Operating Systems hw2　　　　　　　　**105061212 王家駿**

Code and description:

1. Linear traversal method:

```
// consturction function
int linear_init(void)
{
    struct task_struct* current_task;  // construct task structure

    for_each_process(current_task)  // for every process
    {
        // print out the id, name, and state
        printk("pid: %d |pname: %s |state: %ld", current_task->pid,
                current_task->comm, current_task->state);
    }

    return 0;
}
```

　　At first, we initialize the task_struct structure, which includes the contents of the operating process. Then, we use the for_each_process function to iterate through all the tasks, and print out the contents in the kernel load buffer.

2. DFS method:

```
// DFS algorithm
void DFS(struct task_struct* curr)
{
    struct task_struct* p;  // children node
    struct list_head* itr;  // iteration pointer

    // print out the id, name, and state
    printk("pid: %d |pname: %s |state: %ld", curr->pid, curr->comm, curr->state);

    list_for_each(itr, &curr->children){  // for all children
        p = list_entry(itr, struct task_struct, sibling);  // search all siblings
        DFS(p);  // keep finding
    }

}

// consturction function
int dfs_init(void)
{
    struct task_struct* current_task = &init_task;  // construct task structure and initialize

    DFS(current_task);  // list all tasks by DFS

    return 0;
}
```

     In this part, we use DFS algorithm to find all the tasks. At first, we initialize the task_struct structure as same as the previous part, then use the recurrence relation to keep finding. For a current node, we find its children until the end, and then do the same tracing for the siblings. At the end, we could find out all the tasks with the DFS arrangement.

Execution results:

Linear traversal method:

```
[ 3149.471407] pid: 1 |pname: systemd |state: 1
[ 3149.471408] pid: 2 |pname: kthreadd |state: 1
[ 3149.471409] pid: 3 |pname: rcu_gp |state: 1026
[ 3149.471410] pid: 4 |pname: rcu_par_gp |state: 1026
[ 3149.471411] pid: 6 |pname: kworker/0:0H |state: 1026
[ 3149.471411] pid: 8 |pname: mm_percpu_wq |state: 1026
[ 3149.471412] pid: 9 |pname: ksoftirqd/0 |state: 1
[ 3149.471413] pid: 10 |pname: rcu_sched |state: 1026
[ 3149.471413] pid: 11 |pname: rcu_bh |state: 1026
[ 3149.471414] pid: 12 |pname: migration/0 |state: 1
[ 3149.471415] pid: 13 |pname: watchdog/0 |state: 1
[ 3149.471415] pid: 14 |pname: cpuhp/0 |state: 1
[ 3149.471416] pid: 15 |pname: kdevtmpfs |state: 1
[ 3149.471417] pid: 16 |pname: netns |state: 1026
[ 3149.471417] pid: 17 |pname: rcu_tasks_kthre |state: 1
[ 3149.471418] pid: 18 |pname: kauditd |state: 1
[ 3149.471419] pid: 19 |pname: khungtaskd |state: 1
[ 3149.471420] pid: 20 |pname: oom_reaper |state: 1
[ 3149.471420] pid: 21 |pname: writeback |state: 1026
[ 3149.471421] pid: 22 |pname: kcompactd0 |state: 1
[ 3149.471422] pid: 23 |pname: ksmd |state: 1
[ 3149.471422] pid: 24 |pname: khugepaged |state: 1
[ 3149.471423] pid: 25 |pname: crypto |state: 1026
[ 3149.471424] pid: 26 |pname: kintegrityd |state: 1026
[ 3149.471424] pid: 27 |pname: kblockd |state: 1026
[ 3149.471425] pid: 28 |pname: ata_sff |state: 1026
[ 3149.471426] pid: 29 |pname: md |state: 1026
[ 3149.471427] pid: 30 |pname: edac-poller |state: 1026
[ 3149.471427] pid: 31 |pname: devfreq_wq |state: 1026
[ 3149.471428] pid: 32 |pname: kworker/0:1 |state: 1026
[ 3149.471429] pid: 33 |pname: watchdogd |state: 1
[ 3149.471430] pid: 36 |pname: kswapd0 |state: 1
[ 3149.471430] pid: 37 |pname: kworker/u257:0 |state: 1026
[ 3149.471431] pid: 38 |pname: ecryptfs-kthrea |state: 1
[ 3149.471432] pid: 83 |pname: kthrotld |state: 1026
[ 3149.471433] pid: 84 |pname: acpi_thermal_pm |state: 1026
[ 3149.471433] pid: 85 |pname: scsi_eh_0 |state: 1
[ 3149.471434] pid: 86 |pname: scsi_tmf_0 |state: 1026
[ 3149.471435] pid: 87 |pname: scsi_eh_1 |state: 1
[ 3149.471436] pid: 88 |pname: scsi_tmf_1 |state: 1026
[ 3149.471436] pid: 94 |pname: ipv6_addrconf |state: 1026
[ 3149.471437] pid: 96 |pname: kworker/0:2 |state: 1026
[ 3149.471438] pid: 104 |pname: kstrp |state: 1026
```

```
3149.471439] pid: 121 |pname: charger_manager |state: 1026
3149.471439] pid: 171 |pname: mpt_poll_0 |state: 1026
3149.471440] pid: 172 |pname: mpt/0 |state: 1026
3149.471441] pid: 173 |pname: scsi_eh_2 |state: 1
3149.471441] pid: 174 |pname: scsi_tmf_2 |state: 1026
3149.471442] pid: 175 |pname: scsi_eh_3 |state: 1
3149.471443] pid: 176 |pname: scsi_tmf_3 |state: 1026
3149.471443] pid: 177 |pname: scsi_eh_4 |state: 1
3149.471444] pid: 178 |pname: scsi_tmf_4 |state: 1026
3149.471445] pid: 179 |pname: scsi_eh_5 |state: 1
3149.471445] pid: 180 |pname: scsi_tmf_5 |state: 1026
3149.471446] pid: 181 |pname: scsi_eh_6 |state: 1
3149.471447] pid: 182 |pname: scsi_tmf_6 |state: 1026
3149.471447] pid: 183 |pname: scsi_eh_7 |state: 1
3149.471448] pid: 184 |pname: scsi_tmf_7 |state: 1026
3149.471449] pid: 185 |pname: scsi_eh_8 |state: 1
3149.471449] pid: 186 |pname: scsi_tmf_8 |state: 1026
3149.471450] pid: 187 |pname: scsi_eh_9 |state: 1
3149.471450] pid: 188 |pname: scsi_tmf_9 |state: 1026
3149.471451] pid: 189 |pname: scsi_eh_10 |state: 1
3149.471452] pid: 190 |pname: scsi_tmf_10 |state: 1026
3149.471453] pid: 191 |pname: scsi_eh_11 |state: 1
3149.471453] pid: 192 |pname: scsi_tmf_11 |state: 1026
3149.471454] pid: 193 |pname: scsi_eh_12 |state: 1
3149.471455] pid: 194 |pname: scsi_tmf_12 |state: 1026
3149.471455] pid: 195 |pname: scsi_eh_13 |state: 1
3149.471456] pid: 196 |pname: scsi_tmf_13 |state: 1026
3149.471457] pid: 197 |pname: scsi_eh_14 |state: 1
3149.471458] pid: 198 |pname: scsi_tmf_14 |state: 1026
3149.471458] pid: 199 |pname: scsi_eh_15 |state: 1
3149.471459] pid: 200 |pname: scsi_tmf_15 |state: 1026
3149.471460] pid: 201 |pname: scsi_eh_16 |state: 1
3149.471460] pid: 202 |pname: scsi_tmf_16 |state: 1026
3149.471461] pid: 203 |pname: scsi_eh_17 |state: 1
3149.471462] pid: 204 |pname: scsi_tmf_17 |state: 1026
3149.471462] pid: 205 |pname: scsi_eh_18 |state: 1
3149.471463] pid: 206 |pname: scsi_tmf_18 |state: 1026
3149.471463] pid: 207 |pname: scsi_eh_19 |state: 1
3149.471464] pid: 208 |pname: scsi_tmf_19 |state: 1026
3149.471465] pid: 209 |pname: scsi_eh_20 |state: 1
3149.471466] pid: 210 |pname: scsi_tmf_20 |state: 1026
3149.471466] pid: 211 |pname: scsi_eh_21 |state: 1
3149.471467] pid: 212 |pname: scsi_tmf_21 |state: 1026
3149.471468] pid: 213 |pname: scsi_eh_22 |state: 1
3149.471468] pid: 214 |pname: scsi_tmf_22 |state: 1026
```

```
[ 3149.471469] pid: 215 |pname: scsi_eh_23 |state: 1
[ 3149.471470] pid: 216 |pname: scsi_tmf_23 |state: 1026
[ 3149.471470] pid: 217 |pname: scsi_eh_24 |state: 1
[ 3149.471471] pid: 218 |pname: scsi_tmf_24 |state: 1026
[ 3149.471472] pid: 219 |pname: scsi_eh_25 |state: 1
[ 3149.471472] pid: 220 |pname: scsi_tmf_25 |state: 1026
[ 3149.471473] pid: 221 |pname: scsi_eh_26 |state: 1
[ 3149.471474] pid: 222 |pname: scsi_tmf_26 |state: 1026
[ 3149.471474] pid: 223 |pname: scsi_eh_27 |state: 1
[ 3149.471475] pid: 224 |pname: scsi_tmf_27 |state: 1026
[ 3149.471476] pid: 225 |pname: scsi_eh_28 |state: 1
[ 3149.471476] pid: 226 |pname: scsi_tmf_28 |state: 1026
[ 3149.471477] pid: 227 |pname: scsi_eh_29 |state: 1
[ 3149.471478] pid: 228 |pname: scsi_tmf_29 |state: 1026
[ 3149.471478] pid: 229 |pname: scsi_eh_30 |state: 1
[ 3149.471479] pid: 230 |pname: scsi_tmf_30 |state: 1026
[ 3149.471480] pid: 231 |pname: scsi_eh_31 |state: 1
[ 3149.471480] pid: 232 |pname: scsi_tmf_31 |state: 1026
[ 3149.471481] pid: 234 |pname: scsi_eh_32 |state: 1
[ 3149.471482] pid: 236 |pname: scsi_tmf_32 |state: 1026
[ 3149.471483] pid: 264 |pname: kworker/0:1H |state: 1026
[ 3149.471483] pid: 286 |pname: jbd2/sda1-8 |state: 1
[ 3149.471484] pid: 287 |pname: ext4-rsv-conver |state: 1026
[ 3149.471484] pid: 323 |pname: systemd-journal |state: 258
[ 3149.471485] pid: 334 |pname: systemd-udevd |state: 258
[ 3149.471486] pid: 348 |pname: loop0 |state: 1
[ 3149.471487] pid: 350 |pname: loop1 |state: 1
[ 3149.471487] pid: 351 |pname: loop2 |state: 1
[ 3149.471488] pid: 353 |pname: loop3 |state: 1
[ 3149.471489] pid: 354 |pname: loop4 |state: 1
[ 3149.471490] pid: 357 |pname: loop5 |state: 1
[ 3149.471490] pid: 358 |pname: loop6 |state: 1
[ 3149.471491] pid: 359 |pname: loop7 |state: 1
[ 3149.471492] pid: 362 |pname: loop8 |state: 1
[ 3149.471492] pid: 365 |pname: loop9 |state: 1
[ 3149.471493] pid: 367 |pname: loop10 |state: 1
[ 3149.471494] pid: 368 |pname: loop11 |state: 1
[ 3149.471494] pid: 371 |pname: loop12 |state: 1
[ 3149.471495] pid: 372 |pname: loop13 |state: 1
[ 3149.471496] pid: 374 |pname: loop14 |state: 1
[ 3149.471497] pid: 378 |pname: loop15 |state: 1
[ 3149.471497] pid: 380 |pname: loop16 |state: 1
[ 3149.471498] pid: 382 |pname: loop17 |state: 1
[ 3149.471499] pid: 383 |pname: loop18 |state: 1
[ 3149.471499] pid: 384 |pname: loop19 |state: 1
```

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[ 3149.471500] pid: 387 |pname: loop20 |state: 1
[ 3149.471501] pid: 388 |pname: loop21 |state: 1
[ 3149.471501] pid: 390 |pname: loop22 |state: 1
[ 3149.471502] pid: 398 |pname: loop23 |state: 1
[ 3149.471502] pid: 458 |pname: vmware-vmblock- |state: 1
[ 3149.471503] pid: 461 |pname: vmtoolsd |state: 1
[ 3149.471504] pid: 478 |pname: ttm_swap |state: 1026
[ 3149.471504] pid: 479 |pname: irq/16-vmwgfx |state: 1
[ 3149.471505] pid: 483 |pname: systemd-timesyn |state: 1
[ 3149.471506] pid: 484 |pname: systemd-resolve |state: 1
[ 3149.471507] pid: 545 |pname: kworker/u257:1 |state: 1026
[ 3149.471507] pid: 652 |pname: dbus-daemon |state: 1
[ 3149.471508] pid: 669 |pname: ModemManager |state: 1
[ 3149.471509] pid: 670 |pname: VGAuthService |state: 1
[ 3149.471509] pid: 671 |pname: cupsd |state: 1
[ 3149.471510] pid: 672 |pname: avahi-daemon |state: 1
[ 3149.471511] pid: 676 |pname: accounts-daemon |state: 1
[ 3149.471511] pid: 677 |pname: NetworkManager |state: 1
[ 3149.471512] pid: 685 |pname: acpid |state: 1
[ 3149.471513] pid: 686 |pname: udisksd |state: 1
[ 3149.471514] pid: 705 |pname: avahi-daemon |state: 1
[ 3149.471514] pid: 706 |pname: snapd |state: 1
[ 3149.471515] pid: 707 |pname: wpa_supplicant |state: 1
[ 3149.471516] pid: 743 |pname: networkd-dispat |state: 1
[ 3149.471516] pid: 744 |pname: rsyslogd |state: 1
[ 3149.471517] pid: 745 |pname: systemd-logind |state: 1
[ 3149.471518] pid: 747 |pname: cron |state: 1
[ 3149.471519] pid: 749 |pname: bluetoothd |state: 1
[ 3149.471519] pid: 764 |pname: cups-browsed |state: 1
[ 3149.471520] pid: 802 |pname: polkitd |state: 1
[ 3149.471521] pid: 853 |pname: unattended-upgr |state: 1
[ 3149.471522] pid: 869 |pname: dbus |state: 1
[ 3149.471522] pid: 870 |pname: dbus |state: 1
[ 3149.471523] pid: 879 |pname: gdm3 |state: 1
[ 3149.471524] pid: 884 |pname: gdm-session-wor |state: 1
[ 3149.471524] pid: 888 |pname: dhclient |state: 1
[ 3149.471525] pid: 924 |pname: whoopsie |state: 1
[ 3149.471526] pid: 930 |pname: kerneloops |state: 1
[ 3149.471527] pid: 933 |pname: kerneloops |state: 1
[ 3149.471528] pid: 972 |pname: systemd |state: 1
[ 3149.471528] pid: 973 |pname: (sd-pam) |state: 1
[ 3149.471529] pid: 985 |pname: gdm-wayland-ses |state: 1
[ 3149.471530] pid: 988 |pname: dbus-daemon |state: 1
[ 3149.471531] pid: 1001 |pname: gnome-session-b |state: 1
[ 3149.471531] pid: 1062 |pname: gnome-shell |state: 1
```

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[ 3149.471532] pid: 1070 |pname: upowerd |state: 1
[ 3149.471533] pid: 1086 |pname: Xwayland |state: 1
[ 3149.471533] pid: 1089 |pname: at-spi-bus-laun |state: 1
[ 3149.471534] pid: 1094 |pname: dbus-daemon |state: 1
[ 3149.471535] pid: 1096 |pname: at-spi2-registr |state: 1
[ 3149.471536] pid: 1099 |pname: pulseaudio |state: 1
[ 3149.471537] pid: 1101 |pname: rtkit-daemon |state: 1
[ 3149.471537] pid: 1112 |pname: ibus-daemon |state: 1
[ 3149.471538] pid: 1115 |pname: ibus-dconf |state: 1
[ 3149.471539] pid: 1119 |pname: ibus-x11 |state: 1
[ 3149.471539] pid: 1122 |pname: ibus-portal |state: 1
[ 3149.471540] pid: 1129 |pname: boltd |state: 1
[ 3149.471541] pid: 1130 |pname: packagekitd |state: 1
[ 3149.471542] pid: 1131 |pname: gsd-xsettings |state: 1
[ 3149.471542] pid: 1143 |pname: gsd-a11y-settin |state: 1
[ 3149.471543] pid: 1145 |pname: gsd-clipboard |state: 1
[ 3149.471544] pid: 1148 |pname: gsd-color |state: 1
[ 3149.471545] pid: 1149 |pname: gsd-datetime |state: 1
[ 3149.471546] pid: 1150 |pname: gsd-housekeepin |state: 1
[ 3149.471546] pid: 1151 |pname: gsd-keyboard |state: 1
[ 3149.471547] pid: 1152 |pname: gsd-media-keys |state: 1
[ 3149.471548] pid: 1155 |pname: gsd-mouse |state: 1
[ 3149.471548] pid: 1157 |pname: gsd-power |state: 1
[ 3149.471549] pid: 1158 |pname: gsd-print-notif |state: 1
[ 3149.471550] pid: 1159 |pname: gsd-rfkill |state: 1
[ 3149.471550] pid: 1162 |pname: gsd-screensaver |state: 1
[ 3149.471551] pid: 1164 |pname: gsd-sharing |state: 1
[ 3149.471552] pid: 1167 |pname: gsd-smartcard |state: 1
[ 3149.471553] pid: 1169 |pname: gsd-sound |state: 1
[ 3149.471553] pid: 1173 |pname: gsd-wacom |state: 1
[ 3149.471554] pid: 1192 |pname: ibus-engine-sim |state: 1
[ 3149.471555] pid: 1224 |pname: colord |state: 1
[ 3149.471556] pid: 1240 |pname: gdm-session-wor |state: 1
[ 3149.471556] pid: 1248 |pname: systemd |state: 1
[ 3149.471557] pid: 1249 |pname: (sd-pam) |state: 1
[ 3149.471558] pid: 1262 |pname: gnome-keyring-d |state: 1
[ 3149.471558] pid: 1266 |pname: gdm-x-session |state: 1
[ 3149.471559] pid: 1268 |pname: Xorg |state: 1
[ 3149.471560] pid: 1275 |pname: dbus-daemon |state: 1
[ 3149.471561] pid: 1279 |pname: gnome-session-b |state: 1
[ 3149.471561] pid: 1374 |pname: ssh-agent |state: 1
[ 3149.471562] pid: 1376 |pname: at-spi-bus-laun |state: 1
[ 3149.471563] pid: 1381 |pname: dbus-daemon |state: 1
[ 3149.471564] pid: 1384 |pname: at-spi2-registr |state: 1
[ 3149.471565] pid: 1401 |pname: gnome-shell |state: 1
```

```
[ 3149.471565] pid: 1407 |pname: gvfsd |state: 1
[ 3149.471566] pid: 1412 |pname: gvfsd-fuse |state: 1
[ 3149.471567] pid: 1423 |pname: pulseaudio |state: 1
[ 3149.471568] pid: 1428 |pname: krfcommd |state: 1
[ 3149.471569] pid: 1435 |pname: ibus-daemon |state: 1
[ 3149.471569] pid: 1439 |pname: ibus-dconf |state: 1
[ 3149.471570] pid: 1441 |pname: ibus-x11 |state: 1
[ 3149.471571] pid: 1443 |pname: ibus-portal |state: 1
[ 3149.471571] pid: 1454 |pname: gnome-shell-cal |state: 1
[ 3149.471572] pid: 1460 |pname: evolution-sourc |state: 1
[ 3149.471573] pid: 1470 |pname: dconf-service |state: 1
[ 3149.471574] pid: 1476 |pname: goa-daemon |state: 1
[ 3149.471575] pid: 1477 |pname: gvfs-udisks2-vo |state: 1
[ 3149.471575] pid: 1483 |pname: gvfs-mtp-volume |state: 1
[ 3149.471576] pid: 1487 |pname: gvfs-afc-volume |state: 1
[ 3149.471577] pid: 1494 |pname: goa-identity-se |state: 1
[ 3149.471578] pid: 1499 |pname: gvfs-gphoto2-vo |state: 1
[ 3149.471578] pid: 1507 |pname: gvfs-goa-volume |state: 1
[ 3149.471579] pid: 1511 |pname: gsd-power |state: 1
[ 3149.471580] pid: 1512 |pname: gsd-print-notif |state: 1
[ 3149.471580] pid: 1514 |pname: gsd-rfkill |state: 1
[ 3149.471581] pid: 1515 |pname: gsd-screensaver |state: 1
[ 3149.471582] pid: 1516 |pname: gsd-sharing |state: 1
[ 3149.471582] pid: 1517 |pname: gsd-xsettings |state: 1
[ 3149.471583] pid: 1520 |pname: gsd-wacom |state: 1
[ 3149.471584] pid: 1522 |pname: gsd-sound |state: 1
[ 3149.471585] pid: 1525 |pname: gsd-smartcard |state: 1
[ 3149.471585] pid: 1543 |pname: gsd-a11y-settin |state: 1
[ 3149.471586] pid: 1547 |pname: gsd-clipboard |state: 1
[ 3149.471587] pid: 1548 |pname: gsd-color |state: 1
[ 3149.471588] pid: 1550 |pname: gsd-datetime |state: 1
[ 3149.471588] pid: 1551 |pname: gsd-housekeepin |state: 1
[ 3149.471589] pid: 1554 |pname: gsd-keyboard |state: 1
[ 3149.471590] pid: 1555 |pname: gsd-media-keys |state: 1
[ 3149.471590] pid: 1557 |pname: gsd-mouse |state: 1
[ 3149.471591] pid: 1579 |pname: gsd-printer |state: 1
[ 3149.471592] pid: 1614 |pname: gsd-disk-utilit |state: 1
[ 3149.471593] pid: 1615 |pname: nautilus-deskto |state: 1
[ 3149.471594] pid: 1620 |pname: vmtoolsd |state: 1
[ 3149.471594] pid: 1637 |pname: gvfsd-trash |state: 1
[ 3149.471595] pid: 1652 |pname: evolution-calen |state: 1
[ 3149.471596] pid: 1658 |pname: ibus-engine-sim |state: 1
[ 3149.471596] pid: 1679 |pname: evolution-calen |state: 1
[ 3149.471597] pid: 1695 |pname: evolution-addre |state: 1
[ 3149.471598] pid: 1705 |pname: evolution-addre |state: 1
```

```
[ 3149.471600] pid: 1741 |pname: bash |state: 1
[ 3149.471600] pid: 1749 |pname: gnome-software |state: 1
[ 3149.471601] pid: 1751 |pname: update-notifier |state: 1
[ 3149.471602] pid: 1766 |pname: fwupd |state: 1
[ 3149.471602] pid: 1842 |pname: code |state: 1
[ 3149.471603] pid: 1844 |pname: code |state: 1
[ 3149.471604] pid: 1880 |pname: code |state: 1
[ 3149.471604] pid: 1937 |pname: code |state: 1
[ 3149.471605] pid: 2013 |pname: deja-dup-monito |state: 1
[ 3149.471606] pid: 4387 |pname: gvfsd-network |state: 1
[ 3149.471607] pid: 4413 |pname: gvfsd-dnssd |state: 1
[ 3149.471608] pid: 4431 |pname: code |state: 1
[ 3149.471608] pid: 4454 |pname: code |state: 1
[ 3149.471625] pid: 4455 |pname: code |state: 1
[ 3149.471625] pid: 4507 |pname: Microsoft.VSCod |state: 1
[ 3149.471626] pid: 4536 |pname: kworker/u256:1 |state: 1026
[ 3149.471627] pid: 4710 |pname: Microsoft.VSCod |state: 1
[ 3149.471628] pid: 4726 |pname: Microsoft.VSCod |state: 1
[ 3149.471628] pid: 4772 |pname: kworker/u256:2 |state: 1026
[ 3149.471629] pid: 4834 |pname: gvfsd-metadata |state: 1
[ 3149.471630] pid: 4874 |pname: kworker/u256:0 |state: 1026
[ 3149.471631] pid: 4984 |pname: kworker/u256:3 |state: 1026
[ 3149.471631] pid: 5343 |pname: sudo |state: 1
```

DFS method:

```
[ 3470.788786] pid: 0 |pname: swapper/0 |state: 0
[ 3470.788787] pid: 1 |pname: systemd |state: 1
[ 3470.788788] pid: 323 |pname: systemd-journal |state: 1
[ 3470.788789] pid: 334 |pname: systemd-udevd |state: 1
[ 3470.788790] pid: 458 |pname: vmware-vmblock- |state: 1
[ 3470.788790] pid: 461 |pname: vmtoolsd |state: 1
[ 3470.788791] pid: 483 |pname: systemd-timesyn |state: 1
[ 3470.788792] pid: 484 |pname: systemd-resolve |state: 1
[ 3470.788793] pid: 652 |pname: dbus-daemon |state: 1
[ 3470.788793] pid: 669 |pname: ModemManager |state: 1
[ 3470.788794] pid: 670 |pname: VGAuthService |state: 1
[ 3470.788795] pid: 671 |pname: cupsd |state: 1
[ 3470.788796] pid: 869 |pname: dbus |state: 1
[ 3470.788797] pid: 870 |pname: dbus |state: 1
[ 3470.788797] pid: 672 |pname: avahi-daemon |state: 1
[ 3470.788798] pid: 705 |pname: avahi-daemon |state: 1
[ 3470.788799] pid: 676 |pname: accounts-daemon |state: 1
[ 3470.788800] pid: 677 |pname: NetworkManager |state: 1
[ 3470.788800] pid: 888 |pname: dhclient |state: 1
[ 3470.788801] pid: 685 |pname: acpid |state: 1
[ 3470.788802] pid: 686 |pname: udisksd |state: 1
[ 3470.788802] pid: 706 |pname: snapd |state: 1
[ 3470.788803] pid: 707 |pname: wpa_supplicant |state: 1
[ 3470.788804] pid: 743 |pname: networkd-dispat |state: 1
[ 3470.788805] pid: 744 |pname: rsyslogd |state: 1
[ 3470.788805] pid: 745 |pname: systemd-logind |state: 1
[ 3470.788806] pid: 747 |pname: cron |state: 1
[ 3470.788807] pid: 749 |pname: bluetoothd |state: 1
[ 3470.788808] pid: 764 |pname: cups-browsed |state: 1
[ 3470.788809] pid: 802 |pname: polkitd |state: 1
[ 3470.788809] pid: 853 |pname: unattended-upgr |state: 1
[ 3470.788810] pid: 879 |pname: gdm3 |state: 1
[ 3470.788811] pid: 884 |pname: gdm-session-wor |state: 1
[ 3470.788812] pid: 985 |pname: gdm-wayland-ses |state: 1
[ 3470.788813] pid: 1001 |pname: gnome-session-b |state: 1
[ 3470.788813] pid: 1062 |pname: gnome-shell |state: 1
[ 3470.788839] pid: 1086 |pname: Xwayland |state: 1
[ 3470.788840] pid: 1112 |pname: ibus-daemon |state: 1
[ 3470.788840] pid: 1115 |pname: ibus-dconf |state: 1
[ 3470.788841] pid: 1192 |pname: ibus-engine-sim |state: 1
[ 3470.788842] pid: 1131 |pname: gsd-xsettings |state: 1
[ 3470.788843] pid: 1143 |pname: gsd-a11y-settin |state: 1
[ 3470.788844] pid: 1145 |pname: gsd-clipboard |state: 1
[ 3470.788844] pid: 1148 |pname: gsd-color |state: 1
```

```
[ 3470.788845] pid: 1149 |pname: gsd-datetime |state: 1
[ 3470.788846] pid: 1150 |pname: gsd-housekeepin |state: 1
[ 3470.788847] pid: 1151 |pname: gsd-keyboard |state: 1
[ 3470.788848] pid: 1152 |pname: gsd-media-keys |state: 1
[ 3470.788848] pid: 1155 |pname: gsd-mouse |state: 1
[ 3470.788849] pid: 1157 |pname: gsd-power |state: 1
[ 3470.788850] pid: 1158 |pname: gsd-print-notif |state: 1
[ 3470.788850] pid: 1159 |pname: gsd-rfkill |state: 1
[ 3470.788851] pid: 1162 |pname: gsd-screensaver |state: 1
[ 3470.788852] pid: 1164 |pname: gsd-sharing |state: 1
[ 3470.788853] pid: 1167 |pname: gsd-smartcard |state: 1
[ 3470.788853] pid: 1169 |pname: gsd-sound |state: 1
[ 3470.788854] pid: 1173 |pname: gsd-wacom |state: 1
[ 3470.788855] pid: 1240 |pname: gdm-session-wor |state: 1
[ 3470.788856] pid: 1266 |pname: gdm-x-session |state: 1
[ 3470.788857] pid: 1268 |pname: Xorg |state: 1
[ 3470.788857] pid: 1279 |pname: gnome-session-b |state: 1
[ 3470.788858] pid: 1374 |pname: ssh-agent |state: 1
[ 3470.788859] pid: 1401 |pname: gnome-shell |state: 1
[ 3470.788860] pid: 1435 |pname: ibus-daemon |state: 1
[ 3470.788860] pid: 1439 |pname: ibus-dconf |state: 1
[ 3470.788861] pid: 1658 |pname: ibus-engine-sim |state: 1
[ 3470.788862] pid: 1511 |pname: gsd-power |state: 1
[ 3470.788863] pid: 1512 |pname: gsd-print-notif |state: 1
[ 3470.788863] pid: 1514 |pname: gsd-rfkill |state: 1
[ 3470.788864] pid: 1515 |pname: gsd-screensaver |state: 1
[ 3470.788865] pid: 1516 |pname: gsd-sharing |state: 1
[ 3470.788865] pid: 1517 |pname: gsd-xsettings |state: 1
[ 3470.788866] pid: 1520 |pname: gsd-wacom |state: 1
[ 3470.788867] pid: 1522 |pname: gsd-sound |state: 1
[ 3470.788868] pid: 1525 |pname: gsd-smartcard |state: 1
[ 3470.788869] pid: 1543 |pname: gsd-a11y-settin |state: 1
[ 3470.788870] pid: 1547 |pname: gsd-clipboard |state: 1
[ 3470.788870] pid: 1548 |pname: gsd-color |state: 1
[ 3470.788871] pid: 1550 |pname: gsd-datetime |state: 1
[ 3470.788872] pid: 1551 |pname: gsd-housekeepin |state: 1
[ 3470.788873] pid: 1554 |pname: gsd-keyboard |state: 1
[ 3470.788874] pid: 1555 |pname: gsd-media-keys |state: 1
[ 3470.788874] pid: 1557 |pname: gsd-mouse |state: 1
[ 3470.788875] pid: 1614 |pname: gsd-disk-utilit |state: 1
[ 3470.788876] pid: 1615 |pname: nautilus-deskto |state: 1
[ 3470.788877] pid: 1749 |pname: gnome-software |state: 1
[ 3470.788878] pid: 1751 |pname: update-notifier |state: 1
[ 3470.788878] pid: 2013 |pname: deja-dup-monito |state: 1
[ 3470.788879] pid: 924 |pname: whoopsie |state: 1

[ 3470.788880] pid: 930 |pname: kerneloops |state: 1
[ 3470.788881] pid: 933 |pname: kerneloops |state: 1
[ 3470.788882] pid: 972 |pname: systemd |state: 1
[ 3470.788882] pid: 973 |pname: (sd-pam) |state: 1
[ 3470.788883] pid: 988 |pname: dbus-daemon |state: 1
[ 3470.788884] pid: 1089 |pname: at-spi-bus-laun |state: 1
[ 3470.788884] pid: 1094 |pname: dbus-daemon |state: 1
[ 3470.788885] pid: 1096 |pname: at-spi2-registr |state: 1
[ 3470.788886] pid: 1099 |pname: pulseaudio |state: 1
[ 3470.788887] pid: 1122 |pname: ibus-portal |state: 1
[ 3470.788887] pid: 1070 |pname: upowerd |state: 1
[ 3470.788888] pid: 1101 |pname: rtkit-daemon |state: 1
[ 3470.788889] pid: 1119 |pname: ibus-x11 |state: 1
[ 3470.788889] pid: 1129 |pname: boltd |state: 1
[ 3470.788890] pid: 1130 |pname: packagekitd |state: 1
[ 3470.788891] pid: 1224 |pname: colord |state: 1
[ 3470.788892] pid: 1248 |pname: systemd |state: 1
[ 3470.788893] pid: 1249 |pname: (sd-pam) |state: 1
[ 3470.788893] pid: 1275 |pname: dbus-daemon |state: 1
[ 3470.788894] pid: 1376 |pname: at-spi-bus-laun |state: 1
[ 3470.788895] pid: 1381 |pname: dbus-daemon |state: 1
[ 3470.788896] pid: 1384 |pname: at-spi2-registr |state: 1
[ 3470.788926] pid: 1407 |pname: gvfsd |state: 1
[ 3470.788927] pid: 1637 |pname: gvfsd-trash |state: 1
[ 3470.788928] pid: 4387 |pname: gvfsd-network |state: 1
[ 3470.788929] pid: 4413 |pname: gvfsd-dnssd |state: 1
[ 3470.788930] pid: 1412 |pname: gvfsd-fuse |state: 1
[ 3470.788930] pid: 1443 |pname: ibus-portal |state: 1
[ 3470.788931] pid: 1460 |pname: evolution-sourc |state: 1
[ 3470.788932] pid: 1470 |pname: dconf-service |state: 1
[ 3470.788933] pid: 1477 |pname: gvfs-udisks2-vo |state: 1
[ 3470.788934] pid: 1454 |pname: gnome-shell-cal |state: 1
[ 3470.788934] pid: 1483 |pname: gvfs-mtp-volume |state: 1
[ 3470.788935] pid: 1487 |pname: gvfs-afc-volume |state: 1
[ 3470.788936] pid: 1499 |pname: gvfs-gphoto2-vo |state: 1
[ 3470.788937] pid: 1476 |pname: goa-daemon |state: 1
[ 3470.788938] pid: 1494 |pname: goa-identity-se |state: 1
[ 3470.788938] pid: 1507 |pname: gvfs-goa-volume |state: 1
[ 3470.788939] pid: 1652 |pname: evolution-calen |state: 1
[ 3470.788940] pid: 1679 |pname: evolution-calen |state: 1
[ 3470.788940] pid: 1695 |pname: evolution-addre |state: 1
[ 3470.788941] pid: 1705 |pname: evolution-addre |state: 1
[ 3470.788942] pid: 1731 |pname: gnome-terminal- |state: 1
[ 3470.788943] pid: 1741 |pname: bash |state: 1
[ 3470.788943] pid: 5862 |pname: sudo |state: 1
```

```
[ 3470.788944] pid: 5863 |pname: insmod |state: 0
[ 3470.788945] pid: 1842 |pname: code |state: 1
[ 3470.788971] pid: 1844 |pname: code |state: 1
[ 3470.788971] pid: 1937 |pname: code |state: 1
[ 3470.788972] pid: 4431 |pname: code |state: 1
[ 3470.788973] pid: 4454 |pname: code |state: 1
[ 3470.788974] pid: 4455 |pname: code |state: 1
[ 3470.788974] pid: 4507 |pname: Microsoft.VSCod |state: 1
[ 3470.788975] pid: 4834 |pname: gvfsd-metadata |state: 1
[ 3470.788976] pid: 1262 |pname: gnome-keyring-d |state: 1
[ 3470.788977] pid: 1423 |pname: pulseaudio |state: 1
[ 3470.788978] pid: 1441 |pname: ibus-x11 |state: 1
[ 3470.788979] pid: 1579 |pname: gsd-printer |state: 1
[ 3470.788979] pid: 1620 |pname: vmtoolsd |state: 1
[ 3470.788980] pid: 1766 |pname: fwupd |state: 1
[ 3470.788981] pid: 2 |pname: kthreadd |state: 1
[ 3470.788981] pid: 3 |pname: rcu_gp |state: 1026
[ 3470.788982] pid: 4 |pname: rcu_par_gp |state: 1026
[ 3470.788983] pid: 6 |pname: kworker/0:0H |state: 1026
[ 3470.788984] pid: 8 |pname: mm_percpu_wq |state: 1026
[ 3470.788984] pid: 9 |pname: ksoftirqd/0 |state: 1
[ 3470.788985] pid: 10 |pname: rcu_sched |state: 1026
[ 3470.788986] pid: 11 |pname: rcu_bh |state: 1026
[ 3470.788986] pid: 12 |pname: migration/0 |state: 1
[ 3470.788987] pid: 13 |pname: watchdog/0 |state: 1
[ 3470.788988] pid: 14 |pname: cpuhp/0 |state: 1
[ 3470.788988] pid: 15 |pname: kdevtmpfs |state: 1
[ 3470.788989] pid: 16 |pname: netns |state: 1026
[ 3470.788990] pid: 17 |pname: rcu_tasks_kthre |state: 1
[ 3470.788991] pid: 18 |pname: kauditd |state: 1
[ 3470.788991] pid: 19 |pname: khungtaskd |state: 1
[ 3470.788992] pid: 20 |pname: oom_reaper |state: 1
[ 3470.788993] pid: 21 |pname: writeback |state: 1026
[ 3470.788993] pid: 22 |pname: kcompactd0 |state: 1
[ 3470.788994] pid: 23 |pname: ksmd |state: 1
[ 3470.788995] pid: 24 |pname: khugepaged |state: 1
[ 3470.788995] pid: 25 |pname: crypto |state: 1026
[ 3470.788996] pid: 26 |pname: kintegrityd |state: 1026
[ 3470.788997] pid: 27 |pname: kblockd |state: 1026
[ 3470.788998] pid: 28 |pname: ata_sff |state: 1026
[ 3470.788998] pid: 29 |pname: md |state: 1026
[ 3470.788999] pid: 30 |pname: edac-poller |state: 1026
[ 3470.789000] pid: 31 |pname: devfreq_wq |state: 1026
[ 3470.789000] pid: 32 |pname: kworker/0:1 |state: 1026
[ 3470.789001] pid: 33 |pname: watchdogd |state: 1
```

```
[ 3470.789002] pid: 36 |pname: kswapd0 |state: 1
[ 3470.789003] pid: 37 |pname: kworker/u257:0 |state: 1026
[ 3470.789003] pid: 38 |pname: ecryptfs-kthrea |state: 1
[ 3470.789004] pid: 83 |pname: kthrotld |state: 1026
[ 3470.789005] pid: 84 |pname: acpi_thermal_pm |state: 1026
[ 3470.789006] pid: 85 |pname: scsi_eh_0 |state: 1
[ 3470.789006] pid: 86 |pname: scsi_tmf_0 |state: 1026
[ 3470.789007] pid: 87 |pname: scsi_eh_1 |state: 1
[ 3470.789008] pid: 88 |pname: scsi_tmf_1 |state: 1026
[ 3470.789009] pid: 94 |pname: ipv6_addrconf |state: 1026
[ 3470.789009] pid: 96 |pname: kworker/0:2 |state: 1026
[ 3470.789010] pid: 104 |pname: kstrp |state: 1026
[ 3470.789011] pid: 121 |pname: charger_manager |state: 1026
[ 3470.789012] pid: 171 |pname: mpt_poll_0 |state: 1026
[ 3470.789012] pid: 172 |pname: mpt/0 |state: 1026
[ 3470.789013] pid: 173 |pname: scsi_eh_2 |state: 1
[ 3470.789014] pid: 174 |pname: scsi_tmf_2 |state: 1026
[ 3470.789014] pid: 175 |pname: scsi_eh_3 |state: 1
[ 3470.789015] pid: 176 |pname: scsi_tmf_3 |state: 1026
[ 3470.789016] pid: 177 |pname: scsi_eh_4 |state: 1
[ 3470.789017] pid: 178 |pname: scsi_tmf_4 |state: 1026
[ 3470.789017] pid: 179 |pname: scsi_eh_5 |state: 1
[ 3470.789018] pid: 180 |pname: scsi_tmf_5 |state: 1026
[ 3470.789019] pid: 181 |pname: scsi_eh_6 |state: 1
[ 3470.789020] pid: 182 |pname: scsi_tmf_6 |state: 1026
[ 3470.789020] pid: 183 |pname: scsi_eh_7 |state: 1
[ 3470.789021] pid: 184 |pname: scsi_tmf_7 |state: 1026
[ 3470.789022] pid: 185 |pname: scsi_eh_8 |state: 1
[ 3470.789022] pid: 186 |pname: scsi_tmf_8 |state: 1026
[ 3470.789023] pid: 187 |pname: scsi_eh_9 |state: 1
[ 3470.789024] pid: 188 |pname: scsi_tmf_9 |state: 1026
[ 3470.789024] pid: 189 |pname: scsi_eh_10 |state: 1
[ 3470.789025] pid: 190 |pname: scsi_tmf_10 |state: 1026
[ 3470.789026] pid: 191 |pname: scsi_eh_11 |state: 1
[ 3470.789027] pid: 192 |pname: scsi_tmf_11 |state: 1026
[ 3470.789028] pid: 193 |pname: scsi_eh_12 |state: 1
[ 3470.789028] pid: 194 |pname: scsi_tmf_12 |state: 1026
[ 3470.789029] pid: 195 |pname: scsi_eh_13 |state: 1
[ 3470.789030] pid: 196 |pname: scsi_tmf_13 |state: 1026
[ 3470.789030] pid: 197 |pname: scsi_eh_14 |state: 1
[ 3470.789031] pid: 198 |pname: scsi_tmf_14 |state: 1026
[ 3470.789032] pid: 199 |pname: scsi_eh_15 |state: 1
[ 3470.789033] pid: 200 |pname: scsi_tmf_15 |state: 1026
[ 3470.789033] pid: 201 |pname: scsi_eh_16 |state: 1
[ 3470.789034] pid: 202 |pname: scsi_tmf_16 |state: 1026
```

```
[ 3470.789035] pid: 203 |pname: scsi_eh_17 |state: 1
[ 3470.789035] pid: 204 |pname: scsi_tmf_17 |state: 1026
[ 3470.789036] pid: 205 |pname: scsi_eh_18 |state: 1
[ 3470.789037] pid: 206 |pname: scsi_tmf_18 |state: 1026
[ 3470.789037] pid: 207 |pname: scsi_eh_19 |state: 1
[ 3470.789038] pid: 208 |pname: scsi_tmf_19 |state: 1026
[ 3470.789039] pid: 209 |pname: scsi_eh_20 |state: 1
[ 3470.789039] pid: 210 |pname: scsi_tmf_20 |state: 1026
[ 3470.789040] pid: 211 |pname: scsi_eh_21 |state: 1
[ 3470.789041] pid: 212 |pname: scsi_tmf_21 |state: 1026
[ 3470.789041] pid: 213 |pname: scsi_eh_22 |state: 1
[ 3470.789042] pid: 214 |pname: scsi_tmf_22 |state: 1026
[ 3470.789043] pid: 215 |pname: scsi_eh_23 |state: 1
[ 3470.789043] pid: 216 |pname: scsi_tmf_23 |state: 1026
[ 3470.789044] pid: 217 |pname: scsi_eh_24 |state: 1
[ 3470.789045] pid: 218 |pname: scsi_tmf_24 |state: 1026
[ 3470.789045] pid: 219 |pname: scsi_eh_25 |state: 1
[ 3470.789046] pid: 220 |pname: scsi_tmf_25 |state: 1026
[ 3470.789047] pid: 221 |pname: scsi_eh_26 |state: 1
[ 3470.789047] pid: 222 |pname: scsi_tmf_26 |state: 1026
[ 3470.789048] pid: 223 |pname: scsi_eh_27 |state: 1
[ 3470.789049] pid: 224 |pname: scsi_tmf_27 |state: 1026
[ 3470.789049] pid: 225 |pname: scsi_eh_28 |state: 1
[ 3470.789050] pid: 226 |pname: scsi_tmf_28 |state: 1026
[ 3470.789051] pid: 227 |pname: scsi_eh_29 |state: 1
[ 3470.789052] pid: 228 |pname: scsi_tmf_29 |state: 1026
[ 3470.789052] pid: 229 |pname: scsi_eh_30 |state: 1
[ 3470.789053] pid: 230 |pname: scsi_tmf_30 |state: 1026
[ 3470.789054] pid: 231 |pname: scsi_eh_31 |state: 1
[ 3470.789054] pid: 232 |pname: scsi_tmf_31 |state: 1026
[ 3470.789055] pid: 234 |pname: scsi_eh_32 |state: 1
[ 3470.789056] pid: 236 |pname: scsi_tmf_32 |state: 1026
[ 3470.789057] pid: 264 |pname: kworker/0:1H |state: 1026
[ 3470.789057] pid: 286 |pname: jbd2/sda1-8 |state: 1
[ 3470.789058] pid: 287 |pname: ext4-rsv-conver |state: 1026
[ 3470.789059] pid: 348 |pname: loop0 |state: 1
[ 3470.789060] pid: 350 |pname: loop1 |state: 1
[ 3470.789060] pid: 351 |pname: loop2 |state: 1
[ 3470.789061] pid: 353 |pname: loop3 |state: 1
[ 3470.789062] pid: 354 |pname: loop4 |state: 1
[ 3470.789062] pid: 357 |pname: loop5 |state: 1
[ 3470.789063] pid: 358 |pname: loop6 |state: 1
[ 3470.789064] pid: 359 |pname: loop7 |state: 1
[ 3470.789064] pid: 362 |pname: loop8 |state: 1
[ 3470.789065] pid: 365 |pname: loop9 |state: 1
```

```
[ 3470.789066] pid: 367 |pname: loop10 |state: 1
[ 3470.789066] pid: 368 |pname: loop11 |state: 1
[ 3470.789067] pid: 371 |pname: loop12 |state: 1
[ 3470.789068] pid: 372 |pname: loop13 |state: 1
[ 3470.789069] pid: 374 |pname: loop14 |state: 1
[ 3470.789069] pid: 378 |pname: loop15 |state: 1
[ 3470.789070] pid: 380 |pname: loop16 |state: 1
[ 3470.789071] pid: 382 |pname: loop17 |state: 1
[ 3470.789071] pid: 383 |pname: loop18 |state: 1
[ 3470.789072] pid: 384 |pname: loop19 |state: 1
[ 3470.789073] pid: 387 |pname: loop20 |state: 1
[ 3470.789073] pid: 388 |pname: loop21 |state: 1
[ 3470.789074] pid: 390 |pname: loop22 |state: 1
[ 3470.789075] pid: 398 |pname: loop23 |state: 1
[ 3470.789075] pid: 478 |pname: ttm_swap |state: 1026
[ 3470.789076] pid: 479 |pname: irq/16-vmwgfx |state: 1
[ 3470.789077] pid: 545 |pname: kworker/u257:1 |state: 1026
[ 3470.789078] pid: 1428 |pname: krfcommd |state: 1
[ 3470.789079] pid: 4772 |pname: kworker/u256:2 |state: 1026
```