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

$ man sg_unmap.8

SG_UNMAP(8)   SG3_UTILS   SG_UNMAP(8)

NAME

    sg_unmap - send SCSI UNMAP command (known as 'trim' in ATA specs)

SYNOPSIS

    sg_unmap [--all=ST,RN[,LA]] [--anchor] [--dry-run] [--force] [--grp?

    num=GN] [--help] [--in=FILE] [--lba=LBA,LBA...]   [--num=NUM,NUM...]

    [--timeout=TO] [--verbose] [--version] DEVICE

DESCRIPTION

    Send a SCSI UNMAP command to DEVICE to unmap one or more logical

    blocks. This command was introduced in SBC-3 revision 18 under the

    broad heading of "logical block provisioning". Logical blocks may also

    be unmapped by the SCSI WRITE SAME command; see the sg_write_same util?

    ity. The unmap capability is closely related to the ATA DATA SET MAN?

    AGEMENT command with the "Trim" bit set.

    Logical blocks to be unmapped can be specified in one of three ways to

    this utility. One way is by supplying the start LBAs to the '--lba='

    option and the corresponding number(s) to unmap to the '--num=' option.

    Another way is by putting start LBA and number to unmap pairs in a file

whose name is given to the '--in=' option. Alternatively a large seg?
ment or all of a disk (SSD) can be unmapped with the --all=ST_RN[,LA]
option. All values are assumed to be decimal unless prefixed by "0x"
(or "0X") or have a trailing "h" (or "H") in which case they are inter?
preted as hexadecimal. Suffix multipliers are permitted on decimal
values (e.g. '--num=1m').

When the '--lba=' option is given then the '--num=' option must also be
given. If one has a comma separated list as its argument then the other
must have the same number of elements in its list. The arguments can
use a single space as a separator but need to be in quotes or escaped
to not be misinterpreted by the shell.

With the '--in=FILE' option an even number of values must be found and
are interpreted as pairs: the first value in each pair is a starting
LBA and the second value is the number to unmap from that LBA. Every?
thing from and including a "#" on a line is ignored as are blank lines.
Values may be comma, space and tab separated or appear on separate
lines. Each line should not exceed 1023 bytes in length.

Since a lot of data can be lost with this utility, a 15 second "cooling
off" period is given before any UNMAP commands are sent. During this
period the user is reminded what will happen, and to which device, so
they can use control-C (or some other technique) to terminate this
utility before any unmapping takes place. This period can be bypassed
with the --force option.

OPTIONS

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

-A, --all=ST,RN[,LA]

   where ST is the starting LBA, RN is the repeat number which is
   the maximum number of blocks in each SCSI UNMAP command, and LA,
   if given, is the last LBA to unmap. If LA is not given, then the
   last LBA on the DEVICE is used. That is obtained by the SCSI
   READ CAPACITY command.

-a, --anchor

   sets the 'Anchor' bit in the command (introduced in sbc3r22).

-d, --dry-run

perform all the preparation, including opening DEVICE plus send‐

ing a 'standard' SCSI INQUIRY command (and optionally a READ CA‐

PACITY), but exit before performing any SCSI UNMAP commands.

-f, --force

bypass the 15 second warning period that occurs before any UNMAP

commands are sent.

-g, --grpnum=GN

sets the 'Group number' field to GN. Defaults to a value of

zero. GN should be a value between 0 and 63.

-h, --help

output the usage message then exit.

-I, --in=FILE

where FILE is a file name containing pairs of values. The first

member of each pair is a starting LBA and the second member of

the pair is the number of logical blocks to unmap from and in‐

cluding that starting LBA. Values are interpreted as decimal un‐

less indicated otherwise. This option cannot be present with the

'--lba=' option.

-l, --lba=LBA,LBA...

where LBA,LBA... is a string of comma (or space) separated val‐

ues that are interpreted as starting logical block addresses.

Each number is interpreted as decimal unless prefixed by '0x' or

'0X' (or it has a trailing 'h' or 'H'). An argument that con‐

tains any space separators needs to be quoted (or otherwise es‐

caped). When this option is given then the '--num=' option must

also be given and they must contain the same number of elements

in their arguments.

-n, --num=NUM,NUM...

where NUM,NUM... is a string of comma (or space) separated val‐

ues that are interpreted as a number of logical blocks to unmap.

Each number is interpreted as decimal unless prefixed by '0x' or

'0X' (or it has a trailing 'h' or 'H'). Note that 0 blocks is

acceptable. An argument that contains any space separators needs

to be quoted (or otherwise escaped). When this option is given

then the '--lba=' option must also be given and they must con?

tain the same number of elements in their arguments.

-t, --timeout=TO

where TO is a timeout value (in seconds) for the UNMAP command.

The default value is 60 seconds.

-v, --verbose

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

-V, --version

print the version string and then exit.

NOTES

Some limits: an LBA can be up to 64 bits, a NUM up to 32 bits (imposed

by structure of UNMAP SCSI command parameter data). The NUM is further

constrained by the MAXIMUM UNMAP LBA COUNT field in the BLOCK LIMITS

VPD page (0xb0). The maximum number of LBA,NUM pairs is limited to 128

by this utility and may be further constrained by the MAXIMUM UNMAP

BLOCK DESCRIPTOR COUNT field in the BLOCK LIMITS VPD page.

Since it is unclear how long the UNMAP command will take to execute a

'--timeout=" option has been provided. The default timeout period is 60

seconds. If all the logical blocks on a logical unit (e.g.   a disk

drive) are to be unmapped then the FORMAT UNIT SCSI command (see the

sg_format utility) may be considered as an alternative.

Support for logical block provisioning is indicated by the LBPME bit in

the response to the SCSI READ CAPACITY (16) command (see the sg_readcap

utility).

In SBC-3 revision 25 the LBPU and ANC_SUP bits where added to the Logi?

cal Block Provisioning VPD page. When LBPU is set it indicates that the

device supports the UNMAP command. When the ANC_SUP bit is set it indi?

cates the device supports anchored LBAs.

The SCSI UNMAP command does the "right thing" with respect to command

queueing. However its ATA counterpart: the DATA SET MANAGEMENT command

with the "Trim" bit set does not interact well with SATA queueing known

as NCQ. To address this problem T13 have introduced a new command
called SFQ DATA SET MANAGEMENT which also has a Trim bit.

EXAMPLES

In the examples directory of the sg3_utils package there is a sg_un?
map_example.txt file that shows the format that the '--in=' option ac?
cepts.

To unmap all blocks from and including LBA 0x2000 to the end of the de?
vice (e.g. disk or SSD) with each SCSI UNMAP command given 1024 blocks
to unmap:

    sg_unmap --all=0x2000,1k /dev/sg2

Add '--force' to bypass the 15 seconds of warnings. So '--force' is ap?
propriate for batch files.

EXIT STATUS

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

AUTHORS

Written by Douglas Gilbert.

REPORTING BUGS

Report bugs to <dgilbert at interlog dot com>.

COPYRIGHT

Copyright ? 2009-2018 Douglas Gilbert

This software is distributed under a FreeBSD license. There is NO war?
ranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PUR?
POSE.

SEE ALSO

sg_format,sg_get_lba_status,sg_readcap,sg_vpd,sg_write_same(sg3_utils)

sg3_utils-1.43   March 2018   SG_UNMAP(8)