

BOSC-E2014: Aflevering 3

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Part I

Rapport

Chapter 1

Introduktion

1.1 Problemformulering

1.2 Metode

Chapter 2

Implementation

2.1 Simple

2.2 Linear

2.3 DFS

Chapter 3

Test

3.1 Lineær listing

Kernemodulet for den lineære gennemgang af processer er testet ved at installere modulet ved brug af kommandoen *sudo insmod cumlist.ko*.

Modulet skriver til kernel loggen ved initialiseringen. Outputtet fra kernel loggen indhentes ved hjælp af kommandoen *dmesg*:

```
sudo dmesg >linear.txt
```

Resultatet sammenlignes med den indbyggede *ps*-kommando, men parametrene *-el*:

```
ps -el >pslinear.txt
```

Se appendix A for output fra konsollen.

3.2 DFS listing

3.2.1 Setup

DFS kernemodulet er testet ved først at registrere det med følgende kommando:

```
sudo insmod dfslist.ko
```

Efter som at modulet skriver til kernel loggen ved registrering, er indholdet hentet ud ved at køre kommandoen:

```
sudo dmesg >dfs.txt
```

Endelig skal resultaterne sammenlignes med den indbyggede *ps* kommando. Til dette køres følgende kommando for at hente de kørende processer i en træstruktur:

```
ps axjf >ps.txt
```

Se appendix B for output fra konsollen.

3.2.2 Sammenligning af output

DFS er kendetegnet ved, at første barns børn og børns børn itereres før de resterende børn (og tilsvarende, deres børn og børns børn) fra hovedknuden. Med andre ord forventes det af implementationen, at den udskriver processerne, men inden for hver process itereres ned over processens børn rekursivt og disse udskrives. For eksempel, hvis proceslisten består af process 1 og 2, og disse har børnene 1.1, 1.1.1 og 2.1, skal disse udskrives i rækkefølgen 1, 1.1, 1.1.1, 2, 2.1.

Dette viser sig tydeligt at være tilfældet for implementationen, idet processen med process-ID 1053 observeres fra *ps.txt*:

```

1 1053 1053 1053 ? -1 SLsl 0 0:00 lightdm
1053 1142 1142 1142 tty? 1142 Rs+ 0 0:34 \_ /usr/bin/X -core :0 -seat seat0 -auth /var/run/lightdm/root/:0 -nolisten tcp vt7 -novtswitch
1053 1715 1053 1053 ? -1 Sl 0 0:00 \_ lightdm --session-child 12 19
1715 2730 2730 2730 ? -1 Ss 1000 0:00 \_ \_ init --user
2730 2801 2801 2801 ? -1 Ss 1000 0:00 \_ \_ ssh-agent -s
2730 2807 2807 2807 ? -1 Ss 1000 0:01 \_ \_ dbus-daemon --fork --session --address=unix:abstract=/tmp/dbus-VLfuiWLSiq
2730 2815 2815 2815 ? -1 Ss 1000 0:00 \_ \_ upstart-event-bridge
2730 2819 2819 2819 ? -1 Ss 1000 0:00 \_ \_ /usr/lib/x86_64-linux-gnu/hud/window-stack-bridge
2730 2820 2820 2820 ? -1 Ssl 1000 0:04 \_ \_ /usr/bin/ibus-daemon --daemonize --xim
2820 2851 2820 2820 ? -1 Sl 1000 0:00 | \_ \_ /usr/lib/ibus/ibus-dconf
2820 2854 2820 2820 ? -1 Sl 1000 0:01 | \_ \_ /usr/lib/ibus/ibus-ui-gtk3
2820 2914 2820 2820 ? -1 Sl 1000 0:00 | \_ \_ /usr/lib/ibus/ibus-engine-simple
2730 2829 2828 2828 ? -1 Sl 1000 0:00 \_ \_ upstart-file-bridge --daemon --user
2730 2835 2807 2807 ? -1 Sl 1000 0:00 \_ \_ /usr/lib/gvfs/gvfsd
2730 2836 2836 2836 ? -1 Sl 1000 0:00 \_ \_ /usr/lib/unity-settings-daemon/unity-settings-daemon
2730 2842 2807 2807 ? -1 Sl 1000 0:00 \_ \_ /usr/lib/gvfs/gvfsd-fuse /run/user/1000/gvfs -f -o big_writes
2730 2845 2845 2845 ? -1 Ssl 1000 0:01 \_ \_ /usr/lib/x86_64-linux-gnu/hud/hud-service
2730 2849 2849 2849 ? -1 Ssl 1000 0:00 \_ \_ /usr/lib/at-spi2-core/at-spi-bus-launcher --launch-immediately
2849 2862 2849 2849 ? -1 S 1000 0:00 | \_ \_ /bin/dbus-daemon --config-file=/etc/at-spi2/accessibility.conf --nofork --print-address 3

```

Her ses det, at process 1053 har en række børn (som også har børn), og af implementationen forventes det derfor, at disse udskrives i rækkefølge. Dette sammenlignes med en del af outputtet fra implementationen:

```

[ 5664.686470] lightdm: State is 1 and process id is 1053
[ 5664.686471] Xorg: State is 1 and process id is 1142
[ 5664.686473] lightdm: State is 1 and process id is 1715
[ 5664.686475] init: State is 1 and process id is 2730
[ 5664.686476] ssh-agent: State is 1 and process id is 2801
[ 5664.686478] dbus-daemon: State is 1 and process id is 2807
[ 5664.686480] upstart-event-b: State is 1 and process id is 2815
[ 5664.686481] window-stack-br: State is 1 and process id is 2819
[ 5664.686483] ibus-daemon: State is 1 and process id is 2820
[ 5664.686484] ibus-dconf: State is 1 and process id is 2851
[ 5664.686486] ibus-ui-gtk3: State is 1 and process id is 2854
[ 5664.686487] ibus-engine-sim: State is 1 and process id is 2914
[ 5664.686489] upstart-file-br: State is 1 and process id is 2829
[ 5664.686491] unity-settings-: State is 1 and process id is 2836
[ 5664.686493] gvfsd: State is 1 and process id is 2835
[ 5664.686494] gvfsd-fuse: State is 1 and process id is 2842
[ 5664.686496] hud-service: State is 1 and process id is 2845
[ 5664.686497] at-spi-bus-laun: State is 1 and process id is 2849
[ 5664.686499] dbus-daemon: State is 1 and process id is 2862

```

På skærbilledet ses det, at processerne og deres børn udskrives i rækkefølge - som forventet.

Chapter 4

Diskussion

4.1 Brugen af kernemoduler

Brugen af kernemoduler frem for almindelige systemkald har adskillige fordele¹. Det er f.eks. muligt at indlæse vilkårlige dele af systemet som ønsket, og når først disse er indlæst, kører de i kontekst af kernen. Med andre ord har et kernemodul fuld adgang til systemets hardware. Netop dette har ulempen, at kernemodulet er i stand til at crashe systemet.

Alternativet til samme kontrol over hardwaren er at foretage kodeændringer direkte i kernen, men dette kræver rekompilering, genstart mv. af kernen, og brugen af kernemoduler er altså en betydeligt mere fleksibel fremgangsmåde.

4.2 Fordele ved *ps*

Vores implementation viser udelukkende navn, state og process-id for de kørende tasks. Den indbyggede *ps* kommando tilbyder betydeligt mere funktionalitet². Den egentligt implementerede løsning betragtes altså ikke som erstatning for den indbyggede, men samme fremgangsmåde kan benyttes til at *udvide* den indbyggede kommando (se følgende afsnit).

4.3 Implementation af kode i *init*

Koden viser i øjeblikket en liste af tasks ved indlæsning af modulet. Dette virker i praksis ikke som et passende alternativ til *ps*, da listningen ikke kan ske uden at genindlæse modulet. Kernemodulet kunne i stedet udvikles til f.eks. et af følgende kernemodultyper³:

- Systemkald: Ved registrering af modulet kan det erstatte eksisterende systemkald eller tilbyde et nyt⁴.
- Filsystem: Ved brug af *sysfs* kan indhold fra kernemodulet eksporteres gennem filesystemet⁵, som vi f.eks. kender det fra første obligatoriske opgave ved læsning af hostnavn.

Idéen med brug af et systemkald kunne f.eks. være, at kaldet til den indbyggede *ps* kommando bliver erstattet af vores kode, som enten erstatter eller udvider funktionaliteten i *ps*. Ved udvidelse kunne vores kernemodul f.eks. implementere logningsfunktionalitet, som ved hvert brugerkald til *ps* ville resultere i en post i kerneloggen. Herefter kunne den indbyggede *ps* kaldes, og kernemodulet ville altså fungere transparent for brugeren.

Et eksempel på brugen af filesystemet kunne være, at outputtet fra kernemodulet nu ville eksistere i form af filer, som et brugerprogram kan indlæse til enhver tid. Indlæsning af procesoplysninger ville ikke længere være begrænset til indlæsning af modulet, men kunne udtrækkes på et vilkårligt tidspunkt ved at læse den registrerede fil.

¹Afsnit 16.3 i OSC International 9th

²<https://www.kernel.org/doc/Documentation/filesystems/sysfs.txt>

³Afsnit 2.7.4 i OSC

⁴<http://linux.die.net/lkmpg/x978.html>

⁵<https://www.kernel.org/doc/Documentation/filesystems/sysfs.txt>

Chapter 5

Konklusion

Part II

Appendix

Appendix A

Resultatet fra Lineær listing

A.1 Linear

A.2 Implementation

```
bosc@ubuntu:~/Desktop/obl3tasklist$ dmesg
[19635.864339] cumlist: module license 'DALARmusic' taints kernel.
[19635.864369] Disabling lock debugging due to kernel taint
[19636.049621] init: State is 1 and process id is 1
[19636.049636] kthreadd: State is 1 and process id is 2
[19636.049638] ksoftirqd/0: State is 1 and process id is 3
[19636.049640] kworker/0:0H: State is 1 and process id is 5
[19636.049642] rcu_sched: State is 1 and process id is 7
[19636.049643] rcu_bh: State is 1 and process id is 8
[19636.049645] migration/0: State is 1 and process id is 9
[19636.049647] watchdog/0: State is 1 and process id is 10
[19636.049648] watchdog/1: State is 1 and process id is 11
[19636.049650] migration/1: State is 1 and process id is 12
[19636.049652] ksoftirqd/1: State is 1 and process id is 13
[19636.049653] kworker/1:0H: State is 1 and process id is 15
[19636.049655] khelper: State is 1 and process id is 16
[19636.049656] kdevtmpfs: State is 1 and process id is 17
[19636.049658] netns: State is 1 and process id is 18
[19636.049659] writeback: State is 1 and process id is 19
[19636.049661] kintegrityd: State is 1 and process id is 20
[19636.049665] bioset: State is 1 and process id is 21
[19636.049667] kworker/u17:0: State is 1 and process id is 22
[19636.049669] kblockd: State is 1 and process id is 23
[19636.049670] ata_sff: State is 1 and process id is 24
[19636.049672] khubd: State is 1 and process id is 25
[19636.049674] md: State is 1 and process id is 26
[19636.049675] devfreq-wq: State is 1 and process id is 27
[19636.049677] khungtaskd: State is 1 and process id is 30
[19636.049678] kswapd0: State is 1 and process id is 31
[19636.049680] ksmd: State is 1 and process id is 32
[19636.049682] khugepaged: State is 1 and process id is 33
[19636.049683] fsnotify_mark: State is 1 and process id is 34
[19636.049685] ecryptfs-kthrea: State is 1 and process id is 35
[19636.049687] crypto: State is 1 and process id is 37
[19636.049688] kthrotld: State is 1 and process id is 49
[19636.049710] scsi_eh_0: State is 1 and process id is 51
[19636.049712] scsi_eh_1: State is 1 and process id is 52
```

[19636.049714] deferwq: State is 1 and process id is 73
 [19636.049716] charger_manager: State is 1 and process id is 74
 [19636.049717] kworker/1:2: State is 1 and process id is 75
 [19636.049721] mpt_poll_0: State is 1 and process id is 121
 [19636.049723] mpt/0: State is 1 and process id is 122
 [19636.049725] scsi_eh_2: State is 1 and process id is 130
 [19636.049726] scsi_eh_3: State is 1 and process id is 131
 [19636.049728] scsi_eh_4: State is 1 and process id is 132
 [19636.049731] scsi_eh_5: State is 1 and process id is 133
 [19636.049733] scsi_eh_6: State is 1 and process id is 134
 [19636.049735] scsi_eh_7: State is 1 and process id is 135
 [19636.049736] scsi_eh_8: State is 1 and process id is 136
 [19636.049738] scsi_eh_9: State is 1 and process id is 137
 [19636.049739] scsi_eh_10: State is 1 and process id is 138
 [19636.049741] scsi_eh_11: State is 1 and process id is 139
 [19636.049743] scsi_eh_12: State is 1 and process id is 140
 [19636.049744] scsi_eh_13: State is 1 and process id is 141
 [19636.049746] scsi_eh_14: State is 1 and process id is 142
 [19636.049747] scsi_eh_15: State is 1 and process id is 143
 [19636.049749] scsi_eh_16: State is 1 and process id is 144
 [19636.049750] scsi_eh_17: State is 1 and process id is 145
 [19636.049752] scsi_eh_18: State is 1 and process id is 146
 [19636.049753] scsi_eh_19: State is 1 and process id is 147
 [19636.049755] scsi_eh_20: State is 1 and process id is 148
 [19636.049756] scsi_eh_21: State is 1 and process id is 149
 [19636.049758] scsi_eh_22: State is 1 and process id is 150
 [19636.049759] scsi_eh_23: State is 1 and process id is 151
 [19636.049761] scsi_eh_24: State is 1 and process id is 152
 [19636.049763] scsi_eh_25: State is 1 and process id is 153
 [19636.049764] scsi_eh_26: State is 1 and process id is 154
 [19636.049766] scsi_eh_27: State is 1 and process id is 155
 [19636.049767] scsi_eh_28: State is 1 and process id is 156
 [19636.049769] scsi_eh_29: State is 1 and process id is 157
 [19636.049770] scsi_eh_30: State is 1 and process id is 158
 [19636.049772] scsi_eh_31: State is 1 and process id is 159
 [19636.049773] kpsmouse: State is 1 and process id is 188
 [19636.049775] scsi_eh_32: State is 1 and process id is 189
 [19636.049776] kworker/u17:1: State is 1 and process id is 192
 [19636.049780] jbd2/sda1-8: State is 1 and process id is 205
 [19636.049782] ext4-rsv-conver: State is 1 and process id is 206
 [19636.049783] upstart-udev-br: State is 1 and process id is 349
 [19636.049785] systemd-udev: State is 130 and process id is 360
 [19636.049788] upstart-file-br: State is 1 and process id is 440
 [19636.049790] dbus-daemon: State is 1 and process id is 448
 [19636.049791] rsyslogd: State is 1 and process id is 452
 [19636.049793] bluetoothd: State is 1 and process id is 474
 [19636.049795] systemd-logind: State is 1 and process id is 483
 [19636.049796] avahi-daemon: State is 1 and process id is 486
 [19636.049798] avahi-daemon: State is 1 and process id is 488
 [19636.049801] krfcommd: State is 1 and process id is 510
 [19636.049803] upstart-socket-: State is 1 and process id is 603
 [19636.049805] ttm_swap: State is 1 and process id is 641
 [19636.049806] ModemManager: State is 1 and process id is 705
 [19636.049808] colord: State is 1 and process id is 848
 [19636.049810] getty: State is 1 and process id is 867
 [19636.049811] NetworkManager: State is 1 and process id is 871

[19636.049813] getty: State is 1 and process id is 875
 [19636.049814] getty: State is 1 and process id is 882
 [19636.049816] getty: State is 1 and process id is 883
 [19636.049818] getty: State is 1 and process id is 886
 [19636.049819] cron: State is 1 and process id is 924
 [19636.049822] sshd: State is 1 and process id is 929
 [19636.049824] acpid: State is 1 and process id is 966
 [19636.049826] irqbalance: State is 1 and process id is 986
 [19636.049827] cups-browsed: State is 1 and process id is 1037
 [19636.049829] lightdm: State is 1 and process id is 1098
 [19636.049831] polkitd: State is 1 and process id is 1119
 [19636.049832] Xorg: State is 1 and process id is 1133
 [19636.049834] getty: State is 1 and process id is 1142
 [19636.049835] whoopsie: State is 1 and process id is 1145
 [19636.049837] accounts-daemon: State is 1 and process id is 1153
 [19636.049841] dhclient: State is 1 and process id is 1341
 [19636.049843] vmware-vmblock-: State is 1 and process id is 1392
 [19636.049844] vmtoolsd: State is 1 and process id is 1410
 [19636.049846] kauditd: State is 1 and process id is 1503
 [19636.049847] dnsmasq: State is 1 and process id is 1513
 [19636.049849] lightdm: State is 1 and process id is 1718
 [19636.049864] upowerd: State is 1 and process id is 1766
 [19636.049867] rtkit-daemon: State is 1 and process id is 1927
 [19636.049869] gnome-keyring-d: State is 1 and process id is 2075
 [19636.049872] init: State is 1 and process id is 2105
 [19636.049874] ssh-agent: State is 1 and process id is 2178
 [19636.049875] dbus-daemon: State is 1 and process id is 2180
 [19636.049877] upstart-event-b: State is 1 and process id is 2189
 [19636.049879] window-stack-br: State is 1 and process id is 2196
 [19636.049880] ibus-daemon: State is 1 and process id is 2205
 [19636.049882] gvfsd: State is 1 and process id is 2217
 [19636.049883] ibus-dconf: State is 1 and process id is 2224
 [19636.049885] gvfsd-fuse: State is 1 and process id is 2225
 [19636.049888] ibus-ui-gtk3: State is 1 and process id is 2232
 [19636.049890] ibus-x11: State is 1 and process id is 2234
 [19636.049892] upstart-dbus-br: State is 1 and process id is 2241
 [19636.049894] unity-settings -: State is 1 and process id is 2244
 [19636.049897] at-spi-bus-laun: State is 1 and process id is 2246
 [19636.049898] hud-service: State is 1 and process id is 2250
 [19636.049900] dbus-daemon: State is 1 and process id is 2256
 [19636.049902] at-spi2-registr: State is 1 and process id is 2259
 [19636.049904] gnome-session: State is 1 and process id is 2268
 [19636.049906] unity-panel-ser: State is 1 and process id is 2271
 [19636.049908] upstart-dbus-br: State is 1 and process id is 2287
 [19636.049910] upstart-file-br: State is 1 and process id is 2291
 [19636.049912] ibus-engine-sim: State is 1 and process id is 2303
 [19636.049913] bamfdaemon: State is 1 and process id is 2333
 [19636.049915] indicator-keybo: State is 1 and process id is 2369
 [19636.049917] indicator-messa: State is 1 and process id is 2371
 [19636.049918] indicator-bluet: State is 1 and process id is 2372
 [19636.049920] indicator-power: State is 1 and process id is 2375
 [19636.049922] indicator-datet: State is 1 and process id is 2378
 [19636.049923] indicator-sound: State is 1 and process id is 2379
 [19636.049926] indicator-print: State is 1 and process id is 2381
 [19636.049930] dconf-service: State is 1 and process id is 2388
 [19636.049932] indicator-sessi: State is 1 and process id is 2396

```

[19636.049933] indicator-appli: State is 1 and process id is 2399
[19636.049936] evolution-sourc: State is 1 and process id is 2406
[19636.049938] pulseaudio: State is 1 and process id is 2434
[19636.049940] notify-osd: State is 1 and process id is 2467
[19636.049941] compiz: State is 1 and process id is 2477
[19636.049943] evolution-calen: State is 1 and process id is 2546
[19636.049945] polkit-gnome-au: State is 1 and process id is 2549
[19636.049947] nautilus: State is 1 and process id is 2552
[19636.049948] unity-fallback-: State is 1 and process id is 2555
[19636.049950] vmtoolsd: State is 1 and process id is 2561
[19636.049951] nm-applet: State is 1 and process id is 2562
[19636.049953] gvfs-udisks2-vo: State is 1 and process id is 2579
[19636.049955] udisksd: State is 1 and process id is 2586
[19636.049956] gconfd-2: State is 1 and process id is 2592
[19636.049958] gvfs-mtp-volume: State is 1 and process id is 2601
[19636.049960] gvfs-afc-volume: State is 1 and process id is 2605
[19636.049961] gvfs-gphoto2-vo: State is 1 and process id is 2610
[19636.049963] gvfsd-trash: State is 1 and process id is 2622
[19636.049965] gvfsd-burn: State is 1 and process id is 2628
[19636.049966] gvfsd-metadata: State is 1 and process id is 2644
[19636.049968] telepathy-indic: State is 1 and process id is 2709
[19636.049970] mission-control: State is 1 and process id is 2716
[19636.049974] zeitgeist-datah: State is 1 and process id is 2725
[19636.049976] zeitgeist-daemo: State is 1 and process id is 2730
[19636.049977] zeitgeist-fts: State is 1 and process id is 2738
[19636.049979] cat: State is 1 and process id is 2754
[19636.049980] update-notifier: State is 1 and process id is 2790
[19636.049982] update-manager: State is 1 and process id is 2812
[19636.049984] deja-dup-monito: State is 1 and process id is 2840
[19636.049985] cupsd: State is 1 and process id is 3296
[19636.049987] dbus: State is 1 and process id is 3299
[19636.049989] tpmvmlp: State is 1 and process id is 3335
[19636.049990] kworker/u16:2: State is 1 and process id is 6240
[19636.049992] kworker/u16:1: State is 1 and process id is 6302
[19636.049993] kworker/0:1: State is 1 and process id is 6500
[19636.049995] kworker/1:0: State is 1 and process id is 6548
[19636.049997] kworker/0:0: State is 1 and process id is 6549
[19636.049998] kworker/u16:3: State is 1 and process id is 6667
[19636.050000] systemd-hostnam: State is 1 and process id is 6758
[19636.050001] gnome-terminal: State is 1 and process id is 6761
[19636.050003] gnome-pty-helpe: State is 1 and process id is 6770
[19636.050005] bash: State is 1 and process id is 6771
[19636.050006] kworker/u16:0: State is 1 and process id is 6823
[19636.050008] sudo: State is 1 and process id is 7114
[19636.050009] insmod: State is 0 and process id is 7115
[19636.050022] Loading Module

```

A.3 PS

F	S	UID	PID	PPID	C	PRI	NI	ADDR	SZ	WCHAN	TTY	TIME	CMD
4	S	0	1	0	0	80	0	-	1117	poll_s	?	00:00:08	init
1	S	0	2	0	0	80	0	-	0	kthrea	?	00:00:00	kthreadd
1	S	0	3	2	0	80	0	-	0	smpboo	?	00:00:02	ksoftirqd/0
1	S	0	5	2	0	60	-20	-	0	worker	?	00:00:00	kworker/0:0H
1	S	0	7	2	0	80	0	-	0	rcu_gp	?	00:00:09	rcu_sched
1	S	0	8	2	0	80	0	-	0	rcu_gp	?	00:00:00	rcu_bh

1 S	0	9	2	0	-40	-	-	0 smpboo ?	00:00:00	migration/0
5 S	0	10	2	0	-40	-	-	0 smpboo ?	00:00:30	watchdog/0
5 S	0	11	2	0	-40	-	-	0 smpboo ?	00:00:03	watchdog/1
1 S	0	12	2	0	-40	-	-	0 smpboo ?	00:00:00	migration/1
1 S	0	13	2	0	80	0	-	0 smpboo ?	00:00:02	ksoftirqd/1
1 S	0	15	2	0	60	-20	-	0 worker ?	00:00:00	kworker/1:0H
1 S	0	16	2	0	60	-20	-	0 rescue ?	00:00:00	khelper
5 S	0	17	2	0	80	0	-	0 devtmp ?	00:00:00	kdevtmpfs
1 S	0	18	2	0	60	-20	-	0 rescue ?	00:00:00	netns
1 S	0	19	2	0	60	-20	-	0 rescue ?	00:00:00	writeback
1 S	0	20	2	0	60	-20	-	0 rescue ?	00:00:00	kintegrityd
1 S	0	21	2	0	60	-20	-	0 rescue ?	00:00:00	bioaset
1 S	0	22	2	0	60	-20	-	0 worker ?	00:00:00	kworker/u17
:0										
1 S	0	23	2	0	60	-20	-	0 rescue ?	00:00:00	kblockd
1 S	0	24	2	0	60	-20	-	0 rescue ?	00:00:00	ata_sff
1 S	0	25	2	0	80	0	-	0 hub_th ?	00:00:00	khubd
1 S	0	26	2	0	60	-20	-	0 rescue ?	00:00:00	md
1 S	0	27	2	0	60	-20	-	0 rescue ?	00:00:00	devfreq-wq
1 S	0	30	2	0	80	0	-	0 watchd ?	00:00:00	khungtaskd
1 S	0	31	2	0	80	0	-	0 kswapd ?	00:00:01	kswapd0
1 S	0	32	2	0	85	5	-	0 ksm_sc ?	00:00:00	ksmd
1 S	0	33	2	0	99	19	-	0 khugep ?	00:00:00	khugepaged
1 S	0	34	2	0	80	0	-	0 fsnoti ?	00:00:00	
fsnotify_mark										
1 S	0	35	2	0	80	0	-	0 ecrypt ?	00:00:00	ecryptfs-
kthre										
1 S	0	37	2	0	60	-20	-	0 rescue ?	00:00:00	crypto
1 S	0	49	2	0	60	-20	-	0 rescue ?	00:00:00	kthrotld
1 S	0	51	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_0
1 S	0	52	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_1
1 S	0	73	2	0	60	-20	-	0 rescue ?	00:00:00	deferwq
1 S	0	74	2	0	60	-20	-	0 rescue ?	00:00:00	
charger_manage										
1 S	0	75	2	0	80	0	-	0 worker ?	00:00:07	kworker/1:2
1 S	0	121	2	0	60	-20	-	0 rescue ?	00:00:00	mpt_poll_0
1 S	0	122	2	0	60	-20	-	0 rescue ?	00:00:00	mpt/0
1 S	0	130	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_2
1 S	0	131	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_3
1 S	0	132	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_4
1 S	0	133	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_5
1 S	0	134	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_6
1 S	0	135	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_7
1 S	0	136	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_8
1 S	0	137	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_9
1 S	0	138	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_10
1 S	0	139	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_11
1 S	0	140	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_12
1 S	0	141	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_13
1 S	0	142	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_14
1 S	0	143	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_15
1 S	0	144	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_16
1 S	0	145	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_17
1 S	0	146	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_18
1 S	0	147	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_19
1 S	0	148	2	0	80	0	-	0 scsi_e ?	00:00:00	scsi_eh_20

1 S	0	149	2	0	80	0	—	0	scsi_e ?	00:00:00	scsi_eh_21
1 S	0	150	2	0	80	0	—	0	scsi_e ?	00:00:00	scsi_eh_22
1 S	0	151	2	0	80	0	—	0	scsi_e ?	00:00:00	scsi_eh_23
1 S	0	152	2	0	80	0	—	0	scsi_e ?	00:00:00	scsi_eh_24
1 S	0	153	2	0	80	0	—	0	scsi_e ?	00:00:00	scsi_eh_25
1 S	0	154	2	0	80	0	—	0	scsi_e ?	00:00:00	scsi_eh_26
1 S	0	155	2	0	80	0	—	0	scsi_e ?	00:00:00	scsi_eh_27
1 S	0	156	2	0	80	0	—	0	scsi_e ?	00:00:00	scsi_eh_28
1 S	0	157	2	0	80	0	—	0	scsi_e ?	00:00:00	scsi_eh_29
1 S	0	158	2	0	80	0	—	0	scsi_e ?	00:00:00	scsi_eh_30
1 S	0	159	2	0	80	0	—	0	scsi_e ?	00:00:00	scsi_eh_31
1 S	0	188	2	0	60	−20	—	0	rescue ?	00:00:00	kpsmoused
1 S	0	189	2	0	80	0	—	0	scsi_e ?	00:00:00	scsi_eh_32
1 S	0	192	2	0	60	−20	—	0	worker ?	00:00:00	kworker/u17
:1											
1 S	0	205	2	0	80	0	—	0	kjourn ?	00:00:02	jbd2/sda1−8
1 S	0	206	2	0	60	−20	—	0	rescue ?	00:00:00	ext4−rsv−
conve											
1 S	0	349	1	0	80	0	—	786	poll_s ?	00:00:00	upstart−udev
−b											
5 S	0	360	1	0	80	0	—	3155	ep_pol ?	00:00:00	systemd−
udev											
1 S	0	440	1	0	80	0	—	721	poll_s ?	00:00:00	upstart−file
−b											
5 S	102	448	1	0	80	0	—	1271	ep_pol ?	00:00:01	dbus−daemon
5 S	101	452	1	0	80	0	—	7843	poll_s ?	00:00:05	rsyslogd
5 S	0	474	1	0	80	0	—	1220	poll_s ?	00:00:00	bluetoothd
4 S	0	483	1	0	80	0	—	1073	ep_pol ?	00:00:00	systemd−
logind											
5 S	111	486	1	0	80	0	—	869	poll_s ?	00:00:00	avahi−daemon
1 S	111	488	486	0	80	0	—	869	unix_s ?	00:00:00	avahi−daemon
5 S	0	510	2	0	70	−10	—	0	rfcomm ?	00:00:00	krfcomm
1 S	0	603	1	0	80	0	—	718	poll_s ?	00:00:00	upstart−
socket											
1 S	0	641	2	0	60	−20	—	0	rescue ?	00:00:00	ttn_swap
4 S	0	705	1	0	80	0	—	9596	poll_s ?	00:00:00	ModemManager
4 S	113	848	1	0	80	0	—	9638	poll_s ?	00:00:00	colord
4 S	0	867	1	0	80	0	—	1162	n_tty_ tty4	00:00:00	getty
5 S	0	871	1	0	80	0	—	13610	poll_s ?	00:00:01	
NetworkManager											
4 S	0	875	1	0	80	0	—	1162	n_tty_ tty5	00:00:00	getty
4 S	0	882	1	0	80	0	—	1162	n_tty_ tty2	00:00:00	getty
4 S	0	883	1	0	80	0	—	1162	n_tty_ tty3	00:00:00	getty
4 S	0	886	1	0	80	0	—	1162	n_tty_ tty6	00:00:00	getty
1 S	0	924	1	0	80	0	—	764	hrtime ?	00:00:00	cron
4 S	0	929	1	0	80	0	—	1949	poll_s ?	00:00:00	sshd
1 S	0	966	1	0	80	0	—	549	poll_s ?	00:00:01	acpid
5 S	0	986	1	0	80	0	—	1020	hrtime ?	00:00:21	irqbalance
4 S	0	1037	1	0	80	0	—	2213	poll_s ?	00:00:00	cups−browsed
4 S	0	1098	1	0	80	0	—	9201	poll_s ?	00:00:00	lightdm
4 S	0	1119	1	0	80	0	—	9440	poll_s ?	00:00:03	polkitd
4 R	0	1133	1098	4	80	0	—	42655	? tty7	00:15:18	Xorg
4 S	0	1142	1	0	80	0	—	1162	n_tty_ tty1	00:00:00	getty
1 S	109	1145	1	0	80	0	—	13506	poll_s ?	00:00:00	whoopsie
4 S	0	1153	1	0	80	0	—	9524	poll_s ?	00:00:01	accounts−
daemon											

4 S	0	1341	871	0	80	0 -	1379	poll_s	?	00:00:00	dhclient
1 S	0	1392	1	0	80	0 -	10618	futex_	?	00:00:00	vmware-
vmblock											
4 S	0	1410	1	0	80	0 -	9134	poll_s	?	00:00:57	vmtoolsd
1 S	0	1503	2	0	80	0 -	0	kaudit	?	00:00:00	kauditd
4 S	65534	1513	871	0	80	0 -	1388	poll_s	?	00:00:00	dnsmasq
4 S	0	1718	1098	0	80	0 -	4456	wait	?	00:00:00	lightdm
4 S	0	1766	1	0	80	0 -	9456	poll_s	?	00:00:00	upowerd
4 S	107	1927	1	0	81	1 -	5341	poll_s	?	00:00:56	rtkit-daemon
1 S	1000	2075	1	0	80	0 -	12103	poll_s	?	00:00:00	gnome-
keyring-											
4 S	1000	2105	1718	0	80	0 -	1536	poll_s	?	00:00:01	init
1 S	1000	2178	2105	0	80	0 -	1053	poll_s	?	00:00:00	ssh-agent
1 S	1000	2180	2105	0	80	0 -	1521	ep_pol	?	00:00:05	dbus-daemon
0 S	1000	2189	2105	0	80	0 -	1229	poll_s	?	00:00:00	upstart-
event-											
0 S	1000	2196	2105	0	80	0 -	9865	poll_s	?	00:00:00	window-stack
-b											
1 S	1000	2205	2105	0	80	0 -	12102	poll_s	?	00:00:28	ibus-daemon
0 S	1000	2217	2105	0	80	0 -	6937	poll_s	?	00:00:01	gvfsd
0 S	1000	2224	2205	0	80	0 -	9721	poll_s	?	00:00:00	ibus-dconf
0 S	1000	2225	2105	0	80	0 -	11245	futex_	?	00:00:00	gvfsd-fuse
0 S	1000	2232	2205	0	80	0 -	29525	poll_s	?	00:00:09	ibus-ui-gtk3
0 S	1000	2234	2105	0	80	0 -	12927	poll_s	?	00:00:00	ibus-x11
1 S	1000	2241	2105	0	80	0 -	1230	poll_s	?	00:00:01	upstart-dbus
-b											
0 S	1000	2244	2105	0	80	0 -	39010	poll_s	?	00:00:03	unity-
settings											
0 S	1000	2246	2105	0	80	0 -	11575	poll_s	?	00:00:00	at-spi-bus-
lau											
0 S	1000	2250	2105	0	80	0 -	31171	poll_s	?	00:00:10	hud-service
0 S	1000	2256	2246	0	80	0 -	1124	ep_pol	?	00:00:00	dbus-daemon
0 S	1000	2259	2105	0	80	0 -	4341	poll_s	?	00:00:00	at-spi2-
regist											
0 S	1000	2268	2105	0	80	0 -	22125	poll_s	?	00:00:04	gnome-
session											
0 S	1000	2271	2105	0	80	0 -	29808	poll_s	?	00:00:10	unity-panel-
se											
1 S	1000	2287	2105	0	80	0 -	1230	poll_s	?	00:00:00	upstart-dbus
-b											
1 S	1000	2291	2105	0	80	0 -	1300	poll_s	?	00:00:00	upstart-file
-b											
0 S	1000	2303	2205	0	80	0 -	7395	poll_s	?	00:00:07	ibus-engine-
si											
0 S	1000	2333	2105	0	80	0 -	30679	poll_s	?	00:00:10	bamfdaemon
0 S	1000	2369	2105	0	80	0 -	35790	poll_s	?	00:00:01	indicator-
keyb											
0 S	1000	2371	2105	0	80	0 -	11751	poll_s	?	00:00:00	indicator-
mess											
0 S	1000	2372	2105	0	80	0 -	9724	poll_s	?	00:00:00	indicator-
blue											
0 S	1000	2375	2105	0	80	0 -	9720	poll_s	?	00:00:00	indicator-
powe											
0 S	1000	2378	2105	0	80	0 -	25294	poll_s	?	00:00:01	indicator-
date											

0	S	1000	2379	2105	0	80	0	—	29622	poll_s	?	00:00:00	indicator—
soun													
0	S	1000	2381	2105	0	80	0	—	14440	poll_s	?	00:00:00	indicator—
prin													
0	S	1000	2388	2105	0	80	0	—	6128	poll_s	?	00:00:00	dconf—
service													
0	S	1000	2396	2105	0	80	0	—	15936	poll_s	?	00:00:00	indicator—
sess													
0	S	1000	2399	2105	0	80	0	—	11899	poll_s	?	00:00:00	indicator—
appl													
0	S	1000	2406	2105	0	80	0	—	22586	poll_s	?	00:00:00	evolution—
sour													
1	S	1000	2434	2105	0	80	0	—	25016	poll_s	?	00:00:00	pulseaudio
0	S	1000	2467	2105	0	80	0	—	11189	poll_s	?	00:00:07	notify-osd
0	S	1000	2477	2268	1	80	0	—	75397	poll_s	?	00:03:35	compiz
0	S	1000	2546	2105	0	80	0	—	32489	poll_s	?	00:00:01	evolution—
cale													
0	S	1000	2549	2268	0	80	0	—	11065	poll_s	?	00:00:01	polkit-gnome
—a													
0	S	1000	2552	2268	0	80	0	—	56752	poll_s	?	00:00:22	nautilus
0	S	1000	2555	2268	0	80	0	—	13317	poll_s	?	00:00:07	unity—
fallback													
0	S	1000	2561	2105	0	80	0	—	20830	poll_s	?	00:01:06	vmtoolsd
0	S	1000	2562	2268	0	80	0	—	45678	poll_s	?	00:00:05	nm-applet
0	S	1000	2579	2105	0	80	0	—	10052	poll_s	?	00:00:00	gvfs-udisks2
—v													
4	S	0	2586	1	0	80	0	—	13549	poll_s	?	00:00:01	udisksd
0	S	1000	2592	2105	0	80	0	—	2398	poll_s	?	00:00:00	gconfd-2
0	S	1000	2601	2105	0	80	0	—	6798	poll_s	?	00:00:00	gvfs-mtp—
volum													
0	S	1000	2605	2105	0	80	0	—	9841	poll_s	?	00:00:00	gvfs-afc—
volum													
0	S	1000	2610	2105	0	80	0	—	7076	poll_s	?	00:00:00	gvfs-gphoto2
—v													
0	S	1000	2622	2105	0	80	0	—	13974	poll_s	?	00:00:00	gvfsd-trash
0	S	1000	2628	2105	0	80	0	—	9243	poll_s	?	00:00:00	gvfsd-burn
0	S	1000	2644	2105	0	80	0	—	4511	poll_s	?	00:00:00	gvfsd—
metadata													
0	S	1000	2709	2268	0	80	0	—	20850	poll_s	?	00:00:02	telepathy—
indi													
0	S	1000	2716	2105	0	80	0	—	11402	poll_s	?	00:00:00	mission—
contro													
0	S	1000	2725	2268	0	80	0	—	19528	poll_s	?	00:00:01	zeitgeist—
data													
0	S	1000	2730	2105	0	80	0	—	11563	poll_s	?	00:00:03	zeitgeist—
daem													
0	S	1000	2738	2105	0	80	0	—	14622	poll_s	?	00:00:03	zeitgeist—
fts													
0	S	1000	2754	2738	0	80	0	—	1062	unix_s	?	00:00:00	cat
0	S	1000	2790	2268	0	80	0	—	31463	poll_s	?	00:00:02	update—
notifie													
0	S	1000	2812	2105	0	90	10	—	49143	poll_s	?	00:00:09	update—
manager													
0	S	1000	2840	2268	0	80	0	—	12133	poll_s	?	00:00:00	deja-dup—
monit													
4	S	0	3296	1	0	80	0	—	2076	ep-pol	?	00:00:00	cupsd

4 S	7	3299	3296	0	80	0	—	1736	pipe_w	?	00:00:00	dbus
4 S	0	3335	1	0	80	0	—	3304	hrtime	?	00:00:05	tpvmlp
1 S	0	6240	2	0	80	0	—	0	worker	?	00:00:00	kworker/u16
:2												
1 S	0	6500	2	0	80	0	—	0	worker	?	00:00:00	kworker/0:1
1 S	0	6548	2	0	80	0	—	0	worker	?	00:00:00	kworker/1:0
1 S	0	6549	2	0	80	0	—	0	worker	?	00:00:00	kworker/0:0
1 S	0	6667	2	0	80	0	—	0	worker	?	00:00:00	kworker/u16
:3												
0 S	1000	6761	2105	0	80	0	—	34280	poll_s	?	00:00:03	gnome—
terminal												
0 S	1000	6770	6761	0	80	0	—	605	unix_s	?	00:00:00	gnome—pty—
help												
0 S	1000	6771	6761	0	80	0	—	1753	wait	pts/1	00:00:00	bash
1 S	0	6823	2	0	80	0	—	0	worker	?	00:00:00	kworker/u16
:0												
1 S	0	7172	2	0	80	0	—	0	worker	?	00:00:00	kworker/u16
:1												
0 R	1000	7186	6771	0	80	0	—	1247	—	pts/1	00:00:00	ps

Appendix B

Resultater fra DFS listing

B.1 DFS

```
[ 5647.241754] Removing Module
[ 5664.686377] Loading Module
[ 5664.686383] init: State is 1 and process id is 1
[ 5664.686386] upstart-udev-br: State is 1 and process id is 474
[ 5664.686388] systemd-udev: State is 0 and process id is 483
[ 5664.686390] upstart-file-br: State is 1 and process id is 617
[ 5664.686392] dbus-daemon: State is 1 and process id is 632
[ 5664.686394] rsyslogd: State is 1 and process id is 678
[ 5664.686395] bluetoothd: State is 1 and process id is 697
[ 5664.686442] systemd-logind: State is 1 and process id is 713
[ 5664.686445] avahi-daemon: State is 1 and process id is 786
[ 5664.686447] avahi-daemon: State is 1 and process id is 792
[ 5664.686449] ModemManager: State is 1 and process id is 819
[ 5664.686451] upstart-socket-: State is 1 and process id is 844
[ 5664.686452] NetworkManager: State is 1 and process id is 923
[ 5664.686454] dhclient: State is 1 and process id is 1000
[ 5664.686456] dnsmasq: State is 1 and process id is 1490
[ 5664.686458] getty: State is 1 and process id is 968
[ 5664.686460] polkitd: State is 1 and process id is 935
[ 5664.686461] getty: State is 1 and process id is 974
[ 5664.686463] getty: State is 1 and process id is 980
[ 5664.686465] getty: State is 1 and process id is 982
[ 5664.686466] getty: State is 1 and process id is 985
[ 5664.686468] kerneloops: State is 1 and process id is 1040
[ 5664.686470] lightdm: State is 1 and process id is 1053
[ 5664.686471] Xorg: State is 1 and process id is 1142
[ 5664.686473] lightdm: State is 1 and process id is 1715
[ 5664.686475] init: State is 1 and process id is 2730
[ 5664.686476] ssh-agent: State is 1 and process id is 2801
[ 5664.686478] dbus-daemon: State is 1 and process id is 2807
[ 5664.686480] upstart-event-b: State is 1 and process id is 2815
[ 5664.686481] window-stack-br: State is 1 and process id is 2819
[ 5664.686483] ibus-daemon: State is 1 and process id is 2820
[ 5664.686484] ibus-dconf: State is 1 and process id is 2851
[ 5664.686486] ibus-ui-gtk3: State is 1 and process id is 2854
[ 5664.686487] ibus-engine-sim: State is 1 and process id is 2914
[ 5664.686489] upstart-file-br: State is 1 and process id is 2829
[ 5664.686491] unity-settings -: State is 1 and process id is 2836
[ 5664.686493] gvfsd: State is 1 and process id is 2835
```

[5664.686494] gvfsd-fuse: State is 1 and process id is 2842
 [5664.686496] hud-service: State is 1 and process id is 2845
 [5664.686497] at-spi-bus-laun: State is 1 and process id is 2849
 [5664.686499] dbus-daemon: State is 1 and process id is 2862
 [5664.686501] gnome-session: State is 1 and process id is 2858
 [5664.686502] compiz: State is 0 and process id is 3039
 [5664.686504] nm-applet: State is 1 and process id is 3077
 [5664.686506] polkit-gnome-au: State is 1 and process id is 3078
 [5664.686507] nautilus: State is 1 and process id is 3080
 [5664.686509] unity-fallback -: State is 1 and process id is 3081
 [5664.686511] telepathy-indic: State is 1 and process id is 3294
 [5664.686512] zeitgeist-datah: State is 1 and process id is 3317
 [5664.686514] update-notifier: State is 1 and process id is 3374
 [5664.686515] deja-dup-monito: State is 1 and process id is 3426
 [5664.686517] unity-panel-ser: State is 1 and process id is 2864
 [5664.686519] ibus-x11: State is 1 and process id is 2865
 [5664.686536] upstart-dbus-br: State is 1 and process id is 2870
 [5664.686538] at-spi2-registr: State is 1 and process id is 2872
 [5664.686540] upstart-dbus-br: State is 1 and process id is 2892
 [5664.686542] bamfdaemon: State is 1 and process id is 2907
 [5664.686544] indicator-messa: State is 1 and process id is 2922
 [5664.686545] indicator-bluet: State is 1 and process id is 2924
 [5664.686547] indicator-power: State is 1 and process id is 2931
 [5664.686548] indicator-datet: State is 1 and process id is 2934
 [5664.686550] indicator-sound: State is 1 and process id is 2937
 [5664.686552] indicator-print: State is 1 and process id is 2946
 [5664.686553] indicator-sessi: State is 1 and process id is 2950
 [5664.686555] indicator-appli: State is 1 and process id is 2952
 [5664.686556] dconf-service: State is 1 and process id is 2958
 [5664.686558] pulseaudio: State is 1 and process id is 2997
 [5664.686560] evolution-sourc: State is 1 and process id is 2976
 [5664.686561] indicator-keybo: State is 1 and process id is 2921
 [5664.686563] vmttoolsd: State is 1 and process id is 3086
 [5664.686565] notify-osd: State is 1 and process id is 3032
 [5664.686592] evolution-calen: State is 1 and process id is 3049
 [5664.686595] gconfd-2: State is 1 and process id is 3193
 [5664.686597] gvfs-udisks2-vo: State is 1 and process id is 3145
 [5664.686598] gvfs-gphoto2-vo: State is 1 and process id is 3203
 [5664.686600] gvfs-afc-volume: State is 1 and process id is 3209
 [5664.686602] gvfs-mtp-volume: State is 1 and process id is 3214
 [5664.686603] gvfsd-trash: State is 1 and process id is 3231
 [5664.686605] gvfsd-burn: State is 1 and process id is 3261
 [5664.686607] gvfsd-metadata: State is 1 and process id is 3282
 [5664.686608] mission-control: State is 1 and process id is 3303
 [5664.686610] zeitgeist-daemo: State is 1 and process id is 3322
 [5664.686612] zeitgeist-fts: State is 1 and process id is 3328
 [5664.686613] cat: State is 1 and process id is 3332
 [5664.686615] unity-scope-hom: State is 1 and process id is 3524
 [5664.686616] unity-files-dae: State is 1 and process id is 3538
 [5664.686618] unity-music-dae: State is 1 and process id is 3565
 [5664.686620] unity-scope-loa: State is 1 and process id is 3539
 [5664.686622] gnome-terminal: State is 1 and process id is 3582
 [5664.686623] gnome-pty-helpe: State is 1 and process id is 3590
 [5664.686625] bash: State is 1 and process id is 3591
 [5664.686626] bash: State is 1 and process id is 3706
 [5664.686628] sudo: State is 1 and process id is 5713

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[ 5664.686629] insmod: State is 0 and process id is 5714
[ 5664.686631] gvfsd-http: State is 1 and process id is 4373
[ 5664.686633] cron: State is 1 and process id is 1045
[ 5664.686634] irqbalance: State is 1 and process id is 1091
[ 5664.686636] cups-browsed: State is 1 and process id is 1191
[ 5664.686638] whoopsie: State is 1 and process id is 1198
[ 5664.686639] getty: State is 1 and process id is 1234
[ 5664.686641] accounts-daemon: State is 1 and process id is 1154
[ 5664.686642] acpid: State is 1 and process id is 1248
[ 5664.686644] vmware-vmblock-: State is 1 and process id is 1432
[ 5664.686645] vmtotalsd: State is 1 and process id is 1460
[ 5664.686647] upowerd: State is 1 and process id is 1738
[ 5664.686649] rtkit-daemon: State is 1 and process id is 1779
[ 5664.686650] colord: State is 1 and process id is 1982
[ 5664.686652] cupsd: State is 1 and process id is 2519
[ 5664.686653] tpmvmlp: State is 1 and process id is 2557
[ 5664.686655] gnome-keyring-d: State is 1 and process id is 2725
[ 5664.686656] udisksd: State is 1 and process id is 3155
[ 5664.686658] kthreadd: State is 1 and process id is 2
[ 5664.686659] ksoftirqd/0: State is 1 and process id is 3
[ 5664.686661] kworker/0:0H: State is 1 and process id is 5
[ 5664.686662] rcu_sched: State is 1 and process id is 7
[ 5664.686664] rcuos/0: State is 1 and process id is 8
[ 5664.686665] rcuos/1: State is 1 and process id is 9
[ 5664.686667] rcuos/2: State is 1 and process id is 10
[ 5664.686669] rcuos/3: State is 1 and process id is 11
[ 5664.686703] rcuos/4: State is 1 and process id is 12
[ 5664.686707] rcuos/5: State is 1 and process id is 13
[ 5664.686709] rcuos/6: State is 1 and process id is 14
[ 5664.686711] rcuos/7: State is 1 and process id is 15
[ 5664.686713] rcuos/8: State is 1 and process id is 16
[ 5664.686714] rcuos/9: State is 1 and process id is 17
[ 5664.686716] rcuos/10: State is 1 and process id is 18
[ 5664.686718] rcuos/11: State is 1 and process id is 19
[ 5664.686719] rcuos/12: State is 1 and process id is 20
[ 5664.686721] rcuos/13: State is 1 and process id is 21
[ 5664.686722] rcuos/14: State is 1 and process id is 22
[ 5664.686724] rcuos/15: State is 1 and process id is 23
[ 5664.686725] rcuos/16: State is 1 and process id is 24
[ 5664.686727] rcuos/17: State is 1 and process id is 25
[ 5664.686728] rcuos/18: State is 1 and process id is 26
[ 5664.686730] rcuos/19: State is 1 and process id is 27
[ 5664.686732] rcuos/20: State is 1 and process id is 28
[ 5664.686733] rcuos/21: State is 1 and process id is 29
[ 5664.686735] rcuos/22: State is 1 and process id is 30
[ 5664.686736] rcuos/23: State is 1 and process id is 31
[ 5664.686738] rcuos/24: State is 1 and process id is 32
[ 5664.686739] rcuos/25: State is 1 and process id is 33
[ 5664.686741] rcuos/26: State is 1 and process id is 34
[ 5664.686742] rcuos/27: State is 1 and process id is 35
[ 5664.686744] rcuos/28: State is 1 and process id is 36
[ 5664.686745] rcuos/29: State is 1 and process id is 37
[ 5664.686747] rcuos/30: State is 1 and process id is 38
[ 5664.686748] rcuos/31: State is 1 and process id is 39
[ 5664.686750] rcuos/32: State is 1 and process id is 40
[ 5664.686751] rcuos/33: State is 1 and process id is 41

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[ 5664.686753] rcuos/34: State is 1 and process id is 42
[ 5664.686754] rcuos/35: State is 1 and process id is 43
[ 5664.686756] rcuos/36: State is 1 and process id is 44
[ 5664.686757] rcuos/37: State is 1 and process id is 45
[ 5664.686759] rcuos/38: State is 1 and process id is 46
[ 5664.686760] rcuos/39: State is 1 and process id is 47
[ 5664.686762] rcuos/40: State is 1 and process id is 48
[ 5664.686763] rcuos/41: State is 1 and process id is 49
[ 5664.686765] rcuos/42: State is 1 and process id is 50
[ 5664.686766] rcuos/43: State is 1 and process id is 51
[ 5664.686768] rcuos/44: State is 1 and process id is 52
[ 5664.686769] rcuos/45: State is 1 and process id is 53
[ 5664.686771] rcuos/46: State is 1 and process id is 54
[ 5664.686772] rcuos/47: State is 1 and process id is 55
[ 5664.686774] rcuos/48: State is 1 and process id is 56
[ 5664.686775] rcuos/49: State is 1 and process id is 57
[ 5664.686776] rcuos/50: State is 1 and process id is 58
[ 5664.686778] rcuos/51: State is 1 and process id is 59
[ 5664.686779] rcuos/52: State is 1 and process id is 60
[ 5664.686781] rcuos/53: State is 1 and process id is 61
[ 5664.686782] rcuos/54: State is 1 and process id is 62
[ 5664.686784] rcuos/55: State is 1 and process id is 63
[ 5664.686785] rcuos/56: State is 1 and process id is 64
[ 5664.686787] rcuos/57: State is 1 and process id is 65
[ 5664.686788] rcuos/58: State is 1 and process id is 66
[ 5664.686790] rcuos/59: State is 1 and process id is 67
[ 5664.686791] rcuos/60: State is 1 and process id is 68
[ 5664.686793] rcuos/61: State is 1 and process id is 69
[ 5664.686794] rcuos/62: State is 1 and process id is 70
[ 5664.686796] rcuos/63: State is 1 and process id is 71
[ 5664.686797] rcu_bh: State is 1 and process id is 72
[ 5664.686799] rcuob/0: State is 1 and process id is 73
[ 5664.686800] rcuob/1: State is 1 and process id is 74
[ 5664.686802] rcuob/2: State is 1 and process id is 75
[ 5664.686803] rcuob/3: State is 1 and process id is 76
[ 5664.686805] rcuob/4: State is 1 and process id is 77
[ 5664.686806] rcuob/5: State is 1 and process id is 78
[ 5664.686808] rcuob/6: State is 1 and process id is 79
[ 5664.686809] rcuob/7: State is 1 and process id is 80
[ 5664.686811] rcuob/8: State is 1 and process id is 81
[ 5664.686812] rcuob/9: State is 1 and process id is 82
[ 5664.686814] rcuob/10: State is 1 and process id is 83
[ 5664.686815] rcuob/11: State is 1 and process id is 84
[ 5664.686824] rcuob/12: State is 1 and process id is 85
[ 5664.686826] rcuob/13: State is 1 and process id is 86
[ 5664.686827] rcuob/14: State is 1 and process id is 87
[ 5664.686829] rcuob/15: State is 1 and process id is 88
[ 5664.686830] rcuob/16: State is 1 and process id is 89
[ 5664.686831] rcuob/17: State is 1 and process id is 90
[ 5664.686833] rcuob/18: State is 1 and process id is 91
[ 5664.686834] rcuob/19: State is 1 and process id is 92
[ 5664.686836] rcuob/20: State is 1 and process id is 93
[ 5664.686837] rcuob/21: State is 1 and process id is 94
[ 5664.686839] rcuob/22: State is 1 and process id is 95
[ 5664.686840] rcuob/23: State is 1 and process id is 96
[ 5664.686842] rcuob/24: State is 1 and process id is 97

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[5664.686843] rcuob/25: State is 1 and process id is 98
 [5664.686845] rcuob/26: State is 1 and process id is 99
 [5664.686881] rcuob/27: State is 1 and process id is 100
 [5664.686935] rcuob/28: State is 1 and process id is 101
 [5664.686937] rcuob/29: State is 1 and process id is 102
 [5664.686939] rcuob/30: State is 1 and process id is 103
 [5664.686940] rcuob/31: State is 1 and process id is 104
 [5664.686942] rcuob/32: State is 1 and process id is 105
 [5664.686943] rcuob/33: State is 1 and process id is 106
 [5664.686945] rcuob/34: State is 1 and process id is 107
 [5664.686946] rcuob/35: State is 1 and process id is 108
 [5664.686947] rcuob/36: State is 1 and process id is 109
 [5664.686949] rcuob/37: State is 1 and process id is 110
 [5664.686950] rcuob/38: State is 1 and process id is 111
 [5664.686952] rcuob/39: State is 1 and process id is 112
 [5664.686953] rcuob/40: State is 1 and process id is 113
 [5664.686955] rcuob/41: State is 1 and process id is 114
 [5664.686956] rcuob/42: State is 1 and process id is 115
 [5664.686958] rcuob/43: State is 1 and process id is 116
 [5664.686959] rcuob/44: State is 1 and process id is 117
 [5664.686960] rcuob/45: State is 1 and process id is 118
 [5664.686962] rcuob/46: State is 1 and process id is 119
 [5664.686963] rcuob/47: State is 1 and process id is 120
 [5664.686965] rcuob/48: State is 1 and process id is 121
 [5664.686966] rcuob/49: State is 1 and process id is 122
 [5664.686968] rcuob/50: State is 1 and process id is 123
 [5664.686969] rcuob/51: State is 1 and process id is 124
 [5664.686970] rcuob/52: State is 1 and process id is 125
 [5664.686972] rcuob/53: State is 1 and process id is 126
 [5664.686973] rcuob/54: State is 1 and process id is 127
 [5664.686975] rcuob/55: State is 1 and process id is 128
 [5664.686976] rcuob/56: State is 1 and process id is 129
 [5664.686978] rcuob/57: State is 1 and process id is 130
 [5664.686979] rcuob/58: State is 1 and process id is 131
 [5664.686981] rcuob/59: State is 1 and process id is 132
 [5664.686982] rcuob/60: State is 1 and process id is 133
 [5664.686984] rcuob/61: State is 1 and process id is 134
 [5664.686985] rcuob/62: State is 1 and process id is 135
 [5664.686987] rcuob/63: State is 1 and process id is 136
 [5664.686988] migration/0: State is 1 and process id is 137
 [5664.686990] watchdog/0: State is 1 and process id is 138
 [5664.686991] watchdog/1: State is 1 and process id is 139
 [5664.686993] migration/1: State is 1 and process id is 140
 [5664.686994] ksoftirqd/1: State is 1 and process id is 141
 [5664.686996] kworker/1:0: State is 1 and process id is 142
 [5664.686998] kworker/1:0H: State is 1 and process id is 143
 [5664.686999] khelper: State is 1 and process id is 144
 [5664.687001] kdevtmpfs: State is 1 and process id is 145
 [5664.687003] netns: State is 1 and process id is 146
 [5664.687004] writeback: State is 1 and process id is 147
 [5664.687006] kintegrityd: State is 1 and process id is 148
 [5664.687007] bioset: State is 1 and process id is 149
 [5664.687009] kworker/u129:0: State is 1 and process id is 150
 [5664.687010] kblockd: State is 1 and process id is 151
 [5664.687012] ata_sff: State is 1 and process id is 152
 [5664.687014] khubd: State is 1 and process id is 153

[5664.687015] md: State is 1 and process id is 154
 [5664.687017] devfreq_wq: State is 1 and process id is 155
 [5664.687018] kworker/0:1: State is 1 and process id is 157
 [5664.687020] khungtaskd: State is 1 and process id is 159
 [5664.687022] kswapd0: State is 1 and process id is 160
 [5664.687023] ksmd: State is 1 and process id is 161
 [5664.687025] khugepaged: State is 1 and process id is 162
 [5664.687026] fsnotify_mark: State is 1 and process id is 163
 [5664.687028] ecryptfs-kthrea: State is 1 and process id is 164
 [5664.687030] crypto: State is 1 and process id is 165
 [5664.687031] kthrotld: State is 1 and process id is 177
 [5664.687033] scsi_eh_0: State is 1 and process id is 179
 [5664.687034] scsi_eh_1: State is 1 and process id is 180
 [5664.687036] deferwq: State is 1 and process id is 201
 [5664.687064] charger_manager: State is 1 and process id is 202
 [5664.687067] kworker/1:2: State is 1 and process id is 203
 [5664.687068] mpt_poll_0: State is 1 and process id is 255
 [5664.687070] mpt/0: State is 1 and process id is 257
 [5664.687071] scsi_eh_2: State is 1 and process id is 258
 [5664.687073] kpsmoused: State is 1 and process id is 259
 [5664.687075] scsi_eh_3: State is 1 and process id is 260
 [5664.687076] scsi_eh_4: State is 1 and process id is 261
 [5664.687078] scsi_eh_5: State is 1 and process id is 262
 [5664.687079] scsi_eh_6: State is 1 and process id is 263
 [5664.687080] scsi_eh_7: State is 1 and process id is 264
 [5664.687082] scsi_eh_8: State is 1 and process id is 265
 [5664.687084] scsi_eh_9: State is 1 and process id is 266
 [5664.687085] scsi_eh_10: State is 1 and process id is 267
 [5664.687087] scsi_eh_11: State is 1 and process id is 268
 [5664.687088] scsi_eh_12: State is 1 and process id is 269
 [5664.687090] scsi_eh_13: State is 1 and process id is 270
 [5664.687092] scsi_eh_14: State is 1 and process id is 271
 [5664.687093] scsi_eh_15: State is 1 and process id is 272
 [5664.687095] scsi_eh_16: State is 1 and process id is 273
 [5664.687096] scsi_eh_17: State is 1 and process id is 274
 [5664.687098] scsi_eh_18: State is 1 and process id is 275
 [5664.687099] scsi_eh_19: State is 1 and process id is 276
 [5664.687101] scsi_eh_20: State is 1 and process id is 277
 [5664.687103] scsi_eh_21: State is 1 and process id is 278
 [5664.687104] scsi_eh_22: State is 1 and process id is 279
 [5664.687105] scsi_eh_23: State is 1 and process id is 280
 [5664.687107] scsi_eh_24: State is 1 and process id is 281
 [5664.687109] scsi_eh_25: State is 1 and process id is 282
 [5664.687110] scsi_eh_26: State is 1 and process id is 283
 [5664.687111] scsi_eh_27: State is 1 and process id is 284
 [5664.687113] scsi_eh_28: State is 1 and process id is 285
 [5664.687115] scsi_eh_29: State is 1 and process id is 286
 [5664.687116] scsi_eh_30: State is 1 and process id is 287
 [5664.687118] scsi_eh_31: State is 1 and process id is 288
 [5664.687119] scsi_eh_32: State is 1 and process id is 317
 [5664.687121] kworker/0:2: State is 1 and process id is 318
 [5664.687122] jbd2/sda1-8: State is 1 and process id is 332
 [5664.687124] ext4-rsv-conver: State is 1 and process id is 333
 [5664.687126] ttm_swap: State is 1 and process id is 560
 [5664.687127] krfcommmd: State is 1 and process id is 734
 [5664.687129] kauditd: State is 1 and process id is 1440

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[ 5664.687131] kworker/u128:3: State is 1 and process id is 3925
[ 5664.687133] kworker/u128:2: State is 1 and process id is 5416
[ 5664.687134] kworker/u128:1: State is 1 and process id is 5626
[ 5664.687136] kworker/u128:0: State is 1 and process id is 5658
```

B.2 PS

PPID	PID	PGID	SID	TTY	TPGID	STAT	UID	TIME	COMMAND
0	2	0	0	?	-1	S	0	0:00	[kthreadd]
2	3	0	0	?	-1	S	0	0:00	\- [ksoftirqd/0]
2	5	0	0	?	-1	S<	0	0:00	\- [kworker/0:0H]
2	7	0	0	?	-1	S	0	0:01	\- [rcu_sched]
2	8	0	0	?	-1	S	0	0:00	\- [rcuos/0]
2	9	0	0	?	-1	S	0	0:00	\- [rcuos/1]
2	10	0	0	?	-1	S	0	0:00	\- [rcuos/2]
2	11	0	0	?	-1	S	0	0:00	\- [rcuos/3]
2	12	0	0	?	-1	S	0	0:00	\- [rcuos/4]
2	13	0	0	?	-1	S	0	0:00	\- [rcuos/5]
2	14	0	0	?	-1	S	0	0:00	\- [rcuos/6]
2	15	0	0	?	-1	S	0	0:00	\- [rcuos/7]
2	16	0	0	?	-1	S	0	0:00	\- [rcuos/8]
2	17	0	0	?	-1	S	0	0:00	\- [rcuos/9]
2	18	0	0	?	-1	S	0	0:00	\- [rcuos/10]
2	19	0	0	?	-1	S	0	0:00	\- [rcuos/11]
2	20	0	0	?	-1	S	0	0:00	\- [rcuos/12]
2	21	0	0	?	-1	S	0	0:00	\- [rcuos/13]
2	22	0	0	?	-1	S	0	0:00	\- [rcuos/14]
2	23	0	0	?	-1	S	0	0:00	\- [rcuos/15]
2	24	0	0	?	-1	S	0	0:00	\- [rcuos/16]
2	25	0	0	?	-1	S	0	0:00	\- [rcuos/17]
2	26	0	0	?	-1	S	0	0:00	\- [rcuos/18]
2	27	0	0	?	-1	S	0	0:00	\- [rcuos/19]
2	28	0	0	?	-1	S	0	0:00	\- [rcuos/20]
2	29	0	0	?	-1	S	0	0:00	\- [rcuos/21]
2	30	0	0	?	-1	S	0	0:00	\- [rcuos/22]
2	31	0	0	?	-1	S	0	0:00	\- [rcuos/23]
2	32	0	0	?	-1	S	0	0:00	\- [rcuos/24]
2	33	0	0	?	-1	S	0	0:00	\- [rcuos/25]
2	34	0	0	?	-1	S	0	0:00	\- [rcuos/26]
2	35	0	0	?	-1	S	0	0:00	\- [rcuos/27]
2	36	0	0	?	-1	S	0	0:00	\- [rcuos/28]
2	37	0	0	?	-1	S	0	0:00	\- [rcuos/29]
2	38	0	0	?	-1	S	0	0:00	\- [rcuos/30]
2	39	0	0	?	-1	S	0	0:00	\- [rcuos/31]
2	40	0	0	?	-1	S	0	0:00	\- [rcuos/32]
2	41	0	0	?	-1	S	0	0:00	\- [rcuos/33]
2	42	0	0	?	-1	S	0	0:00	\- [rcuos/34]
2	43	0	0	?	-1	S	0	0:00	\- [rcuos/35]
2	44	0	0	?	-1	S	0	0:00	\- [rcuos/36]
2	45	0	0	?	-1	S	0	0:00	\- [rcuos/37]
2	46	0	0	?	-1	S	0	0:00	\- [rcuos/38]
2	47	0	0	?	-1	S	0	0:00	\- [rcuos/39]
2	48	0	0	?	-1	S	0	0:00	\- [rcuos/40]
2	49	0	0	?	-1	S	0	0:00	\- [rcuos/41]
2	50	0	0	?	-1	S	0	0:00	\- [rcuos/42]
2	51	0	0	?	-1	S	0	0:00	\- [rcuos/43]

2	52	0	0 ?	-1 S	0	0:00	\-	[rcuos/44]
2	53	0	0 ?	-1 S	0	0:00	\-	[rcuos/45]
2	54	0	0 ?	-1 S	0	0:00	\-	[rcuos/46]
2	55	0	0 ?	-1 S	0	0:00	\-	[rcuos/47]
2	56	0	0 ?	-1 S	0	0:00	\-	[rcuos/48]
2	57	0	0 ?	-1 S	0	0:00	\-	[rcuos/49]
2	58	0	0 ?	-1 S	0	0:00	\-	[rcuos/50]
2	59	0	0 ?	-1 S	0	0:00	\-	[rcuos/51]
2	60	0	0 ?	-1 S	0	0:00	\-	[rcuos/52]
2	61	0	0 ?	-1 S	0	0:00	\-	[rcuos/53]
2	62	0	0 ?	-1 S	0	0:00	\-	[rcuos/54]
2	63	0	0 ?	-1 S	0	0:00	\-	[rcuos/55]
2	64	0	0 ?	-1 S	0	0:00	\-	[rcuos/56]
2	65	0	0 ?	-1 S	0	0:00	\-	[rcuos/57]
2	66	0	0 ?	-1 S	0	0:00	\-	[rcuos/58]
2	67	0	0 ?	-1 S	0	0:00	\-	[rcuos/59]
2	68	0	0 ?	-1 S	0	0:00	\-	[rcuos/60]
2	69	0	0 ?	-1 S	0	0:00	\-	[rcuos/61]
2	70	0	0 ?	-1 S	0	0:00	\-	[rcuos/62]
2	71	0	0 ?	-1 S	0	0:00	\-	[rcuos/63]
2	72	0	0 ?	-1 S	0	0:00	\-	[rcu_bh]
2	73	0	0 ?	-1 S	0	0:00	\-	[rcuob/0]
2	74	0	0 ?	-1 S	0	0:00	\-	[rcuob/1]
2	75	0	0 ?	-1 S	0	0:00	\-	[rcuob/2]
2	76	0	0 ?	-1 S	0	0:00	\-	[rcuob/3]
2	77	0	0 ?	-1 S	0	0:00	\-	[rcuob/4]
2	78	0	0 ?	-1 S	0	0:00	\-	[rcuob/5]
2	79	0	0 ?	-1 S	0	0:00	\-	[rcuob/6]
2	80	0	0 ?	-1 S	0	0:00	\-	[rcuob/7]
2	81	0	0 ?	-1 S	0	0:00	\-	[rcuob/8]
2	82	0	0 ?	-1 S	0	0:00	\-	[rcuob/9]
2	83	0	0 ?	-1 S	0	0:00	\-	[rcuob/10]
2	84	0	0 ?	-1 S	0	0:00	\-	[rcuob/11]
2	85	0	0 ?	-1 S	0	0:00	\-	[rcuob/12]
2	86	0	0 ?	-1 S	0	0:00	\-	[rcuob/13]
2	87	0	0 ?	-1 S	0	0:00	\-	[rcuob/14]
2	88	0	0 ?	-1 S	0	0:00	\-	[rcuob/15]
2	89	0	0 ?	-1 S	0	0:00	\-	[rcuob/16]
2	90	0	0 ?	-1 S	0	0:00	\-	[rcuob/17]
2	91	0	0 ?	-1 S	0	0:00	\-	[rcuob/18]
2	92	0	0 ?	-1 S	0	0:00	\-	[rcuob/19]
2	93	0	0 ?	-1 S	0	0:00	\-	[rcuob/20]
2	94	0	0 ?	-1 S	0	0:00	\-	[rcuob/21]
2	95	0	0 ?	-1 S	0	0:00	\-	[rcuob/22]
2	96	0	0 ?	-1 S	0	0:00	\-	[rcuob/23]
2	97	0	0 ?	-1 S	0	0:00	\-	[rcuob/24]
2	98	0	0 ?	-1 S	0	0:00	\-	[rcuob/25]
2	99	0	0 ?	-1 S	0	0:00	\-	[rcuob/26]
2	100	0	0 ?	-1 S	0	0:00	\-	[rcuob/27]
2	101	0	0 ?	-1 S	0	0:00	\-	[rcuob/28]
2	102	0	0 ?	-1 S	0	0:00	\-	[rcuob/29]
2	103	0	0 ?	-1 S	0	0:00	\-	[rcuob/30]
2	104	0	0 ?	-1 S	0	0:00	\-	[rcuob/31]
2	105	0	0 ?	-1 S	0	0:00	\-	[rcuob/32]
2	106	0	0 ?	-1 S	0	0:00	\-	[rcuob/33]
2	107	0	0 ?	-1 S	0	0:00	\-	[rcuob/34]

2	108	0	0 ?	-1 S	0	0:00	\-	[rcuob/35]
2	109	0	0 ?	-1 S	0	0:00	\-	[rcuob/36]
2	110	0	0 ?	-1 S	0	0:00	\-	[rcuob/37]
2	111	0	0 ?	-1 S	0	0:00	\-	[rcuob/38]
2	112	0	0 ?	-1 S	0	0:00	\-	[rcuob/39]
2	113	0	0 ?	-1 S	0	0:00	\-	[rcuob/40]
2	114	0	0 ?	-1 S	0	0:00	\-	[rcuob/41]
2	115	0	0 ?	-1 S	0	0:00	\-	[rcuob/42]
2	116	0	0 ?	-1 S	0	0:00	\-	[rcuob/43]
2	117	0	0 ?	-1 S	0	0:00	\-	[rcuob/44]
2	118	0	0 ?	-1 S	0	0:00	\-	[rcuob/45]
2	119	0	0 ?	-1 S	0	0:00	\-	[rcuob/46]
2	120	0	0 ?	-1 S	0	0:00	\-	[rcuob/47]
2	121	0	0 ?	-1 S	0	0:00	\-	[rcuob/48]
2	122	0	0 ?	-1 S	0	0:00	\-	[rcuob/49]
2	123	0	0 ?	-1 S	0	0:00	\-	[rcuob/50]
2	124	0	0 ?	-1 S	0	0:00	\-	[rcuob/51]
2	125	0	0 ?	-1 S	0	0:00	\-	[rcuob/52]
2	126	0	0 ?	-1 S	0	0:00	\-	[rcuob/53]
2	127	0	0 ?	-1 S	0	0:00	\-	[rcuob/54]
2	128	0	0 ?	-1 S	0	0:00	\-	[rcuob/55]
2	129	0	0 ?	-1 S	0	0:00	\-	[rcuob/56]
2	130	0	0 ?	-1 S	0	0:00	\-	[rcuob/57]
2	131	0	0 ?	-1 S	0	0:00	\-	[rcuob/58]
2	132	0	0 ?	-1 S	0	0:00	\-	[rcuob/59]
2	133	0	0 ?	-1 S	0	0:00	\-	[rcuob/60]
2	134	0	0 ?	-1 S	0	0:00	\-	[rcuob/61]
2	135	0	0 ?	-1 S	0	0:00	\-	[rcuob/62]
2	136	0	0 ?	-1 S	0	0:00	\-	[rcuob/63]
2	137	0	0 ?	-1 S	0	0:00	\-	[migration/0]
2	138	0	0 ?	-1 S	0	0:00	\-	[watchdog/0]
2	139	0	0 ?	-1 S	0	0:00	\-	[watchdog/1]
2	140	0	0 ?	-1 S	0	0:00	\-	[migration/1]
2	141	0	0 ?	-1 S	0	0:00	\-	[ksoftirqd/1]
2	142	0	0 ?	-1 S	0	0:00	\-	[kworker/1:0]
2	143	0	0 ?	-1 S<	0	0:00	\-	[kworker/1:0H]
2	144	0	0 ?	-1 S<	0	0:00	\-	[khelper]
2	145	0	0 ?	-1 S	0	0:00	\-	[kdevtmpfs]
2	146	0	0 ?	-1 S<	0	0:00	\-	[netns]
2	147	0	0 ?	-1 S<	0	0:00	\-	[writeback]
2	148	0	0 ?	-1 S<	0	0:00	\-	[kintegrityd]
2	149	0	0 ?	-1 S<	0	0:00	\-	[bioset]
2	150	0	0 ?	-1 S<	0	0:00	\-	[kworker/u129:0]
2	151	0	0 ?	-1 S<	0	0:00	\-	[kblockd]
2	152	0	0 ?	-1 S<	0	0:00	\-	[ata_sff]
2	153	0	0 ?	-1 S	0	0:00	\-	[khubd]
2	154	0	0 ?	-1 S<	0	0:00	\-	[md]
2	155	0	0 ?	-1 S<	0	0:00	\-	[devfreq-wq]
2	157	0	0 ?	-1 S	0	0:02	\-	[kworker/0:1]
2	159	0	0 ?	-1 S	0	0:00	\-	[khungtaskd]
2	160	0	0 ?	-1 S	0	0:00	\-	[kswapd0]
2	161	0	0 ?	-1 SN	0	0:00	\-	[ksmd]
2	162	0	0 ?	-1 SN	0	0:00	\-	[khugepaged]
2	163	0	0 ?	-1 S	0	0:00	\-	[fsnotify-mark]
2	164	0	0 ?	-1 S	0	0:00	\-	[ecryptfs-kthrea]
2	165	0	0 ?	-1 S<	0	0:00	\-	[crypto]

2	177	0	0 ?	-1 S<	0	0:00	\-	[kthrotld]
2	179	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_0]
2	180	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_1]
2	201	0	0 ?	-1 S<	0	0:00	\-	[deferwq]
2	202	0	0 ?	-1 S<	0	0:00	\-	[charger_manager]
2	203	0	0 ?	-1 S	0	0:00	\-	[kworker/1:2]
2	255	0	0 ?	-1 S<	0	0:00	\-	[mpt_poll_0]
2	257	0	0 ?	-1 S<	0	0:00	\-	[mpt/0]
2	258	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_2]
2	259	0	0 ?	-1 S<	0	0:00	\-	[kpsmoused]
2	260	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_3]
2	261	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_4]
2	262	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_5]
2	263	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_6]
2	264	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_7]
2	265	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_8]
2	266	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_9]
2	267	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_10]
2	268	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_11]
2	269	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_12]
2	270	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_13]
2	271	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_14]
2	272	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_15]
2	273	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_16]
2	274	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_17]
2	275	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_18]
2	276	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_19]
2	277	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_20]
2	278	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_21]
2	279	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_22]
2	280	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_23]
2	281	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_24]
2	282	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_25]
2	283	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_26]
2	284	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_27]
2	285	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_28]
2	286	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_29]
2	287	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_30]
2	288	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_31]
2	317	0	0 ?	-1 S	0	0:00	\-	[scsi_eh_32]
2	318	0	0 ?	-1 S	0	0:00	\-	[kworker/0:2]
2	332	0	0 ?	-1 S	0	0:00	\-	[jbd2/sda1-8]
2	333	0	0 ?	-1 S<	0	0:00	\-	[ext4-rsv-conver]
2	560	0	0 ?	-1 S<	0	0:00	\-	[ttm_swap]
2	734	0	0 ?	-1 S<	0	0:00	\-	[krfcommnd]
2	1440	0	0 ?	-1 S	0	0:00	\-	[kauditd]
2	3925	0	0 ?	-1 S	0	0:00	\-	[kworker/u128:3]
2	5416	0	0 ?	-1 S	0	0:00	\-	[kworker/u128:2]
2	5626	0	0 ?	-1 S	0	0:00	\-	[kworker/u128:1]
2	5658	0	0 ?	-1 S	0	0:00	\-	[kworker/u128:0]
0	1	1	1 ?	-1 Ss	0	0:01	/sbin/init	
1	474	472	472 ?	-1 S	0	0:00	upstart-udev-bridge	
—daemon								
1	483	483	483 ?	-1 Ss	0	0:00	/lib/systemd/systemd-	
udev —daemon								

```

1    617    615    615 ?                -1 S          0    0:00 upstart-file-bridge
      --daemon
1    632    632    632 ?                -1 Ss         102  0:00 dbus-daemon --system
      --fork
1    678    678    678 ?                -1 Ssl        101  0:00 rsyslogd
1    697    697    697 ?                -1 Ss         0    0:00 /usr/sbin/bluetoothd
1    713    713    713 ?                -1 Ss         0    0:00 /lib/systemd/systemd-
      logind
1    786    778    778 ?                -1 S          111  0:00 avahi-daemon: running
      [ubuntu.local]
786  792    778    778 ?                -1 S          111  0:00 \_ avahi-daemon:
      chroot helper
1    819    819    819 ?                -1 Ssl        0    0:00 /usr/sbin/
      ModemManager
1    844    843    843 ?                -1 S          0    0:00 upstart-socket-bridge
      --daemon
1    923    923    923 ?                -1 Ssl        0    0:00 NetworkManager
923  1000    1000    923 ?                -1 S          0    0:00 \_ /sbin/dhclient -d
      -sf /usr/lib/NetworkManager/nm-dhcp-client.action -pf /run/sendsigs.
      omit.d/network-manager.dhclient-eth0.pid -lf /var/lib/NetworkManager/
      dhclient-0b6e09d1-e573-4c09-8537-a1ee394209a9-eth0.lease -cf /var/lib/
      NetworkManager/dhclient-eth0.conf eth0
923  1490    1490    923 ?                -1 S        65534  0:00 \_ /usr/sbin/dnsmasq
      --no-resolv --keep-in-foreground --no-hosts --bind-interfaces --pid-
      file=/run/sendsigs.omit.d/network-manager.dnsmasq.pid --listen-address
      =127.0.1.1 --conf-file=/var/run/NetworkManager/dnsmasq.conf --cache-size
      =0 --proxy-dnssec --enable-dbus=org.freedesktop.NetworkManager.dnsmasq
      --conf-dir=/etc/NetworkManager/dnsmasq.d
1    935    632    632 ?                -1 Sl         0    0:00 /usr/lib/policykit-1/
      polkitd --no-debug
1    968    968    968 tty4            968 Ss+       0    0:00 /sbin/getty -8 38400
      tty4
1    974    974    974 tty5            974 Ss+       0    0:00 /sbin/getty -8 38400
      tty5
1    980    980    980 tty2            980 Ss+       0    0:00 /sbin/getty -8 38400
      tty2
1    982    982    982 tty3            982 Ss+       0    0:00 /sbin/getty -8 38400
      tty3
1    985    985    985 tty6            985 Ss+       0    0:00 /sbin/getty -8 38400
      tty6
1   1040    1040    1040 ?                -1 Ss        106  0:00 /usr/sbin/kerneloops
1   1045    1045    1045 ?                -1 Ss         0    0:00 cron
1   1053    1053    1053 ?                -1 SLsl       0    0:00 lightdm
1053  1142    1142    1142 tty7            1142 Rs+      0    0:34 \_ /usr/bin/X -core
      :0 -seat seat0 -auth /var/run/lightdm/root/:0 -nolisten tcp vt7 -
      novtswitch
1053  1715    1053    1053 ?                -1 Sl         0    0:00 \_ lightdm --session
      -child 12 19
1715  2730    2730    2730 ?                -1 Ss        1000  0:00 \_ init --user
2730  2801    2801    2801 ?                -1 Ss        1000  0:00 \_ ssh-agent
      -s
2730  2807    2807    2807 ?                -1 Ss        1000  0:01 \_ dbus-
      daemon --fork --session --address=unix:abstract=/tmp/dbus-VLfuIwL5iq
2730  2815    2815    2815 ?                -1 Ss        1000  0:00 \_ upstart-
      event-bridge

```

2730	2819	2819	2819	?	-1	Ss	1000	0:00	_ /usr/lib/
	x86_64-linux-gnu/hud/window-stack-bridge								
2730	2820	2820	2820	?	-1	Ssl	1000	0:04	_ /usr/bin/
	ibus-daemon --daemonize --xim								
2820	2851	2820	2820	?	-1	S1	1000	0:00	_ /usr/
	lib/ibus/ibus-dconf								
2820	2854	2820	2820	?	-1	S1	1000	0:01	_ /usr/
	lib/ibus/ibus-ui-gtk3								
2820	2914	2820	2820	?	-1	S1	1000	0:00	_ /usr/
	lib/ibus/ibus-engine-simple								
2730	2829	2828	2828	?	-1	S	1000	0:00	_ upstart-
	file-bridge --daemon --user								
2730	2835	2807	2807	?	-1	S1	1000	0:00	_ /usr/lib/
	gvfs/gvfsd								
2730	2836	2836	2836	?	-1	Ssl	1000	0:00	_ /usr/lib/
	unity-settings-daemon/unity-settings-daemon								
2730	2842	2807	2807	?	-1	S1	1000	0:00	_ /usr/lib/
	gvfs/gvfsd-fuse /run/user/1000/gvfs -f -o big-writes								
2730	2845	2845	2845	?	-1	Ssl	1000	0:01	_ /usr/lib/
	x86_64-linux-gnu/hud/hud-service								
2730	2849	2849	2849	?	-1	Ssl	1000	0:00	_ /usr/lib/
	at-spi2-core/at-spi-bus-launcher --launch-immediately								
2849	2862	2849	2849	?	-1	S	1000	0:00	_ /bin/
	dbus-daemon --config-file=/etc/at-spi2/accessibility.conf --nofork --								
	print-address 3								
2730	2858	2858	2858	?	-1	Ssl	1000	0:00	_ gnome-
	session --session=ubuntu								
2858	3039	2858	2858	?	-1	S1	1000	0:29	_
	compiz								
2858	3077	2858	2858	?	-1	S1	1000	0:00	_ nm-
	applet								
2858	3078	2858	2858	?	-1	S1	1000	0:00	_ /usr/
	lib/policykit-1-gnome/polkit-gnome-authentication-agent-1								
2858	3080	2858	2858	?	-1	S1	1000	0:08	_
	nautilus -n								
2858	3081	2858	2858	?	-1	S1	1000	0:00	_ /usr/
	lib/unity-settings-daemon/unity-fallback-mount-helper								
2858	3294	2858	2858	?	-1	S1	1000	0:00	_
	telepathy-indicator								
2858	3317	2858	2858	?	-1	S1	1000	0:00	_
	zeitgeist-datahub								
2858	3374	2858	2858	?	-1	S1	1000	0:00	_
	update-notifier								
2858	3426	2858	2858	?	-1	S1	1000	0:00	_ /usr/
	lib/x86_64-linux-gnu/deja-dup/deja-dup-monitor								
2730	2864	2864	2864	?	-1	Ssl	1000	0:01	_ /usr/lib/
	unity/unity-panel-service								
2730	2865	2820	2820	?	-1	S1	1000	0:00	_ /usr/lib/
	ibus/ibus-x11 --kill-daemon								
2730	2870	2868	2868	?	-1	S	1000	0:00	_ upstart-
	dbus-bridge --daemon --session --user --bus-name session								
2730	2872	2849	2849	?	-1	S1	1000	0:00	_ /usr/lib/
	at-spi2-core/at-spi2-registryd --use-gnome-session								
2730	2892	2891	2891	?	-1	S	1000	0:00	_ upstart-
	dbus-bridge --daemon --system --user --bus-name system								

2730	2907	2807	2807	?	-1	S1	1000	0:01	_ /usr/lib/
	x86_64-linux-gnu/bamf/bamfdaemon								
2730	2921	2807	2807	?	-1	S1	1000	0:00	_ /usr/lib/
	x86_64-linux-gnu/indicator-keyboard-service --use-gtk								
2730	2922	2922	2922	?	-1	Ssl	1000	0:00	_ /usr/lib/
	x86_64-linux-gnu/indicator-messages/indicator-messages-service								
2730	2924	2924	2924	?	-1	Ssl	1000	0:00	_ /usr/lib/
	x86_64-linux-gnu/indicator-bluetooth/indicator-bluetooth-service								
2730	2931	2931	2931	?	-1	Ssl	1000	0:00	_ /usr/lib/
	x86_64-linux-gnu/indicator-power/indicator-power-service								
2730	2934	2934	2934	?	-1	Ssl	1000	0:00	_ /usr/lib/
	x86_64-linux-gnu/indicator-datetime/indicator-datetime-service								
2730	2937	2937	2937	?	-1	Ssl	1000	0:00	_ /usr/lib/
	x86_64-linux-gnu/indicator-sound/indicator-sound-service								
2730	2946	2946	2946	?	-1	Ssl	1000	0:00	_ /usr/lib/
	x86_64-linux-gnu/indicator-printers/indicator-printers-service								
2730	2950	2950	2950	?	-1	Ssl	1000	0:00	_ /usr/lib/
	x86_64-linux-gnu/indicator-session/indicator-session-service								
2730	2952	2952	2952	?	-1	Ssl	1000	0:00	_ /usr/lib/
	x86_64-linux-gnu/indicator-application/indicator-application-service								
2730	2958	2807	2807	?	-1	S1	1000	0:00	_ /usr/lib/
	dconf/dconf-service								
2730	2976	2807	2807	?	-1	S1	1000	0:00	_ /usr/lib/
	evolution/evolution-source-registry								
2730	2997	2996	2996	?	-1	S<1	1000	0:00	_ /usr/bin/
	pulseaudio --start --log-target=syslog								
2730	3032	2807	2807	?	-1	S1	1000	0:00	_ /usr/lib/
	x86_64-linux-gnu/notify-osd								
2730	3049	2807	2807	?	-1	S1	1000	0:00	_ /usr/lib/
	evolution/evolution-calendar-factory								
2730	3086	2858	2858	?	-1	S1	1000	0:04	_ /usr/lib/
	vmware-tools/sbin64/vmtoolsd -n vmusr --blockFd 3								
2730	3145	2807	2807	?	-1	S1	1000	0:00	_ /usr/lib/
	gvfs/gvfs-udisks2-volume-monitor								
2730	3193	2807	2807	?	-1	S	1000	0:00	_ /usr/lib/
	x86_64-linux-gnu/gconf/gconfd-2								
2730	3203	2807	2807	?	-1	S1	1000	0:00	_ /usr/lib/
	gvfs/gvfs-gphoto2-volume-monitor								
2730	3209	2807	2807	?	-1	S1	1000	0:00	_ /usr/lib/
	gvfs/gvfs-afc-volume-monitor								
2730	3214	2807	2807	?	-1	S1	1000	0:00	_ /usr/lib/
	gvfs/gvfs-mtp-volume-monitor								
2730	3231	2807	2807	?	-1	S1	1000	0:00	_ /usr/lib/
	gvfs/gvfds-trash --spawner :1.3 /org/gtk/gvfs/exec_spaw/0								
2730	3261	2807	2807	?	-1	S1	1000	0:00	_ /usr/lib/
	gvfs/gvfds-burn --spawner :1.3 /org/gtk/gvfs/exec_spaw/1								
2730	3282	2807	2807	?	-1	S1	1000	0:00	_ /usr/lib/
	gvfs/gvfds-metadata								
2730	3303	2807	2807	?	-1	S1	1000	0:00	_ /usr/lib/
	telepathy/mission-control-5								
2730	3322	2807	2807	?	-1	S1	1000	0:00	_ /usr/bin/
	zeitgeist-daemon								
2730	3328	2807	2807	?	-1	S1	1000	0:00	_ /usr/lib/
	x86_64-linux-gnu/zeitgeist-fts								
3328	3332	2807	2807	?	-1	S	1000	0:00	_ /bin/
	cat								


```

2730 3524 2807 2807 ? -1 Sl 1000 0:00 \_ /usr/lib/
x86_64-linux-gnu/unity-scope-home/unity-scope-home
2730 3538 2807 2807 ? -1 Sl 1000 0:00 \_ /usr/lib/
x86_64-linux-gnu/unity-lens-files/unity-files-daemon
2730 3539 2807 2807 ? -1 Sl 1000 0:00 \_ /usr/bin/
unity-scope-loader applications/applications.scope applications/scopes.
scope commands.scope
2730 3565 2807 2807 ? -1 Sl 1000 0:00 \_ /usr/lib/
x86_64-linux-gnu/unity-lens-music/unity-music-daemon
2730 3582 2858 2858 ? -1 Sl 1000 0:08 \_ gnome-
terminal
3582 3590 2858 2858 ? -1 S 1000 0:00 | \_ gnome
-pty-helper
3582 3591 3591 3591 pts/0 5710 Ss 1000 0:00 | \_ bash
3591 5710 5710 3591 pts/0 5710 R+ 1000 0:00 | | \_
ps axjf
3582 3706 3706 3706 pts/6 3706 Ss+ 1000 0:00 | \_ bash
2730 4373 2807 2807 ? -1 Sl 1000 0:00 \_ /usr/lib/
gvfs/gvfsd-http --spawner :1.3 /org/gtk/gvfs/exec_spaw/2
1 1091 1091 1091 ? -1 Ss 0 0:03 /usr/sbin/irqbalance
1 1154 632 632 ? -1 Sl 0 0:00 /usr/lib/
accountsservice/accounts-daemon
1 1191 1191 1191 ? -1 Ss 0 0:00 /usr/sbin/cups-
browsed
1 1198 1198 1198 ? -1 Ssl 109 0:00 whoopsie
1 1234 1234 1234 tty1 1234 Ss+ 0 0:00 /sbin/getty -8 38400
tty1
1 1248 1248 1248 ? -1 Ss 0 0:00 acpid -c /etc/acpi/
events -s /var/run/acpid.socket
1 1432 1432 1432 ? -1 Ssl 0 0:00 /usr/sbin/vmware-
vmblock-fuse -o subtype=vmware-vmblock,default_permissions,allow_other
/var/run/vmblock-fuse
1 1460 1459 1459 ? -1 Sl 0 0:05 /usr/sbin/vmtoolsd
1 1738 632 632 ? -1 Sl 0 0:00 /usr/lib/upower/
upowerd
1 1779 632 632 ? -1 SNl 107 0:00 /usr/lib/rtkit/rtkit-
daemon
1 1982 632 632 ? -1 Sl 113 0:00 /usr/lib/colord/
colord
1 2519 2519 2519 ? -1 Ss 0 0:00 /usr/sbin/cupsd -f
1 2557 2557 2557 ? -1 Ss 0 0:00 tpmvlpd2
1 2725 2724 2724 ? -1 Sl 1000 0:00 /usr/bin/gnome-
keyring-daemon --daemonize --login
1 3155 632 632 ? -1 Sl 0 0:00 /usr/lib/udisks2/
udisksd --no-debug

```

Appendix C

Kildekode