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

$ man sg_sat_identify.8

SG_SAT_IDENTIFY(8)   SG3_UTILS   SG_SAT_IDENTIFY(8)

NAME

   sg_sat_identify - send ATA IDENTIFY DEVICE command via SCSI to ATA

   Translation (SAT) layer

SYNOPSIS

   sg_sat_identify [--ck_cond] [--extend] [--help] [--hex] [--ident]

   [--len=CLEN] [--packet] [--raw] [--readonly] [--verbose] [--version]

   DEVICE

DESCRIPTION

   This utility sends either an ATA IDENTIFY DEVICE command or an ATA

   IDENTIFY PACKET DEVICE command to DEVICE and outputs the response. The

   devices that respond to these commands are ATA disks and ATAPI devices

   respectively.   Rather than send these commands directly to the device

   they are sent via a SCSI transport which is assumed to contain a SCSI

   to ATA Translation (SAT) Layer (SATL). The SATL may be in an operating

   system driver, in host bus adapter firmware or in some external enclo?

   sure.

   The SAT standard (SAT ANSI INCITS 431-2007, prior draft: sat-r09.pdf at

www.t10.org) defines two SCSI "ATA PASS-THROUGH" commands: one using a

16 byte "cdb" and the other with a 12 byte cdb. This utility defaults

to using the 16 byte cdb variant. SAT-4 revision 5 added a SCSI "ATA

PASS-THROUGH(32)" command. SAT-2 and SAT-3 are now also standards:

SAT-2 ANSI INCITS 465-2010 and SAT-3 ANSI INCITS 517-2015 . The SAT-4

project is near standardization and the most recent draft is

sat4r06.pdf .

OPTIONS

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

-c, --ck_cond

sets the CK_COND bit in the ATA PASS-THROUGH SCSI cdb. The de?

fault setting is clear (i.e. 0). When set the SATL should yield

a sense buffer containing a ATA Result descriptor irrespective

of whether the command succeeded or failed. When clear the SATL

should only yield a sense buffer containing a ATA Result de?

scriptor if the command failed.

-e, --extend

sets the EXTEND bit in the ATA PASS-THROUGH SCSI cdb. The de?

fault setting is clear (i.e. 0). When set a 48 bit LBA command

is sent to the device. This option has no effect when --len=12.

-h, --help

outputs the usage message summarizing command line options then

exits. Ignores DEVICE if given.

-H, --hex

outputs the ATA IDENTIFY (PACKET) DEVICE response in hex. The

default action (i.e. without any '-H' options) is to output the

response in hex, grouped in 16 bit words (i.e. the ATA stan?

dard's preference). When given once, the response is output in

ASCII hex bytes (i.e. the SCSI standard's preference). When

given twice (i.e. '-HH') the output is in hex, grouped in 16 bit

words, the same as the default but without a header. When given

thrice (i.e. '-HHH') the output is in hex, grouped in 16 bit

words, in a format that is acceptable for 'hdparm --Istdin' to

process. '-HHHH' simply outputs hex data bytes, space separated,

16 per line.

-i, --ident

outputs the World Wide Name (WWN) of the device. This should be

a NAA-5 64 bit number. It is output in hex prefixed with "0x".

If not available then "0x0000000000000000" is output. The equiv?

alent for a SCSI disk (i.e. its logical unit name) can be found

with "sg_vpd -ii".

-l, --len=CLEN

CLEN this is the length of the SCSI cdb used for the ATA

PASS-THROUGH command. CLEN can either be 12, 16 or 32. The de?

fault is 16. The larger cdb sizes are needed for 48 bit LBA ad?

dressing of ATA devices. The ATA Auxiliary and ICC registers are

only conveyed with the 32 byte cdb variant.

-p, --packet

send an ATA IDENTIFY PACKET DEVICE command (via the SATL). The

default action is to send an ATA IDENTIFY DEVICE command. Note

that the ATAPI specification by T13 (i.e. the PACKET interface)

is now obsolete.

-r, --raw

output the ATA IDENTIFY (PACKET) DEVICE response in binary. The

output should be piped to a file or another utility when this

option is used.   The binary is sent to stdout, and errors are

sent to stderr.

-R, --readonly

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

The default is to open it read-write.

-v, --verbose

increases the level or verbosity.

-V, --version

print out version string

NOTES

Since the response to the IDENTIFY (PACKET) DEVICE command is very im?

portant for the correct use of an ATA(PI) device (and is typically the first command sent), a SATL should provide an ATA Information VPD page which contains the similar information.

The SCSI ATA PASS-THROUGH (12) command's opcode is 0xa1 and it clashes with the MMC set's BLANK command used by cd/dvd writers. So a SATL in front of an ATAPI device that uses MMC (i.e. has peripheral device type 5) probably should treat opcode 0xa1 as a BLANK command and send it through to the cd/dvd drive. The ATA PASS-THROUGH (16) command's opcode (0x85) does not clash with anything so it is a better choice.

Prior to Linux kernel 2.6.29 USB mass storage limited sense data to 18 bytes which made the --ck_cond option yield strange (truncated) re?sults.

EXAMPLES

These examples use Linux device names and a Linux utility called hd?parm. For suitable device names in other supported Operating Systems see the sg3_utils(8) man page.

In this example /dev/sdb is a SATA 2.5" disk connected via a USB (type C connector) dongle that implements the UAS (USB attached SCSI) proto?col (also known as UASP). UAS is a vast improvement over the USB mass storage class.

    # sg_sat_identify /dev/sdb

Response for IDENTIFY DEVICE ATA command:

 00   0c5a 3fff c837 0010 0000 0000 003f 0000 .Z ?. .7 .. ..? ..

 ....

The hexadecimal ASCII (with plain ASCII to the right) output is abridged to a single line (i.e. the first 16 bytes (or 8 words)). Now to decode some of that ATA Identify response. First sg_inq can decode a few strings:

    # sg_sat_identify -HHHH /dev/sdb | sg_inq --ata -I -

ATA device: model, serial number and firmware revision:

  ST9500420AS   5VJCE6R7 0002SDM1

For a lot more details, the hdparm utility is a good choice:

    # sg_sat_identify -HHH /dev/sdb | hdparm --Istdin

ATA device, with non-removable media

        Model Number: ST9500420AS

        Serial Number: 5VJCE6R7

        Firmware Revision: 0002SDM1

        Transport: Serial

    Standards:

     ....

    There are about 80 more lines of details decoded by hdparm in this

    case. Notice the difference in the number of "H" options: three give

    an unadorned hex output arranged in (little endian) words (i.e. 16 bits

    each) while four "H" options give an unadorned hex output in bytes

    (i.e. 8 bits each).

EXIT STATUS

    The exit status of sg_sat_identify is 0 when it is successful. Other?

    wise see the sg3_utils(8) man page.

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REPORTING BUGS

    Report bugs to <dgilbert at interlog dot com>.

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SEE ALSO

    sg_vpd(sg3_utils), sg_inq(sg3_utils), sdparm(sdparm), hdparm(hdparm)

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