#----------CAT

ubuntu:~$ cat /proc/version

Linux version 6.8.0-51-generic (buildd@lcy02-amd64-091) (x86_64-linux-gnu-gcc-13 (Ubuntu 13.3.0-6ubuntu2~24.04) 13.3.0, GNU ld (GNU Binutils for Ubuntu) 2.42) #52-Ubuntu SMP PREEMPT_DYNAMIC Thu Dec 5 13:09:44 UTC 2024

ubuntu:~$ cat --help

Usage: cat [OPTION]... [FILE]...

Concatenate FILE(s) to standard output.

With no FILE, or when FILE is -, read standard input.

```
  -A, --show-all         equivalent to -vET
  -b, --number-nonblank    number nonempty output lines, overrides -n
  -e                     equivalent to -vE
  -E, --show-ends        display $ at end of each line
  -n, --number           number all output lines
  -s, --squeeze-blank      suppress repeated empty output lines
  -t                     equivalent to -vT
  -T, --show-tabs        display TAB characters as ^I
  -u                     (ignored)
  -v, --show-nonprinting   use ^ and M- notation, except for LFD and TAB
      --help       display this help and exit
      --version    output version information and exit
```

Examples:

```
  cat f - g  Output f's contents, then standard input, then g's contents.
  cat        Copy standard input to standard output.
```

GNU coreutils online help: <https://www.gnu.org/software/coreutils/>

Report any translation bugs to <https://translationproject.org/team/>

Full documentation <https://www.gnu.org/software/coreutils/cat>

or available locally via: info '(coreutils) cat invocation'

#----------FIND

ubuntu:~$ find --version

find (GNU findutils) 4.9.0

ubuntu:~$ find --help

Usage: find [-H] [-L] [-P] [-Olevel] [-D debugopts] [path...] [expression]

Default path is the current directory; default expression is -print.

Expression may consist of: operators, options, tests, and actions.

Operators (decreasing precedence; -and is implicit where no others are given):
    (EXPR) ! EXPR -not EXPR EXPR1 -a EXPR2 EXPR1 -and EXPR2
    EXPR1 -o EXPR2 EXPR1 -or EXPR2 EXPR1 , EXPR2

Positional options (always true):
    -daystart -follow -nowarn -regextype -warn

Normal options (always true, specified before other expressions):
    -depth -files0-from FILE -maxdepth LEVELS -mindepth LEVELS
    -mount -noleaf -xdev -ignore_readdir_race -noignore_readdir_race

Tests (N can be +N or -N or N):
    -amin N -anewer FILE -atime N -cmin N -cnewer FILE -context CONTEXT
    -ctime N -empty -false -fstype TYPE -gid N -group NAME -ilname PATTERN
    -iname PATTERN -inum N -iwholename PATTERN -iregex PATTERN
    -links N -lname PATTERN -mmin N -mtime N -name PATTERN -newer FILE
    -nouser -nogroup -path PATTERN -perm [-/]MODE -regex PATTERN
    -readable -writable -executable
    -wholename PATTERN -size N[bcwkMG] -true -type [bcdpflsD] -uid N
    -used N -user NAME -xtype [bcdpfls]

Actions:
    -delete -print0 -printf FORMAT -fprintf FILE FORMAT -print
    -fprint0 FILE -fprint FILE -ls -fls FILE -prune -quit
    -exec COMMAND ; -exec COMMAND {} + -ok COMMAND ;
    -execdir COMMAND ; -execdir COMMAND {} + -okdir COMMAND ;

Other common options:
    --help   display this help and exit
    --version   output version information and exit

Valid arguments for -D:
exec, opt, rates, search, stat, time, tree, all, help
Use '-D help' for a description of the options, or see find(1)

Please see also the documentation at https://www.gnu.org/software/findutils/.
You can report (and track progress on fixing) bugs in the "find"
program via the GNU findutils bug-reporting page at
https://savannah.gnu.org/bugs/?group=findutils or, if

    ethtool [FLAGS] --set-pse DEVNAME   Set Power Sourcing Equipment settings
        [podl-pse-admin-control enable|disable]
    ethtool [FLAGS] -h|--help   Show this help
    ethtool [FLAGS] --version   Show version number
    ethtool --monitor   Show kernel notifications
        ([--all]
          | -s | --change
          | -k | --show-features | --show-offload | -K | --features | --offload
          | --show-priv-flags | --set-priv-flags
          | -g | --show-ring | -G | --set-ring
          | -l | --show-channels | -L | --set-channels
          | -c | --show-coalesce | -C | --coalesce
          | -a | --show-pause | -A | --pause
          | --show-eee | --set-eee
          | --cable-test
          | --cable-test-tdr
          | --show-module | --set-module)
        [DEVNAME | *]

FLAGS:
    --debug MASK   turn on debugging messages
    --json   enable JSON output format (not supported by all commands)
    -I|--include-statistics   request device statistics related to the command (not supported by all commands)

[mac-shared]

[phy]

[phy-shared]

[ram]

[ram-shared]

[ap]

[ap-shared]

[dedicated]

[all]

ethtool [FLAGS] --show-fec DEVNAME Show FEC settings

ethtool [FLAGS] --set-fec DEVNAME Set FEC settings

[encoding auto|off|rs|baser|llrs [...]]

ethtool [FLAGS] -Q|--per-queue DEVNAME Apply per-queue command.

The supported sub commands include --show-coalesce, --coalesce [queue_mask %x] SUB_COMMAND

ethtool [FLAGS] --cable-test DEVNAME Perform a cable test

ethtool [FLAGS] --cable-test-tdr DEVNAME Print cable test time domain reflectrometery data

[first N]

[last N]

[step N]

[pair N]

ethtool [FLAGS] --show-tunnels DEVNAME Show NIC tunnel offload information

ethtool [FLAGS] --show-module DEVNAME Show transceiver module settings

ethtool [FLAGS] --set-module DEVNAME Set transceiver module settings

[power-mode-policy high|auto]

ethtool [FLAGS] --get-plca-cfg DEVNAME Get PLCA configuration

ethtool [FLAGS] --set-plca-cfg DEVNAME Set PLCA configuration

[enable on|off]

[node-id N]

[node-cnt N]

[to-tmr N]

[burst-cnt N]

[burst-tmr N]

ethtool [FLAGS] --get-plca-status DEVNAME Get PLCA status information

ethtool [FLAGS] --show-mm DEVNAME Show MAC merge layer state

ethtool [FLAGS] --set-mm DEVNAME Set MAC merge layer parameters

[verify-enabled on|off]

[verify-time N]

[tx-enabled on|off]

[pmac-enabled on|off]

[tx-min-frag-size 60-252]

ethtool [FLAGS] --show-pse DEVNAME Show settings for Power Sourcing Equipment

you have no web access, by sending email to <bug-findutils@gnu.org>.

#---------- LS

ubuntu:~$ ls --version

ls (GNU coreutils) 9.4

ubuntu:~$ ls --help

Usage: ls [OPTION]... [FILE]...

List information about the FILEs (the current directory by default).

Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.

Mandatory arguments to long options are mandatory for short options too.

-a, --all do not ignore entries starting with .

-A, --almost-all do not list implied . and ..

--author with -l, print the author of each file

-b, --escape print C-style escapes for nongraphic characters

--block-size=SIZE with -l, scale sizes by SIZE when printing them;

e.g., '--block-size=M'; see SIZE format below

-B, --ignore-backups do not list implied entries ending with ~

-c with -lt: sort by, and show, ctime (time of last

change of file status information);

with -l: show ctime and sort by name;

otherwise: sort by ctime, newest first

-C list entries by columns

--color[=WHEN] color the output WHEN; more info below

-d, --directory list directories themselves, not their contents

-D, --dired generate output designed for Emacs' dired mode

-f list all entries in directory order

-F, --classify[=WHEN] append indicator (one of */=>@|) to entries WHEN

--file-type likewise, except do not append '*'

--format=WORD across -x, commas -m, horizontal -x, long -l,

single-column -1, verbose -l, vertical -C

--full-time like -l --time-style=full-iso

-g like -l, but do not list owner

--group-directories-first

group directories before files;

can be augmented with a --sort option, but any

use of --sort=none (-U) disables grouping

```
-G, --no-group          in a long listing, don't print group names
-h, --human-readable    with -l and -s, print sizes like 1K 234M 2G etc.
  --si                  likewise, but use powers of 1000 not 1024
-H, --dereference-command-line
                        follow symbolic links listed on the command line
  --dereference-command-line-symlink-to-dir
                        follow each command line symbolic link
                        that points to a directory

  --hide=PATTERN        do not list implied entries matching shell PATTERN
                        (overridden by -a or -A)

  --hyperlink[=WHEN]    hyperlink file names WHEN
  --indicator-style=WORD
                        append indicator with style WORD to entry names:
                        none (default), slash (-p),
                        file-type (--file-type), classify (-F)

-i, --inode             print the index number of each file
-I, --ignore=PATTERN    do not list implied entries matching shell PATTERN
-k, --kibibytes         default to 1024-byte blocks for file system usage;
                        used only with -s and per directory totals

-l                      use a long listing format
-L, --dereference       when showing file information for a symbolic
                        link, show information for the file the link
                        references rather than for the link itself

-m                      fill width with a comma separated list of entries
-n, --numeric-uid-gid   like -l, but list numeric user and group IDs
-N, --literal           print entry names without quoting
-o                      like -l, but do not list group information
-p, --indicator-style=slash
                        append / indicator to directories
-q, --hide-control-chars  print ? instead of nongraphic characters
  --show-control-chars  show nongraphic characters as-is (the default,
                        unless program is 'ls' and output is a terminal)

-Q, --quote-name        enclose entry names in double quotes
  --quoting-style=WORD  use quoting style WORD for entry names:
```

```
                        [ length N ]
                        [ page N ]
                        [ bank N ]
                        [ i2c N ]
ethtool [ FLAGS ] --show-eee DEVNAME    Show EEE settings
ethtool [ FLAGS ] --set-eee DEVNAME     Set EEE settings
                        [ eee on|off ]
                        [ advertise %x ]
                        [ tx-lpi on|off ]
                        [ tx-timer %d ]
ethtool [ FLAGS ] --set-phy-tunable DEVNAME     Set PHY tunable
                        [ downshift on|off [count N] ]
                        [ fast-link-down on|off [msecs N] ]
                        [ energy-detect-power-down on|off [msecs N] ]
ethtool [ FLAGS ] --get-phy-tunable DEVNAME     Get PHY tunable
                        [ downshift ]
                        [ fast-link-down ]
                        [ energy-detect-power-down ]
ethtool [ FLAGS ] --get-tunable DEVNAME Get tunable
                        [ rx-copybreak ]
                        [ tx-copybreak ]
                        [ tx-buf-size ]
                        [ pfc-prevention-tout ]
ethtool [ FLAGS ] --set-tunable DEVNAME Set tunable
                        [ rx-copybreak N ]
                        [ tx-copybreak N ]
                        [ tx-buf-size N ]
                        [ pfc-prevention-tout N ]
ethtool [ FLAGS ] --reset DEVNAME       Reset components
                        [ flags %x ]
                        [ mgmt ]
                        [ mgmt-shared ]
                        [ irq ]
                        [ irq-shared ]
                        [ dma ]
                        [ dma-shared ]
                        [ filter ]
                        [ filter-shared ]
                        [ offload ]
                        [ offload-shared ]
                        [ mac ]
```

```
                [ src-port %d [m %x] ]
                [ dst-port %d [m %x] ]
                [ spi %d [m %x] ]
                [ vlan-etype %x [m %x] ]
                [ vlan %x [m %x] ]
                [ user-def %x [m %x] ]
                [ dst-mac %x:%x:%x:%x:%x:%x [m %x:%x:%x:%x:%x:%x] ]
                [ action %d ] | [ vf %d queue %d ]
                [ context %d ]
                [ loc %d ] |
        delete %d
    ethtool [ FLAGS ] -T|--show-time-stamping DEVNAME     Show time stamping capabilities
    ethtool [ FLAGS ] -x|--show-rxfh-indir|--show-rxfh DEVNAME     Show Rx flow hash indirection table and/or RSS hash key
        [ context %d ]
    ethtool [ FLAGS ] -X|--set-rxfh-indir|--rxfh DEVNAME    Set Rx flow hash indirection table and/or RSS hash key
        [ context %d|new ]
        [ equal N | weight W0 W1 ... | default ]
        [ hkey %x:%x:%x:%x:%x:.... ]
        [ hfunc FUNC ]
        [ delete ]
    ethtool [ FLAGS ] -f|--flash DEVNAME    Flash firmware image from the specified file to a region on the device
        FILENAME [ REGION-NUMBER-TO-FLASH ]
    ethtool [ FLAGS ] -P|--show-permaddr DEVNAME    Show permanent hardware address
    ethtool [ FLAGS ] -w|--get-dump DEVNAME Get dump flag, data
        [ data FILENAME ]
    ethtool [ FLAGS ] -W|--set-dump DEVNAME Set dump flag of the device
        N
    ethtool [ FLAGS ] -l|--show-channels DEVNAME    Query Channels
    ethtool [ FLAGS ] -L|--set-channels DEVNAME     Set Channels
        [ rx N ]
        [ tx N ]
        [ other N ]
        [ combined N ]
    ethtool [ FLAGS ] --show-priv-flags DEVNAME     Query private flags
    ethtool [ FLAGS ] --set-priv-flags DEVNAME      Set private flags
        FLAG on|off ...
    ethtool [ FLAGS ] -m|--dump-module-eeprom|--module-info DEVNAME Query/Decode Module EEPROM information and optical
diagnostics if available
        [ raw on|off ]
        [ hex on|off ]
        [ offset N ]
```

```
                literal, locale, shell, shell-always,
                shell-escape, shell-escape-always, c, escape
                (overrides QUOTING_STYLE environment variable)

-r, --reverse           reverse order while sorting
-R, --recursive         list subdirectories recursively
-s, --size              print the allocated size of each file, in blocks
-S                      sort by file size, largest first
    --sort=WORD         sort by WORD instead of name: none (-U), size (-S),
                time (-t), version (-v), extension (-X), width

    --time=WORD         select which timestamp used to display or sort;
                access time (-u): atime, access, use;
                metadata change time (-c): ctime, status;
                modified time (default): mtime, modification;
                birth time: birth, creation;
                with -l, WORD determines which time to show;
                with --sort=time, sort by WORD (newest first)

    --time-style=TIME_STYLE
                time/date format with -l; see TIME_STYLE below
-t                      sort by time, newest first; see --time
-T, --tabsize=COLS      assume tab stops at each COLS instead of 8
-u                      with -lt: sort by, and show, access time;
                with -l: show access time and sort by name;
                otherwise: sort by access time, newest first

-U                      do not sort; list entries in directory order
-v                      natural sort of (version) numbers within text
-w, --width=COLS        set output width to COLS.  0 means no limit
-x                      list entries by lines instead of by columns
-X                      sort alphabetically by entry extension
-Z, --context           print any security context of each file
    --zero              end each output line with NUL, not newline
-1                      list one file per line
    --help      display this help and exit
    --version   output version information and exit

The SIZE argument is an integer and optional unit (example: 10K is 10*1024).
Units are K,M,G,T,P,E,Z,Y,R,Q (powers of 1024) or KB,MB,... (powers of 1000).
Binary prefixes can be used, too: KiB=K, MiB=M, and so on.
```

The TIME_STYLE argument can be full-iso, long-iso, iso, locale, or +FORMAT.

FORMAT is interpreted like in date(1). If FORMAT is FORMAT1<newline>FORMAT2,

then FORMAT1 applies to non-recent files and FORMAT2 to recent files.

TIME_STYLE prefixed with 'posix-' takes effect only outside the POSIX locale.

Also the TIME_STYLE environment variable sets the default style to use.

The WHEN argument defaults to 'always' and can also be 'auto' or 'never'.

Using color to distinguish file types is disabled both by default and

with --color=never. With --color=auto, ls emits color codes only when

standard output is connected to a terminal. The LS_COLORS environment

variable can change the settings. Use the dircolors(1) command to set it.

Exit status:

0 if OK,

1 if minor problems (e.g., cannot access subdirectory),

2 if serious trouble (e.g., cannot access command-line argument).

GNU coreutils online help: <https://www.gnu.org/software/coreutils/>

Report any translation bugs to <https://translationproject.org/team/>

Full documentation <https://www.gnu.org/software/coreutils/ls>

or available locally via: info '(coreutils) ls invocation'

#---------- LSHW

ubuntu:~$ lshw --help

Hardware Lister (lshw) -

usage: lshw [-format] [-options ...]

lshw -version

-version print program version ()

format can be

-html output hardware tree as HTML

-xml output hardware tree as XML

-json output hardware tree as a JSON object

-short output hardware paths

-businfo output bus information

options can be

-class CLASS only show a certain class of hardware

[rx-push on|off]

[tx-push-buf-len N]

ethtool [FLAGS] -k|--show-features|--show-offload DEVNAME Get state of protocol offload and other features

ethtool [FLAGS] -K|--features|--offload DEVNAME Set protocol offload and other features

FEATURE on|off ...

ethtool [FLAGS] -i|--driver DEVNAME Show driver information

ethtool [FLAGS] -d|--register-dump DEVNAME Do a register dump

[raw on|off]

[file FILENAME]

ethtool [FLAGS] -e|--eeprom-dump DEVNAME Do a EEPROM dump

[raw on|off]

[offset N]

[length N]

ethtool [FLAGS] -E|--change-eeprom DEVNAME Change bytes in device EEPROM

[magic N]

[offset N]

[length N]

[value N]

ethtool [FLAGS] -r|--negotiate DEVNAME Restart N-WAY negotiation

ethtool [FLAGS] -p|--identify DEVNAME Show visible port identification (e.g. blinking)

[TIME-IN-SECONDS]

ethtool [FLAGS] -t|--test DEVNAME Execute adapter self test

[online | offline | external_lb]

ethtool [FLAGS] -S|--statistics DEVNAME Show adapter statistics

[--all-groups | --groups [eth-phy] [eth-mac] [eth-ctrl] [rmon]]

[--src aggregate | emac | pmac]

ethtool [FLAGS] --phy-statistics DEVNAME Show phy statistics

ethtool [FLAGS] -n|-u|--show-nfc|--show-ntuple DEVNAME Show Rx network flow classification options or rules

[rx-flow-hash tcp4|udp4|ah4|esp4|sctp4|tcp6|udp6|ah6|esp6|sctp6 [context %d] |

rule %d]

ethtool [FLAGS] -N|-U|--config-nfc|--config-ntuple DEVNAME Configure Rx network flow classification options or rules

rx-flow-hash tcp4|udp4|ah4|esp4|sctp4|tcp6|udp6|ah6|esp6|sctp6 m|v|t|s|d|f|n|r... [context %d] |

flow-type ether|ip4|tcp4|udp4|sctp4|ah4|esp4|ip6|tcp6|udp6|ah6|esp6|sctp6

[src %x:%x:%x:%x:%x:%x [m %x:%x:%x:%x:%x:%x]]

[dst %x:%x:%x:%x:%x:%x [m %x:%x:%x:%x:%x:%x]]

[proto %d [m %x]]

[src-ip IP-ADDRESS [m IP-ADDRESS]]

[dst-ip IP-ADDRESS [m IP-ADDRESS]]

[tos %d [m %x]]

[tclass %d [m %x]]

[l4proto %d [m %x]]

[rx on|off]

[tx on|off]

ethtool [FLAGS] -c|--show-coalesce DEVNAME Show coalesce options

ethtool [FLAGS] -C|--coalesce DEVNAME Set coalesce options

[adaptive-rx on|off]

[adaptive-tx on|off]

[rx-usecs N]

[rx-frames N]

[rx-usecs-irq N]

[rx-frames-irq N]

[tx-usecs N]

[tx-frames N]

[tx-usecs-irq N]

[tx-frames-irq N]

[stats-block-usecs N]

[pkt-rate-low N]

[rx-usecs-low N]

[rx-frames-low N]

[tx-usecs-low N]

[tx-frames-low N]

[pkt-rate-high N]

[rx-usecs-high N]

[rx-frames-high N]

[tx-usecs-high N]

[tx-frames-high N]

[sample-interval N]

[cqe-mode-rx on|off]

[cqe-mode-tx on|off]

[tx-aggr-max-bytes N]

[tx-aggr-max-frames N]

[tx-aggr-time-usecs N]

ethtool [FLAGS] -g|--show-ring DEVNAME Query RX/TX ring parameters

ethtool [FLAGS] -G|--set-ring DEVNAME Set RX/TX ring parameters

[rx N]

[rx-mini N]

[rx-jumbo N]

[tx N]

[rx-buf-len N]

[tcp-data-split auto|on|off]

[cqe-size N]

[tx-push on|off]

-C CLASS same as '-class CLASS'

-c CLASS same as '-class CLASS'

-disable TEST disable a test (like pci, isapnp, cpuid, etc.)

-enable TEST enable a test (like pci, isapnp, cpuid, etc.)

-quiet don't display status

-sanitize sanitize output (remove sensitive information like serial numbers, etc.)

-numeric output numeric IDs (for PCI, USB, etc.)

-notime exclude volatile attributes (timestamps) from output

#---------- LSMEM

ubuntu:~$ lsmem --help

Usage:

lsmem [options]

List the ranges of available memory with their online status.

Options:

-J, --json use JSON output format

-P, --pairs use key="value" output format

-a, --all list each individual memory block

-b, --bytes print SIZE in bytes rather than in human readable format

-n, --noheadings don't print headings

-o, --output <list> output columns

--output-all output all columns

-r, --raw use raw output format

-S, --split <list> split ranges by specified columns

-s, --sysroot <dir> use the specified directory as system root

--summary[=when] print summary information (never,always or only)

-h, --help display this help

-V, --version display version

Available output columns:

RANGE start and end address of the memory range

SIZE size of the memory range

STATE online status of the memory range

REMOVABLE memory is removable

BLOCK memory block number or blocks range

NODE numa node of memory

ZONES valid zones for the memory range

For more details see lsmem(1).

#---------- LSBLK

ubuntu:~$ lsblk --version

lsblk from util-linux 2.39.3

ubuntu:~$ lsblk --help

Usage:

lsblk [options] [<device> ...]

List information about block devices.

Options:

-A, --noempty don't print empty devices

-D, --discard print discard capabilities

-E, --dedup <column> de-duplicate output by <column>

-I, --include <list> show only devices with specified major numbers

-J, --json use JSON output format

-M, --merge group parents of sub-trees (usable for RAIDs, Multi-path)

-O, --output-all output all columns

-P, --pairs use key="value" output format

-S, --scsi output info about SCSI devices

-N, --nvme output info about NVMe devices

-v, --virtio output info about virtio devices

-T, --tree[=<column>] use tree format output

-a, --all print all devices

-b, --bytes print SIZE in bytes rather than in human readable format

-d, --nodeps don't print slaves or holders

-e, --exclude <list> exclude devices by major number (default: RAM disks)

-f, --fs output info about filesystems

-i, --ascii use ascii characters only

-l, --list use list format output

-m, --perms output info about permissions

-n, --noheadings don't print headings

-o, --output <list> output columns

-p, --paths print complete device path

-r, --raw use raw output format

-s, --inverse inverse dependencies

-t, --topology output info about topology

-w, --width <num> specifies output width as number of characters

tc [OPTIONS] [FORMAT] class show dev DEV

tc [OPTIONS] filter show dev DEV

tc [OPTIONS] filter show block BLOCK_INDEX

tc [OPTIONS] chain show dev DEV

tc [OPTIONS] chain show block BLOCK_INDEX

tc [OPTIONS] monitor [file FILENAME]

OPTIONS := { [-force] -b[atch] [filename] | [-n[etns] name] | [-N[umeric]] | [-nm | -nam[es]] | [{ -cf |

-c[onf] } [filename]] [-t[imestamp]] | [-t[short] | [-o[neline]] }

FORMAT := { -s[tatistics] | -d[etails] | -r[aw] | -i[ec] | -g[raph] | -j[json] | -p[retty] | -col[or] }

#---------- ETHTOOL

ubuntu:~$ ethtool -h

ethtool version 6.7

Usage:

ethtool [FLAGS] DEVNAME Display standard information about device

ethtool [FLAGS] -s|--change DEVNAME Change generic options

[speed %d]

[lanes %d]

[duplex half|full]

[port tp|aui|bnc|mii|fibre|da]

[mdix auto|on|off]

[autoneg on|off]

[advertise %x[/%x] | mode on|off ... [--]]

[phyad %d]

[xcvr internal|external]

[wol %d[/%d] | p|u|m|b|a|g|s|f|d...]

[sopass %x:%x:%x:%x:%x:%x]

[msglvl %d[/%d] | type on|off ... [--]]

[master-slave preferred-master|preferred-slave|forced-master|forced-slave]

ethtool [FLAGS] -a|--show-pause DEVNAME Show pause options

[--src aggregate | emac | pmac]

ethtool [FLAGS] -A|--pause DEVNAME Set pause options

[autoneg on|off]

```
       TCP-STATES := {established|syn-sent|syn-recv|fin-wait-{1,2}|time-wait|closed|close-wait|last-ack|listening|closing}
        connected := {established|syn-sent|syn-recv|fin-wait-{1,2}|time-wait|close-wait|last-ack|closing}
    synchronized := {established|syn-recv|fin-wait-{1,2}|time-wait|close-wait|last-ack|closing}
          bucket := {syn-recv|time-wait}
             big := {established|syn-sent|fin-wait-{1,2}|closed|close-wait|last-ack|listening|closing}


#-------------------------------------------------------------------------------TC
ubuntu:~$ tc -help
Usage:  tc [ OPTIONS ] OBJECT { COMMAND | help }
      tc [-force] -batch filename
where  OBJECT := { qdisc | class | filter | chain |
                 action | monitor | exec }
      OPTIONS := { -V[ersion] | -s[tatistics] | -d[etails] | -r[aw] |
                 -o[neline] | -j[son] | -p[retty] | -c[olor]
                 -b[atch] [filename] | -n[etns] name | -N[umeric] |
                  -nm | -nam[es] | { -cf | -conf } path
                 -br[ief] }
ubuntu:~$ man tc
NAME
      tc - show / manipulate traffic control settings


SYNOPSIS
      tc [ OPTIONS ] qdisc [ add | change | replace | link | delete ] dev DEV [ parent qdisc-id | root ] [ handle qdisc-id ] [
      ingress_block BLOCK_INDEX ] [ egress_block BLOCK_INDEX ] qdisc [ qdisc specific parameters ]

      tc  [  OPTIONS  ]  class [ add | change | replace | delete | show ] dev DEV parent qdisc-id [ classid class-id ] qdisc [
      qdisc specific parameters ]

      tc [ OPTIONS ] filter [ add | change | replace | delete | get ] dev DEV [ parent qdisc-id | root ] [ handle filter-id  ]
      protocol protocol prio priority filtertype [ filtertype specific parameters ] flowid flow-id

      tc [ OPTIONS ] filter [ add | change | replace | delete | get ] block BLOCK_INDEX [ handle filter-id ] protocol protocol
      prio priority filtertype [ filtertype specific parameters ] flowid flow-id

      tc  [ OPTIONS ] chain [ add | delete | get ] dev DEV [ parent qdisc-id | root ] filtertype [ filtertype specific parame-
      ters ]

      tc [ OPTIONS ] chain [ add | delete | get ] block BLOCK_INDEX filtertype [ filtertype specific parameters ]

      tc [ OPTIONS ] [ FORMAT ] qdisc { show | list } [ dev DEV ] [ root | ingress | handle QHANDLE | parent CLASSID ]  [  in-
      visible ]
```

```
-x, --sort <column>  sort output by <column>
-y, --shell       use column names to be usable as shell variable identifiers
-z, --zoned       print zone related information
    --sysroot <dir>  use specified directory as system root

-h, --help        display this help
-V, --version     display version

Available output columns:
  ALIGNMENT  alignment offset
    ID-LINK  the shortest udev /dev/disk/by-id link name
       ID  udev ID (based on ID-LINK)
  DISC-ALN  discard alignment offset
       DAX  dax-capable device
  DISC-GRAN  discard granularity
  DISK-SEQ  disk sequence number
  DISC-MAX  discard max bytes
 DISC-ZERO  discard zeroes data
   FSAVAIL  filesystem size available
   FSROOTS  mounted filesystem roots
    FSSIZE  filesystem size
    FSTYPE  filesystem type
    FSUSED  filesystem size used
   FSUSE%  filesystem use percentage
    FSVER  filesystem version
    GROUP  group name
     HCTL  Host:Channel:Target:Lun for SCSI
  HOTPLUG  removable or hotplug device (usb, pcmcia, ...)
    KNAME  internal kernel device name
    LABEL  filesystem LABEL
  LOG-SEC  logical sector size
  MAJ:MIN  major:minor device number
  MIN-IO  minimum I/O size
     MODE  device node permissions
    MODEL  device identifier
       MQ  device queues
     NAME  device name
  OPT-IO  optimal I/O size
    OWNER  user name
 PARTFLAGS  partition flags
 PARTLABEL  partition LABEL
```

PARTN partition number as read from the partition table
PARTTYPE partition type code or UUID
PARTTYPENAME partition type name
PARTUUID partition UUID
PATH path to the device node
PHY-SEC physical sector size
PKNAME internal parent kernel device name
PTTYPE partition table type
PTUUID partition table identifier (usually UUID)
RA read-ahead of the device
RAND adds randomness
REV device revision
RM removable device
RO read-only device
ROTA rotational device
RQ-SIZE request queue size
SCHED I/O scheduler name
SERIAL disk serial number
SIZE size of the device
START partition start offset
STATE state of the device
SUBSYSTEMS de-duplicated chain of subsystems
MOUNTPOINT where the device is mounted
MOUNTPOINTS all locations where device is mounted
TRAN device transport type
TYPE device type
UUID filesystem UUID
VENDOR device vendor
WSAME write same max bytes
WWN unique storage identifier
ZONED zone model
ZONE-SZ zone size
ZONE-WGRAN zone write granularity
ZONE-APP zone append max bytes
ZONE-NR number of zones
ZONE-OMAX maximum number of open zones
ZONE-AMAX maximum number of active zones

For more details see lsblk(8).

#---------- LSMOD

-T, --threads show thread using socket
-i, --info show internal TCP information
--tipcinfo show internal tipc socket information
-s, --summary show socket usage summary
--tos show tos and priority information
--cgroup show cgroup information
-b, --bpf show bpf filter socket information
-E, --events continually display sockets as they are destroyed
-Z, --context display task SELinux security contexts
-z, --contexts display task and socket SELinux security contexts
-N, --net switch to the specified network namespace name

-4, --ipv4 display only IP version 4 sockets
-6, --ipv6 display only IP version 6 sockets
-0, --packet display PACKET sockets
-t, --tcp display only TCP sockets
-M, --mptcp display only MPTCP sockets
-S, --sctp display only SCTP sockets
-u, --udp display only UDP sockets
-d, --dccp display only DCCP sockets
-w, --raw display only RAW sockets
-x, --unix display only Unix domain sockets
--tipc display only TIPC sockets
--vsock display only vsock sockets
--xdp display only XDP sockets
-f, --family=FAMILY display sockets of type FAMILY
FAMILY := {inet|inet6|link|unix|netlink|vsock|tipc|xdp|help}

-K, --kill forcibly close sockets, display what was closed
-H, --no-header Suppress header line
-O, --oneline socket's data printed on a single line
--inet-sockopt show various inet socket options

-A, --query=QUERY, --socket=QUERY
QUERY :=
{all|inet|tcp|mptcp|udp|raw|unix|unix_dgram|unix_stream|unix_seqpacket|packet|packet_raw|packet_dgram|netlink|dccp|sctp|vsock_st
ream|vsock_dgram|tipc|xdp}[,QUERY]

-D, --diag=FILE Dump raw information about TCP sockets to FILE
-F, --filter=FILE read filter information from FILE
FILTER := [state STATE-FILTER] [EXPRESSION]
STATE-FILTER := {all|connected|synchronized|bucket|big|TCP-STATES}

For more details see lsipc(1).

#----------IP

ubuntu:~$

ubuntu:~$ dpkg -l iproute2

ii iproute2   6.1.0-1ubuntu6 amd64   networking and traffic control tools

ubuntu:~$ ip -h

Usage: ip [OPTIONS] OBJECT { COMMAND | help }

       ip [-force] -batch filename

where OBJECT := { address | addrlabel | amt | fou | help | ila | ioam | l2tp |

                   link | macsec | maddress | monitor | mptcp | mroute | mrule |

                   neighbor | neighbour | netconf | netns | nexthop | ntable |

                   ntbl | route | rule | sr | tap | tcpmetrics |

                   token | tunnel | tuntap | vrf | xfrm }

       OPTIONS := { -V[ersion] | -s[tatistics] | -d[etails] | -r[esolve] |

                    -h[uman-readable] | -iec | -j[son] | -p[retty] |

                    -f[amily] { inet | inet6 | mpls | bridge | link } |

                    -4 | -6 | -M | -B | -0 |

                    -l[oops] { maximum-addr-flush-attempts } | -br[ief] |

                    -o[neline] | -t[imestamp] | -ts[hort] | -b[atch] [filename] |

                    -rc[vbuf] [size] | -n[etns] name | -N[umeric] | -a[ll] |

                    -c[olor]}

#----------SS

ubuntu:~$ ss --version

ss utility, iproute2-6.1.0

ubuntu:~$ ss --help

Usage: ss [OPTIONS]

       ss [OPTIONS] [FILTER]

  -h, --help   this message

  -V, --version   output version information

  -n, --numeric   don't resolve service names

  -r, --resolve   resolve host names

  -a, --all   display all sockets

  -l, --listening display listening sockets

  -o, --options   show timer information

  -e, --extended   show detailed socket information

  -m, --memory   show socket memory usage

  -p, --processes show process using socket

ubuntu:~$ lsmod --help

Usage: lsmod

#----------LOSETUP

ubuntu:~$ losetup

ubuntu:~$ losetup --help

Usage:

 losetup [options] [<loopdev>]

 losetup [options] -f | <loopdev> <file>

Set up and control loop devices.

Options:

 -a, --all   list all used devices

 -d, --detach <loopdev>...   detach one or more devices

 -D, --detach-all   detach all used devices

 -f, --find   find first unused device

 -c, --set-capacity <loopdev> resize the device

 -j, --associated <file>   list all devices associated with <file>

 -L, --nooverlap   avoid possible conflict between devices

 -o, --offset <num>   start at offset <num> into file

     --sizelimit <num>   device is limited to <num> bytes of the file

 -b, --sector-size <num>   set the logical sector size to <num>

 -P, --partscan   create a partitioned loop device

 -r, --read-only   set up a read-only loop device

     --direct-io[=<on|off>]   open backing file with O_DIRECT

     --show   print device name after setup (with -f)

 -v, --verbose   verbose mode

 -J, --json   use JSON --list output format

 -l, --list   list info about all or specified (default)

 -n, --noheadings   don't print headings for --list output

 -O, --output <cols>   specify columns to output for --list

     --output-all   output all columns

     --raw   use raw --list output format

 -h, --help   display this help

 -V, --version   display version

Available output columns:

NAME loop device name
AUTOCLEAR autoclear flag set
BACK-FILE device backing file
BACK-INO backing file inode number
BACK-MAJ:MIN backing file major:minor device number
MAJ:MIN loop device major:minor number
OFFSET offset from the beginning
PARTSCAN partscan flag set
RO read-only device
SIZELIMIT size limit of the file in bytes
DIO access backing file with direct-io
LOG-SEC logical sector size in bytes

For more details see losetup(8).

#---------- LSLOGINS

ubuntu:~$ lslogins --help

Usage:
lslogins [options] [<username>]

Display information about known users in the system.

Options:
-a, --acc-expiration display info about passwords expiration
-c, --colon-separate display data in a format similar to /etc/passwd
-e, --export display in an export-able output format
-f, --failed display data about the users' last failed logins
-G, --supp-groups display information about groups
-g, --groups=<groups> display users belonging to a group in <groups>
-L, --last show info about the users' last login sessions
-l, --logins=<logins> display only users from <logins>
-n, --newline display each piece of information on a new line
--noheadings don't print headings
--notruncate don't truncate output
-o, --output[=<list>] define the columns to output
--output-all output all columns
-p, --pwd display information related to login by password.
-r, --raw display in raw mode
-s, --system-accs display system accounts

ID Resource ID
OWNER Owner's username or UID
PERMS Permissions
CUID Creator UID
CUSER Creator user
CGID Creator GID
CGROUP Creator group
UID User ID
USER User name
GID Group ID
GROUP Group name
CTIME Time of the last change

Shared-memory columns (--shmems):
SIZE Segment size
NATTCH Number of attached processes
STATUS Status
ATTACH Attach time
DETACH Detach time
COMMAND Creator command line
CPID PID of the creator
LPID PID of last user

Message-queue columns (--queues):
USEDBYTES Bytes used
MSGS Number of messages
SEND Time of last msg sent
RECV Time of last msg received
LSPID PID of the last msg sender
LRPID PID of the last msg receiver

Semaphore columns (--semaphores):
NSEMS Number of semaphores
OTIME Time of the last operation

Summary columns (--global):
RESOURCE Resource name
DESCRIPTION Resource description
LIMIT System-wide limit
USED Currently used
USE% Currently use percentage

-u s exclude(^)|select login|UID set s

-x [fl] cross over +d|+D File systems or symbolic Links

names select named files or files on named file systems

Anyone can list all files; /dev warnings disabled; kernel ID check disabled.

#---------- LSIPC

ubuntu:~$ lsipc --help

Usage:

lsipc [options]

Show information on IPC facilities.

Resource options:

-m, --shmems shared memory segments

-q, --queues message queues

-s, --semaphores semaphores

-g, --global info about system-wide usage (may be used with -m, -q and -s)

-i, --id <id> print details on resource identified by <id>

Options:

--noheadings don't print headings

--notruncate don't truncate output

--time-format=<type> display dates in short, full or iso format

-b, --bytes print SIZE in bytes rather than in human readable format

-c, --creator show creator and owner

-e, --export display in an export-able output format

-J, --json use the JSON output format

-n, --newline display each piece of information on a new line

-l, --list force list output format (for example with –id)

-o, --output[=<list>] define the columns to output

-P, --numeric-perms print numeric permissions (PERMS column)

-r, --raw display in raw mode

-t, --time show attach, detach and change times

-y, --shell use column names to be usable as shell variable identifiers

-h, --help display this help

-V, --version display version

Generic columns:

KEY Resource key

--time-format=<type> display dates in short, full or iso format

-u, --user-accs display user accounts

-y, --shell use column names to be usable as shell variable identifiers

-Z, --context display SELinux contexts

-z, --print0 delimit user entries with a nul character

--wtmp-file <path> set an alternate path for wtmp

--btmp-file <path> set an alternate path for btmp

--lastlog <path> set an alternate path for lastlog

-h, --help display this help

-V, --version display version

Available output columns:

USER user name

UID user ID

GECOS full user name

HOMEDIR home directory

SHELL login shell

NOLOGIN log in disabled by nologin(8) or pam_nologin(8)

PWD-LOCK password defined, but locked

PWD-EMPTY password not defined

PWD-DENY login by password disabled

PWD-METHOD password encryption method

GROUP primary group name

GID primary group ID

SUPP-GROUPS supplementary group names

SUPP-GIDS supplementary group IDs

LAST-LOGIN date of last login

LAST-TTY last tty used

LAST-HOSTNAME hostname during the last session

FAILED-LOGIN date of last failed login

FAILED-TTY where did the login fail?

HUSHED user's hush settings

PWD-WARN days user is warned of password expiration

PWD-CHANGE date of last password change

PWD-MIN number of days required between changes

PWD-MAX max number of days a password may remain unchanged

PWD-EXPIR password expiration date

CONTEXT the user's security context

PROC number of processes run by the user

For more details see lslogins(1).

#---------- LSNS

ubuntu:~$ lsns --version

lsns from util-linux 2.39.3

ubuntu:~$ lsns --help

Usage:

 lsns [options] [<namespace>]

List system namespaces.

Options:

 -J, --json   use JSON output format

 -l, --list   use list format output

 -n, --noheadings   don't print headings

 -o, --output <list> define which output columns to use

     --output-all   output all columns

 -P, --persistent   namespaces without processes

 -p, --task <pid>   print process namespaces

 -r, --raw   use the raw output format

 -u, --notruncate   don't truncate text in columns

 -W, --nowrap   don't use multi-line representation

 -t, --type <name>   namespace type (mnt, net, ipc, user, pid, uts, cgroup, time)

 -T, --tree <rel>   use tree format (parent, owner, or process)

 -h, --help   display this help

 -V, --version   display version

Available output columns:

         NS namespace identifier (inode number)

       TYPE kind of namespace

       PATH path to the namespace

    NPROCS number of processes in the namespace

        PID lowest PID in the namespace

       PPID PPID of the PID

    COMMAND command line of the PID

        UID UID of the PID

       USER username of the PID

    NETNSID namespace ID as used by network subsystem

       NSFS nsfs mountpoint (usually used network subsystem)

        PNS parent namespace identifier (inode number)

        ONS owner namespace identifier (inode number)

For more details see lsns(8).

#---------- LSOF

ubuntu:~$ lsof --help

lsof: illegal option character: -

lsof: -e not followed by a file system path: "lp"

lsof 4.95.0

 latest revision: https://github.com/lsof-org/lsof

 latest FAQ: https://github.com/lsof-org/lsof/blob/master/00FAQ

 latest (non-formatted) man page: https://github.com/lsof-org/lsof/blob/master/Lsof.8

 usage: [-?abhKlnNoOPRtUvVX] [+|-c c] [+|-d s] [+D D] [+|-E] [+|-e s] [+|-f[gG]]

 [-F [f]] [-g [s]] [-i [i]] [+|-L [l]] [+m [m]] [+|-M] [-o [o]] [-p s]

 [+|-r [t]] [-s [p:s]] [-S [t]] [-T [t]] [-u s] [+|-w] [-x [fl]] [--] [names]

Defaults in parentheses; comma-separated set (s) items; dash-separated ranges.

 -?|-h list help   -a AND selections (OR)   -b avoid kernel blocks

 -c c cmd c ^c /c/[bix] +c w COMMAND width (9)   +d s dir s files

 -d s select by FD set   +D D dir D tree *SLOW?* +|-e s exempt s *RISKY*

 -i select IPv[46] files -K [i] list|(i)gn tasKs   -l list UID numbers

 -n no host names   -N select NFS files   -o list file offset

 -O no overhead *RISKY* -P no port names   -Q allow failed search

 -R list paRent PID   -s list file size   -t terse listing

 -T disable TCP/TPI info -U select Unix socket   -v list version info

 -V verbose search   +|-w Warnings (+)   -X skip TCP&UDP* files

 -Z Z context [Z]   -- end option scan

 -E display endpoint info   +E display endpoint info and files

 +f|-f +filesystem or -file names   +|-f[gG] flaGs

 -F [f] select fields; -F? for help

 +|-L [l] list (+) suppress (-) link counts < l (0 = all; default = 0)

                          +m [m] use|create mount supplement

 +|-M portMap registration (-)   -o o   o 0t offset digits (8)

 -p s exclude(^)|select PIDs   -S [t] t second stat timeout (15)

 -T fqs TCP/TPI Fl,Q,St (s) info

 -g [s] exclude(^)|select and print process group IDs

 -i i select by IPv[46] address: [46][proto][@host|addr][:svc_list|port_list]

 +|-r [t[m<fmt>]] repeat every t seconds (15); + until no files, - forever.

    An optional suffix to t is m<fmt>; m must separate t from <fmt> and

    <fmt> is an strftime(3) format for the marker line.

 -s p:s exclude(^)|select protocol (p = TCP|UDP) states by name(s).