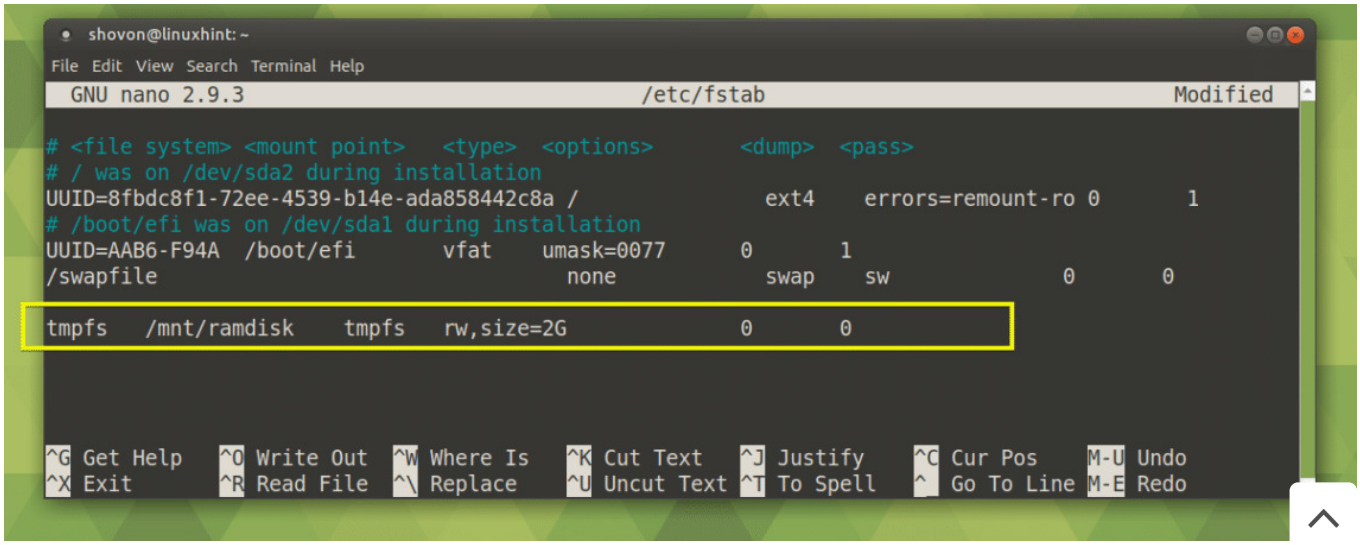
/etc/fstab file should be opened.



Now go to the end of the file and add the following line:

```
tmpfs  /mnt/ramdisk  tmpfs  rw,size=2G  0  0
```

NOTE: Here size=2**G** means, the size of the RAMDISK will be 2 GB. To specify the size in MB, use **M** instead of **G**.

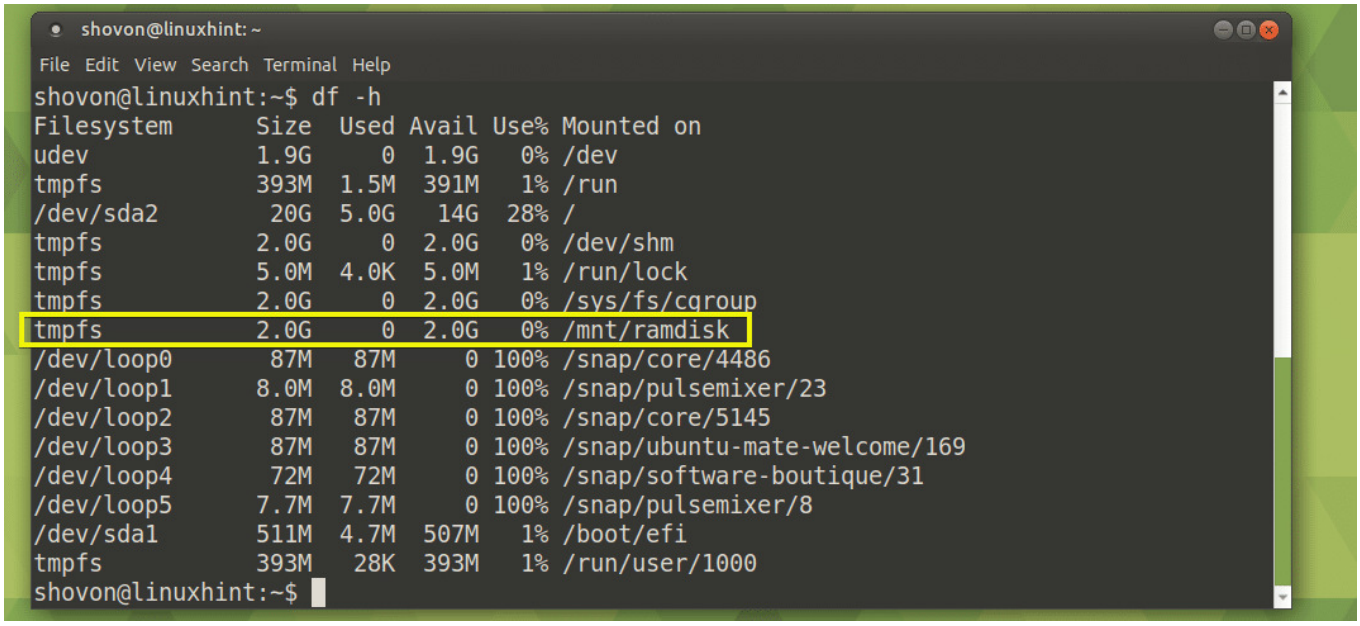


Now press **<Ctrl>** + **x** and then press **y** and then press **<Enter>** to save the file.

Now reboot your computer with the following command:

```
$ sudo reboot
```

The RAMDISK should be mounted as you can see from the marked section of the screenshot below.



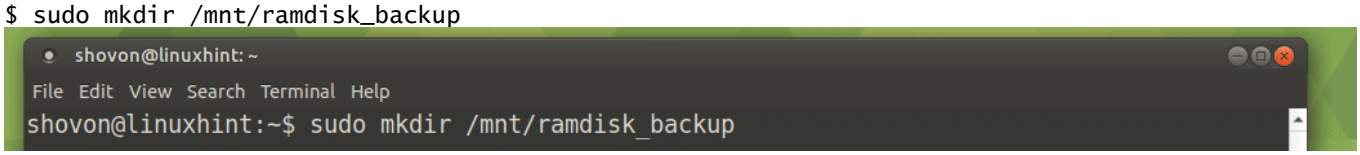
Persisting RAMDISK Data:

In this section, I will show you how to save RAMDISK data to hard drive on system shutdown and load data from hard drive to RAMDISK on system boot.

For this to work, the directory where the RAMDISK will be mounted and where the backup data will be saved must have the same file permission set. I will show you an easy trick. Stay tuned.

First create a directory where RAMDISK data will be saved on system shutdown with the following command:

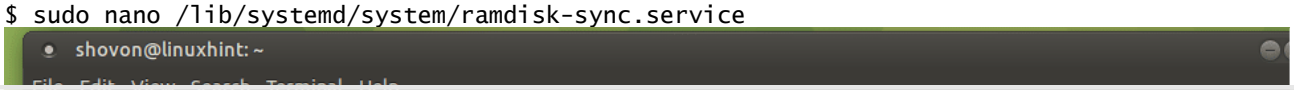
```
$ sudo mkdir /mnt/ramdisk_backup
```

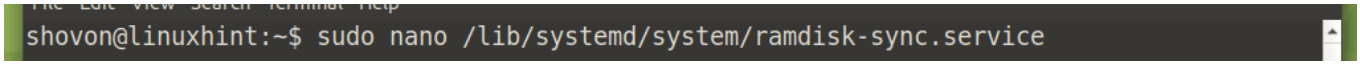


If you've followed this article from the start, then the RAMDISK should be mounted on **/mnt/ramdisk**

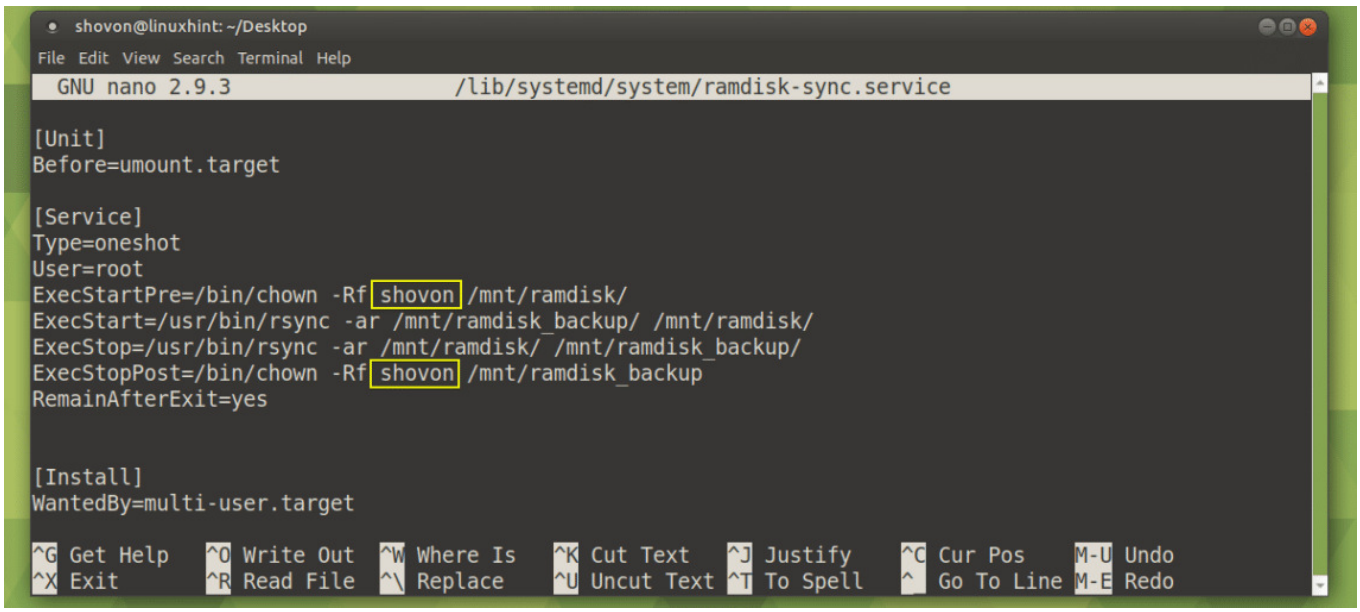
Now create a system service file with the following command:

```
$ sudo nano /lib/systemd/system/ramdisk-sync.service
```



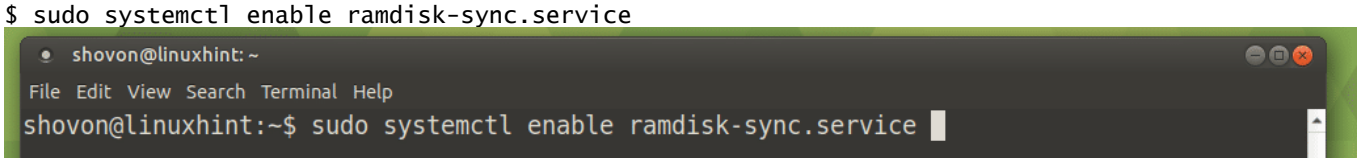


Now type in the following lines and replace **shovon** as marked in the screenshot below with your login username. Don't forget this step as it won't work otherwise. Now save the file.

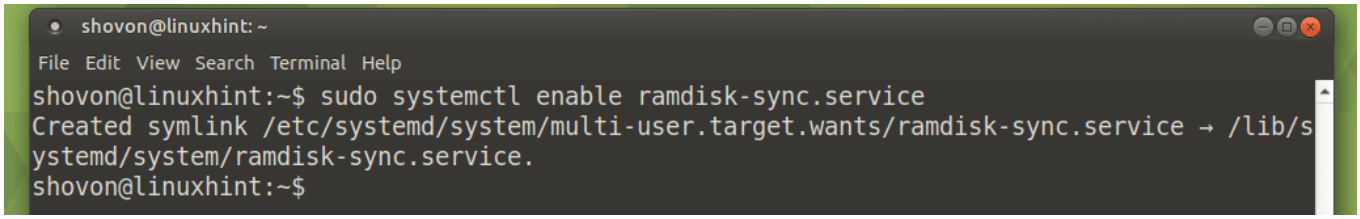


Now enable the **ramdisk-sync** service with the following command:

```
$ sudo systemctl enable ramdisk-sync.service
```



The **ramdisk-sync** service is enabled. Now it will start automatically on system boot.



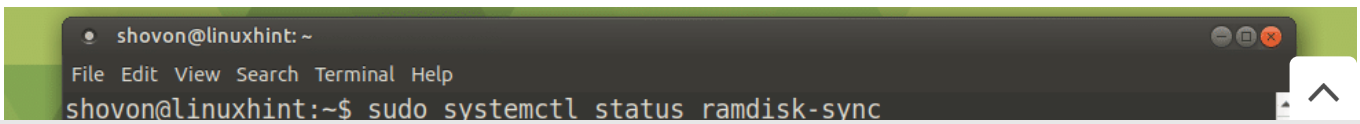
Now reboot your computer with the following command:

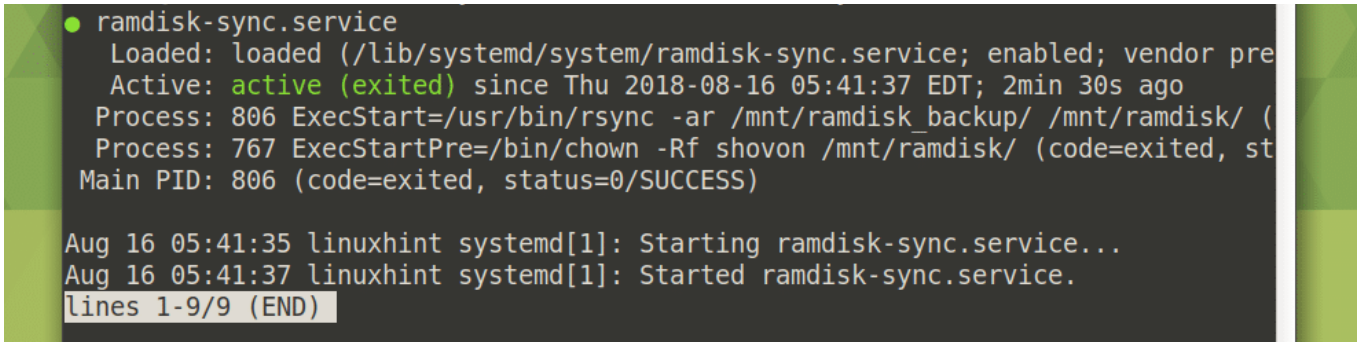
```
$ sudo reboot
```

Once your computer starts, check whether the **ramdisk-sync** service is running with the following command:

```
$ sudo systemctl status ramdisk-sync
```

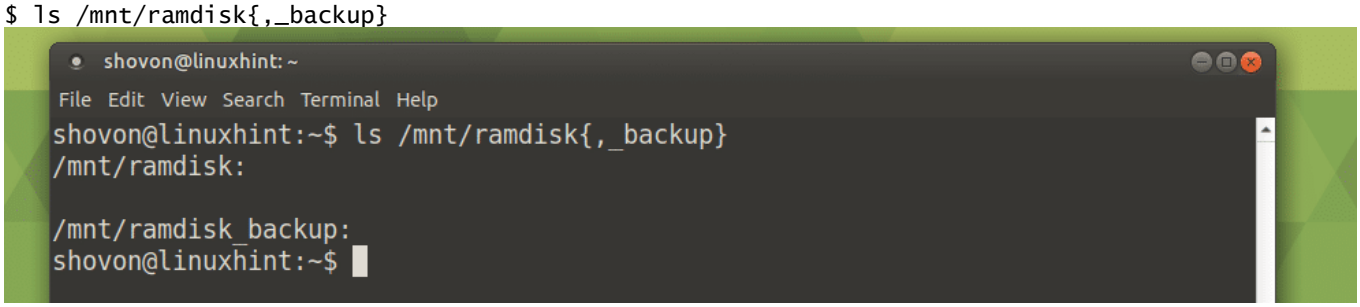
As you can see, the service is running correctly.



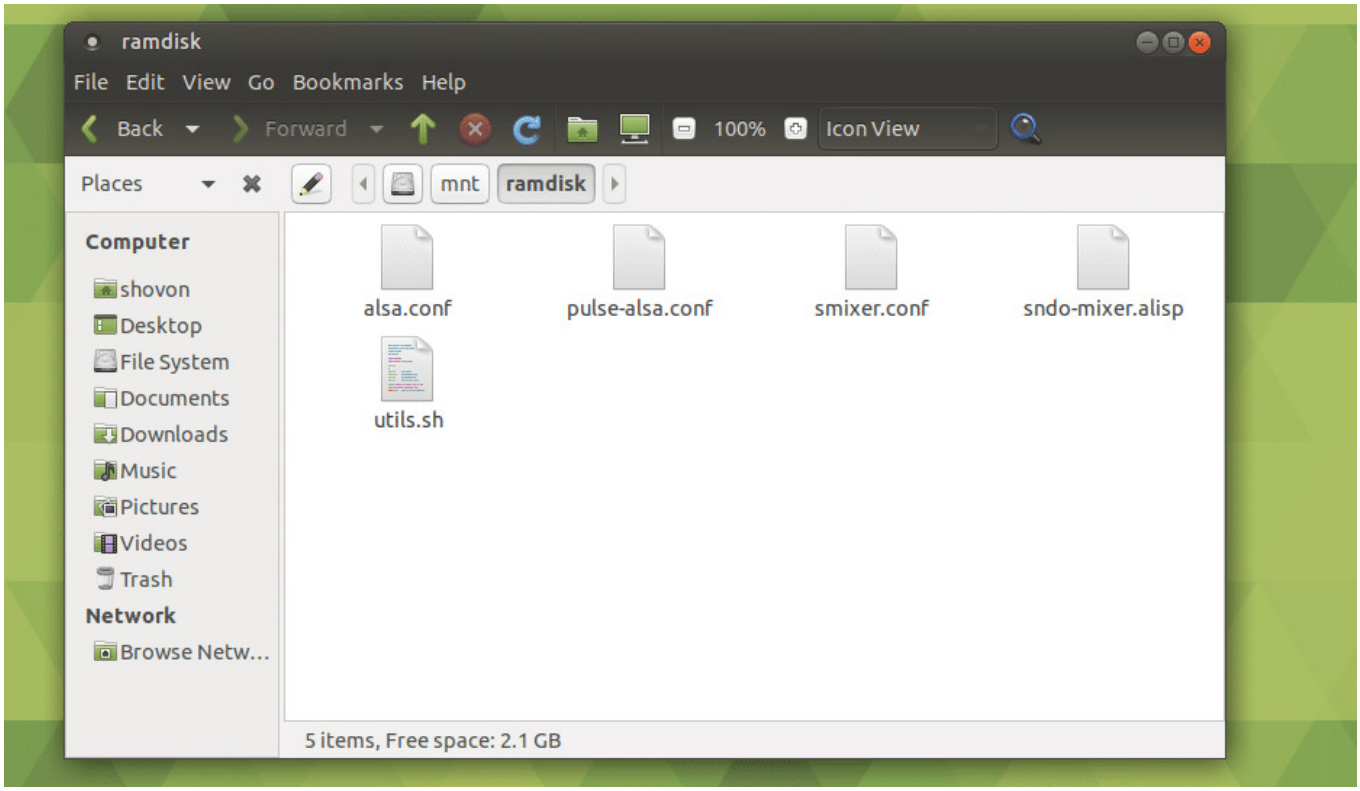


As you can see, both the /**mnt/ramdisk** and /**mnt/ramdisk_backup** directories are empty.

```
$ ls /mnt/ramdisk{,_backup}
```



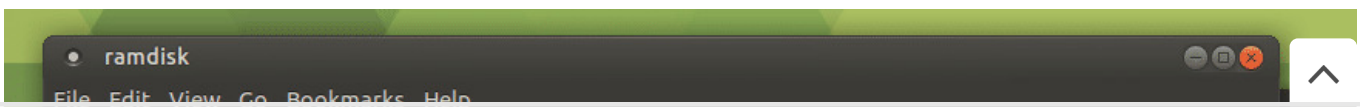
Now I am going to copy some files to /**mnt/ramdisk** RAMDISK.

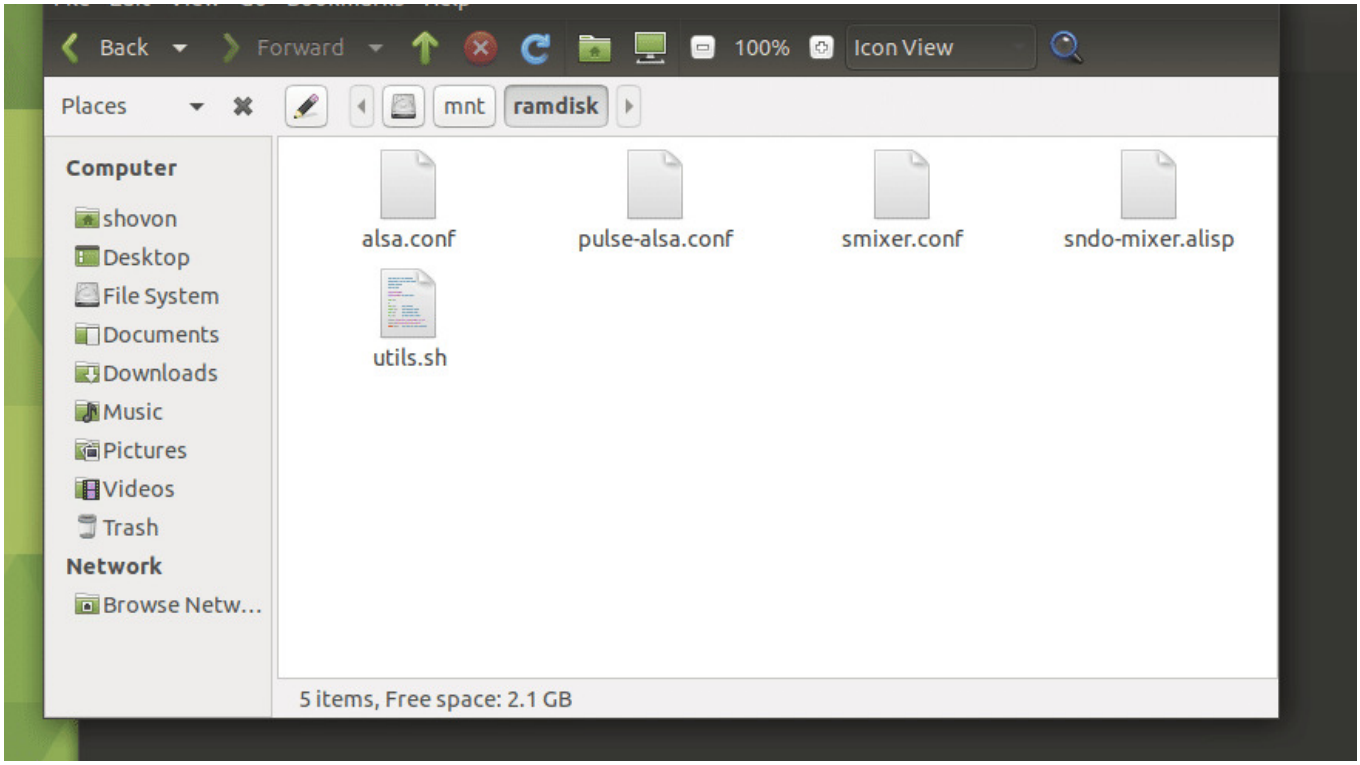


Now reboot your computer.

```
$ sudo reboot
```

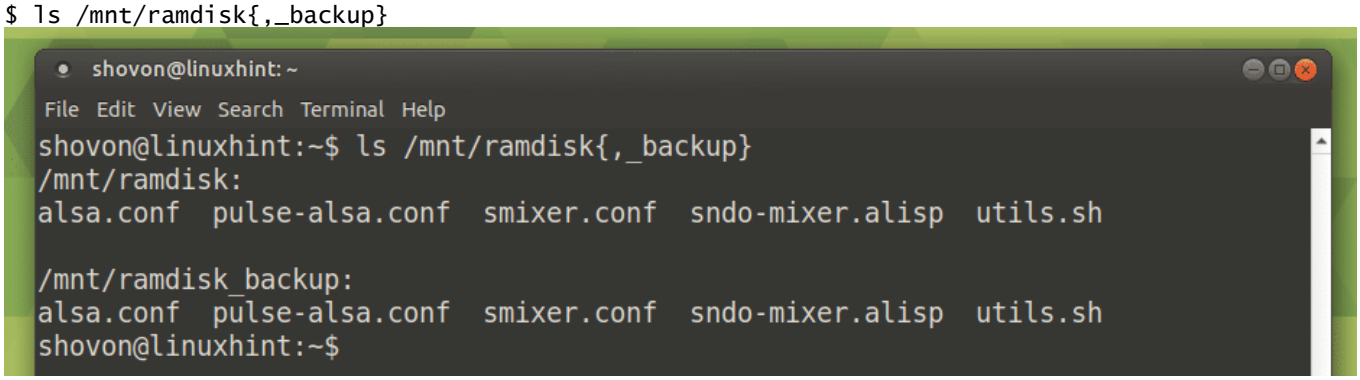
As you can see, once my computer boots, the files are available in my RAMDISK /**mnt/ramdisk**





Also the /**mnt/ramdisk** and /**mnt/ramdisk_backup** contains the same files.

```
$ ls /mnt/ramdisk{,_backup}
```



That's how you create and use RAMDISK on Ubuntu 18.04 LTS. Thanks for reading this article.

ABOUT THE AUTHOR

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Freelancer & Linux System Administrator. Also loves Web API development with Node.js and JavaScript. I was born in Bangladesh. I am currently studying Electronics and Communication Engineering at Khulna University of Engineering & Technology (KUET), one of the demanding public engineering universities of Bangladesh.

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