

Bootable USB Cloning Mini Task

Context: I have a 64 GB PNY USB key running Ubuntu, and I'd like to clone it. I have 3 other USB keys that will be cloned to mirror that image. All 4 USB keys are connected to a hub. Let me show you the lsblk command:

```
sda      57.3G SanDisk 3.2Gen1 03018918061325143819
└─sda1   57.3G
sdb      114.6G SanDisk 3.2Gen1 01010b833ecf5d53a5a253e2c8c0ef1b6be4ee37031fb87a8ff13c305814ae61
└─sdb1   114.6G
sdc      114.6G SanDisk 3.2Gen1 01015fe31fd40ed01afe6909dfe6b10dde9fb1d16c19b1d65879fcd765593b78
└─sdc1   114.6G
sdd      57.8G USB 3.2.1 FD 071C49417AA30245
├─sdd1   12.8G
└─sdd2   45G
```

Sdd is the source image. /dev/sdd (57.8G, "USB 3.2.1 FD", partitions sdd1 12.8G + sdd2 45G)
TARGETS: /dev/sda (57.3G), /dev/sdb (114.6G), /dev/sdc (114.6G)
Oops! Important blocker: /dev/sda is smaller than /dev/sdd
A raw disk clone (dd if=/dev/sdd of=/dev/sda) will fail near the end because 57.3G < 57.8G.

Therefore, we skip sda. We will only work with sdb and sdc.

We confirm this by checking byte by byte:

```
sudo blockdev --getsize64 /dev/sdd
sudo blockdev --getsize64 /dev/sda
sudo blockdev --getsize64 /dev/sdb
sudo blockdev --getsize64 /dev/sdc
```

```
root@ubuntu:/opt/diag# sudo blockdev --getsize64 /dev/sdd /dev/sda /dev/sdb /dev/sdc
62026416128
61524148224
123048296448
123048296448
root@ubuntu:/opt/diag#
```

Here are the exact byte sizes showed:

```
/dev/sdd (SOURCE) → 62,026,416,128 bytes
/dev/sda → 61,524,148,224 bytes (smaller), NO GOOD
/dev/sdb → 123,048,296,448 bytes, (bigger) GOOD
/dev/sdc → 123,048,296,448 bytes, (bigger) GOOD
```

Now we will proceed to clone sdb and sdc, from the source image, sdd.

CLONE 1 — sdd → sdb

1. Step 1 — Unmount target
`sudo umount -f /dev/sdb* 2>/dev/null || true`
2. Step 2 — Wipe old signatures (prevents auto-mount weirdness)
`sudo wipefs -a /dev/sdb`
3. Step 3 — Clone
`sudo dd if=/dev/sdd of=/dev/sdb bs=16M status=progress conv=fsync`
Let it complete fully.
4. Step 4 — Flush write cache
`sync`
5. Step 5 — Re-read partition table
`sudo partprobe /dev/sdb`
6. Step 6 — Verify structure
`lsblk /dev/sdb`
We should see similar partitions to /dev/sdd.
7. Step 7 — Eject cleanly
`sudo eject /dev/sdb`

CLONE 2 — sdd → sdc

Same process:

1. Step 1
`sudo umount -f /dev/sdc* 2>/dev/null || true`
2. Step 2
`sudo wipefs -a /dev/sdc`
3. Step 3
`sudo dd if=/dev/sdd of=/dev/sdc bs=16M status=progress conv=fsync`
4. Step 4
`sync`
5. Step 5
`sudo partprobe /dev/sdc`
6. Step 6
`lsblk /dev/sdc`
7. Step 7
`sudo eject /dev/sdc`

Each clone should take roughly:
20–30 minutes

After cloning both, label them:

```
sudo e2label /dev/sdb2 UBUNTU_CLONE1
```

```
sudo e2label /dev/sdc2 UBUNTU_CLONE2
```

Cloning sdb:

```
123048296448
root@ubuntu:/opt/diag# sudo umount -f /dev/sdb* 2>/dev/null || true
root@ubuntu:/opt/diag# sudo wipefs -a /dev/sdb
/dev/sdb: 2 bytes were erased at offset 0x000001fe (dos): 55 aa
/dev/sdb: calling ioctl to re-read partition table: Success
root@ubuntu:/opt/diag# sudo dd if=/dev/sdd of=/dev/sdb bs=16M status=progress conv=fsync
62025367552 bytes (62 GB, 58 GiB) copied, 2049 s, 30.3 MB/s62026416128 bytes (62 GB, 58 GiB) c
opied, 2049.05 s, 30.3 MB/s

3697+1 records in
3697+1 records out
62026416128 bytes (62 GB, 58 GiB) copied, 2525.03 s, 24.6 MB/s
root@ubuntu:/opt/diag# sync
root@ubuntu:/opt/diag# sudo partprobe /dev/sdc
root@ubuntu:/opt/diag# lsblk /dev/sdc
NAME MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sdc   8:32   1 114.6G  0 disk
└─sdc1 8:33   1 114.6G  0 part
root@ubuntu:/opt/diag# sudo eject /dev/sdc
root@ubuntu:/opt/diag#
```

No I/O errors

No “No space left on device”

Records in/out match

Speed slowdown at end is normal (USB cache flush)

```
sda      8:0     1  57.3G  0 disk
└─sda1   8:1     1  57.3G  0 part
sdb      8:16    1 114.6G  0 disk
├─sdb1   8:17    1  12.8G  0 part
└─sdb2   8:18    1   45G   0 part
sdc      8:32    1 114.6G  0 disk
└─sdc1   8:33    1 114.6G  0 part
sdd      8:48    1  57.8G  0 disk
├─sdd1   8:49    1  12.8G  0 part /cdrom
└─sdd2   8:50    1   45G   0 part
ubuntu@ubuntu:~/Desktop$
```

Will ignore

Cloned

Original

Now Cloning sdc:

```
ubuntu@ubuntu:~/Desktop$ sudo umount -f /dev/sdc* 2>/dev/null || true
ubuntu@ubuntu:~/Desktop$ sudo wipefs -a /dev/sdc
ubuntu@ubuntu:~/Desktop$ sudo dd if=/dev/sdd of=/dev/sdc bs=16M status=progress conv=fsync
62025367552 bytes (62 GB, 58 GiB) copied, 1998 s, 31.0 MB/s62026416128 bytes (62 GB, 58 GiB
) copied, 1998.28 s, 31.0 MB/s

3697+1 records in
3697+1 records out
62026416128 bytes (62 GB, 58 GiB) copied, 2458.74 s, 25.2 MB/s
ubuntu@ubuntu:~/Desktop$
```

sda	8:0	1	57.3G	0	disk	
└─sda1	8:1	1	57.3G	0	part	
sdb	8:16	1	114.6G	0	disk	
└─sdb1	8:17	1	12.8G	0	part	
└─sdb2	8:18	1	45G	0	part	Cloned
sdc	8:32	1	114.6G	0	disk	
└─sdc1	8:33	1	12.8G	0	part	
└─sdc2	8:34	1	45G	0	part	Cloned
sdd	8:48	1	57.8G	0	disk	
└─sdd1	8:49	1	12.8G	0	part	/cdrom
└─sdd2	8:50	1	45G	0	part	Original

```
ubuntu@ubuntu:~/Desktop$
```

Optional: Label each disk

Label sdb:

```
sudo e2label /dev/sdb2 UBUNTU_CLONE_1
```

Label sdc:

```
sudo e2label /dev/sdc2 UBUNTU_CLONE_2
```

Label sdd:

```
sudo e2label /dev/sdd2 UBUNTU_MASTER
```

Verify labels:

```
lsblk -f
```

Output:

```
sdb2 ext4 UBUNTU_CLONE_1
```

```
sdc2 ext4 UBUNTU_CLONE_2
```

```
sdd2 ext4 UBUNTU_MASTER
```

I opted for not doing this optional step this time, so no screenshots. But other times, its useful to do.