Red Hat Enterprise Linux Release 9.2 Manual Pages on 'sg_logs.8' command

$ man sg_logs.8

SG_LOGS(8)   SG3_UTILS   SG_LOGS(8)

NAME

   sg_logs - access log pages with SCSI LOG SENSE command

SYNOPSIS

   sg_logs   [--All] [--all] [--brief] [--filter=FL] [--hex] [--list]

   [--maxlen=LEN] [--name] [--no_inq] [--page=PG] [--paramp=PP] [--pcb]

   [--ppc]   [--pdt=DT]   [--raw]   [--readonly]   [--sp] [--temperature]

   [--transport] [--vendor=VP] [--verbose] DEVICE

   sg_logs [--brief] [--filter=FL] [--hex] --in=FN [--name] [--pdt=DT]

   [--raw] [--vendor=VP]

   sg_logs [--control=PC] [--in=FN] [--page=PG] [--raw] [--reset] --select

   [--sp] [--verbose] DEVICE

   sg_logs [--enumerate] [--filter=FL] [--help] [--vendor=VP] [--version]

   sg_logs [-a] [-A] [-b] [-D=DT] [-c=PC] [-e] [-f=FL] [-h] [-H] [-i=FN]

   [-l] [-L] [-m=LEN] [-M=VP] [-n] [-p=PG] [-paramp=PP] [-pcb] [-ppc] [-r]

   [-R] [-select] [-sp] [-t] [-T] [-v] [-V] [-?] [-x] DEVICE

DESCRIPTION

   This utility sends a SCSI LOG SENSE command to the DEVICE and then out?

   puts the response. The LOG SENSE command is used to fetch log pages

   which, if known, are decoded by default. When the --reset and/or --se?

   lect option is given then a SCSI LOG SELECT command is issued to the

   DEVICE. Alternatively one or more log page responses can be in a file

   read using the --in=FN option; in this case those responses are decoded

and the DEVICE argument, if given, is ignored.

In SPC-4 revision 5 a subpage code was introduced to both the LOG SENSE and LOG SELECT command. At the same time a page code field was intro? duced to the to the LOG SELECT command. The log subpage code can range from 0 to 255 (0xff) inclusive. The subpage code value 255 can be thought of as a wildcard.

The SYNOPSIS section above is divided into five forms. The first form shows the options that can be used to send a LOG SENSE command to the DEVICE and decode its response. The second form fetches data from a file (named FN) and decodes it as if it were a response from a LOG SENSE command. The third form shows the options that can be used to send a LOG SELECT command. The fourth form groups various management options. The last form shows the older, deprecated command line inter? face which is maintained for backward compatibility.

OPTIONS

Arguments to long options are mandatory for short options as well. The options are arranged in alphabetical order based on the long option name.

-A, --All

fetch and decode all the log pages and subpages supported by the DEVICE. This requires a two stage process: first the "supported log pages and subpages" log page is fetched, then for each entry in its response, the corresponding log page (or subpage) is fetched and displayed. Note that there are many SCSI devices that do not support LOG SENSE subpages and respond to this op? tion with an illegal request sense key (or ignored the subpage field).

-a, --all

outputs all the log pages supported by the DEVICE. This requires a two stage process: first the "supported log pages" log page is fetched, then for each entry in its response, the corresponding log page is fetched and displayed. When used twice (e.g. '-aa') all log pages and subpages are fetched.

-b, --brief

    shorten the amount of output for some log pages. For example the

    Tape Alert log page only outputs parameters whose flags are set

    when --brief is given.

-c, --control=PC

    accepts 0, 1, 2 or 3 for the PC argument:

     0 : current threshold values

     1 : current cumulative values

     2 : default threshold values

     3 : default cumulative values

    The default value is 1 (i.e. current cumulative values).

-e, --enumerate

    this option is used to output information held in this utility's

    internal tables about known log pages including their name,

    acronym and fields. If given, the DEVICE argument is ignored.

    When given once (e.g. '-e') all known pages are listed, sorted

    in ascending alphabetical acronym order.

    When given twice, vendor pages are excluded. When given three

    times, all known pages are listed, sorted in ascending numeric

    order listed; when given four times, vendor pages are excluded

    from the numeric order.

    The --filter=FL and --verbose options reduce the output of the

    enumeration.

-f, --filter=FL

    FL is either a parameter code when DEVICE is given, or a periph‐

    eral device type (pdt) (or other) if --enumerate is given.

    In the parameter code case FL is a value between 0 and 65535

    (0xffff) and only the parameter section matching that code is

    output. If the --hex option is given the log parameter is output

    in hexadecimal rather than decoding it. If the --hex option is

    used twice then the leading address on each line of hex is re‐

    moved. If the --raw option is given then the log parameter is

    output in binary. Most log pages contain one or more log parame‐

ters. Examples of those that don't follow that convention are those pages that list supported log pages (and subpages).

In the --enumerate case, when FL >= zero it is taken as a pdt value and only log pages associated with that pdt plus generic pages listed in SPC are enumerated. If FL is -1 then the filter does nothing which is the same as not giving this option; when FL is -2 then only generic pages listed in SPC are enumerated. If FL is -10 then only generic direct access like (e.g. disk) pages are enumerated. If FL is -11 then only generic tape like pages (e.g. includes ADC) are enumerated.

-h, --help

print out the usage message then exit.

-H, --hex

The default action is to decode known log page numbers (and sub?page numbers) into text. When this option is used once, the re?sponse is output in hexadecimal. When used twice, each line of hex has the ASCII equivalent shown to the right. When used three times, the hex has no leading address nor trailing ASCII making it suitable to be placed in a file (or piped). That file might later be used by another invocation using the --in=FN option.

-i, --in=FN

This option may be used in two different contexts. One is with the --select to send a LOG SELECT command to the given DEVICE; see the LOG SELECT section below.

The other context is with no DEVICE argument given in which case the contents of FN are decoded as if it were the response of a LOG SENSE command (i.e. a log page). For decoding the page and subpage numbers are taken from FN while the peripheral device type is either generic (i.e. from SPC) or the value given by --pdt=DT.

FN is treated as a file name (or '-' for stdin) which contains ASCII hexadecimal or binary representing a log page. The hexa?decimal should be arranged as 1 or 2 digits representing a byte

each of which is whitespace or comma separated. Anything from
and including a hash mark to the end of line is ignored. If the
--raw option is also given then FN is treated as binary.

-l, --list

lists the names of all logs sense pages supported by this de?
vice. This is done by reading the "supported log pages" log
page. When used twice (e.g. '-ll') lists the names of all logs
sense pages and subpages supported by this device, excluding
pages whose subpage number is 0xff (apart from page 0x0,0xff).
When used three times then all supported pages and subpages re?
ported by the device are list. So the page/subpage names and not
thrie content is shown with this option. There is a list of com?
mon log page codes below.

-m, --maxlen=LEN

sets the "allocation length" field in the LOG SENSE cdb. The is
the maximum length in bytes that the response will be. Without
this option (or LEN equal to 0) this utility first fetches the 4
byte response then does a second access with the length indi?
cated in the first (4 byte) response. Negative values and 1 for
LEN are not accepted. LEN cannot exceed 65535 (0xffff). Re?
sponses can be quite large (e.g. the background scan results log
page) and this option can be used to limit the amount of infor?
mation returned.
If LEN is less than 2 of greater than 65,535 an error is gener?
ated. Otherwise if LEN is less than 4 then 4 is used instead.

-n, --name

decode some log pages into 'name=value' entries, one per line.
The name contains no space and may be abbreviated and the value
is decimal unless prefixed by '0x'. Nesting is indicated by
leading spaces. This form is meant to be relatively easy to
parse.

-x, --no_inq

suppresses the output of information obtained from an initial

call to the INQUIRY command for the standard response. The de?

fault (assuming some other options that suppress this output are

also not given) is to output several device identification

strings.

If this option is given twice (or more) then no INQUIRY command

is sent hence there will be no device identification string out?

put either. Also the peripheral device type (PDT) field will not

be obtained so this utility will not be able to differentiate

between some log pages that are device dependent. It will assume

a PDT of 0 (i.e. a disk).

-O, --old

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

-p, --page=PG

log page name/number to access. PG is either an acronym, a page

number, or a page, subpage number pair. Available acronyms can

be listed with the --enumerate option. Page (0 to 63) and sub?

page (0 to 255) numbers are comma separated. They are decimal

unless a hexadecimal indication is given. A hexadecimal number

can be specified by a leading "0x" or a trailing "h".

A few acronyms specify a range of subpage values in which case

the acronym may be followed by a comma then a subpage number.

This method can also be used to fetch the Supported subpages log

page (e.g. --page=temp,0xff).

-P, --paramp=PP

PP is the parameter pointer value to place in a field of that

name in the LOG SENSE cdb. A decimal number in the range 0 to

65535 (0xffff) is expected. When a value greater than 0 is given

the --ppc option should be selected. The default value is 0.

-q, --pcb

show Parameter Control Byte settings (only relevant when log pa?

rameters being output in ASCII).

-Q, --ppc

sets the Parameter Pointer Control (PPC) bit in the LOG SENSE

cdb. Default is 0 (i.e. cleared). This bit was made obsolete in

SPC-4 revision 18.

-D, --pdt=DT

DT is the peripheral device type that is used when it is not

available from the DEVICE. There are two main cases of this:

with the --pdt=DT without a DEVICE and when --no_inq is used

with a DEVICE.

-r, --raw

output the response in binary to stdout. Error messages and

warnings are output to stderr.

This option may also be given together with --in=FN in which

case the contents of FN are interpreted as binary data (and the

response is decoded as normal, not dumped as binary).

-R, --readonly

open the DEVICE read-only (e.g. in Unix with the O_RDONLY flag).

The default action is to try and open DEVICE read-write then if

that fails try to open again with read-only. However when a

read-write open succeeds there may still be unwanted actions on

the close (e.g. some OSes try to do a SYNCHRONIZE CACHE com?

mand). So this option forces a read-only open on DEVICE and if

it fails, this utility will exit. Note that options like --se?

lect most likely need a read-write open.

-R, --reset

use SCSI LOG SELECT command (with the PCR bit set) to reset the

all log pages (or the given page). Exactly what is reset depends

on the accompanying SP bit (i.e. --sp option which defaults to

0) and the PC ("page control") value (which defaults to 1). Sup?

plying this option implies the --select option as well. This op?

tion seems to clear error counter log pages but leaves pages

like self-test results, start-stop cycle counter and temperature

log pages unaffected. This option may be required to clear log

pages if a counter reaches its maximum value since the log page

in which the counter is found will remain "stuck" at its maximum

value until some user interaction (e.g. calling sg_logs with this option).

-S, --select

use a LOG SELECT command. The default action (i.e. when neither this option nor --reset is given) is to do a LOG SENSE command. See the LOG SELECT section.

-s, --sp

sets the Saving Parameters (SP) bit. Default is 0 (i.e. cleared). When set this instructs the device to store the cur‐ rent log page parameters (as indicated by the DS and TSD parame‐ ter codes) in some non-volatile location. Hence the log parame‐ ters will be preserved across power cycles. This option is typi‐ cally not needed, especially if the GLTSD flag is clear in the control mode page as this instructs the device to periodically save all saveable log parameters to non-volatile locations.

-t, --temperature

outputs the temperature. First looks in the temperature log page and if that is not available tries the Informational Exceptions log page which may also have the current temperature (especially on older disks).

-T, --transport

outputs the transport ('Protocol specific port') log page. Equivalent to setting '--page=18h'.

-M, --vendor=VP

where VP is a vendor/manufacturer (e.g. "sea" for Seagate) or product (group) acronym (e.g. "lto5" for the 5th generation LTO (tape) consortium). Either the whole log page is vendor specific (e.g. page numbers 0x30 to 0x3f) or part of a T10 defined log page is vendor specific. For example SPC-5 defines parameter code 0x0 of page 0x2f (the Informational Exceptions log page) and states that the remaining parameter codes (i.e. 0x1 to 0xffff) are vendor specific. Using a VP of "xxx" will list the available acronyms.

If this option is used with --page=PG and PG is an acronym then this option is ignored. If PG is a number (e.g. 0xc0) then VP is used to choose the which vendor specific page (e.g. sharing page number 0xc0) to decode.

-v, --verbose

increase level of verbosity. When used with --enumerate, in the list of known log page names, those that have no associated de? code logic are followed by "[hex only]".

-V, --version

print out version string then exit.

LOG SELECT

The SCSI LOG SELECT command can be used to reset certain parameters to vendor specific defaults, save them to non-volatile storage (i.e. the media), or supply new page contents. This command has changed between SPC-3 and SPC-4 with the addition of the Page and Subpage Code fields which can only be non zero when the Parameter list length is zero. The --select (or --reset) option is required to issue a LOG SELECT com? mand. If the --in=FN option is not given (or FN is effectively empty) then the Parameter list length field is set to zero. If the --in=FN op? tion is is given then its decoded data is placed in the data-out buffer and its length in bytes is placed in the Parameter list length field. Other options that are active with the LOG SELECT command are --con? trol=PC, --reset (which sets the PCR bit) and --sp.

APPLICATION CLIENT

This is the name of a log page that acts as a container for data pro? vided by the user. An application client is a SCSI term for the program that issues commands to a SCSI initiator (often known as a Host Bus Adapter (HBA)). So, for example, this utility is a SCSI application client.

The Application Client log page has 64 log parameters with parameters codes 0 to 63. Each can hold 252 bytes of user binary data. That 252 bytes (or less) of user data, with a 4 byte prefix (for a total of 256 bytes) can be provided with the --in=FN option. A typical prefix would

be '0,n,83,fc'. The "n" is the parameter code in hex so the last log

parameter would be '0,3f,83,fc'. That log parameter could be read back

at some later time with '--page=0xf --filter=0x<n>'.

NOTES

This utility will usually do a double fetch of log pages with the SCSI

LOG SENSE command. The first fetch requests a 4 byte response (i.e.

place 4 in the "allocation length" field in the cdb). From that re?

sponse it can calculate the actual length of the response which is what

it asks for on the second fetch. This is typical practice in SCSI and

guaranteed to work in the standards. However some older devices don't

comply. For those devices using the --maxlen=LEN option will do a sin?

gle fetch. A value of 252 should be a safe starting point.

Various log pages hold information error rates, device temperature,

start stop cycles since the device was produced and the results of the

last 20 self tests. Self tests can be initiated by the sg_senddiag(8)

utility. The smartmontools package provides much of the information

found with sg_logs in a form suitable for monitoring the health of SCSI

disks and tape drives.

The simplest way to find which log pages can be decoded by this utility

is to use the --enumerate option. Some page names are known but there

is no decode logic; such cases have "[hex only]" after the log page

name when the --verbose option is given with --enumerate.

EXIT STATUS

The exit status of sg_logs 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 another way

to force the use of these older command line options.

Options with arguments or with two or more letters can have an extra

'-' prepended. For example: both '-pcb' and '--pcb' are acceptable.

-a   outputs all the log pages supported by the device.   Equivalent

     to --all in the main description.

-A   outputs all the log pages and subpages supported by the device.

     Equivalent to '--all --all' in the main description.

-c=PC Equivalent to --control=PC in the main description.

-e   enumerate internal tables to show information about known log

     pages. Equivalent to --enumerate in the main description.

-h   suppresses decoding of known log sense pages and prints out the

     response in hex instead.

-i=FN FN is treated as a file name (or '-' for stdin) which contains

     ASCII hexadecimal representing a log page that will be sent as

     parameter data of a LOG SELECT command. See the LOG SELECT sec?

     tion.

-H   same action as '-h' in this section and equivalent to --hex in

     the main description.

-l   lists the names of all logs sense pages supported by this de?

     vice. Equivalent to --list in the main description.

-L   lists the names of all logs sense pages and subpages supported

     by this device. Equivalent to '--list --list' in the main de?

     scription.

-m=LEN request only LEN bytes of response data. Default is 0 which is

     interpreted as all that is available. LEN is decimal unless it

     has a leading '0x' or trailing 'h'. Equivalent to --maxlen=LEN

     in the main description.

-M=VP Equivalent to --vendor=VP in the main description.

-n   Equivalent to --name in the main description.

-N, --new

     Switch to the newer style options.

-p=PG log page code to access. PG is either an acronym, a page number,

     or a page, subpage pair. Available acronyms can be listed with

     the --enumerate option. Page (0 to 3f) and subpage (0 to ff)

     numbers are comma separated. The numbers are assumed to be hexa?

     decimal.

-paramp=PP

>PP is the parameter pointer value (in hex) to place in command.

>Should be a number between 0 and ffff inclusive.

-pcb   show Parameter Control Byte settings (only relevant when log pa‐

>rameters being output in ASCII).

-ppc   sets the Parameter Pointer Control (PPC) bit. Default is 0 (i.e.

>cleared).

-r   use SCSI LOG SELECT command (PCR bit set) to reset the all log

>pages (or the given page). Equivalent to --reset in the main de‐

>scription.

-R   Equivalent to --readonly in the main description.

-select

>use a LOG SELECT command. Equivalent to --select in the main de‐

>scription.

-sp   sets the Saving Parameters (SP) bit. Default is 0 (i.e.

>cleared). Equivalent to --sp in the main description.

-t   outputs the temperature. Equivalent to --temperature in the main

>description.

-T   outputs the transport ('Protocol specific port') log page.

>Equivalent to --transport in the main description.

-v   increase level of verbosity.

-V   print out version string then exit.

-x   suppress the INQUIRY command. Equivalent to --no_inq in the main

>description.

-?   output usage message then exit.

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 presence of this environ‐
>ment variable is equivalent to using --old (or -O) as the first command
>line option.

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REPORTING BUGS

Report bugs to <dgilbert at interlog dot com>.

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SEE ALSO

smartctl(smartmontools), sg_senddiag(8)

sg3_utils-1.47   August 2021   SG_LOGS(8)