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*] [−−*version*] *DEVICE*

DESCRIPTION

Sends a SCSI READ ATTRIBUTE command to *DEVICE* and outputs the data returned. This command was introduced in SPC−3 revision 1 and thus is applicable 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 effect 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 logical 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 example when used once (*SA*=0), it suppresses the header line announcing the output of attributes; when used twice it suppresses the name of each attribute, leaving only the associated attribute 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 actions 0 to 5 respectively. The acronyms can also be given in upper 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 device 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 xxxx 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
  ....
```

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)