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*Rocky Enterprise Linux 9.2 Manual Pages on command 'busybox.1'*

**\$ man busybox.1**

## BUSYBOX(1)

busybox

## BUSYBOX(1)

NAME

BusyBox - The Swiss Army Knife of Embedded Linux

## SYNTAX

```
busybox <applet> [arguments...] # or
```

```
<applet> [arguments...]      # if symlinked
```

## DESCRIPTION

BusyBox combines tiny versions of many common UNIX utilities into a single small executable. It provides minimalist replacements for most of the utilities you usually find in GNU coreutils, util-linux, etc. The utilities in BusyBox generally have fewer options than their full-featured GNU cousins; however, the options that are included provide the expected functionality and behave very much like their GNU counterparts.

BusyBox has been written with size-optimization and limited resources in mind. It is also extremely modular so you can easily include or exclude commands (or features) at compile time. This makes it easy to customize your embedded systems. To create a working system, just add /dev, /etc, and a Linux kernel. BusyBox provides a fairly complete POSIX environment for any small or embedded system.

BusyBox is extremely configurable. This allows you to include only the components you need, thereby reducing binary size. Run 'make config' or 'make menuconfig' to select the functionality that you wish to enable. Then run 'make' to compile BusyBox using your configuration.

After the compile has finished, you should use 'make install' to install BusyBox. This will install the 'bin/busybox' binary, in the target directory specified by CONFIG\_PREFIX.

CONFIG\_PREFIX can be set when configuring BusyBox, or you can specify an alternative location at install time (i.e., with a command line like 'make CONFIG\_PREFIX=/tmp/foo install'). If you enabled any applet installation scheme (either as symlinks or hardlinks), these will also be installed in the location pointed to by CONFIG\_PREFIX.

## USAGE

BusyBox is a multi-call binary. A multi-call binary is an executable program that performs the same job as more than one utility program. That means there is just a single BusyBox binary, but that single binary acts like a large number of utilities. This allows BusyBox to be smaller since all the built-in utility programs (we call them applets) can share code for many common operations.

You can also invoke BusyBox by issuing a command as an argument on the command line. For example, entering

```
/bin/busybox ls
```

will also cause BusyBox to behave as 'ls'.

Of course, adding '/bin/busybox' into every command would be painful. So most people will invoke BusyBox using links to the BusyBox binary.

For example, entering

```
ln -s /bin/busybox ls
```

```
./ls
```

will cause BusyBox to behave as 'ls' (if the 'ls' command has been compiled into BusyBox).

Generally speaking, you should never need to make all these links yourself, as the BusyBox build system will do this for you when you run the 'make install' command.

If you invoke BusyBox with no arguments, it will provide you with a list of the applets that have been compiled into your BusyBox binary.

## COMMON OPTIONS

Most BusyBox applets support the --help argument to provide a terse runtime description of their behavior. If the CONFIG\_FEATURE\_VERBOSE\_USAGE option has been enabled, more detailed usage information will also be available.

## COMMANDS

Currently available applets include:

```
[, [], acpid, adjtimex, ar, arch, arp, arping, ash, awk, basename,  
bc, blkdiscard, blockdev, brctl, bunzip2, busybox, bzcat, bzip2,  
cal, cat, chgrp, chmod, chown, chpasswd, chroot, chvt, clear, cmp,
```

cp, cpio, crond, crontab, cttyhack, cut, date, dc, dd, deallocvt,  
depmod, devmem, df, diff, dirname, dmesg, dnsdomainname, dos2unix,  
dpkg, dpkg-deb, du, dumpkmap, dumpleases, echo, ed, egrep, env,  
expand, expr, factor, fallocate, false, fatattr, fdisk, fgrep, find,  
fold, free, freeramdisk, fsfreeze, fstrim, ftpget, ftpput, getopt,  
getty, grep, groups, gunzip, gzip, halt, head, hexdump, hostid,  
hostname, httpd, hwclock, i2cdetect, i2cdump, i2cget, i2cset, id,  
ifconfig, ifdown, ifup, init, insmod, ionice, ip, ipcalc, ipneigh,  
kill, killall, klogd, last, less, link, linux32, linux64, linuxrc,  
ln, loadfont, loadkmap, logger, login, logname, logread, losetup,  
ls, lsmod, lsscsi, lzcat, lzma, lzop, md5sum, mdev, microcom, mkdir,  
mkdosfs, mke2fs, mkfifo, mknod, mkpasswd, mkswap, mktemp, modinfo,  
modprobe, more, mount, mt, mv, nameif, nc, netstat, nl, nologin,  
nproc, nsenter, nslookup, nuke, od, openvt, partprobe, passwd,  
paste, patch, pidof, ping, ping6, pivot\_root, poweroff, printf, ps,  
pwd, rdate, readlink, realpath, reboot, renice, reset, resume, rev,  
rm, rmdir, rmmod, route, rpm, rpm2cpio, run-init, run-parts, sed,  
seq, setkeycodes, setpriv, setsid, sh, sha1sum, sha256sum,  
sha512sum, shred, shuf, sleep, sort, ssl\_client, start-stop-daemon,  
stat, static-sh, strings, stty, su, slogin, svc, svok, swapoff,  
swapon, switch\_root, sync, sysctl, syslogd, tac, tail, tar, taskset,  
tc, tee, telnet, telnetd, test, tftp, time, timeout, top, touch, tr,  
traceroute, traceroute6, true, truncate, tty, tunctl, ubirename,  
udhcpc, udhcpd, uevent, umount, uname, uncompress, unexpand, uniq,  
unix2dos, unlink, unlzma, unshare, unxz, unzip, uptime, usleep,  
uudecode, uuencode, vconfig, vi, w, watch, watchdog, wc, wget,  
which, who, whoami, xargs, xxd, xz, xzcat, yes, zcat

## COMMAND DESCRIPTIONS

acpid

acpid [-df] [-c CONFDIR] [-I LOGFILE] [-a ACTIONFILE] [-M MAPFILE] [-e  
PROC\_EVENT\_FILE] [-p PIDFILE]

Listen to ACPI events and spawn specific helpers on event arrival

-d Log to stderr, not log file (implies -f)

- f Run in foreground
- c DIR Config directory [/etc/acpi]
- e FILE /proc event file [/proc/acpi/event]
- l FILE Log file [/var/log/acpid.log]
- p FILE Pid file [/var/run/acpid.pid]
- a FILE Action file [/etc/acpid.conf]
- M FILE Map file [/etc/acpi.map]

Accept and ignore compatibility options -g -m -s -v

#### adjtimex

adjtimex [-q] [-o OFF] [-f FREQ] [-p TCONST] [-t TICK]

Read or set kernel time variables. See adjtimex(2)

- q Quiet
- o OFF Time offset, microseconds
- f FREQ Frequency adjust, integer kernel units (65536 is 1ppm)
- t TICK Microseconds per tick, usually 10000
  - (positive -t or -f values make clock run faster)
- p TCONST

#### ar ar [-o] [-v] [-p] [-t] [-x] ARCHIVE FILES

Extract or list FILES from an ar archive

- o Preserve original dates
- p Extract to stdout
- t List
- x Extract
- v Verbose

#### arch

arch

Print system architecture

arp arp [-vn] [-H HWTYPE] [-i IF] -a [HOSTNAME] [-v] [-i IF] -d HOSTNAME  
[pub] [-v] [-H HWTYPE] [-i IF] -s HOSTNAME HWADDR [temp] [-v] [-H HWTYPE] [-i IF] -s  
HOSTNAME HWADDR [netmask MASK] pub [-v] [-H HWTYPE] [-i IF] -Ds HOSTNAME IFACE  
[netmask MASK] pub

Manipulate ARP cache

- a Display (all) hosts

-d Delete ARP entry  
-s Set new entry  
-v Verbose  
-n Don't resolve names  
-i IF Network interface  
-D Read HWADDR from IFACE  
-A,-p AF Protocol family  
-H HWTYPE Hardware address type

### arping

arping [-fqbDUA] [-c CNT] [-w TIMEOUT] [-I IFACE] [-s SRC\_IP] DST\_IP

Send ARP requests/replies

-f Quit on first ARP reply  
-q Quiet  
-b Keep broadcasting, don't go unicast  
-D Exit with 1 if DST\_IP replies  
-U Unsolicited ARP mode, update your neighbors  
-A ARP answer mode, update your neighbors  
-c N Stop after sending N ARP requests  
-w TIMEOUT Seconds to wait for ARP reply  
-I IFACE Interface to use (default eth0)  
-s SRC\_IP Sender IP address  
DST\_IP Target IP address

### ash ash [-/+OPTIONS] [-/+o OPT]... [-c 'SCRIPT' [ARG0 [ARGS]] / FILE [ARGS] / -s [ARGS]]

Unix shell interpreter

### awk awk [OPTIONS] [AWK\_PROGRAM] [FILE]...

-v VAR=VAL Set variable  
-F SEP Use SEP as field separator  
-f FILE Read program from FILE  
-e AWK\_PROGRAM

### basename

basename FILE [SUFFIX]

Strip directory path and .SUFFIX from FILE

### bc bc [-sqlw] FILE...

Arbitrary precision calculator

- q Quiet
- l Load standard math library
- s Be POSIX compatible
- w Warn if extensions are used

\$BC\_LINE\_LENGTH changes output width

blkdiscard

blkdiscard [-o OFS] [-l LEN] [-s] DEVICE

Discard sectors on DEVICE

- o OFS Byte offset into device
- l LEN Number of bytes to discard
- s Perform a secure discard

blockdev

blockdev OPTION BLOCKDEV

- setro Set ro
- setrw Set rw
- getro Get ro
- getss Get sector size
- getbsz Get block size
- setbsz BYTES Set block size
- getsz Get device size in 512-byte sectors
- getsize64 Get device size in bytes
- flushbufs Flush buffers
- rereadpt Reread partition table

brctl

brctl COMMAND [BRIDGE [INTERFACE]]

Manage ethernet bridges

Commands:

- addbr BRIDGE Create BRIDGE
- delbr BRIDGE Delete BRIDGE
- addif BRIDGE IFACE Add IFACE to BRIDGE
- delif BRIDGE IFACE Delete IFACE from BRIDGE

bunzip2

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bunzip2 [-cfk] [FILE]...

Decompress FILEs (or stdin)

-c Write to stdout

-f Force

-k Keep input files

bzcat

bzcat [FILE]...

Decompress to stdout

bzip2

bzip2 [OPTIONS] [FILE]...

Compress FILEs (or stdin) with bzip2 algorithm

-1..9 Compression level

-d Decompress

-t Test file integrity

-c Write to stdout

-f Force

-k Keep input files

cal cal [-jy] [[MONTH] YEAR]

Display a calendar

-j Use julian dates

-y Display the entire year

cat cat [-nbvteA] [FILE]...

Print FILEs to stdout

-n Number output lines

-b Number nonempty lines

-v Show nonprinting characters as ^x or M-x

-t ...and tabs as ^I

-e ...and end lines with \$

-A Same as -vte

chgrp

chgrp [-RhLHPcvf]... GROUP FILE...

Change the group membership of each FILE to GROUP

-R Recurse

- h Affect symlinks instead of symlink targets
- L Traverse all symlinks to directories
- H Traverse symlinks on command line only
- P Don't traverse symlinks (default)
- c List changed files
- v Verbose
- f Hide errors

## chmod

chmod [-Rcvf] MODE[,MODE]... FILE...

Each MODE is one or more of the letters ugoa, one of the symbols +-= and one or more of the letters rwxst

- R Recurse
- c List changed files
- v List all files
- f Hide errors

## chown

chown [-RhLHPcvf]... USER[:GRP] FILE...

Change the owner and/or group of each FILE to USER and/or GRP

- R Recurse
- h Affect symlinks instead of symlink targets
- L Traverse all symlinks to directories
- H Traverse symlinks on command line only
- P Don't traverse symlinks (default)
- c List changed files
- v List all files
- f Hide errors

## chpasswd

chpasswd [--md5|--encrypted|--crypt-method|--root]

Read user:password from stdin and update /etc/passwd

- e,--encrypted Supplied passwords are in encrypted form
- m,--md5 Encrypt using md5, not des
- c,--crypt-method ALG des,md5,sha256/512 (default sha256)
- R,--root DIR Directory to chroot into

chroot

chroot NEWROOT [PROG ARGS]

Run PROG with root directory set to NEWROOT

chvt

chvt N

Change the foreground virtual terminal to /dev/ttYN

clear

clear

Clear screen

cmp cmp [-l] [-s] FILE1 [FILE2 [SKIP1 [SKIP2]]]

Compare FILE1 with FILE2 (or stdin)

-l Write the byte numbers (decimal) and values (octal)

for all differing bytes

-s Quiet

cp cp [OPTIONS] SOURCE... DEST

Copy SOURCE(s) to DEST

-a Same as -dpR

-R,-r Recurse

-d,-P Preserve symlinks (default if -R)

-L Follow all symlinks

-H Follow symlinks on command line

-p Preserve file attributes if possible

-f Overwrite

-i Prompt before overwrite

-l,-s Create (sym)links

-T Treat DEST as a normal file

-u Copy only newer files

cpio

cpio [-dmvu] [-F FILE] [-R USER[:GRP]] [-H newc] [-tio] [EXTR\_FILE]...

Extract (-i) or list (-t) files from a cpio archive, or take file list from stdin and create an archive (-o)

Main operation mode:

-t List

-i Extract EXTR\_FILES (or all)

-o Create (requires -H newc)

Options:

-H newc Archive format

-d Make leading directories

-m Preserve mtime

-v Verbose

-u Overwrite

-F FILE Input (-t,-i,-p) or output (-o) file

-R USER[:GRP] Set owner of created files

-L Dereference symlinks

-0 Input is separated by NULs

crond

crond -fbS -l N -L LOGFILE -c DIR

-f Foreground

-b Background (default)

-S Log to syslog (default)

-l N Set log level. Most verbose 0, default 8

-L FILE Log to FILE

-c DIR Cron dir. Default:/var/spool/cron/crontabs

crontab

crontab [-c DIR] [-u USER] [-l[er]]|[FILE]

-c Crontab directory

-u User

-l List crontab

-e Edit crontab

-r Delete crontab

FILE Replace crontab by FILE ('-': stdin)

cttyhack

cttyhack [PROG ARGs]

Give PROG a controlling tty if possible. Example for /etc/inittab (for busybox init):

::respawn:/bin/cttyhack /bin/sh Giving controlling tty to shell running with PID

1: \$ exec cttyhack sh Starting interactive shell from boot shell script:

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setsid ctthack sh

cut cut [OPTIONS] [FILE]...

Print selected fields from each input FILE to stdout

-b LIST Output only bytes from LIST

-c LIST Output only characters from LIST

-d CHAR Use CHAR instead of tab as the field delimiter

-s Output only the lines containing delimiter

-f N Print only these fields

-n Ignored

date

date [OPTIONS] [+FMT] [TIME]

Display time (using +FMT), or set time

[-s,--set] TIME Set time to TIME

-u,--utc Work in UTC (don't convert to local time)

-R,--rfc-2822 Output RFC-2822 compliant date string

-I[SPEC] Output ISO-8601 compliant date string

SPEC='date' (default) for date only,

'hours', 'minutes', or 'seconds' for date and

time to the indicated precision

-r,--reference FILE Display last modification time of FILE

-d,--date TIME Display TIME, not 'now'

-D FMT Use FMT for -d TIME conversion

Recognized TIME formats:

hh:mm[:ss]

[YYYY.]MM.DD hh:mm[:ss]

YYYY-MM-DD hh:mm[:ss]

[[[[[YY]YY]MM]DD]hh]mm[.ss]

'date TIME' form accepts MMDDhhmm[[YY]YY][.ss] instead

dc dc [-x] [-eSCRIPT]... [-fFILE]... [FILE]...

Tiny RPN calculator. Operations: +, -, \*, /, %, ~, ^, |, p - print top of the stack

without popping f - print entire stack k - pop the value and set the precision i - pop

the value and set input radix o - pop the value and set output radix Examples: dc -e'2

2 + p' -> 4, dc -e'8 8 \* 2 2 + / p' -> 16

```
dd dd [if=FILE] [of=FILE] [ibs=N obs=N/bs=N] [count=N] [skip=N] [seek=N]
      [conv=notrunc|noerror|sync|fsync]      [iflag=skip_bytes|fullblock]
      [oflag=seek_bytes]
```

Copy a file with converting and formatting

if=FILE	Read from FILE instead of stdin
of=FILE	Write to FILE instead of stdout
bs=N	Read and write N bytes at a time
ibs=N	Read N bytes at a time
obs=N	Write N bytes at a time
count=N	Copy only N input blocks
skip=N	Skip N input blocks
seek=N	Skip N output blocks
conv=notrunc	Don't truncate output file
conv=noerror	Continue after read errors
conv=sync	Pad blocks with zeros
conv=fsync	Physically write data out before finishing
conv=swab	Swap every pair of bytes
iflag=skip_bytes	skip=N is in bytes
iflag=fullblock	Read full blocks
oflag=seek_bytes	seek=N is in bytes
status=noxfer	Suppress rate output
status=none	Suppress all output

N may be suffixed by c (1), w (2), b (512), kB (1000), k (1024), MB, M, GB, G

deallocvt

```
deallocvt [N]
```

Deallocate unused virtual terminal /dev/ttyn

depmod

```
depmod [-n] [-b BASE] [VERSION] [MODFILES]...
```

Generate modules.dep, alias, and symbols files

-b BASE Use BASE/lib/modules/VERSION

-n Dry run: print files to stdout

devmem

```
devmem ADDRESS [WIDTH [VALUE]]
```

Read/write from physical address

ADDRESS Address to act upon

WIDTH Width (8/16/...)

VALUE Data to be written

**df** df [-PkmhTai] [-B SIZE] [FILESYSTEM]...

Print filesystem usage statistics

-P POSIX output format

-k 1024-byte blocks (default)

-m 1M-byte blocks

-h Human readable (e.g. 1K 243M 2G)

-T Print filesystem type

-a Show all filesystems

-i Inodes

-B SIZE Blocksize

**diff**

diff [-abBdiNqrTstw] [-L LABEL] [-S FILE] [-U LINES] FILE1 FILE2

Compare files line by line and output the differences between them. This implementation supports unified diffs only.

-a Treat all files as text

-b Ignore changes in the amount of whitespace

-B Ignore changes whose lines are all blank

-d Try hard to find a smaller set of changes

-i Ignore case differences

-L Use LABEL instead of the filename in the unified header

-N Treat absent files as empty

-q Output only whether files differ

-r Recurse

-S Start with FILE when comparing directories

-T Make tabs line up by prefixing a tab when necessary

-s Report when two files are the same

-t Expand tabs to spaces in output

-U Output LINES lines of context

-w Ignore all whitespace

dirname

dirname FILENAME

Strip non-directory suffix from FILENAME

dmesg

dmesg [-c] [-n LEVEL] [-s SIZE]

Print or control the kernel ring buffer

-c Clear ring buffer after printing

-n LEVEL Set console logging level

-s SIZE Buffer size

-r Print raw message buffer

dos2unix

dos2unix [-ud] [FILE]

Convert FILE in-place from DOS to Unix format. When no file is given, use

stdin/stdout.

-u dos2unix

-d unix2dos

dpkg

dpkg [-iICPr] [-F OPT] PACKAGE

Install, remove and manage Debian packages

-i,--install Install the package

-l,--list List of installed packages

--configure Configure an unpackaged package

-P,--purge Purge all files of a package

-r,--remove Remove all but the configuration files for a package

--unpack Unpack a package, but don't configure it

--force-depends Ignore dependency problems

--force-confnew Overwrite existing config files when installing

--force-confold Keep old config files when installing

dpkg-deb

dpkg-deb [-cefx] FILE [DIR]

Perform actions on Debian packages (.deb)

-c List files

-f Print control fields

- e Extract control files to DIR (default: ./DEBIAN)
- x Extract files to DIR (no default)
- X Verbose -x

du du [-aHLdclsxhmk] [FILE]...

Summarize disk space used for each FILE and/or directory

- a Show file sizes too
- L Follow all symlinks
- H Follow symlinks on command line
- d N Limit output to directories (and files with -a) of depth < N
- c Show grand total
- l Count sizes many times if hard linked
- s Display only a total for each argument
- x Skip directories on different filesystems
- h Sizes in human readable format (e.g., 1K 243M 2G)
- m Sizes in megabytes
- k Sizes in kilobytes (default)

dumpkmap

dumpkmap > keymap

Print a binary keyboard translation table to stdout

dumpleases

dumpleases [-r|-a] [-d] [-f LEASEFILE]

Display DHCP leases granted by udhcpd

- f,--file FILE Lease file
- r,--remaining Show remaining time
- a,--absolute Show expiration time
- d,--decimal Show time in seconds

echo

echo [-neE] [ARG]...

Print the specified ARGs to stdout

- n Suppress trailing newline
- e Interpret backslash escapes (i.e., \t=tab)
- E Don't interpret backslash escapes (default)

ed ed [FILE]

env env [-iu] [-] [name=value]... [PROG ARGS]

Print the current environment or run PROG after setting up the specified environment

-, -i Start with an empty environment

-u Remove variable from the environment

expand

expand [-i] [-t N] [FILE]...

Convert tabs to spaces, writing to stdout

-i Don't convert tabs after non blanks

-t Tabstops every N chars

expr

expr EXPRESSION

Print the value of EXPRESSION to stdout

EXPRESSION may be:

ARG1 | ARG2 ARG1 if it is neither null nor 0, otherwise ARG2

ARG1 & ARG2 ARG1 if neither argument is null or 0, otherwise 0

ARG1 < ARG2 1 if ARG1 is less than ARG2, else 0. Similarly:

ARG1 <= ARG2

ARG1 = ARG2

ARG1 != ARG2

ARG1 >= ARG2

ARG1 > ARG2

ARG1 + ARG2 Sum of ARG1 and ARG2. Similarly:

ARG1 - ARG2

ARG1 \* ARG2

ARG1 / ARG2

ARG1 % ARG2

STRING : REGEXP Anchored pattern match of REGEXP in STRING

match STRING REGEXP Same as STRING : REGEXP

substr STRING POS LENGTH Substring of STRING, POS counted from 1

index STRING CHARS Index in STRING where any CHARS is found, or 0

length STRING Length of STRING

quote TOKEN Interpret TOKEN as a string, even if

it is a keyword like 'match' or an

operator like '/'

(EXPRESSION)      Value of EXPRESSION

Beware that many operators need to be escaped or quoted for shells. Comparisons are arithmetic if both ARGs are numbers, else lexicographical. Pattern matches return the string matched between \(` and \)` or null; if \(` and \)` are not used, they return the number of characters matched or 0.

factor

factor [NUMBER]...

Print prime factors

fallocate

fallocate [-o OFS] -l LEN FILE

Preallocate space for FILE

-o OFS Offset of range

-l LEN Length of range

fatattr

fatattr [-+rsvda] FILE...

Change file attributes on FAT filesystem

- Clear attributes

+ Set attributes

r Read only

h Hidden

s System

v Volume label

d Directory

a Archive

fdisk

fdisk [-ul] [-C CYLINDERS] [-H HEADS] [-S SECTORS] [-b SSZ] DISK

Change partition table

-u Start and End are in sectors (instead of cylinders)

-l Show partition table for each DISK, then exit

-b 2048 (for certain MO disks) use 2048-byte sectors

-C CYLINDERS Set number of cylinders/heads/sectors

-H HEADS Typically 255

-S SECTORS    Typically 63

find

find [-HL] [PATH]... [OPTIONS] [ACTIONS]

Search for files and perform actions on them. First failed action stops processing of current file. Defaults: PATH is current directory, action is '-print'

-L,-follow    Follow symlinks

-H    ...on command line only

-xdev    Don't descend directories on other filesystems

-maxdepth N    Descend at most N levels. -maxdepth 0 applies

actions to command line arguments only

-mindepth N    Don't act on first N levels

-depth    Act on directory \*after\* traversing it

Actions:

( ACTIONS )    Group actions for -o / -a

! ACT    Invert ACT's success/failure

ACT1 [-a] ACT2    If ACT1 fails, stop, else do ACT2

ACT1 -o ACT2    If ACT1 succeeds, stop, else do ACT2

Note: -a has higher priority than -o

-name PATTERN    Match file name (w/o directory name) to PATTERN

-iname PATTERN    Case insensitive -name

-path PATTERN    Match path to PATTERN

-ipath PATTERN    Case insensitive -path

-regex PATTERN    Match path to regex PATTERN

-type X    File type is X (one of: f,d,l,b,c,s,p)

-executable    File is executable

-perm MASK    At least one mask bit (+MASK), all bits (-MASK),

or exactly MASK bits are set in file's mode

-mtime DAYS    mtime is greater than (+N), less than (-N),

or exactly N days in the past

-mmin MINS    mtime is greater than (+N), less than (-N),

or exactly N minutes in the past

-newer FILE    mtime is more recent than FILE's

-inum N    File has inode number N

- user NAME/ID File is owned by given user
- group NAME/ID File is owned by given group
- size N[bck] File size is N (c:bytes,k:kbytes,b:512 bytes(def.))
  - +/-N: file size is bigger/smaller than N
- links N Number of links is greater than (+N), less than (-N), or exactly N
- prune If current file is directory, don't descend into it

If none of the following actions is specified, -print is assumed

- print Print file name
- print0 Print file name, NUL terminated
- exec CMD ARG ; Run CMD with all instances of {} replaced by file name. Fails if CMD exits with nonzero
- exec CMD ARG + Run CMD with {} replaced by list of file names
- quit Exit

fold

fold [-bs] [-w WIDTH] [FILE]...

Wrap input lines in each FILE (or stdin), writing to stdout

- b Count bytes rather than columns
- s Break at spaces
- w Use WIDTH columns instead of 80

free

free [-b/k/m/g]

Display the amount of free and used system memory

freeramdisk

freeramdisk DEVICE

Free all memory used by the specified ramdisk

fsfreeze

fsfreeze --[un]freeze MOUNTPOINT

Flush and halt writes to MOUNTPOINT

fstrim

fstrim [OPTIONS] MOUNTPOINT

- o,--offset OFFSET Offset in bytes to discard from
- l,--length LEN Bytes to discard

```
-m,--minimum MIN      Minimum extent length
-v,--verbose          Print number of discarded bytes
```

## ftpget

```
ftpget [OPTIONS] HOST [LOCAL_FILE] REMOTE_FILE
```

Download a file via FTP

- c Continue previous transfer
- v Verbose
- u USER Username
- p PASS Password
- P NUM Port

## ftpput

```
ftpput [OPTIONS] HOST [REMOTE_FILE] LOCAL_FILE
```

Upload a file to a FTP server

- v Verbose
- u USER Username
- p PASS Password
- P NUM Port number

## getopt

```
getopt [OPTIONS] [--] OPTSTRING PARAMS
```

- a Allow long options starting with single -
- l LOPT[,...] Long options to recognize
- n PROGNAME The name under which errors are reported
- o OPTSTRING Short options to recognize
- q No error messages on unrecognized options
- Q No normal output
- s SHELL Set shell quoting conventions
- T Version test (exits with 4)
- u Don't quote output

Example:

```
O=`getopt -l bb: -- ab:c:: "$@"` || exit 1 eval set -- "$O" while true; do case
"$1" in
  -a) echo A; shift;;
  -b|--bb) echo "B:$2"; shift 2;;
  -c) case "$2" in
        "") echo C; shift 2;;
        *) echo "C:$2";;
      shift 2;;
  esac;;
  --) shift; break;;
  *) echo Error; exit 1;;
esac;
```

esac done

getty

getty [OPTIONS] BAUD\_RATE[,BAUD\_RATE]... TTY [TERMTYPE]

Open TTY, prompt for login name, then invoke /bin/login

- h Enable hardware RTS/CTS flow control
- L Set CLOCAL (ignore Carrier Detect state)
- m Get baud rate from modem's CONNECT status message
- n Don't prompt for login name
- w Wait for CR or LF before sending /etc/issue
- i Don't display /etc/issue
- f ISSUE\_FILE Display ISSUE\_FILE instead of /etc/issue
- I LOGIN Invoke LOGIN instead of /bin/login
- t SEC Terminate after SEC if no login name is read
- I INITSTR Send INITSTR before anything else
- H HOST Log HOST into the utmp file as the hostname

BAUD\_RATE of 0 leaves it unchanged

grep

grep [-HhnLoqvsriwFEz] [-m N] [-A/B/C N] PATTERN/-e PATTERN.../-f FILE [FILE]...

Search for PATTERN in FILEs (or stdin)

- H Add 'filename:' prefix
- h Do not add 'filename:' prefix
- n Add 'line\_no:' prefix
- l Show only names of files that match
- L Show only names of files that don't match
- c Show only count of matching lines
- o Show only the matching part of line
- q Quiet. Return 0 if PATTERN is found, 1 otherwise
- v Select non-matching lines
- s Suppress open and read errors
- r Recurse
- i Ignore case
- w Match whole words only
- x Match whole lines only

- F    PATTERN is a literal (not regexp)
- E    PATTERN is an extended regexp
- z    Input is NUL terminated
- m N    Match up to N times per file
- A N    Print N lines of trailing context
- B N    Print N lines of leading context
- C N    Same as '-A N -B N'
- e PTRN Pattern to match
- f FILE Read pattern from file

## groups

groups [USER]

Print the group memberships of USER or for the current process

## gunzip

gunzip [-cfkt] [FILE]...

Decompress FILEs (or stdin)

- c    Write to stdout
- f    Force
- k    Keep input files
- t    Test file integrity

## gzip

gzip [-cfkdt] [FILE]...

Compress FILEs (or stdin)

- d    Decompress
- t    Test file integrity
- c    Write to stdout
- f    Force
- k    Keep input files

## halt

halt [-d DELAY] [-n] [-f] [-w]

Halt the system

- d SEC    Delay interval
- n    Do not sync
- f    Force (don't go through init)

-w Only write a wtmp record

## head

head [OPTIONS] [FILE]...

Print first 10 lines of each FILE (or stdin) to stdout. With more than one FILE, precede each with a filename header.

-n N[kbm] Print first N lines

-n -N[kbm] Print all except N last lines

-c [-]N[kbm] Print first N bytes

-q Never print headers

-v Always print headers

N may be suffixed by k (x1024), b (x512), or m (x1024^2).

## hexdump

hexdump [-bcCdefnosvx] [FILE]...

Display FILEs (or stdin) in a user specified format

-b 1-byte octal display

-c 1-byte character display

-d 2-byte decimal display

-o 2-byte octal display

-x 2-byte hex display

-C hex+ASCII 16 bytes per line

-v Show all (no dup folding)

-e FORMAT\_STR Example: '16/1 "%02x|"\n"

-f FORMAT\_FILE

-n LENGTH Show only first LENGTH bytes

-s OFFSET Skip OFFSET bytes

## hostid

hostid

Print out a unique 32-bit identifier for the machine

## hostname

hostname [OPTIONS] [HOSTNAME | -F FILE]

Get or set hostname or DNS domain name

-s Short

-i Addresses for the hostname

- d DNS domain name
- f Fully qualified domain name
- F FILE Use FILE's content as hostname

## httpd

httpd [-ifv[v]] [-c CONFFILE] [-p [IP:]PORT] [-u USER[:GRP]] [-r REALM] [-h HOME] or

httpd -d/-e/-m STRING

Listen for incoming HTTP requests

- i Inetd mode
- f Don't daemonize
- v[v] Verbose
- p [IP:]PORT Bind to IP:PORT (default \*:80)
- u USER[:GRP] Set uid/gid after binding to port
- r REALM Authentication Realm for Basic Authentication
- h HOME Home directory (default .)
- c FILE Configuration file (default {/etc,HOME}/httpd.conf)
- m STRING MD5 crypt STRING
- e STRING HTML encode STRING
- d STRING URL decode STRING

## hwclock

hwclock [-r|--show] [-s|--hctosys] [-w|--systohc] [--systz] [--localtime] [-u|--utc]

[-f|--rtc FILE]

Query and set hardware clock (RTC)

- r Show hardware clock time
- s Set system time from hardware clock
- w Set hardware clock from system time
- systz Set in-kernel timezone, correct system time
  - if hardware clock is in local time
- u Assume hardware clock is kept in UTC
- localtime Assume hardware clock is kept in local time
- f FILE Use specified device (e.g. /dev/rtc2)

## i2cdetect

i2cdetect -l | -F I2CBUS | [-ya] [-q|-r] I2CBUS [FIRST LAST]

Detect I2C chips

- l List installed buses
- F BUS# List functionalities on this bus
- y Disable interactive mode
- a Force scanning of non-regular addresses
- q Use smbus quick write commands for probing (default)
- r Use smbus read byte commands for probing

FIRST and LAST limit probing range

i2cdump

i2cdump [-fy] [-r FIRST-LAST] BUS ADDR [MODE]

Examine I2C registers

I2CBUS I2C bus number

ADDRESS 0x03-0x77

MODE is:

- b Byte (default)
- w Word
- W Word on even register addresses
- i I2C block
- s SMBus block
- c Consecutive byte

Append p for SMBus PEC

- f Force access
- y Disable interactive mode
- r Limit the number of registers being accessed

i2cget

i2cget [-fy] BUS CHIP-ADDRESS [DATA-ADDRESS [MODE]]

Read from I2C/SMBus chip registers

I2CBUS I2C bus number

ADDRESS 0x03-0x77

MODE is:

- b Read byte data (default)
- w Read word data
- c Write byte/read byte

Append p for SMBus PEC

- f Force access
- y Disable interactive mode

i2cset

i2cset [-fy] [-m MASK] BUS CHIP-ADDRESS DATA-ADDRESS [VALUE] ... [MODE]

Set I2C registers

- I2CBUS I2C bus number
- ADDRESS 0x03-0x77

MODE is:

- c Byte, no value
- b Byte data (default)
- w Word data
- i I2C block data
- s SMBus block data

Append p for SMBus PEC

- f Force access
- y Disable interactive mode
- r Read back and compare the result
- m MASK Mask specifying which bits to write

id id [OPTIONS] [USER]

Print information about USER or the current user

- u User ID
- g Group ID
- G Supplementary group IDs
- n Print names instead of numbers
- r Print real ID instead of effective ID

ifconfig

ifconfig [-a] interface [address]

Configure a network interface

- [add ADDRESS[/PREFIXLEN]]
- [del ADDRESS[/PREFIXLEN]]
- [[-]broadcast [ADDRESS]] [[-]pointtopoint [ADDRESS]]
- [netmask ADDRESS] [dstaddr ADDRESS]
- [outfill NN] [keepalive NN]

```
[hw ether|infiniband ADDRESS] [metric NN] [mtu NN]  
[[-]trailers] [[-]arp] [[-]allmulti]  
[multicast] [[-]promisc] [txqueuelen NN] [[-]dynamic]  
[mem_start NN] [io_addr NN] [irq NN]  
[up|down] ...
```

ifdown

```
ifdown [-anmvf] [-i FILE] IFACE...
```

- a Deconfigure all interfaces
- i FILE Use FILE for interface definitions
- n Print out what would happen, but don't do it
  - (note: doesn't disable mappings)
- m Don't run any mappings
- v Print out what would happen before doing it
- f Force deconfiguration

ifup

```
ifup [-anmvf] [-i FILE] IFACE...
```

- a Configure all interfaces
- i FILE Use FILE instead of /etc/network/interfaces
- n Print out what would happen, but don't do it
  - (note: doesn't disable mappings)
- m Don't run any mappings
- v Print out what would happen before doing it
- f Force configuration

init

```
init
```

Init is the first process started during boot. It never exits. It (re)spawns children according to /etc/inittab.

insmod

```
insmod FILE [SYMBOL=VALUE]...
```

Load kernel module

ionice

```
ionice [-c 1-3] [-n 0-7] [-p PID] [PROG]
```

Change I/O priority and class

-c Class. 1:realtime 2:best-effort 3:idle

-n Priority

ip ip [OPTIONS] address|route|link|tunnel|neigh|rule [ARGS]

OPTIONS := -f[amily] inet|inet6|link | -o[neline]

ip addr add|del IFADDR dev IFACE | show|flush [dev IFACE] [to PREFIX] ip route

list|flush|add|del|change|append|replace|test ROUTE ip link set IFACE [up|down] [arp

on|off] [multicast on|off] [promisc on|off] [mtu NUM] [name NAME] [qlen NUM]

[address MAC] [master IFACE | nomaster] ip tunnel add|change|del|show [NAME]

[mode ipip|gre|sit] [remote ADDR] [local ADDR] [ttl TTL] ip neigh show|flush [to

PREFIX] [dev DEV] [nud STATE] ip rule [list] | add|del SELECTOR ACTION

ipcalc

ipcalc [OPTIONS] ADDRESS[/PREFIX] [NETMASK]

Calculate and display network settings from IP address

-b Broadcast address

-n Network address

-m Default netmask for IP

-p Prefix for IP/NETMASK

-h Resolved host name

-s No error messages

ipneigh

ipneigh show|flush [to PREFIX] [dev DEV] [nud STATE]

kill

kill [-l] [-SIG] PID...

Send a signal (default: TERM) to given PIDs

-l List all signal names and numbers

killall

killall [-l] [-q] [-SIG] PROCESS\_NAME...

Send a signal (default: TERM) to given processes

-l List all signal names and numbers

-q Don't complain if no processes were killed

klogd

klogd [-c N] [-n]

Log kernel messages to syslog

-c N Print to console messages more urgent than prio N (1-8)

-n Run in foreground

last

last

Show listing of the last users that logged into the system

less

less [-EFIMmNSRh~] [FILE]...

View FILE (or stdin) one screenful at a time

-E Quit once the end of a file is reached

-F Quit if entire file fits on first screen

-I Ignore case in all searches

-M,-m Display status line with line numbers

and percentage through the file

-N Prefix line number to each line

-S Truncate long lines

-R Remove color escape codes in input

-- Suppress ~s displayed past EOF

link

link FILE LINK

Create hard LINK to FILE

ln ln [OPTIONS] TARGET... LINK|DIR

Create a link LINK or DIR/TARGET to the specified TARGET(s)

-s Make symlinks instead of hardlinks

-f Remove existing destinations

-n Don't dereference symlinks - treat like normal file

-b Make a backup of the target (if exists) before link operation

-S suf Use suffix instead of ~ when making backup files

-T 2nd arg must be a DIR

-v Verbose

loadfont

loadfont < font

Load a console font from stdin

loadkmap

loadkmap < keymap

Load a binary keyboard translation table from stdin

logger

logger [OPTIONS] [MESSAGE]

Write MESSAGE (or stdin) to syslog

-s Log to stderr as well as the system log

-t TAG Log using the specified tag (defaults to user name)

-p PRIO Priority (numeric or facility.level pair)

login

login [-p] [-h HOST] [[-f] USER]

Begin a new session on the system

-f Don't authenticate (user already authenticated)

-h HOST Host user came from (for network logins)

-p Preserve environment

logname

logname

Print the name of the current user

logread

logread [-fF]

Show messages in syslogd's circular buffer

-f Output data as log grows

-F Same as -f, but dump buffer first

losetup

losetup [-r] [-o OFS] {-f|LOOPDEV} FILE - associate loop devices losetup -d

LOOPDEV - disassociate losetup -a - show status losetup -f - show next free

loop device

-o OFS Start OFS bytes into FILE

-r Read-only

-f Show/use next free loop device

ls ls [-1AaCxdLHRFplinshrSXvctu] [-w WIDTH] [FILE]...

List directory contents

-1 One column output

-a Include entries which start with .

- A Like -a, but exclude . and ..
- x List by lines
- d List directory entries instead of contents
- L Follow symlinks
- H Follow symlinks on command line
- R Recurse
- p Append / to dir entries
- F Append indicator (one of \*/=@|) to entries
- l Long listing format
- i List inode numbers
- n List numeric UIDs and GIDs instead of names
- s List allocated blocks
- lc List ctime
- lu List atime
- full-time List full date and time
- h Human readable sizes (1K 243M 2G)
- group-directories-first
- S Sort by size
- X Sort by extension
- v Sort by version
- t Sort by mtime
- tc Sort by ctime
- tu Sort by atime
- r Reverse sort order
- w N Format N columns wide
- color[={always,never,auto}] Control coloring

lsmod

lsmod

List loaded kernel modules

lzcat

lzcat [FILE]...

Decompress to stdout

lzma

**lzma** [-cfk] [FILE]...

Decompress FILE (or stdin)

- d Decompress
- c Write to stdout
- f Force
- k Keep input files

**lzop**

**lzop** [-cfUvd123456789CF] [FILE]...

- 1..9 Compression level
- d Decompress
- c Write to stdout
- f Force
- U Delete input files
- v Verbose
- F Don't store or verify checksum
- C Also write checksum of compressed block

**md5sum**

**md5sum** [-c[sw]] [FILE]...

Print or check MD5 checksums

- c Check sums against list in FILEs
- s Don't output anything, status code shows success
- w Warn about improperly formatted checksum lines

**mdev**

**mdev** [-s]

**mdev** -s is to be run during boot to scan /sys and populate /dev.

Bare **mdev** is a kernel hotplug helper. To activate it: `echo /sbin/mdev`

`>/proc/sys/kernel/hotplug`

It uses /etc/mdev.conf with lines `[-][ENV=regex;]...DEVNAME UID:GID PERM`

`[>|=PATH][![]][@|$|^PROG]` where DEVNAME is device name regex, @major,minor[-minor2],

or environment variable regex. A common use of the latter is to load modules for

hotplugged devices:

`$MODALIAS=.* 0:0 660 @modprobe "$MODALIAS"`

If /dev/mdev.seq file exists, mdev will wait for its value to match \$SEQNUM variable.

This prevents plug/unplug races. To activate this feature, create empty /dev/mdev.seq at boot.

If /dev/mdev.log file exists, debug log will be appended to it.

microcom

microcom [-d DELAY] [-t TIMEOUT] [-s SPEED] [-X] TTY

Copy bytes for stdin to TTY and from TTY to stdout

- d Wait up to DELAY ms for TTY output before sending every next byte to it
- t Exit if both stdin and TTY are silent for TIMEOUT ms
- s Set serial line to SPEED
- X Disable special meaning of NUL and Ctrl-X from stdin

mkdir

mkdir [OPTIONS] DIRECTORY...

Create DIRECTORY

- m MODE Mode
- p No error if exists; make parent directories as needed

mkdosfs

mkdosfs [-v] [-n LABEL] BLOCKDEV [KBYTES]

Make a FAT32 filesystem

- v Verbose
- n LBL Volume label

mke2fs

mke2fs [-Fn] [-b BLK\_SIZE] [-i INODE\_RATIO] [-I INODE\_SIZE] [-m RESERVED\_PERCENT] [-L LABEL] BLOCKDEV [KBYTES]

- b BLK\_SIZE Block size, bytes
- F Force
- i RATIO Max number of files is filesystem\_size / RATIO
- I BYTES Inode size (min 128)
- L LBL Volume label
- m PERCENT Percent of blocks to reserve for admin
- n Dry run

mkfifo

mkfifo [-m MODE] NAME

Create named pipe

-m MODE Mode (default a=rw)

mknod

mknod [-m MODE] NAME TYPE [MAJOR MINOR]

Create a special file (block, character, or pipe)

-m MODE Creation mode (default a=rw)

TYPE:

b Block device

c or u Character device

p Named pipe (MAJOR MINOR must be omitted)

mkpasswd

mkpasswd [OPTIONS] [PASSWORD] [SALT]

Print crypt(3) hashed PASSWORD

-P,--password-fd N Read password from fd N

-m,--method TYPE des,md5,sha256/512 (default sha256)

-S,--salt SALT

mkswap

mkswap [-L LBL] BLOCKDEV [KBYTES]

Prepare BLOCKDEV to be used as swap partition

-L LBL Label

mktemp

mktemp [-dt] [-p DIR] [TEMPLATE]

Create a temporary file with name based on TEMPLATE and print its name. TEMPLATE must

end with XXXXXX (e.g. [/dir/]nameXXXXXX). Without TEMPLATE, -t tmp.XXXXXX is assumed.

-d Make directory, not file

-q Fail silently on errors

-t Prepend base directory name to TEMPLATE

-p DIR Use DIR as a base directory (implies -t)

-u Do not create anything; print a name

Base directory is: -p DIR, else \$TMPDIR, else /tmp

modinfo

modinfo [-adlpn0] [-F keyword] MODULE

-a Shortcut for '-F author'

- d      Shortcut for '-F description'
- l      Shortcut for '-F license'
- p      Shortcut for '-F parm'
- F keyword      Keyword to look for
- 0      Separate output with NULs

## modprobe

modprobe [-alrvqsDb] MODULE [SYMBOL=VALUE]...

- a      Load multiple MODULEs
- l      List (MODULE is a pattern)
- r      Remove MODULE (stacks) or do autoclean
- q      Quiet
- v      Verbose
- s      Log to syslog
- D      Show dependencies
- b      Apply blacklist to module names too

## more

more [FILE]...

View FILE (or stdin) one screenful at a time

## mount

mount [OPTIONS] [-o OPT] DEVICE NODE

Mount a filesystem. Filesystem autodetection requires /proc.

- a      Mount all filesystems in fstab
- f      Dry run
- i      Don't run mount helper
- r      Read-only mount
- t FSTYPE[,...]      Filesystem type(s)
- T FILE      Read FILE instead of /etc/fstab
- O OPT      Mount only filesystems with option OPT (-a only)

-o OPT:

- loop      Ignored (loop devices are autodetected)
- [a]sync      Writes are [a]synchronous
- [no]atime      Disable/enable updates to inode access times
- [no]diratime      Disable/enable atime updates to directories

[no]relatime Disable/enable atime updates relative to modification time  
[no]dev (Dis)allow use of special device files  
[no]exec (Dis)allow use of executable files  
[no]suid (Dis)allow set-user-id-root programs  
[r]shared Convert [recursively] to a shared subtree  
[r]slave Convert [recursively] to a slave subtree  
[r]private Convert [recursively] to a private subtree  
[un]bindable Make mount point [un]able to be bind mounted  
[r]bind Bind a file or directory [recursively] to another location  
move Relocate an existing mount point  
remount Remount a mounted filesystem, changing flags  
ro Same as -r

There are filesystem-specific -o flags.

mt mt [-f device] opcode value

Control magnetic tape drive operation

Available Opcodes:

bsf bsfm bsr bss datacompression drvbuffer eof eom erase fsf fsfm fsr fss load lock

mkpart nop offline ras1 ras2 ras3 reset retension rewind rewoffline seek setblk

setdensity setpart tell unload unlock weof wset

mv mv [-fin] SOURCE DEST or: mv [-fin] SOURCE... DIRECTORY

Rename SOURCE to DEST, or move SOURCE(s) to DIRECTORY

- f Don't prompt before overwriting
- i Interactive, prompt before overwrite
- n Don't overwrite an existing file

nameif

nameif [-s] [-c FILE] [IFNAME HWADDR]...

Rename network interface while it in the down state. The device with address HWADDR is renamed to IFACE.

- c FILE Configuration file (default: /etc/mactab)
- s Log to syslog

nc nc [-iN] [-wN] [-l] [-p PORT] [-f FILE|IPADDR PORT] [-e PROG]

Open a pipe to IP:PORT or FILE

- l Listen mode, for inbound connects

(use -ll with -e for persistent server)

-p PORT Local port

-w SEC Connect timeout

-i SEC Delay interval for lines sent

-f FILE Use file (ala /dev/ttys0) instead of network

-e PROG Run PROG after connect

netstat

netstat [-ral] [-tuwx] [-en]

Display networking information

-r Routing table

-a All sockets

-l Listening sockets

Else: connected sockets

-t TCP sockets

-u UDP sockets

-w Raw sockets

-x Unix sockets

Else: all socket types

-e Other/more information

-n Don't resolve names

nl nl [OPTIONS] [FILE]...

Write FILES to standard output with line numbers added

-b STYLE Which lines to number - a: all, t: nonempty, n: none

-i N Line number increment

-s STRING Use STRING as line number separator

-v N Start from N

-w N Width of line numbers

nologin

nologin

Politely refuse a login

nproc

nproc --all --ignore=N

Print number of available CPUs

--all Number of installed CPUs

--ignore=N Exclude N CPUs

## nsenter

nsenter [OPTIONS] [PROG [ARGS]]

-t PID Target process to get namespaces from

-m[FILE] Enter mount namespace

-u[FILE] Enter UTS namespace (hostname etc)

-i[FILE] Enter System V IPC namespace

-n[FILE] Enter network namespace

-p[FILE] Enter pid namespace

-U[FILE] Enter user namespace

-S UID Set uid in entered namespace

-G GID Set gid in entered namespace

--preserve-credentials Don't touch uids or gids

-r[DIR] Set root directory

-w[DIR] Set working directory

-F Don't fork before exec'ing PROG

## nslookup

nslookup [-type=QUERY\_TYPE] [-debug] HOST [DNS\_SERVER]

Query DNS about HOST

QUERY\_TYPE: soa,ns,a,aaaa,cname,mx,txt,ptr,any

## nuke

nuke DIR...

Remove DIRs

od od [-abcdfhilovxs] [-t TYPE] [-A RADIX] [-N SIZE] [-j SKIP] [-S MINSTR] [-w WIDTH]

[FILE]...

Print FILEs (or stdin) unambiguously, as octal bytes by default

## openvt

openvt [-c N] [-sw] [PROG ARGS]

Start PROG on a new virtual terminal

-c N Use specified VT

-s Switch to the VT

-w Wait for PROG to exit

partprobe

partprobe DEVICE...

Ask kernel to rescan partition table

passwd

passwd [OPTIONS] [USER]

Change USER's password (default: current user)

-a ALG des,md5,sha256/512 (default sha256)

-d Set password to "

-l Lock (disable) account

-u Unlock (enable) account

paste

paste [OPTIONS] [FILE]...

Paste lines from each input file, separated with tab

-d LIST Use delimiters from LIST, not tab

-s Serial: one file at a time

patch

patch [OPTIONS] [ORIGFILE [PATCHFILE]]

-p N Strip N leading components from file names

-i DIFF Read DIFF instead of stdin

-R Reverse patch

-N Ignore already applied patches

-E Remove output files if they become empty

--dry-run Don't actually change files

pidof

pidof [NAME]...

List PIDs of all processes with names that match NAMES

ping

ping [OPTIONS] HOST

Send ICMP ECHO\_REQUEST packets to network hosts

-4,-6 Force IP or IPv6 name resolution

-c CNT Send only CNT pings

-s SIZE Send SIZE data bytes in packets (default 56)

-i SECS Interval

-A            Ping as soon as reply is received  
-t TTL        Set TTL  
-I IFACE/IP    Source interface or IP address  
-W SEC        Seconds to wait for the first response (default 10)  
                  (after all -c CNT packets are sent)  
-w SEC        Seconds until ping exits (default:infinite)  
                  (can exit earlier with -c CNT)  
-q            Quiet, only display output at start  
                  and when finished  
-p HEXBYTE    Pattern to use for payload

ping6

ping6 [OPTIONS] HOST  
Send ICMP ECHO\_REQUEST packets to network hosts

-c CNT        Send only CNT pings  
-s SIZE        Send SIZE data bytes in packets (default 56)  
-i SECS        Interval  
-A            Ping as soon as reply is received  
-I IFACE/IP    Source interface or IP address  
-q            Quiet, only display output at start  
                  and when finished  
-p HEXBYTE    Pattern to use for payload

pivot\_root

pivot\_root NEW\_ROOT PUT\_OLD  
Move the current root file system to PUT\_OLD and make NEW\_ROOT the new root file system

poweroff

poweroff [-d DELAY] [-n] [-f]  
Halt and shut off power

-d SEC    Delay interval  
-n        Do not sync  
-f        Force (don't go through init)

printf

printf FORMAT [ARG]...

Format and print ARG(s) according to FORMAT (a-la C printf)

ps ps [-o COL1,COL2=HEADER] [-T]

Show list of processes

-o COL1,COL2=HEADER Select columns for display

-T Show threads

pwd pwd

Print the full filename of the current working directory

rdate

rdate [-s/-p] HOST

Set and print time from HOST using RFC 868

-s Only set system time

-p Only print time

readlink

readlink [-fnv] FILE

Display the value of a symlink

-f Canonicalize by following all symlinks

-n Don't add newline

-v Verbose

realpath

realpath FILE...

Return the absolute pathnames of given FILE

reboot

reboot [-d DELAY] [-n] [-f]

Reboot the system

-d SEC Delay interval

-n Do not sync

-f Force (don't go through init)

renice

renice [-n] PRIORITY [[-p | -g | -u] ID...]. . .

Change scheduling priority of a running process

-n Add PRIORITY to current nice value

Without -n, nice value is set to PRIORITY

-p Process ids (default)

-g Process group ids  
-u Process user names

reset  
reset  
Reset the screen

resume  
resume BLOCKDEV [OFFSET]  
Restore system state from 'suspend-to-disk' data in BLOCKDEV

rev rev [FILE]...  
Reverse lines of FILE

rm rm [-irf] FILE...  
Remove (unlink) FILES  
-i Always prompt before removing  
-f Never prompt  
-R,-r Recurse

rmdir  
rmdir [OPTIONS] DIRECTORY...  
Remove DIRECTORY if it is empty  
-p Include parents  
--ignore-fail-on-non-empty

rmmod  
rmmod [-wfa] [MODULE]...  
Unload kernel modules  
-w Wait until the module is no longer used  
-f Force unload  
-a Remove all unused modules (recursively)

route  
route [{add|del|delete}]  
Edit kernel routing tables  
-n Don't resolve names  
-e Display other/more information  
-A inet{6} Select address family

rpm rpm -i PACKAGE.rpm; rpm -qp[ildc] PACKAGE.rpm

Manipulate RPM packages

Commands:

- i Install package
- qp Query package
- qli Show information
- qls List contents
- qpd List documents
- qpc List config files

rpm2cpio

rpm2cpio PACKAGE.rpm

Output a cpio archive of the rpm file

run-init

run-init [-d CAP,CAP...] [-n] [-c CONSOLE\_DEV] NEW\_ROOT NEW\_INIT [ARGS]

Free initramfs and switch to another root fs:

chroot to NEW\_ROOT, delete all in /, move NEW\_ROOT to /, execute NEW\_INIT. PID must be

1. NEW\_ROOT must be a mountpoint.

- c DEV Reopen stdio to DEV after switch
- d CAPS Drop capabilities
- n Dry run

run-parts

run-parts [-a ARG]... [-u UMASK] [--reverse] [--test] [--exit-on-error] DIRECTORY

Run a bunch of scripts in DIRECTORY

- a ARG Pass ARG as argument to scripts
- u UMASK Set UMASK before running scripts
- reverse Reverse execution order
- test Dry run

--exit-on-error Exit if a script exits with non-zero

sed sed [-i[SFX]] [-nrE] [-f FILE]... [-e CMD]... [FILE]... or: sed [-i[SFX]] [-nrE] CMD

[FILE]...

- e CMD Add CMD to sed commands to be executed
- f FILE Add FILE contents to sed commands to be executed
- i[SFX] Edit files in-place (otherwise sends to stdout)

Optionally back files up, appending SFX

-n Suppress automatic printing of pattern space

-r,-E Use extended regex syntax

If no -e or -f, the first non-option argument is the sed command string. Remaining arguments are input files (stdin if none).

seq seq [-w] [-s SEP] [FIRST [INC]] LAST

Print numbers from FIRST to LAST, in steps of INC. FIRST, INC default to 1.

-w Pad to last with leading zeros

-s SEP String separator

setkeycodes

setkeycodes { SCancode KEYCODE }...

Modify kernel's scancode-to-keycode map, allowing unusual keyboards to generate usable keycodes.

SCancode is either xx or e0xx (hexadecimal), KEYCODE is decimal.

setpriv

setpriv [OPTIONS] PROG [ARGS]

Run PROG with different privilege settings

-d,--dump Show current capabilities --nnp,--no-new-privs Ignore setuid/setgid

bits and file capabilities --inh-caps CAP,CAP Set inheritable capabilities

--ambient-caps CAP,CAP Set ambient capabilities

setsid

setsid [-c] PROG ARGS

Run PROG in a new session. PROG will have no controlling terminal and will not be affected by keyboard signals (^C etc).

-c Set controlling terminal to stdin

sh sh [-/+OPTIONS] [-/+o OPT]... [-c 'SCRIPT' [ARG0 [ARGS]] / FILE [ARGS] / -s [ARGS]]

Unix shell interpreter

sha1sum

sha1sum [-c[sw]] [FILE]...

Print or check SHA1 checksums

-c Check sums against list in FILEs

-s Don't output anything, status code shows success

-w Warn about improperly formatted checksum lines

sha256sum

sha256sum [-c[sw]] [FILE]...

Print or check SHA256 checksums

- c Check sums against list in FILES
- s Don't output anything, status code shows success
- w Warn about improperly formatted checksum lines

sha512sum

sha512sum [-c[sw]] [FILE]...

Print or check SHA512 checksums

- c Check sums against list in FILES
- s Don't output anything, status code shows success
- w Warn about improperly formatted checksum lines

shred

shred FILE...

Overwrite/delete FILES

- f Chmod to ensure writability
- n N Overwrite N times (default 3)
- z Final overwrite with zeros
- u Remove file

shuf

shuf [-e|-i L-H] [-n NUM] [-o FILE] [-z] [FILE|ARG...]

Randomly permute lines

- e Treat ARGs as lines
- i L-H Treat numbers L-H as lines
- n NUM Output at most NUM lines
- o FILE Write to FILE, not standard output
- z End lines with zero byte, not newline

sleep

sleep [N]...

Pause for a time equal to the total of the args given, where each arg can have an optional suffix of (s)econds, (m)inutes, (h)ours, or (d)ays

sort

sort [-nrugMcszbdfiokt] [-o FILE] [-k start[.offset][opts][,end[.offset][opts]]] [-t CHAR] [FILE]...

Sort lines of text

- o FILE Output to FILE
- c Check whether input is sorted
- b Ignore leading blanks
- f Ignore case
- i Ignore unprintable characters
- d Dictionary order (blank or alphanumeric only)
- n Sort numbers
- g General numerical sort
- M Sort month
- V Sort version
- t CHAR Field separator
- k N[,M] Sort by Nth field
- r Reverse sort order
- s Stable (don't sort ties alphabetically)
- u Suppress duplicate lines
- z Lines are terminated by NUL, not newline

ssl\_client

ssl\_client [-e] -s FD [-r FD] [-n SNI]

start-stop-daemon

start-stop-daemon [OPTIONS] [-S|-K] ... [-- ARGS...]

Search for matching processes, and then -K: stop all matching processes -S: start a process unless a matching process is found

Process matching:

- u USERNAME|UID Match only this user's processes
- n NAME Match processes with NAME
  - in comm field in /proc/PID/stat
- x EXECUTABLE Match processes with this command
  - command in /proc/PID/cmdline
- p FILE Match a process with PID from FILE
  - All specified conditions must match

-S only:

- x EXECUTABLE Program to run

- a NAME Zeroth argument
- b Background
- N N Change nice level
- c USER[:GRP] Change user/group
- m Write PID to pidfile specified by -p

-K only:

- s SIG Signal to send
- t Match only, exit with 0 if found

Other:

- o Exit with status 0 if nothing is done
- v Verbose
- q Quiet

stat

stat [OPTIONS] FILE...

Display file (default) or filesystem status

- c FMT Use the specified format
- f Display filesystem status
- L Follow links
- t Terse display

FMT sequences for files:

- %a Access rights in octal
- %A Access rights in human readable form
- %b Number of blocks allocated (see %B)
- %B Size in bytes of each block reported by %b
- %d Device number in decimal
- %D Device number in hex
- %f Raw mode in hex
- %F File type
- %g Group ID
- %G Group name
- %h Number of hard links
- %i Inode number
- %n File name

%N File name, with -> TARGET if symlink  
%o I/O block size  
%s Total size in bytes  
%t Major device type in hex  
%T Minor device type in hex  
%u User ID  
%U User name  
%x Time of last access  
%X Time of last access as seconds since Epoch  
%y Time of last modification  
%Y Time of last modification as seconds since Epoch  
%z Time of last change  
%Z Time of last change as seconds since Epoch

FMT sequences for file systems:

%a Free blocks available to non-superuser  
%b Total data blocks  
%c Total file nodes  
%d Free file nodes  
%f Free blocks  
%i File System ID in hex  
%l Maximum length of filenames  
%n File name  
%s Block size (for faster transfer)  
%S Fundamental block size (for block counts)  
%t Type in hex  
%T Type in human readable form

strings

strings [-fo] [-t o/d/x] [-n LEN] [FILE]...

Display printable strings in a binary file

-f Precede strings with filenames  
-o Precede strings with octal offsets  
-t o/d/x Precede strings with offsets in base 8/10/16  
-n LEN At least LEN characters form a string (default 4)

stty

stty [-a|g] [-F DEVICE] [SETTING]...

Without arguments, prints baud rate, line discipline, and deviations from stty sane

-F DEVICE Open device instead of stdin

-a Print all current settings in human-readable form

-g Print in stty-readable form

[SETTING] See manpage

su su [-lmp] [-] [-s SH] [USER [SCRIPT ARGs / -c 'CMD' ARG0 ARGs]]

Run shell under USER (by default, root)

-,-l Clear environment, go to home dir, run shell as login shell

-p,-m Do not set new \$HOME, \$SHELL, \$USER, \$LOGNAME

-c CMD Command to pass to 'sh -c'

-s SH Shell to use instead of user's default

sulogin

sulogin [-t N] [TTY]

Single user login

-t N Timeout

svc svc [-udopchaikx] SERVICE\_DIR...

Control services monitored by runsv supervisor

-u If service is not running, start it; restart if it stops

-d If service is running, send TERM+CONT signals; do not restart it

-o Once: if service is not running, start it; do not restart it

-pchaik Send STOP, CONT, HUP, ALRM, INT, TERM, KILL signal to service

-x Exit: runsv will exit as soon as the service is down

svok

svok SERVICE\_DIR

Check whether runsv supervisor is running. Exit code is 0 if it does, 100 if it does

not, 111 (with error message) if SERVICE\_DIR does not exist.

swapoff

swapoff [-a] [DEVICE]

Stop swapping on DEVICE

-a Stop swapping on all swap devices

swapon

swapon [-a] [-e] [-d[POL]] [DEVICE]

Start swapping on DEVICE

-a Start swapping on all swap devices

-d[POL] Discard blocks at swapon (POL=once),

as freed (POL=pages), or both (POL omitted)

-e Silently skip devices that do not exist

switch\_root

switch\_root [-c CONSOLE\_DEV] NEW\_ROOT NEW\_INIT [ARGS]

Free initramfs and switch to another root fs:

chroot to NEW\_ROOT, delete all in /, move NEW\_ROOT to /, execute NEW\_INIT. PID must be

1. NEW\_ROOT must be a mountpoint.

-c DEV Reopen stdio to DEV after switch

sync

sync [-df] [FILE]...

Write all buffered blocks (in FILEs) to disk -d Avoid syncing metadata

-f Sync filesystems underlying FILEs

sysctl

sysctl -p [-enq] [FILE...] / [-enqaw] [KEY[=VALUE]]...

Show/set kernel parameters

-p Set values from FILEs (default /etc/sysctl.conf)

-e Don't warn about unknown keys

-n Don't show key names

-q Quiet

-a Show all values

-w Set values

syslogd

syslogd [OPTIONS]

System logging utility (this version of syslogd ignores /etc/syslog.conf)

-n Run in foreground

-R HOST[:PORT] Log to HOST:PORT (default PORT:514)

-L Log locally and via network (default is network only if -R)

-C[size\_kb] Log to shared mem buffer (use logread to read it)

-O FILE Log to FILE (default: /var/log/messages, stdout if -)

-I N Log only messages more urgent than prio N (1-8)

-S Smaller output

-t Strip client-generated timestamps

tac tac [FILE]...

Concatenate FILEs and print them in reverse

tail

tail [OPTIONS] [FILE]...

Print last 10 lines of each FILE (or stdin) to stdout. With more than one FILE,

precede each with a filename header.

-f Print data as file grows

-c [+][N][kbm] Print last N bytes

-n N[kbm] Print last N lines

-n +N[kbm] Start on Nth line and print the rest

-q Never print headers

-s SECONDS Wait SECONDS between reads with -f

-v Always print headers

-F Same as -f, but keep retrying

N may be suffixed by k (x1024), b (x512), or m (x1024^2).

tar tar c|x|t [-ZzJjahmvokO] [-f TARFILE] [-C DIR] [FILE]...

Create, extract, or list files from a tar file

c Create

x Extract

t List

-f FILE Name of TARFILE ('-' for stdin/out)

-C DIR Change to DIR before operation

-v Verbose

-O Extract to stdout

-m Don't restore mtime

-o Don't restore user:group

-k Don't replace existing files

-Z (De)compress using compress

-z (De)compress using gzip

-J (De)compress using xz

-j (De)compress using bzip2

-a (De)compress using lzma

-h Follow symlinks

## taskset

taskset [-p] [HEXMASK] PID | PROG ARGS

Set or get CPU affinity

-p Operate on an existing PID

## tc tc OBJECT CMD [dev STRING]

OBJECT: qdisc|class|filter CMD: add|del|change|replace|show

qdisc [handle QHANDLE] [root|ingress|parent CLASSID] [[QDISC\_KIND]

[help|OPTIONS]] QDISC\_KIND := [p|b]fifo|tbf|prio|cbq|red|etc. qdisc show [dev

STRING] [ingress] class [classid CLASSID] [root|parent CLASSID] [[QDISC\_KIND]

[help|OPTIONS] ] class show [ dev STRING ] [root|parent CLASSID] filter [pref PRIO]

[protocol PROTO] [root|classid CLASSID] [handle FILTERID] [[FILTER\_TYPE]

[help|OPTIONS]] filter show [dev STRING] [root|parent CLASSID]

## tee tee [-ai] [FILE]...

Copy stdin to each FILE, and also to stdout

-a Append to the given FILEs, don't overwrite

-i Ignore interrupt signals (SIGINT)

## telnet

telnet [-a] [-I USER] HOST [PORT]

Connect to telnet server

-a Automatic login with \$USER variable

-I USER Automatic login as USER

## telnetd

telnetd [OPTIONS]

Handle incoming telnet connections

-I LOGIN Exec LOGIN on connect

-f ISSUE\_FILE Display ISSUE\_FILE instead of /etc/issue

-K Close connection as soon as login exits

(normally wait until all programs close slave pty)

-p PORT Port to listen on

-b ADDR[:PORT] Address to bind to

-F Run in foreground

-i Inetd mode

ftp

tftp [OPTIONS] HOST [PORT]

Transfer a file from/to tftp server

-I FILE Local FILE

-r FILE Remote FILE

-g Get file

-p Put file

-b SIZE Transfer blocks of SIZE octets

time

time [-vpa] [-o FILE] PROG ARGS

Run PROG, display resource usage when it exits

-v Verbose

-p POSIX output format

-f FMT Custom format

-o FILE Write result to FILE

-a Append (else overwrite)

timeout

timeout [-s SIG] SECS PROG ARGS

Runs PROG. Sends SIG to it if it is not gone in SECS seconds. Default SIG: TERM.

top top [-b] [-nCOUNT] [-dSECONDS]

Provide a view of process activity in real time. Read the status of all processes

from /proc each SECONDS and display a screenful of them. Keys:

N/M/P/T: sort by pid/mem/cpu/time

R: reverse sort

H: toggle threads

Q,^C: exit

Options:

-b Batch mode

-n N Exit after N iterations

-d N Delay between updates

touch

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`touch [-c] [-d DATE] [-t DATE] [-r FILE] FILE...`

Update the last-modified date on the given FILE[s]

`-c` Don't create files

`-h` Don't follow links

`-d DT` Date/time to use

`-t DT` Date/time to use

`-r FILE` Use FILE's date/time

`tr tr [-cds] STRING1 [STRING2]`

Translate, squeeze, or delete characters from stdin, writing to stdout

`-c` Take complement of STRING1

`-d` Delete input characters coded STRING1

`-s` Squeeze multiple output characters of STRING2 into one character

`traceroute`

`traceroute [-46FIlnrv] [-f 1ST_TTL] [-m MAXTTL] [-q PROBES] [-p PORT] [-t TOS]`

`[-w WAIT_SEC] [-s SRC_IP] [-i IFACE] [-z PAUSE_MSEC] HOST [BYTES]`

Trace the route to HOST

`-4,-6` Force IP or IPv6 name resolution

`-F` Set don't fragment bit

`-l` Display TTL value of the returned packet

`-n` Print numeric addresses

`-r` Bypass routing tables, send directly to HOST

`-v` Verbose

`-f N` First number of hops (default 1)

`-m N` Max number of hops

`-q N` Number of probes per hop (default 3)

`-p N` Base UDP port number used in probes

(default 33434)

`-s IP` Source address

`-i IFACE` Source interface

`-t N` Type-of-service in probe packets (default 0)

`-w SEC` Time to wait for a response (default 3)

`-g IP` Loose source route gateway (8 max)

`traceroute6`

traceroute6 [-nrv] [-m MAXTTL] [-q PROBES] [-p PORT] [-t TOS] [-w WAIT\_SEC] [-s SRC\_IP] [-i IFACE] HOST [BYTES]

Trace the route to HOST

- n Print numeric addresses
- r Bypass routing tables, send directly to HOST
- v Verbose
- m N Max number of hops
- q N Number of probes per hop (default 3)
- p N Base UDP port number used in probes
  - (default 33434)
- s IP Source address
- i IFACE Source interface
- t N Type-of-service in probe packets (default 0)
- w SEC Time wait for a response (default 3)

truncate

truncate [-c] -s SIZE FILE...

Truncate FILEs to the given size

- c Do not create files
- s SIZE Truncate to SIZE

tty tty

Print file name of stdin's terminal

- s Print nothing, only return exit status

tunctl

tunctl [-f device] ([-t name] | -d name)

Create or delete tun interfaces

- f name tun device (/dev/net/tun)
- t name Create iface 'name'
- d name Delete iface 'name'

ubirename

ubirename UBI\_DEVICE OLD\_VOLNAME NEW\_VOLNAME [OLD2 NEW2]...

Rename UBI volumes on UBI\_DEVICE

udhcpc

udhcpc [-fbqRB] [-a[MSEC]] [-t N] [-T SEC] [-A SEC/-n] [-i IFACE] [-s PROG] [-p

PIDFILE] [-oC] [-r IP] [-V VENDOR] [-F NAME] [-x OPT:VAL]... [-O OPT]...

- i IFACE Interface to use (default eth0)
- s PROG Run PROG at DHCP events (default /etc/udhcpc/default.script)
- p FILE Create pidfile
- B Request broadcast replies
- t N Send up to N discover packets (default 3)
- T SEC Pause between packets (default 3)
- A SEC Wait if lease is not obtained (default 20)
- n Exit if lease is not obtained
- q Exit after obtaining lease
- R Release IP on exit
- f Run in foreground
- b Background if lease is not obtained
- S Log to syslog too
- a[MSEC] Validate offered address with ARP ping
- r IP Request this IP address
- o Don't request any options (unless -O is given)
- O OPT Request option OPT from server (cumulative)
- x OPT:VAL Include option OPT in sent packets (cumulative)

Examples of string, numeric, and hex byte opts:

- x hostname:bbox - option 12
- x lease:3600 - option 51 (lease time)
- x 0x3d:0100BEEFC0FFEE - option 61 (client id)
- x 14:"dumpfile" - option 14 (shell-quoted)

-F NAME Ask server to update DNS mapping for NAME

-V VENDOR Vendor identifier (default 'udhcp VERSION')

-C Don't send MAC as client identifier

Signals:

USR1 Renew lease

USR2 Release lease

udhcpcd

udhcpcd [-fS] [-I ADDR] [CONFFILE]

DHCP server

- f Run in foreground
- S Log to syslog too
- I ADDR Local address
- a MSEC Timeout for ARP ping (default 2000)

## uevent

uevent [PROG [ARG\$]]

uevent runs PROG for every netlink notification. PROG's environment contains data passed from the kernel. Typical usage (daemon for dynamic device node creation):

```
# uevent mdev & mdev -s
```

## umount

umount [OPTIONS] FILESYSTEM|DIRECTORY

Unmount file systems

- a Unmount all file systems
- r Try to remount devices as read-only if mount is busy
- l Lazy umount (detach filesystem)
- f Force umount (i.e., unreachable NFS server)
- d Free loop device if it has been used
- t FSTYPE[,...] Unmount only these filesystem type(s)

## uname

uname [-amnrvpio]

Print system information

- a Print all
- m The machine (hardware) type
- n Hostname
- r Kernel release
- s Kernel name (default)
- p Processor type
- v Kernel version
- i The hardware platform
- o OS name

## uncompress

uncompress [-cf] [FILE]...

Decompress .Z file[s]

-c Write to stdout

-f Overwrite

## unexpand

unexpand [-fa][-t N] [FILE]...

Convert spaces to tabs, writing to stdout

-a Convert all blanks

-f Convert only leading blanks

-t N Tabstops every N chars

## uniq

uniq [-cdw][-f,s,w N] [INPUT [OUTPUT]]

Discard duplicate lines

-c Prefix lines by the number of occurrences

-d Only print duplicate lines

-u Only print unique lines

-i Ignore case

-f N Skip first N fields

-s N Skip first N chars (after any skipped fields)

-w N Compare N characters in line

## unix2dos

unix2dos [-ud] [FILE]

Convert FILE in-place from Unix to DOS format. When no file is given, use

stdin/stdout.

-u dos2unix

-d unix2dos

## unlink

unlink FILE

Delete FILE by calling unlink()

## unlzma

unlzma [-cfk] [FILE]...

Decompress FILE (or stdin)

-c Write to stdout

-f Force

-k Keep input files

## unshare

```
unshare [OPTIONS] [PROG [ARGS]]  
-m,--mount[=FILE]      Unshare mount namespace  
-u,--uts[=FILE]        Unshare UTS namespace (hostname etc.)  
-i,--ipc[=FILE]        Unshare System V IPC namespace  
-n,--net[=FILE]        Unshare network namespace  
-p,--pid[=FILE]        Unshare PID namespace  
-U,--user[=FILE]       Unshare user namespace  
-f,--fork              Fork before execing PROG  
-r,--map-root-user    Map current user to root (implies -U)  
--mount-proc[=DIR]      Mount /proc filesystem first (implies -m)  
--propagation slave|shared|private|unchanged  
                         Modify mount propagation in mount namespace  
--setgroups allow|deny  Control the setgroups syscall in user namespaces
```

## unxz

```
unxz [-cfk] [FILE]...  
Decompress FILE (or stdin)  
-c    Write to stdout  
-f    Force  
-k    Keep input files
```

## unzip

```
unzip [-lnojqpq] FILE[.zip] [FILE]... [-x FILE...] [-d DIR]  
Extract FILEs from ZIP archive  
-l    List contents (with -q for short form)  
-n    Never overwrite files (default: ask)  
-o    Overwrite  
-j    Do not restore paths  
-p    Print to stdout  
-q    Quiet  
-x FILE Exclude FILEs  
-d DIR Extract into DIR
```

## uptime

```
uptime
```

Display the time since the last boot

usleep

usleep N

Pause for N microseconds

uudecode

uudecode [-o OUTFILE] [INFILE]

Uudecode a file Finds OUTFILE in uuencoded source unless -o is given

uuencode

uuencode [-m] [FILE] STORED\_FILENAME

Uuencode FILE (or stdin) to stdout

-m Use base64 encoding per RFC1521

vconfig

vconfig COMMAND [OPTIONS]

Create and remove virtual ethernet devices

add IFACE VLAN\_ID

rem VLAN\_NAME

set\_flag IFACE 0|1 VLAN\_QOS

set\_egress\_map VLAN\_NAME SKB\_PRIO VLAN\_QOS

set\_ingress\_map VLAN\_NAME SKB\_PRIO VLAN\_QOS

set\_name\_type NAME\_TYPE

vi vi [OPTIONS] [FILE]...

Edit FILE

-c CMD Initial command to run (\$EXINIT also available)

-R Read-only

-H List available features

w w

Show who is logged on

watch

watch [-n SEC] [-t] PROG ARGS

Run PROG periodically

-n Loop period in seconds (default 2)

-t Don't print header

watchdog

watchdog [-t N[ms]] [-T N[ms]] [-F] DEV

Periodically write to watchdog device DEV

-T N Reboot after N seconds if not reset (default 60)

-t N Reset every N seconds (default 30)

-F Run in foreground

Use 500ms to specify period in milliseconds

wc wc [-cmlwL] [FILE]...

Count lines, words, and bytes for each FILE (or stdin)

-c Count bytes

-m Count characters

-l Count newlines

-w Count words

-L Print longest line length

wget

wget [-c|--continue] [--spider] [-q|--quiet] [-O|--output-document FILE]

[--header 'header: value'] [-Y|--proxy on/off] [-P DIR]

[--no-check-certificate] [-S|--server-response] [-U|--user-agent AGENT]

URL...

Retrieve files via HTTP or FTP

--spider Only check URL existence: \$? is 0 if exists

--no-check-certificate Don't validate the server's certificate

-c Continue retrieval of aborted transfer

-q Quiet

-P DIR Save to DIR (default .)

-S Show server response

-O FILE Save to FILE ('-' for stdout)

-U STR Use STR for User-Agent header

-Y on/off Use proxy

which

which [COMMAND]...

Locate a COMMAND

who who [-a]

Show who is logged on

-a Show all  
-H Print column headers

whoami

whoami

Print the user name associated with the current effective user id

xargs

xargs [OPTIONS] [PROG ARGS]

Run PROG on every item given by stdin

-p Ask user whether to run each command  
-r Don't run command if input is empty  
-0 Input is separated by NULs  
-a FILE Read from FILE instead of stdin  
-t Print the command on stderr before execution  
-e[STR] STR stops input processing  
-n N Pass no more than N args to PROG  
-s N Pass command line of no more than N bytes  
-I STR Replace STR within PROG ARGS with input line  
-P N Run up to N PROGs in parallel  
-x Exit if size is exceeded

xxd xxd [OPTIONS] [FILE]

Hex dump FILE (or stdin)

-g N Bytes per group  
-c N Bytes per line  
-p Show only hex bytes, assumes -c30  
-l LENGTH Show only first LENGTH bytes  
-s OFFSET Skip OFFSET bytes

xz xz -d [-cfk] [FILE]...

Decompress FILE (or stdin)

-d Decompress  
-c Write to stdout  
-f Force  
-k Keep input files

xzcat

xzcat [FILE]...

Decompress to stdout

yes yes [STRING]

Repeatedly output a line with STRING, or 'y'

zcat

zcat [FILE]...

Decompress to stdout

## LIBC NSS

GNU Libc (glibc) uses the Name Service Switch (NSS) to configure the behavior of the C library for the local environment, and to configure how it reads system data, such as passwords and group information. This is implemented using an /etc/nsswitch.conf configuration file, and using one or more of the /lib/libnss\_\* libraries. BusyBox tries to avoid using any libc calls that make use of NSS. Some applets however, such as login and su, will use libc functions that require NSS.

If you enable CONFIG\_USE\_BB\_PWD\_GRP, BusyBox will use internal functions to directly access the /etc/passwd, /etc/group, and /etc/shadow files without using NSS. This may allow you to run your system without the need for installing any of the NSS configuration files and libraries.

When used with glibc, the BusyBox 'networking' applets will similarly require that you install at least some of the glibc NSS stuff (in particular, /etc/nsswitch.conf, /lib/libnss\_dns\*, /lib/libnss\_files\*, and /lib/libresolv\*).

Shameless Plug: As an alternative, one could use a C library such as uClibc. In addition to making your system significantly smaller, uClibc does not require the use of any NSS support files or libraries.

## MAINTAINER

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## AUTHORS

The following people have contributed code to BusyBox whether they know it or not. If you have written code included in BusyBox, you should probably be listed here so you can obtain your bit of eternal glory. If you should be listed here, or the description of what you have done needs more detail, or is incorrect, please send in an update.

Emanuele Aina <emanuele.aina@tiscali.it>

run-parts

Erik Andersen <andersen@codepoet.org>

Tons of new stuff, major rewrite of most of the core apps, tons of new apps as noted in header files.

Lots of tedious effort writing these boring docs that nobody is going to actually read.

Laurence Anderson <l.d.anderson@warwick.ac.uk>

rpm2cpio, unzip, get\_header\_cpio, read\_gz interface, rpm

Jeff Angielski <jeff@theptrgroup.com>

ftpput, ftpget

Edward Betts <edward@debian.org>

expr, hostid, logname, whoami

John Beppu <beppu@codepoet.org>

du, nslookup, sort

Brian Candler <B.Candler@pobox.com>

tiny-ls(ls)

Randolph Chung <tausq@debian.org>

fbset, ping, hostname

Dave Cinege <dcinege@psychosis.com>

more(v2), makedevs, dutmp, modularization, auto links file, various fixes, Linux Router Project maintenance

Jordan Crouse <jordan@cosmicpenguin.net>

ipcalc

Magnus Damm <damm@opensource.se>

tftp client insmod powerpc support

Larry Doolittle <l.doolitt@recycle.lbl.gov>

pristine source directory compilation, lots of patches and fixes.

Glenn Engel <glenne@engel.org>

httpd

Gennady Feldman <gfeldman@gena01.com>

Sysklogd (single threaded syslogd, IPC Circular buffer support, logread), various fixes.

Karl M. Hegbloom <karlheg@debian.org>

cp\_mv.c, the test suite, various fixes to utility.c, &c.

Daniel Jacobowitz <dan@debian.org>

mktemp.c

Matt Kraai <kraai@alumni.cmu.edu>

documentation, bugfixes, test suite

Stephan Linz <linz@li-pro.net>

ipcalc, Red Hat equivalence

John Lombardo <john@deltanet.com>

tr

Glenn McGrath <bug1@iinet.net.au>

Common unarchiving code and unarchiving applets, ifupdown, ftpgetput,  
nameif, sed, patch, fold, install, uudecode.

Various bugfixes, review and apply numerous patches.

Manuel Novoa III <mjn3@codepoet.org>

cat, head, mkfifo, mknod, rmdir, sleep, tee, tty, uniq, usleep, wc, yes,  
mesg, vconfig, make\_directory, parse\_mode, dirname, mode\_string,  
get\_last\_path\_component, simplify\_path, and a number trivial libbb routines  
also bug fixes, partial rewrites, and size optimizations in  
ash, basename, cal, cmp, cp, df, du, echo, env, ln, logname, md5sum, mkdir,  
mv, realpath, rm, sort, tail, touch, uname, watch, arith, human\_readable,  
interface, dutmp, ifconfig, route

Vladimir Oleynik <dzo@simtreas.ru>

cmdedit; xargs(current), httpd(current);  
ports: ash, crond, fdisk, inetd, stty, traceroute, top;  
locale, various fixes  
and irreconcilable critic of everything not perfect.

Bruce Perens <bruce@pixar.com>

Original author of BusyBox in 1995, 1996. Some of his code can  
still be found hiding here and there...

Tim Riker <Tim@Rikers.org>

bug fixes, member of fan club

Kent Robotti <robotti@metconnect.com>

reset, tons and tons of bug reports and patches.

Chip Rosenthal <chip@unicom.com>, <crosenth@covad.com>

wget - Contributed by permission of Covad Communications

Pavel Roskin <proska@gnu.org>

Lots of bugs fixes and patches.

Gyepi Sam <gyepi@praxis-sw.com>

Remote logging feature for syslogd

Linus Torvalds <torvalds@transmeta.com>

mkswap, fsck.minix, mkfs.minix

Mark Whitley <markw@codepoet.org>

grep, sed, cut, xargs(previous),

style-guide, new-applet-HOWTO, bug fixes, etc.

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gzip, mini-netcat(nc)

Enrique Zanardi <ezanardi@ull.es>

tarcat (since removed), loadkmap, various fixes, Debian maintenance

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devfsd and size optimizations in strings, openvt and deallocvt.

Paul Fox <pgf@foxharp.boston.ma.us>

vi editing mode for ash, various other patches/fixes

Roberto A. Foglietta <me@roberto.foglietta.name>

port: dnsd

Bernhard Reutner-Fischer <rep.dot.nop@gmail.com>

misc

Mike Frysinger <vapier@gentoo.org>

initial e2fsprogs, printenv, setarch, sum, misc

Jie Zhang <jie.zhang@analog.com>

fixed two bugs in msh and hush (exitcode of killed processes)