

# Create swap from File on BTRFS Filesystem

```
root@xps:/ # mkswap /swapfile
Setting up swapspace version 1, size = 8 GiB (8589930496 bytes)
no label, UUID=16d35c04-78de-4dd3-aeb0-e2228bb7ce36
root@xps:/ # swapon /swapfile
root@xps:/ # free -h
```

	total	used	free	shared	buff/cache	available
Mem:	15Gi	6.1Gi	1.7Gi	3.1Gi	7.5Gi	5.8Gi
Swap:	8.0Gi	0B	8.0Gi			

I didn't create any swap during [initial Ubuntu 19.04 install on Dell XPS laptop](#), so had to improvise when compiling a massive opensource project recently. This post shows you how to temporarily add swap memory using a regular file.

## Create swap Using Regular File

The usual approach is fairly simple:

- you create a large enough file (the desired size of your swap memory) – 1GB or 4GB or something like that
- you initialise it as swap
- you activated it as swap

## Swap Files Support in BTRFS

Since I've used BTRFS filesystem for root in my Ubuntu setup, I discovered that there are additional steps needed: BTRFS filesystem creates and writes files in a way that's been mostly incompatible with swap usage.

But as luck would have it, BTRFS supports swap files with Linux Kernel 5.0.x, so you just need to create file with specific attribute.

# Swap Space Using File Procedure

## Step 1: Create new empty file

We need to create a file with **NOCOW** (NO Copy-On-Write) property (no harm anywhere but is a requirement for BTRFS):

```
root@xps:/ # touch /swapfile
root@xps:/ # chattr +C /swapfile
```

## Step 2: Allocate required amount of space to the file

```
root@xps:/ # fallocate -l 8G /swapfile
```

This file is 8GB now:

```
root@xps:/ # ls -ald /swapfile
-rw----- 1 root root 8589934592 Jul 17 19:55 /swapfile
```

## Step 3: Update permissions

```
root@xps:/ # chmod 0600 /swapfile
```

## Step 4: Initialise /swapfile as swap storage

```
root@xps:/ # mkswap /swapfile
Setting up swapspace version 1, size = 8 GiB (8589930496
bytes)
no label, UUID=16d35c04-78de-4dd3-aeb0-e2228bb7ce36
```

## Step 5: Activate swap space from /swapfile

```
root@xps:/ # swapon /swapfile
```

## Step 6: Confirm newly activated swap space

```
root@xps:/ # free -h
total used free shared buff/cache available
Mem: 15Gi 6.1Gi 1.7Gi 3.1Gi 7.5Gi 5.8Gi
Swap: 8.0Gi 0B 8.0Gi
```

That's it for today!

## See Also

- [Basic Unix commands](#)
- [Advanced Unix commands](#)
- Swap Memory