Reduce SSD Wear n Tear:

DuckDuckGo: optimize ssd linux

References:

https://easylinuxtipsproject.blogspot.com/p/ssd.html

ssd - Is TRIM enabled on my Ubuntu 18.04 installation? - Ask Ubuntu

filesystem - Error message enabling fstrim.service - Ask Ubuntu

BIOS and UEFI: Make sure it's set to AHCI

Create **EXT4** partition/s during the OS installation.

A.

```
sudo mkdir -v /etc/systemd/system/fstrim.timer.d
```

```
sudo touch /etc/systemd/system/fstrim.timer.d/override.conf
```

```
mousepad admin:///etc/systemd/system/fstrim.timer.d/override.conf
```

Or, (if it doesn't do the trick)

```
sudo mousepad /etc/systemd/system/fstrim.timer.d/override.conf
```

Paste the following lines:

```
[Timer]
OnCalendar=
OnCalendar=daily
```

Check for the output:

```
sudo systemctl enable fstrim.service
```

```
sudo systemctl start fstrim
```

```
journalctl -u fstrim.service
```

Reboot.

B.

```
systemctl cat fstrim.timer
```

Approx. output:

```
yourusername@yourusername-H81M-WW:~$ systemctl cat fstrim.timer
# /lib/systemd/system/fstrim.timer
[Unit]
Description=Discard unused blocks once a week
Documentation=man:fstrim
ConditionVirtualization=!container

[Timer]
OnCalendar=weekly
AccuracySec=1h
Persistent=true

[Install]
WantedBy=timers.target

# /etc/systemd/system/fstrim.timer.d/override.conf
[Timer]
OnCalendar=
OnCalendar=daily

yourusername@yourusername-H81M-WW:~$
```

Do a sanity check.

```
journalctl | grep fstrim.service
```

```
systemctl status fstrim.service
```

```
Jun 21 18:32:11 yourusername-H81M-WW systemd[1]: fstrim.service: Succeeded.
Sep 15 10:54:10 yourusername-H81M-WW systemd[1]: fstrim.service: Succeeded.
Sep 16 15:44:44 yourusername-H81M-WW systemd[1]: fstrim.service: Succeeded.
```

```
systemctl status fstrim.timer
```

Output:

```
● fstrim.timer - Discard unused blocks once a week
     Loaded: loaded (/lib/systemd/system/fstrim.timer; enabled; preset:
enabled)
    Drop-In: /etc/systemd/system/fstrim.timer.d
             └─override.conf
     Active: active (waiting) since Tue 2023-07-04 15:40:18 IST; 20min ago
      Until: Tue 2023-07-04 15:40:18 IST; 20min ago
    Trigger: Wed 2023-07-05 01:02:34 IST; 9h left
   Triggers: ● fstrim.service
       Docs: man:fstrim

Jul 04 15:40:18 debian-myusername systemd[1]: Started fstrim.timer - Discard
unused b>
```

Is it working?

Test with one (unrelated) command:

```
xterm -ls -xrm 'XTerm*selectToClipboard: true'&
```

C.

Execute TRIM on-demand: (Perform regularly)

```
sudo fstrim -av
```

The output should look somewhat like this:

```
yourusername@yourusername-H81M-WW:~$ sudo fstrim -av
[sudo] password for yourusername:
/boot/efi: 234.1 MiB (245419008 bytes) trimmed on /dev/sda1
/: 2 GiB (2110889984 bytes) trimmed on /dev/sda2
yourusername@yourusername-H81M-WW:~$
```

Then, do

```
sudo fstrim -v /
```

Output:

```
yourusername@yourusername-H81M-WW:~$ sudo fstrim -v /
/: 157.8 MiB (165457920 bytes) trimmed
yourusername@yourusername-H81M-WW:~$
```

For your convenience in the future, create a shell file `ssd_trim.sh` with the following content:

```
#!/bin/bash

sudo fstrim -av && \
sudo fstrim -v /  \
```

First, check your current swap setting:

```
cat /proc/sys/vm/swappiness
```

Press Enter.

The result should probably be `60`.

```
mousepad admin:///etc/sysctl.conf
```

Or, (in case, if it doesn't work)

```
sudo mousepad /etc/sysctl.conf
```

Add the following lines, at the very end of the existing text in that file:

```
# Reduce the inclination to swap
vm.swappiness=10
```

Schedule a Cron Job:

> Ref:
>
> https://stackoverflow.com/questions/12973777/how-to-run-a-shell-script-at-startup
>
> https://operavps.com/docs/run-command-after-boot-in-linux/

```
crontab -e
```

Or,

```
EDITOR=geany crontab -e
```

Add:

```
@reboot sudo sh '/home/YOURUSERNAME/shell/ssd_trim.sh'
@reboot sudo fstrim -av && sudo fstrim -v /
```

Then,

```
sudo crontab -e
```

Or,

```
sudo EDITOR=geany crontab -e
```

Add:

```
@reboot sudo sh '/home/YOURUSERNAME/shell/ssd_trim.sh'
@reboot sudo fstrim -av && sudo fstrim -v /
```

Disable Swap:

> Ref:
>
> How to Permanently Disable Swap in Linux How to Change the Swappiness Value in Linux | Linuxize

Get the device map of the swap partition using GNOME Disks.

Temporary solution:

```
lsblk
sudo swapoff /dev/sda5
sudo swapoff -a
free -h
lsblk
```

Make the changes persistent across boot:

```
sudo nano /etc/fstab
```

```
# swap was on /dev/sda5 during installation

UUID=9xxxxxxd-0xx5-4xx8-bxxf-exxxxxxxxxx5 none            swap    sw
```

Comment out the line above as follows:

```
# swap was on /dev/sda5 during installation
#UUID=9xxxxxxd-0xx5-4xx8-bxxf-exxxxxxxxxx5 none            swap    sw
```

```
sudo nano /etc/sysctl.conf
```

Then,

```
# Reduce the inclination to swap
vm.swappiness=10
```

or,

```
# Reduce the inclination to swap
vm.swappiness=5
```

or,

```
# Reduce the inclination to swap
vm.swappiness=0
```

Reboot the system.

===

Firefox:

`about:config`

`browser.cache.disk.enable`

Toggle its value to `false`

`browser.cache.memory.enable`

Toggle its value to `true` (if it's not already set there)

`browser.cache.memory.capacity`

Change the value to `524288` (512MB) or `1048576` (1GB) from `-1`

`about:cache`

`about:config`

`sessionstore`

`browser.sessionstore.interval`

The default interval is `15000`, which means 15 seconds. Append three zeros, so that it becomes: `15000000` and click the OK button.

`15000000`

Not essential & obsolete:

```
sudo sed -i 's/ errors=remount-ro/ noatime,errors=remount-ro/' /etc/fstab
```

If you have a separate partition for `/home`, then do the following also:

```
sudo sed -i 's/ defaults/ noatime,defaults/' /etc/fstab
```

V. V. Important

⋄ Always maintain *more than* `20%` **free space** on *each* partition.

Keep SSD partitions as much blank and clean as possible. Never ever overload an SSD.