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

$ man sg_read_attr.8

SG_READ_ATTR(8) SG3_UTILS SG_READ_ATTR(8)

NAME

sg_read_attr - send SCSI READ ATTRIBUTE command

SYNOPSIS

sg_read_attr [--cache] [--enumerate] [--ea=EA] [--filter=FL]

[--first=FAI] [--help] [--hex] [--in=FN] [--lvn=LVN] [--maxlen=LEN]

[--pn=PN] [--quiet] [--raw] [--readonly] [--sa=SA] [--verbose] [--ver?

sion] DEVICE

DESCRIPTION

Sends a SCSI READ ATTRIBUTE command to DEVICE and outputs the data re?

turned. This command was introduced in SPC-3 revision 1 and thus is ap?

plicable to all SCSI devices. In practice it is used mainly for tape

systems. This utility is based on the SPC-5 draft standard, revision 17

(spc5r17.pdf).

OPTIONS

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

-c, --cache

sets the CACHE bit in the READ ATTRIBUTE cdb. This instructs the

device server to return cached attributes. By default that bit

is cleared which instructs the device server not to return

cached attributes.

-e, --enumerate

enumerates all known attributes and service actions. Attributes

include an identifier, length, format and a name as defined by T10. If DEVICE is given then it is ignored.

-E, --ea=EA

where EA is an element address which is placed in the READ ATTRIBUTE cdb. This field is only found in SMC-2 and SMC-3 drafts for medium changers usually associated with tape libraries. By default this field is set to zero.

-f, --filter=FL

where FL is an attribute identifier in the range 0 to 65535 or -1. Attribute identifiers are typically given in hexadecimal in which case the hex number should be prefixed by "0x" or has a trailing "h". "-1" is the default value and means 'match all'; for all other values of FL on the matching attribute is output.

-F, --first=FAI

where FAI is the "first attribute identifier" field in the cdb. It seems as though the intent of this field is that only attributes whose identifiers are equal to or greater than FAI are returned. The default value of FAI is zero. Attributes are returned in ascending identifier order.

-h, --help

output the usage message then exit.

-H, --hex

output the response in hexadecimal to stdout. When used once the whole response is output in ASCII hexadecimal with a leading address (starting at 0) on each line. When used twice each attribute descriptor in the response is output separately in hexadecimal. When used thrice the whole response is output in hexadecimal with no leading address (on each line). Output generated by '-HHH' (or --hex used three times) can be redirected to a file. That file will be in suitable format for --in=FN to use in a later invocation.

-i, --in=FN

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

ASCII hexadecimal or binary representing the response to a READ ATTRIBUTE command with service action 0x0 (i.e (fetch) attribute values). When this option is given then DEVICE (if also given) is ignored.

By default FN is assumed to contain ASCII hexadecimal arranged as bytes which a space, tab or comma delimited. All characters from (and including) "#" to the end of line are ignored. If the --raw option is also given then FN is assumed to contain binary data. When the --raw option is given then after processing the input the internal raw variable is reset to 0 so it has no ef? fect on the output.

Since the READ ATTRIBUTE response does not contain the service action number that it is a response to, then the --sa=SA should be given (if not service action 0 (attribute values) is assumed.

-l, --lvn=LVN

where LVN is placed in the "logical volume number" field of the cdb. The default value is zero which is required to be the log? ical volume number if the device only has one volume.

-m, --maxlen=LEN

where LEN is the (maximum) response length in bytes. It is placed in the cdb's "allocation length" field. If not given (or LEN is zero) then 8192 is used. The maximum allowed value of LEN is 1048576.

-p, --pn=PN

where PN is placed in the "partition number" field of the cdb. If the DEVICE only has one partition then its partition number must be zero. The default value of PN is zero.

-q, --quiet

this option reduces the amount of information output. For exam? ple when used once (SA=0), it suppresses the header line an? nouncing the output of attributes; when used twice it suppresses the name of each attribute, leaving only the associated attri? bute values (or strings).

-r, --raw

output the SCSI response (i.e. the data-out buffer) in binary

(to stdout).

-R, --readonly

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

The default is to open it read-write.

-s, --sa=SA

where SA is placed on the "service action" field of the cdb.

Values of 0 to 63 are accepted with a default of 0. spc5r08.pdf

defines five service actions: 0 for attributes values ; 1 for an

attribute list (names, not values), 2 for the logical volume

list; 3 for the partition list; 4 is restricted for SMC-3; and 5

for the supported attribute list.

Alternatively an acronym can be given for SA. The acronym should

be one of "av", "al", "lvl", "pn", "smc" or "sa" for service ac?

tions 0 to 5 respectively. The acronyms can also be given in up?

per case.

-v, --verbose

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

-V, --version

print the version string and then exit.

NOTES

Only tape systems seem to implement the SCSI READ ATTRIBUTE command.

The vast majority of its definition is in the SPC standard so other de?

vice types could use it.

Much of the information provided by READ ATTRIBUTE can also be found in

pages returned by LOG SENSE (see the sg_logs utility) and in the VPD

pages returned by the INQUIRY command.

EXAMPLES

To list the attributes of a tape drive whose DEVICE is /dev/sg1 , the

following could be used:

sg_read_attr -s al /dev/sg1

Attribute list:

Remaining capacity in partition [MiB]

Maximum capacity in partition [MiB]

TapeAlert flags

Load count

MAM space remaining [B]

Assigning organization

Format density code

...

To check the number of partitions:

sg_read_attr -s pl /dev/sg1

Partition number list:

First partition number: 0

Number of partitions available: 2

And to see the attribute values (which is the default service action):

sg_read_attr /dev/sg1

Attribute values:

Remaining capacity in partition [MiB]: 1386103

Maximum capacity in partition [MiB]: 1386103

TapeAlert flags: 0

....

To redirect the attribute values response to a file for later decoding:

sg_read_attr -HHH /dev/sg1 > av.hex

And later the response held in the av.hex file could be decoded with:

sg_read_attr -s av --in=av.hex

Attribute values:

Remaining capacity in partition [MiB]: 1386103

Maximum capacity in partition [MiB]: 1386103

TapeAlert flags: 0

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EXIT STATUS

The exit status of sg_read_attr 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_vpd,sg_logs(sg3_utils)