Rocky Enterprise Linux 9.2 Manual Pages on command 'sg_modes.8'

$ man sg_modes.8

SG_MODES(8)   SG3_UTILS   SG_MODES(8)

NAME

    sg_modes - reads mode pages with SCSI MODE SENSE command

SYNOPSIS

    sg_modes [--all] [--control=PC] [--dbd] [--dbout] [--examine] [--flexible] [--help]

    [--hex] [--list] [--llbaa] [--maxlen=LEN] [--page=PG[,SPG]] [--raw] [-R] [--readwrite]

    [--six] [--verbose] [--version] [DEVICE]

    sg_modes [-6] [-a] [-A] [-c=PC] [-d] [-D] [-e] [-f] [-h] [-H] [-l] [-L] [-m=LEN]

    [-p=PG[,SPG]] [-r] [-subp=SPG] [-v] [-V] [-w] [-?] [DEVICE]

DESCRIPTION

    This utility sends a MODE SENSE SCSI command to the DEVICE and outputs the response. There

    is a 6 byte and 10 byte (cdb) variant of the MODE SENSE command, this utility defaults to

    the 10 byte variant. The SPC-4 standard (and SPC-5 drafts) include a note stating that im?

    plementers should migrate away from the SCSI MODE SELECT(6) and MODE SENSE(6) commands in

    favour of the 10 byte variants (e.g. MODE SENSE(10)).

    This utility decodes mode page headers and block descriptors but outputs the contents of

    each mode page in hex. It also has no facility to change the mode page contents or block

    descriptor data. Mode page contents are decoded and can be changed by the sdparm utility.

    This utility supports two command line syntaxes, the preferred one is shown first in the

    synopsis and explained in this section. A later section on the old command line syntax

    outlines the second group of options.

    If no page is given (and --list is not selected) then --all is assumed. The --all option

    requests all mode pages (but not subpages) in a single response.

OPTIONS

Arguments to long options are mandatory for short options as well.

-a, --all

output all the mode pages reported by the DEVICE. This is what the page code 63

(0x3f) is defined to do. When used once, mode subpages are not fetched. When used

twice (e.g. '-aa'), all mode pages and subpages are requested which is equivalent

to '--page=63,255'.

-c, --control=PC

PC is the page control value. Up to four different versions of each page are held

by the device:

0 : current values (i.e. those active at present)

1 : changeable values

2 : default values (i.e. the manufacturer's settings)

3 : saved values

The changeable values are bit masks showing which fields could be changed with a

MODE SELECT. The saved values will be re-instated the next time the device is power

cycled or reset. If this option is not given then current values [0] are assumed.

-d, --dbd

disable block descriptors. By default, block descriptors (usually one (for disks)

or none) are returned in a MODE SENSE response. This option sets the "disable block

descriptors" (DBD) bit in the cdb which instructs the device not to return any

block descriptors in its response. Older devices may not support this setting and

may return an "illegal request" sense key; alternatively they may ignore it. Oddly

the Reduced Block Command set (RBC) requires this bit set.

-D, --dbout

disable outputting block descriptors. Irrespective of whether block descriptors are

present in the response or not, they are not output.

-e, --examine

examine each mode page in the range 0 through to 62 (inclusive). If some response

is given then print out the mode page name or number (in hex) if the name is not

known.

The sdparm utility which lists mode and VPD pages also has a --examine option will

similar functionility.

-f, --flexible

    Some devices, bridges and/or drivers attempt crude translations between MODE SENSE

    6 and 10 byte commands without correcting the response. This will cause the re?

    sponse to be mis-interpreted (usually with an error saying the response is mal?

    formed). With this option, the length of the response is checked, and if it looks

    wrong, the response is then decoded as if the other mode sense (cdb length) was

    sent.

-h, --help

    print out the usage message then exit.

-H, --hex

    The default action is to decode known mode page numbers (and subpage numbers) into

    text. When this option is used once, the response is output in hexadecimal to std?

    out. When this option is used twice, mode page numbers and page control values are

    output in hex.

    When this option is used three times, the full response to the MODE SENSE command

    is output in hex to stdout without any decoding. This form can be redirected to a

    file (or piped) and then used 'sdparm --inhex=' to decode.

-l, --list

    lists all common page and subpage codes and their names that are found in the com?

    mand set that matches the peripheral type of the given DEVICE. If no DEVICE and no

    --page=PG is given then the common page and subpage codes and their names are

    listed for SBC (e.g. a disk). If no DEVICE is given and a --page=PG is given then

    the common page and subpage codes and their names are listed for the command set

    whose peripheral device type matches the value given to PG. For example 'sg_mode

    --list --page=1' lists the command mode pages and subpages for tape devices. Addi?

    tionally if a sub_page_code is given then it is interpreted as a transport identi?

    fier and command transport specific mode page codes and their names are listed fol?

    lowing the main mode page list. Other options are ignored.

-L, --llbaa

    set the Long LBA Accepted (LLBAA) bit in the MODE SENSE (10) cdb. This bit is not

    defined in the MODE SENSE (6) cdb so setting the '-L' and '--six' options is re?

    ported as an error. When set the DEVICE may respond with 16 byte block descriptors

    as indicated by the 'LongLBA' field in the response. In most cases setting this op?

tion is not needed.

-m, --maxlen=LEN

The LEN argument is the maximum response length in bytes. It is the 'allocation

length' field in the cdb. When not given (or LEN is zero) then the allocation

length field is set to 4096 for MODE SENSE (10) or 252 for MODE SENSE (6). The LEN

argument must be non-negative and no greater than 65535 for MODE SENSE (10) and not

greater than 255 for MODE SENSE (6).

-O, --old

Switch to older style options. Please use as first option.

-p, --page=PG

page code to fetch. The PG is assumed to be a decimal value unless prefixed by '0x'

or has a trailing 'h'. It should be a value between 0 and 63 (inclusive). When not

given and a default is required then a value of 63 (0x3f), which fetches all mode

pages, is used.

Alternatively an acronym for the mode page can be given. The available acronyms can

be listed out with the --page=xxx option. They are almost the same as the acronyms

used for mode pages in the sdparm utility.

-p, --page=PG,SPG

page code and subpage code values to fetch. Both arguments are assumed to be deci?

mal unless flagged as hexadecimal. The page code should be between 0 and 63 inclu?

sive. The subpage code should be between 0 and 255 inclusive. The default value for

the subpage code is 0.

-r, --raw

output the response in binary to stdout. Error messages and warnings, if any, are

sent to stderr. When this option is used twice (e.g. '-rr') then has the same ac?

tion as '-R'

-R   output the selected mode page to stdout a byte per line. Each line contains two

hexadecimal digits (e.g. "3e"). Useful as input (after editing) to the

sg_wr_mode(8) utility.

-w, --readwrite

open DEVICE in "read-write" mode. Default is to open it in read-only mode.

-6, -s, --six

by default this utility sends a 10 byte MODE SENSE command to the DEVICE. However

some SCSI devices only support 6 byte MODE SENSE commands (e.g. SCSI-2 tape
drives). This parameter forces the use of 6 byte MODE SENSE commands.

-v, --verbose

increase level of verbosity. Can be used multiple times.

-V, --version

print out version string then exit.

NOTES

If the normal sg_modes utility fails with "illegal command operation code" then try the
'--six' (or '-6') option.

This utility performs a SCSI INQUIRY command to determine the peripheral type of the de?
vice (e.g. 0 -> Direct Access Device (disk)) prior to sending a MODE SENSE command. This
helps in decoding the block descriptor and mode pages.

This utility opens DEVICE in read-only mode (e.g. in Unix, with the O_RDONLY flag) by de?
fault. It will open DEVICE in read-write mode if the --readwrite option is given.

In the 2.4 series of Linux kernels the DEVICE must be a SCSI generic (sg) device. In the
2.6 series block devices (e.g. SCSI disks and DVD drives) can also be specified. For exam?
ple "sg_modes -a /dev/sda" will work in the 2.6 series kernels.

EXIT STATUS

The exit status of sg_modes is 0 when it is successful. Otherwise see the sg3_utils(8) man
page.

OLDER COMMAND LINE OPTIONS

The options in this section were the only ones available prior to sg3_utils version 1.23 .
Since then this utility defaults to the newer command line options which can be overridden
by using --old (or -O) as the first option. See the ENVIRONMENT VARIABLES section for an?
other way to force the use of these older command line options.

-6   by default this utility sends a 10 byte MODE SENSE command to the DEVICE. This pa?
rameter forces the use of 6 byte MODE SENSE commands. See --six in the main de?
scription.

-a   see --all in the main description.

-A   output all the mode pages and subpages supported by the DEVICE. Same as '--all
--all' in the new syntax.

-c=PC PC is the page control value. See --control=PC in the main description.

-d   see --dbd in the main description.

-D   see --dbout in the main description.

-e   see --examine in the main description.

-f   see --flexible in the main description.

-h   The default action is to decode known mode page numbers (and subpage numbers) into

     text. With this option mode page numbers (and subpage numbers) are output in hexa?

     decimal.

-H   same action as the '-h' option.

-l   see --list in the main description.

-L   see --llbaa in the main description.

-N, --new

     Switch to the newer style options.

-m=LEN see --maxlen=LEN in the main description.

-p=PG PG is page code to fetch. Should be a hexadecimal number between 0 and 3f inclusive

     (0 to 63 decimal). The default value when required is 3f (fetch all mode pages).

     Note that an acronym for the page and/or subpage values is not accepted in this

     older format (because any acronym starting with the letters 'a' to 'f' is ambigu?

     ous; it could either be a hex number or an acronym).

-p=PG,SPG

     page code and subpage code values to fetch. The page code should be a hexadecimal

     number between 0 and 3f inclusive. The subpage code should be a hexadecimal number

     between 0 and ff inclusive. The default value for the subpage code is 0.

-r   output the selected mode page to stdout a byte per line. Each line contains two

     hexadecimal digits (e.g. "3e"). Useful as input (after editing) to the

     sg_wr_mode(8) utility.

-subp=SPG

     sub page code to fetch. Should be a hexadecimal number between 0 and 0xff inclu?

     sive. The default value is 0.

-v   increase verbosity of output.

-V   print out version string then exit.

-w   see --readwrite in the main description.

-?   output usage message then exit. Ignore all other parameters.

ENVIRONMENT VARIABLES

    Since sg3_utils version 1.23 the environment variable SG3_UTILS_OLD_OPTS can be given.

When it is present this utility will expect the older command line options. So the pres‐

ence of this environment variable is equivalent to using --old (or -O) as the first com‐

mand line option.

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REPORTING BUGS

Report bugs to <dgilbert at interlog dot com>.

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SEE ALSO

sdparm(8),   sg_wr_mode(8),   sginfo(8),   sgmode(scsirastools),   scsiinfo(net),   scu(net),

seatools(seagate)

All these utilities offer some facility to change mode page (or block descriptor) parame‐

ters.

sg3_utils-1.45   September 2020   SG_MODES(8)