

Using 'fstrim' on USB connected SSD

 ivanb.neocities.org/blogs/y2023/fstrim

Preface

In Debian GNU/Linux TRIM is disabled by default on USB connected SSDs.

On internal SSDs TRIM operation is scheduled once per week, on USB connected SSDs it can be run manually.

Preparation

Login as user 'root'.

```
su -l
```

Install 'sg3-utils'.

```
apt update
```

```
apt upgrade -y
```

```
apt install sg3-utils
```

Connect the external SSD to USB port.

Checking TRIM support

Run 'lsblk --discard' to list all available devices.

```
lsblk --discard
```

NAME	DISC-ALN	DISC-GRAN	DISC-MAX	DISC-ZERO
sda	0	512B	2G	0
└─sda1	0	512B	2G	0
└─sda2	0	512B	2G	0
└─sda3	0	512B	2G	0
└─sda4	0	512B	2G	0
sdb	0	0B	0B	0
└─sdb1	0	0B	0B	0
└─sdb2	0	0B	0B	0
└─sdb3	0	0B	0B	0
└─sdb4	0	0B	0B	0
└─sdb5	0	0B	0B	0

DISC-GRAN 0 and DISC-MAX 0 indicate that TRIM is disabled.

Check if USB connected SSD supports TRIM.

```
sg_vpd -a /dev/sdb | grep 'Unmap'
```

TRIM is supported if the following line is present:

```
Unmap command supported (LBPU): 1
```

Check the path of 'provisioning_mode' file.

```
ls /sys/block/sdb/device/scsi_disk/*/provisioning_mode
```

In my case, 'ls' returns:

```
/sys/block/sdb/device/scsi_disk/6:0:0:0/provisioning_mode
```

Check SSD's provisioning mode.

```
cat '/sys/block/sdb/device/scsi_disk/6:0:0:0/provisioning_mode'
```

'cat' returns:

```
full
```

Enabling TRIM support until device is disconnected or system is rebooted

Change SSD's provisioning mode.

```
>| '/sys/block/sdb/device/scsi_disk/6:0:0:0/provisioning_mode' printf  
'unmap\n' cat '/sys/block/sdb/device/scsi_disk/6:0:0:0/provisioning_mode'
```

'cat' returns:

```
unmap
```

Now 'lsblk --discard' should show non-zero values for DISC-GRAN and DISC-MAX.

```
lsblk --discard
```

NAME	DISC-ALN	DISC-GRAN	DISC-MAX	DISC-ZERO
sda	0	512B	2G	0
├─sda1	0	512B	2G	0
├─sda2	0	512B	2G	0
├─sda3	0	512B	2G	0
└─sda4	0	512B	2G	0
sdb	0	512B	4G	0
├─sdb1	0	512B	4G	0
├─sdb2	0	512B	4G	0
├─sdb3	0	512B	4G	0
├─sdb4	0	512B	4G	0
└─sdb5	0	512B	4G	0

Get information about filesystems.

```
blkid | grep 'sdb' | sort
```

```
/dev/sdb1: TYPE="ext4"
```

```
/dev/sdb2: TYPE="ext4"
```

```
/dev/sdb3: TYPE="swap"
```

```
/dev/sdb5: TYPE="ntfs"
```

Perform the TRIM operation

Mount first partition, trim it and unmount it.

```
mount -o discard /dev/sdb1 /mnt/
```

```
fstrim -v /mnt
```

```
umount /mnt
```

Mount second partition, trim it and unmount it.

```
mount -o discard /dev/sdb2 /mnt/  
fstrim -v /mnt  
umount /mnt
```

Swap can be trimmed by 'swapon --discard=once' command.

Perform a single-time discard operation for the whole swap area at *swapon*.

```
swapon --discard=once /dev/sdb3  
swapoff /dev/sdb3
```

Mount last partition, trim it and unmount it.

```
ntfs-3g -o discard /dev/sdb5 /mnt/  
fstrim -v /mnt  
umount /mnt
```