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

$ man sg_reassign.8

SG_REASSIGN(8) SG3_UTILS SG_REASSIGN(8)

NAME

sg_reassign - send SCSI REASSIGN BLOCKS command

SYNOPSIS

sg_reassign [--address=A,A...] [--dummy] [--eight=0|1] [--grown]

[--help] [--hex] [--longlist=0|1] [--primary] [--verbose] [--version]

DEVICE

DESCRIPTION

Send a SCSI REASSIGN BLOCKS command to DEVICE. Alternatively this util?

ity can find the number of element in a "grown" or "primary" defect

list with a SCSI READ DEFECT DATA (10) command. These SCSI commands are

defined in SBC-2 for direct access devices (e.g. a disk). Reassign

blocks is designed to change the physical location of a logical block

that is known or suspected to be defective to another area on the me?

dia. Disks are typically formatted with blocks held in reserve for this

situation.

If neither the --grown nor --primary option is supplied then one or

more addresses need to be given. If the address (or all of the ad?

dresses) fit into 4 bytes and '--eight=1' is not given then the parame?

ter block passed to DEVICE is made up of 4 byte logical block ad?

dresses. If any of the addresses need more than 4 bytes to represent

(i.e. >= 2**32) or '--eight=1' is given then the parameter block passed

to DEVICE is made up of 8 byte logical block addresses.

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, --address=A,A...

where A,A... is a string of comma separated numbers. Each number is interpreted as decimal unless prefixed by '0x' or '0X' (or it has a trailing 'h' or 'H'). If multiple logical block addresses are given they must be separated by a comma or a (single) space. A string that contains any space separators needs to be quoted. At least one address must be given.

-a, --address=-

reads one or more logical block addresses from stdin. These may be comma, space, tab or linefeed (newline) separated. If a line contains "#" then the remaining characters on that line are ig? nored. Otherwise each non separator sequence of characters should resolve to a decimal number unless prefixed by '0x' or '0X' (or has a trailing 'h'). At least one address must be given. Lines should not be longer than 1023 bytes.

-d, --dummy

prepare for but do not execute the SCSI REASSIGN BLOCKS command. Since the REASSIGN BLOCKS command is essentially irreversible, paranoid users may wish to check the invocation of this utility before reassigning defective blocks on a disk. Useful with '-vv' for those who wish to view the parameter block that will accom? pany the command.

-e, --eight=0 | 1

when value is 1 then it sets the 'LONGLBA' flag in the command indicating that the addresses in the associated parameter block are 8 byte quantities. When value is 0 then it clears the 'LONGLBA' flag in the command indicating that the addresses in the associated parameter block are 4 byte quantities. If this option is not given then 4 byte quantities are assumed unless

one of the address is too large.

-g, --grown

use the SCSI READ DEFECT DATA (10) command to determine the num?
ber of elements in the "grown defect list". When this option is
given there is no reassignment of blocks (i.e. this utility is
passive). When this option is given then the --address= option
is not permitted. See the discussion below concerning the rela?
tionship between reassigned blocks and the grown defect list.
This list is sometimes referred to as the GLIST.

-h, --help

output the usage message then exit.

-H, --hex

print response in hex (for -g, --grown, -p or --primary).

-l, --longlist=0 | 1

sets the REASSIGN BLOCKS cdb field of the same name to the given
value. Only 1000 addresses are permitted so there should be no
need to specify a value of 1. The short list variant restricts
the parameter block length to 2 ** 16 bytes (i.e. about 16000 4
byte addresses or 8000 8 byte addresses). Added for complete?
ness.

-p, --primary

use the SCSI READ DEFECT DATA (10) command to determine the num?
ber of elements in the "primary defect list" which is estab?
lished during the manufacturing process. When this option is
given there is no reassignment of blocks (i.e. this utility is
passive). When this option is given then the --address= option
is not permitted. This list is sometimes referred to as the
PLIST.

-v, --verbose

increase the level of verbosity, (i.e. debug output).

-V, --version

print the version string and then exit.

Note that if the ARRE field (for reads) and/or the AWRE field (for writes) are set in the "Read Write Error Recovery" mode page then re? coverable read and/or write errors cause automatic reassignment of the defective block. The PER bit in the same mode page controls whether a RECOVERED ERROR sense key is reported on not (PER=1 implies do report). Irrespective of the ARRE, AWRE or PER field settings, the error counter log pages reflect any errors (recovered or otherwise). Whenever a block is reassigned, a new entry is added in the "grown" defect list. Apart from doing selftests (see sg_senddiag or smartmontools) regularly, mon? itoring the grown defect list of a disk is a reasonable metric of its health. If the grown list starts growing quickly that is an ominous sign. The best grown defect lists are empty ones. The number of ele? ments in the grown defect list can be viewed with the --grown option. The contents of the grown defect list can be viewed with the 'sginfo -G' utility.

If an unrecoverable error is detected at a logical block address then REASSIGN BLOCKS is needed to reassign the block. Also if the ARRE and/or AWRE fields are clear and a recoverable error is detected then the logical block in question may be reassigned with this utility (oth? erwise the error counter log pages will continually be incremented for each recovered access).

The number of blocks held in reserve for the purposes of REASSIGN BLOCKS is vendor specific and may well be limited to the zone within the media where the original (defective) block lay. When this number is exhausted subsequent invocations of this utility may result in a sense key of hardware error and an additional sense of 'No defect spare loca? tion available'. The next step would be to reformat the disk (or get a replacement).

The SBC-2 draft standard (revision 16) notes that when multiple ad? dresses are given to the SCSI REASSIGN BLOCKS command and there is some failure at one of the later addresses then all addresses prior to that have already be reassigned. Care should be taken in such a case. Re-ex? ecuting the command with the same addresses will cause the earlier ad?

dresses to be reassigned again. At some stage the disk will run out of reserved locations. So unless a large number of addresses are involved it may be safer to reassign them one address at a time.

EXIT STATUS

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

AUTHORS

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REPORTING BUGS

Report bugs to <dgilbert at interlog dot com>.

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SEE ALSO

sg_format,sginfo,sg_senddiag(all in sg3_utils), sdparm(sdparm), smart? montools(internet, sourceforge)