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Format external USB storage for windows

Sources

- <https://linux.die.net/man/8/parted>
- <https://rainbow.chard.org/2013/01/30/how-to-align-partitions-for-best-performance-using-parted/>
- <https://linuxhandbook.com/bash-arithmetic-operators/>
- <https://www.linuxscrew.com/bash-math-arithmetic>

How to do it

Display connected block devices:

```
lsblk
```

```
NAME MAJ:MIN RM  SIZE RO  TYPE MOUNTPOINTS
loop0  7:0    0  65.2M  1 loop /snap/gtk-common-themes/1519
loop1  7:1    0  65.1M  1 loop /snap/gtk-common-themes/1515
loop2  7:2    0  42.2M  1 loop /snap/snapd/14066
loop3  7:3    0 162.9M  1 loop /snap/gnome-3-28-1804/145
loop4  7:4    0  61.5M  1 loop /snap/authy/7
loop5  7:5    0   4K    1 loop /snap/bare/5
loop6  7:6    0  55.5M  1 loop /snap/core18/2284
loop7  7:7    0  55.5M  1 loop /snap/core18/2253
loop8  7:8    0 164.8M  1 loop /snap/gnome-3-28-1804/161
loop9  7:9    0  61.3M  1 loop /snap/authy/6
loop10 7:10   0  43.3M  1 loop /snap/snapd/14295
sda     8:0    0 238.5G  0 disk
├─sda1  8:1    0    8M  0 part
├─sda2  8:2    0 222.9G  0 part /home
│      /var
│      /usr/local
│      /root
│      /srv
│      /opt
│      /boot/grub2/x86_64-efi
│      /boot/grub2/i386-pc
│      /.snapshots
│      /
└─sda3  8:3    0  15.6G  0 part [SWAP]
sdb     8:16   0 465.8G  0 disk
├─sdb1  8:17   0 465.8G  0 part
sr0     11:0   1  1024M  0 rom
```

In my case the connected USB HDD is /dev/sdb. Verify that sdb is the correct device

```
parted /dev/sdb print
```

```
Model: BUFFALO External HDD (scsi)
Disk /dev/sdb: 500GB
Sector size (logical/physical): 512B/512B
Partition Table: msdos
Disk Flags:
```

Number	Start	End	Size	Type	File system	Flags
1	131kB	500GB	500GB	primary	ext4	type=83

create a fresh msdos partition table

```
parted /dev/sdb mklabel msdos
```

```
Warning: The existing disk label on /dev/sdb will be destroyed and all data on this disk will be lost.
Do you want to continue?
Yes/No?
```

press Information: You may need to update /etc/fstab.

some arithmetics to calculate the starting sector for the new partition

```
MYDEV="sdb"
OIS=$(cat /sys/block/"${MYDEV}"/queue/optimal_io_size)
MIS=$(cat /sys/block/"${MYDEV}"/queue/minimum_io_size)
AO=$(cat /sys/block/"${MYDEV}"/alignment_offset)
PBS=$(cat /sys/block/"${MYDEV}"/queue/physical_block_size)
((START_SECTOR=${OIS}+${AO}))
((START_SECTOR=${START_SECTOR}/${PBS}))
echo "MYDEV: ${MYDEV}; OIS: ${OIS}; MIS: ${MIS}; AO: ${AO}; PBS: ${PBS}; START_SECTOR: ${START_SECTOR}"

mkpart primary "${START_SECTOR}"s 100%
```

now format

```
mkfs.vfat /dev/<YOUR_DEVICE>
```

~~DISCUSSION~~

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