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

$ man sg_senddiag.8

SG_SENDDIAG(8) SG3_UTILS SG_SENDDIAG(8)

NAME

sg_senddiag - performs a SCSI SEND DIAGNOSTIC command

SYNOPSIS

sg_senddiag [--doff] [--extdur] [--help] [--hex] [--list]

[--maxlen=LEN] [--page=PG] [--pf] [--raw=H,H...] [--raw=-] [--self?

test=ST] [--test] [--timeout=SECS] [--uoff] [--verbose] [--version] DE?

VICE

sg_senddiag [-doff] [-e] [-h] [-H] [-l] [-pf] [-raw=H,H...] [-raw=-]

[-s=ST] [-t] [-T=SECS] [-uoff] [-v] [-V] [-?] DEVICE

DESCRIPTION

This utility sends a SCSI SEND DIAGNOSTIC command to the DEVICE. It can

issue self-tests, find supported diagnostic pages or send arbitrary di?

agnostic pages.

When the --list option and a DEVICE are given then the utility sends a

SCSI RECEIVE DIAGNOSTIC RESULTS command to fetch the response (i.e.

the page numbers of supported diagnostic pages).

When the --list option is given without a DEVICE then a list of diag?

nostic page names and their numbers, known by this utility, are listed.

This utility supports two command line syntax-es, the preferred one is

shown first in the synopsis and explained in this section. A later sec?

tion on the old command line syntax outlines the second group of op?

tions.

OPTIONS

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

-d, --doff

set the Device Offline (DevOffL) bit (default is clear). Only significant when --test option is set for the default self-test. When set other operations on any logical units controlled by the this device server (target) may be affected (delayed) while a default self-test is underway.

-e, --extdur

outputs the expected extended self-test duration. The duration is given in seconds (and minutes in parentheses). This figure is obtained from mode page 0xa (i.e. the control mode page).

-h, --help

print usage message then exit.

-H, --hex

outputs response from RECEIVE DIAGNOSTIC RESULTS in hex rather than decode it. Only the Supported Diagnostic Pages diagnostic page (i.e. page_code=0) is decoded; other pages (e.g. those used by SES) are output in hex.

If --hex is used once, the hex output has a relative address at the start of each line. If --hex is used twice, then ASCII is shown to the right of each line of hex. If --hex is used three time or more, only the hex is output, in two character pairs (i.e. a byte) space separated and up to 16 bytes per line. This latter form, if placed in a file or piped through to another in? vocation, is suitable for the --raw=- option.

-l, --list

when a DEVICE is also given lists the names of all diagnostic pages supported by this device. The request is sent via a SEND DIAGNOSTIC command (with the "pF" bit set) and the response is fetched by a RECEIVE DIAGNOSTIC RESULTS command. When used in the absence of a --list argument then a list of diagnostic page names and their numbers, known by this utility, are listed.

-m, --maxlen=LEN

where LEN is the value placed in the parameter list length field of a SEND DIAGNOSTIC command or in the allocation length field of a RECEIVE DIAGNOSTIC RESULTS command. This only occurs when the other options imply there will be data sent or received by the command. The default value is 4096 bytes. LEN cannot exceed 65535 or 0xffff in hexadecimal.

-O, --old

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

-P, --page=PG

where PG is the RECEIVE DIAGNOSTIC RESULTS command page code field. If this option is given the PCV bit in that command is set. When this option is given then no SEND DIAGNOSTIC command is sent (unlike --list). If PG is 0 then the response is de? coded as if it is the SPC Supported Diagnostic pages diagnostic page. Other PG values (i.e. 1 to 255) have their responses out? put in hex.

-p, --pf

set Page Format (PF) bit. By default it is clear (i.e. 0) unless the list --list option is given in which case the Page Format bit is set (as required by SPC-3).

-r, --raw=H,H...

string of comma separated hex numbers each of which should re? solve to a byte value (i.e. 0 to ff inclusive). A (single) space separated string of hex bytes is also allowed but the list needs to be in quotes. This sequence forms a diagnostic page to be sent with the SCSI SEND DIAGNOSTIC command. Mostly likely the --pf option should also be given.

-r, --raw=-

reads sequence of bytes from stdin. The sequence may be comma, space, tab or linefeed (newline) separated. If a line contains "#" then the remaining characters on that line are ignored. Oth? erwise each non separator character should resolve to a byte

value (i.e. 0 to ff inclusive). This sequence forms a diagnostic page to be sent with the SCSI SEND DIAGNOSTIC command. Mostly likely the --pf option should also be given.

-s, --selftest=ST

where ST is the self-test code. The default value is 0 which is inactive. Some other values:

1 : background short self-test

2 : background extended self-test

4 : aborts a (background) self-test that is in progress

5 : foreground short self-test

6 : foreground extended self-test

This option is mutually exclusive with default self-test (i.e. can't have (ST > 0) and --test).

-t, --test

sets the _default_ Self Test (SelfTest) bit. By default this is clear (0). The --selftest=ST option should not be active to? gether with this option. Both the --doff and/or --uoff options can be used with this option.

-T, --timeout=SECS

where SECS is a timeout value (in seconds) for foreground self-test operations. The default value is 7200 seconds (2 hours) and any values of SECS less than the default are ignored.

-u, --uoff

set the Unit Offline (UnitOffL) bit (default is clear). Only significant when --test option is set for the default self-test. When set other operations on this logical unit may be affected (delayed) while a default self-test is underway. Some devices (e.g. Fujitsu disks) do more tests when this bit is set.

-v, --verbose

increase level of verbosity. Can be used multiple times.

-V, --version

print out version string then exit.

All devices should support the default self-test. The 'short' self-test codes should complete in 2 minutes or less. The 'extended' self-test codes' maximum duration is vendor specific (e.g. a little over 10 min? utes with the author's disks). The foreground self-test codes wait un? til they are completed while the background self-test codes return im? mediately. The results of both foreground and background self-test codes are placed in the 'self-test results' log page (see sg_logs(8)).

The SCSI command timeout for this utility is set to 60 minutes to allow for slow foreground extended self-tests.

If the DEVICE is a disk then no file systems residing on that disk should be mounted during a foreground self-test. The reason is that other SCSI commands may become queued behind the foreground self-test and timeout.

When the --raw=H,H... option is given then self-tests should not be se? lected. However the --pf (i.e. "page format") option should be given.

The length of the diagnostic page to be sent is derived from the number of bytes given to the --raw=H,H... option. The diagnostic page code (number) should be the first byte of the sequence (i.e. as dictated by SPC-3 diagnostic page format). See the EXAMPLES section below.

Arbitrary diagnostic pages can be read (in hex) with the sg_ses(8) utility (not only those defined in SES-2).

If the utility is used with no options (e.g. "sg_senddiag /dev/sg1") Then a degenerate SCSI SEND DIAGNOSTIC command is sent with zero in all its fields apart from the opcode. Some devices report this as an error while others ignore it. It is not entirely clear from SPC-3 if it is invalid to send such a command.

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.

To access SCSI enclosures see the sg_ses(8) utility. sg_ses uses the SCSI SEND DIAGNOSTIC and RECEIVE DIAGNOSTIC RESULTS commands as out? lined in the SES-2 (draft) standard.

EXIT STATUS

The exit status of sg_senddiag 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.

-doff set the Device Offline (DevOffL) bit (default is clear). Only significant when -t option is set for the default self-test. Equivalent to --doff in the main description.

-e outputs the expected extended self-test duration. Equivalent to --extdur in the main description.

-h outputs response from RECEIVE DIAGNOSTIC RESULTS in hex rather than decode it.

-H outputs response from RECEIVE DIAGNOSTIC RESULTS in hex rather than decode it.

-l when a DEVICE is also given lists the names of all diagnostic pages supported by this device. The request is sent via a SEND DIAGNOSTIC command (with the "pf" bit set) and the response is fetched by a RECEIVE DIAGNOSTIC RESULTS command. When used in the absence of a DEVICE argument then a list of diagnostic page names and their numbers, known by this utility, are listed.

-N, --new

Switch to the newer style options.

-pf set Page Format (PF) bit. By default it is clear (i.e. 0) unless the -l option is given in which case the Page Format bit is set (as required by SPC-3).

-raw=H,H...

string of comma separated hex numbers each of which should re? solve to a byte value (i.e. 0 to ff inclusive). This sequence forms a diagnostic page to be sent with the SCSI SEND DIAGNOSTIC command. Mostly likely the -pf option should also be given.

-raw=- reads sequence of bytes from stdin. The sequence may be comma, space, tab or linefeed (newline) separated. If a line contains "#" then the remaining characters on that line are ignored. Oth? erwise each non separator character should resolve to a byte value (i.e. 0 to ff inclusive). This sequence forms a diagnostic page to be sent with the SCSI SEND DIAGNOSTIC command. Mostly likely the -pf option should also be given.

-s=ST where ST is the self-test code. The default value is 0 which is inactive. A value of 1 selects a background short self-test; 2 selects a background extended self-test; 5 selects a foreground short self-test; 6 selects a foreground extended test. A value of 4 will abort a (background) self-test that is in progress. This option is mutually exclusive with default self-test (i.e. -t).

-t sets the _default_ Self Test (SelfTest) bit. By default this is clear (0). The -s=ST option should not be active together with this option. Both the -doff and/or -uoff options can be used with this option.

-T=SECS

where SECS is a timeout value (in seconds) for foreground self-test operations. See the --timeout=SECS option above.

-uoff set the Unit Offline (UnitOffL) bit (default is clear). Equiva? lent to --uoff in the main description.

-v increase level of verbosity. Can be used multiple times.

-V print out version string then exit.

-? output usage message. Ignore all other parameters.

EXAMPLES

The examples sub-directory in the sg3_utils packages contains two exam? ple scripts that turn on the CJTPAT (jitter pattern) on some SAS disks (one script for each phy). One possible invocation for phy 1 is:

```
sg_senddiag --pf --raw=- /dev/sg2 < sdiag_sas_p1_cjtpat.txt
```

There is also an example script that turns on the IDLE pattern. Once a test pattern has been started it can be turned off by resetting the phy

or with the STOP phy pattern function:

sg_senddiag --pf --raw=- /dev/sg2 < sdiag_sas_p1_stop.txt

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 environment 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

sg_ses(8), sg_logs(8), smartmontools(see net)