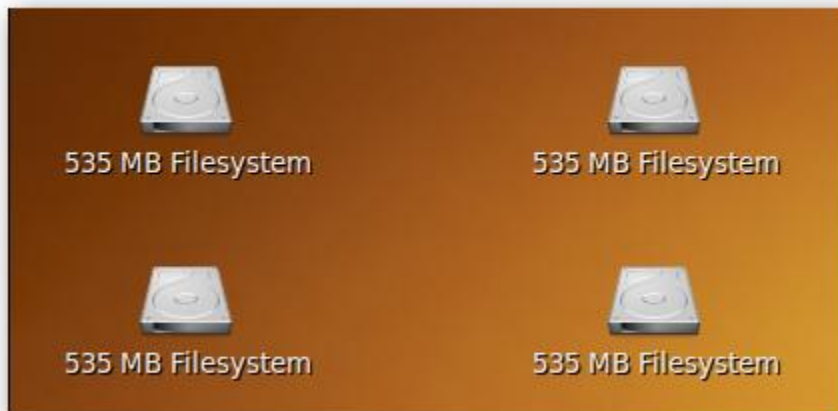


Clone a Hard Drive Using an Ubuntu Live CD

Whether you're setting up multiple computers or doing a full backup, cloning hard drives is a common maintenance task. Don't bother burning a new boot CD or paying for new software – you can do it easily with your Ubuntu Live CD.

Not only can you do this with your Ubuntu Live CD, you can do it right out of the box – no additional software needed! The program we'll use is called **dd**, and it's included with pretty much all Linux distributions. **dd** is a utility used to do low-level copying – rather than working with files, it works directly on the raw data on a storage device.



*Note: **dd** gets a bad rap, because like many other Linux utilities, if misused it can be very destructive. If you're not sure what you're doing, you can easily wipe out an entire hard drive, in an unrecoverable way.*

Of course, the flip side of that is that **dd** is extremely powerful, and can do very complex tasks with little user effort. If you're careful, and follow these instructions closely, you can clone your hard drive with one command.

We're going to take a small hard drive that we've been using and copy it to a new hard drive, which hasn't been formatted yet.

To make sure that we're working with the right drives, we'll open up a terminal (Applications > Accessories > Terminal) and enter in the following command

```
sudo fdisk -l
```

```
ubuntu@ubuntu: ~
File Edit View Terminal Help
ubuntu@ubuntu:~$ sudo fdisk -l

Disk /dev/sda: 1073 MB, 1073741824 bytes
255 heads, 63 sectors/track, 130 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes
Disk identifier: 0x0004dffb

   Device Boot      Start         End      Blocks   Id  System
/dev/sda1  *           1           65       522081   83  Linux
/dev/sda2                66          130       522112+   b   W95 FAT32

Disk /dev/sdb: 136.4 GB, 136365211648 bytes
255 heads, 63 sectors/track, 16578 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes
Disk identifier: 0xc071c071

   Device Boot      Start         End      Blocks   Id  System
/dev/sdb1  *           1        16577    133154721   7   HPFS/NTFS

Disk /dev/sdc: 1073 MB, 1073741824 bytes
255 heads, 63 sectors/track, 130 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes
Disk identifier: 0x00000000

Disk /dev/sdc doesn't contain a valid partition table
```

We have two small drives, /dev/sda, which has two partitions, and /dev/sdc, which is completely unformatted. We want to copy the data from /dev/sda to /dev/sdc.

Note: while you can copy a smaller drive to a larger one, you can't copy a larger drive to a smaller one with the method described below.

Now the fun part: using **dd**. The invocation we'll use is:

```
sudo dd if=/dev/sda of=/dev/sdc
```

In this case, we're telling **dd** that the input file ("if") is /dev/sda, and the output file ("of") is /dev/sdc. If your drives are quite large, this can take some time, but in our case it took just less than a minute.

```
ubuntu@ubuntu: ~  
File Edit View Terminal Help  
ubuntu@ubuntu:~$ sudo dd if=/dev/sda of=/dev/sdc  
2097152+0 records in  
2097152+0 records out  
1073741824 bytes (1.1 GB) copied, 54.0483 s, 19.9 MB/s  
ubuntu@ubuntu:~$
```

If we do `sudo fdisk -l` again, we can see that, despite not formatting `/dev/sdc` at all, it now has the same partitions as `/dev/sda`.

```
ubuntu@ubuntu: ~  
File Edit View Terminal Help  
ubuntu@ubuntu:~$ sudo fdisk -l  
  
Disk /dev/sda: 1073 MB, 1073741824 bytes  
255 heads, 63 sectors/track, 130 cylinders  
Units = cylinders of 16065 * 512 = 8225280 bytes  
Disk identifier: 0x0004dffb  


| Device    | Boot | Start | End | Blocks  | Id | System    |
|-----------|------|-------|-----|---------|----|-----------|
| /dev/sda1 | *    | 1     | 65  | 522081  | 83 | Linux     |
| /dev/sda2 |      | 66    | 130 | 522112+ | b  | W95 FAT32 |

  
Disk /dev/sdb: 136.4 GB, 136365211648 bytes  
255 heads, 63 sectors/track, 16578 cylinders  
Units = cylinders of 16065 * 512 = 8225280 bytes  
Disk identifier: 0xc071c071  

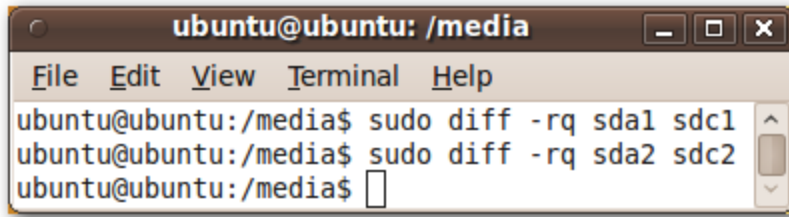

| Device    | Boot | Start | End   | Blocks    | Id | System    |
|-----------|------|-------|-------|-----------|----|-----------|
| /dev/sdb1 | *    | 1     | 16577 | 133154721 | 7  | HPFS/NTFS |

  
Disk /dev/sdc: 1073 MB, 1073741824 bytes  
255 heads, 63 sectors/track, 130 cylinders  
Units = cylinders of 16065 * 512 = 8225280 bytes  
Disk identifier: 0x0004dffb  


| Device    | Boot | Start | End | Blocks  | Id | System    |
|-----------|------|-------|-----|---------|----|-----------|
| /dev/sdc1 | *    | 1     | 65  | 522081  | 83 | Linux     |
| /dev/sdc2 |      | 66    | 130 | 522112+ | b  | W95 FAT32 |


```

Additionally, if we mount all of the partitions, we can see that all of the data on `/dev/sdc` is now the same as on `/dev/sda`.

A terminal window titled 'ubuntu@ubuntu: /media' with a menu bar containing 'File', 'Edit', 'View', 'Terminal', and 'Help'. The terminal shows three lines of text: 'ubuntu@ubuntu:/media\$ sudo diff -rq sda1 sdc1', 'ubuntu@ubuntu:/media\$ sudo diff -rq sda2 sdc2', and 'ubuntu@ubuntu:/media\$' followed by a cursor. A vertical scrollbar is visible on the right side of the terminal window.

```
ubuntu@ubuntu: /media
File Edit View Terminal Help
ubuntu@ubuntu:/media$ sudo diff -rq sda1 sdc1
ubuntu@ubuntu:/media$ sudo diff -rq sda2 sdc2
ubuntu@ubuntu:/media$
```

Note: you may have to restart your computer to be able to mount the newly cloned drive.

And that's it...If you exercise caution and make sure that you're using the right drives as the input file and output file, **dd** isn't anything to be scared of. Unlike other utilities, **dd** copies absolutely everything from one drive to another – that means that you can even [recover files](#) deleted from the original drive in the clone!