NAME

sane − Scanner Access Now Easy: API for accessing scanners

DESCRIPTION

SANE is an application programming interface (API) that provides standardized access to any raster image scanner hardware. The standardized interface makes it possible to write just one driver for each scanner device instead of one driver for each scanner and application.

While **SANE** is primarily targeted at a UNIX environment, the standard has been carefully designed to make it possible to implement the API on virtually any hardware or operating system.

This manual page provides a summary of the information available about **SANE**.

If you have trouble getting your scanner detected, read the PROBLEMS section.

TERMINOLOGY

An application that uses the **SANE** interface is called a **SANE frontend.** A driver that implements the **SANE** interface is called a **SANE backend.** A **meta backend** provides some means to manage one or more other backends.

SOFTWARE PACKAGES

The package '**sane−backends**' contains a lot of backends, documentation (including the **SANE** standard), networking support, and the command line frontend '**scanimage**'. The frontends '**xscanimage**', '**xcam**', and '**scanadf**' are included in the package '**sane−frontends**'. Both packages can be downloaded from the **SANE** homepage (*http://www.sane−project.org/*). Information about other frontends and backends can also be found on the **SANE** homepage.

GENERAL INFORMATION

The following sections provide short descriptions and links to more information about several aspects of **SANE.** A name with a number in parenthesis (e.g. '**sane−dll**(5)') points to a manual page. In this case '**man 5 sane−dll**' will display the page. Entries like '*@DOCDIR@/sane.tex*' are references to text files that were copied to the **SANE** documentation directory (*@DOCDIR@/*) during installation. Everything else is a URL to a resource on the web.

SANE homepage

Information on all aspects of SANE including a tutorial and a link to the SANE FAQ can be found on the SANE homepage: *http://www.sane−project.org/*.

SANE device lists

The **SANE** device lists contain information about the status of **SANE** support for a specific device. If your scanner is not listed there (either supported or unsupported), please contact us. See section HOW CAN YOU HELP SANE for details. There are lists for specific releases of SANE, for the current development version and a search engine: *http://www.sane−project.org/sane−supported−devices.html*. The lists are also installed on your system at @DOCDIR@/.

SANE mailing list

There is a mailing list for the purpose of discussing the SANE standard and its implementations: sane−devel. Despite its name, the list is not only intended for developers, but also for users. There are also some more lists for special topics, however, for users, sane−devel is the right list. How to subscribe and unsubscribe: *http://www.sane−project.org/mailing−lists.html*.

SANE IRC channel

The IRC (Internet Relay Chat) channel #sane can be found on the Freenode network (irc.freenode.net). It's for discussing **SANE** problems, talking about development and general **SANE** related chatting.

Before asking for help, please read the other documentation mentioned in this manual page. The channel's topic is also used for announcements of problems with SANE infrastructure (mailing lists, web server, etc.).

Compiling and installing SANE

Look at *@DOCDIR@/README* and the os-dependent README files for information about compiling and installing **SANE.**

SCSI configuration

For information about various systems and SCSI controllers see **sane−scsi**(5).

USB configuration

For information about USB configuration see **sane−usb**(5).

FRONTENDS AND MISCELLANEOUS PROGRAMS

scanimage

Command-line frontend. See **scanimage**(1).

saned

SANE network daemon that allows remote clients to access image acquisition devices available on the local host. See **saned**(8).

sane−find−scanner

Command-line tool to find SCSI and USB scanners and determine their Unix device files. See **sane−find−scanner**(1).

Also, have a look at the **sane−frontends** package (including **xscanimage**, **xcam**, and **scanadf**) and the frontend information page at *http://www.sane−project.org/sane−frontends.html*.

BACKENDS FOR SCANNERS

abaton

The SANE backend for Abaton flatbed scanners supports the Scan 300/GS (8bit, 256 levels of gray) and the Scan 300/S (black and white, untested). See **sane−abaton**(5) for details.

agfafocus

This backend supports AGFA Focus scanners and the Siemens S9036 (untested). See **sane−agfafocus**(5) for details.

apple

The SANE backend for Apple flatbed scanners supports the following scanners: AppleScanner, OneScanner and ColorOneScanner. See **sane−apple**(5) for details.

artec

The SANE Artec backend supports several Artec/Ultima SCSI flatbed scanners as well as the Black-Widow BW4800SP and the Plustek 19200S. See **sane−artec**(5) for details.

artec_eplus48u

The SANE artec_eplus48u backend supports the scanner Artec E+ 48U and re-badged models like Tevion MD 9693, Medion MD 9693, Medion MD 9705 and Trust Easy Webscan 19200. See **sane−artec_eplus48u**(5) for details.

as6e

This is a SANE backend for using the Artec AS6E parallel port interface scanner. See **sane−as6e**(5) for details.

avision

This backend supports several Avision based scanners. This includes the original Avision scanners (like AV 630, AV 620, ...) as well as the HP ScanJet 53xx and 74xx series, Fujitsu ScanPartner, some Mitsubishi and Minolta film-scanners. See **sane−avision**(5) for details.

bh

The bh backend provides access to Bell+Howell Copiscan II series document scanners. See **sane−bh**(5) for details.

canon

The canon backend supports the CanoScan 300, CanoScan 600, and CanoScan 2700F SCSI flatbed scanners. See **sane−canon**(5) for details.

canon630u

The canon630u backend supports the CanoScan 630u and 636u USB scanners. See **sane−canon630u**(5) for details.

canon_dr

The canon_dr backend supports the Canon DR-Series ADF SCSI and USB scanners. See **sane−canon_dr**(5) for details.

canon_pp

The canon_pp backend supports the CanoScan FB330P, FB630P, N340P and N640P parallel port scanners. See **sane−canon_pp**(5) for details.

cardscan

This backend provides support for Corex Cardscan USB scanners. See **sane−cardscan**(5) for details.

coolscan

This is a SANE backend for Nikon Coolscan film-scanners. See **sane−coolscan**(5) for details.

coolscan2

This is a SANE backend for Nikon Coolscan film-scanners. See **sane−coolscan2**(5) for details.

epjitsu

The epjitsu backend provides support for Epson-based Fujitsu USB scanners. See **sane−epjitsu**(5) for details.

epson

The SANE epson backend provides support for Epson SCSI, parallel port and USB flatbed scanners. See **sane−epson**(5) for details.

fujitsu

The fujitsu backend provides support for most Fujitsu SCSI and USB, flatbed and adf scanners. See **sane−fujitsu**(5) for details.

genesys

The genesys backend provides support for several scanners based on the Genesys Logic GL646, GL841, GL843, GL847 and GL124 chips like the Medion 6471 and Hewlett-Packard 2300c.
 See **sane−genesys**(5) for details.

gt68xx

The gt68xx backend provides support for scanners based on the Grandtech GT-6801 and GT-6816 chips like the Artec Ultima 2000 and several Mustek BearPaw CU and TA models. Some Genius, Lexmark, Medion, Packard Bell, Plustek, and Trust scanners are also supported. See **sane−gt68xx**(5) for details.

hp

The SANE hp backend provides access to Hewlett-Packard ScanJet scanners which support SCL (Scanner Control Language by HP). See **sane−hp**(5) for details.

hpsj5s

The SANE backend for the Hewlett-Packard ScanJet 5S scanner. See **sane−hpsj5s**(5) for details.

hp3500

The SANE backend for the Hewlett-Packard ScanJet 3500 series. See **sane−hp3500**(5) for details.

hp3900

The SANE backend for the Hewlett-Packard ScanJet 3900 series. See **sane−hp3900**(5) for details.

hp4200

The SANE backend for the Hewlett-Packard ScanJet 4200 series. See **sane−hp4200**(5) for details.

hp5400

The SANE backend for the Hewlett-Packard ScanJet 54XXC series. See **sane−hp5400**(5) for details.

hpljm1005

The SANE backend for the Hewlett-Packard LaserJet M1005 scanner. See **sane−hpljm1005(5)** for details.

hs2p

The SANE backend for the Ricoh IS450 family of SCSI scanners. See **sane−hs2p**(5) for details.

ibm

The SANE backend for some IBM and Ricoh SCSI scanners. See **sane−ibm**(5) for details.

kodak

The SANE backend for some large Kodak scanners. See **sane−kodak**(5) for details.

kodakaio

The SANE backend for Kodak AiO printer/scanners. See **sane−kodakaio**(5) for details.

kvs1025

The SANE backend for Panasonic KV-S102xC scanners. See **sane−kvs1025**(5) for details.

leo

This backend supports the Leo S3 and the Across FS-1130, which is a re-badged LEO FS-1130 scanner. See **sane−leo**(5) for details.

lexmark

This backend supports the Lexmark X1100 series of USB scanners. See **sane−lexmark**(5) for details.

ma1509

The ma1509 backend supports the Mustek BearPaw 1200F USB flatbed scanner. See **sane−ma1509**(5) for details.

magicolor

The magicolor backend supports the KONICA MINOLTA magicolor 1690MF multi-function printer/scanner/fax. See **sane−magicolor**(5) for details.

matsushita

This backend supports some Panasonic KVSS high speed scanners. See **sane−matsushita**(5) for details.

microtek

The microtek backend provides access to the "second generation" Microtek scanners with SCSI-1 command set. See **sane−microtek**(5) for details.

microtek2

The microtek2 backend provides access to some Microtek scanners with a SCSI-2 command set. See **sane−microtek2**(5) for details.

mustek

The SANE mustek backend supports most Mustek SCSI flatbed scanners including the Paragon and ScanExpress series and the 600 II N and 600 II EP (non-SCSI). Some Trust scanners are also supported. See **sane−mustek**(5) for details.

mustek_pp

The mustek_pp backend provides access to Mustek parallel port flatbed scanners. See **sane−mustek_pp**(5) for details.

mustek_usb

The mustek_usb backend provides access to some Mustek ScanExpress USB flatbed scanners. See **sane−mustek_usb**(5) for details.

mustek_usb2

The mustek_usb2 backend provides access to scanners using the SQ113 chipset like the Mustek BearPaw 2448 TA Pro USB flatbed scanner. See **sane−mustek_usb2**(5) for details.

nec

The SANE nec backend supports the NEC PC-IN500/4C SCSI scanner. See **sane−nec**(5) for details.

niash

The niash backend supports the Agfa Snapscan Touch and the HP ScanJet 3300c, 3400c, and 4300c USB flatbed scanners. See **sane−niash**(5) for details.

p5

The SANE backend for Primax PagePartner. See **sane−p5**(5) for details.

pie

The pie backend provides access to Pacific Image Electronics (PIE) and Devcom SCSI flatbed scanners. See **sane−pie**(5) for details.

pixma

The pixma backend supports Canon PIXMA MP series (multi-function devices), Canon imageCLASS series (laser devices), Canon MAXIFY series and some Canon CanoScan series. See **sane−pixma**(5) for details.

plustek

The SANE plustek backend supports USB flatbed scanners that use the National Semiconductor LM983[1/2/3] chipset aka Merlin. Scanners using this LM983x chips include some models from Plustek, KYE/Genius, Hewlett-Packard, Mustek, Umax, Epson, and Canon. See **sane−plustek**(5) for details.

plustek_pp

The SANE plustek_pp backend supports Plustek parallel port flatbed scanners. Scanners using the Plustek ASIC P96001, P96003, P98001 and P98003 include some models from Plustek, KYE/Genius, Primax. See **sane−plustek_pp**(5) for details.

ricoh

The ricoh backend provides access to the following Ricoh flatbed scanners: IS50 and IS60. See **sane−ricoh**(5) for details.

ricoh2

The ricoh2 backend provides access to the following Ricoh flatbed scanners: SG-3100SNw, SP-100SU, and SP-111SU. See **sane−ricoh2**(5) for details.

s9036

The s9036 backend provides access to Siemens 9036 flatbed scanners. See **sane−s9036**(5) for details.

sceptre

The sceptre backend provides access to the Sceptre S1200 flatbed scanner. See **sane−sceptre**(5) for details.

sharp

The SANE sharp backend supports Sharp SCSI scanners. See **sane−sharp**(5) for details.

sm3600

The SANE sm3600 backend supports the Microtek ScanMaker 3600 USB scanner. See **sane−sm3600**(5) for details.

sm3840

The SANE sm3840 backend supports the Microtek ScanMaker 3840 USB scanner. See **sane−sm3840**(5) for details.

snapscan

The snapscan backend supports AGFA SnapScan flatbed scanners. See **sane−snapscan**(5) for details.

sp15c

This backend supports the Fujitsu FCPA ScanPartner 15C flatbed scanner. See **sane−sp15c**(5) for details.

st400

The sane−st400 backend provides access to Siemens ST400 and ST800. See **sane−st400**(5) for details.

tamarack

The SANE tamarack backend supports Tamarack Artiscan flatbed scanners. See **sane−tamarack**(5) for details.

teco1 teco2 teco3

The SANE teco1, teco2 and teco3 backends support some TECO scanners, usually sold under the Relisys, Trust, Primax, Piotech, Dextra names. See **sane−teco1**(5), **sane−teco2**(5) and **sane−teco3**(5) for details.

u12

The sane−u12 backend provides USB flatbed scanners based on Plustek's ASIC 98003 (parallel-port ASIC) and a GeneSys Logics' USB-parport bridge chip like the Plustek OpticPro U(T)12. See **sane−u12**(5) for details.

umax

The sane−umax backend provides access to several UMAX-SCSI-scanners and some Linotype Hell SCSI-scanners. See **sane−umax**(5) for details.

umax_pp

The sane−umax_pp backend provides access to Umax parallel port flatbed scanners and the HP 3200C. See **sane−umax_pp**(5) for details.

umax1200u

The sane−umax1220u backend supports the UMAX Astra 1220U (USB) flatbed scanner (and also the UMAX Astra 2000U, sort of). See **sane−umax1220u**(5) for details.

xerox_mfp

The sane−xerox_mfp backend supports multiple Samsung-based Samsung, Xerox, and Dell scanners. See **sane−xerox_mfp**(5) for details.

Also, have a look at the backend information page at *http://www.sane−project.org/sane−supported−devices.html* and the list of projects in *@DOCDIR@/PROJECTS*.

BACKENDS FOR DIGITAL CAMERAS

dc210

Backend for Kodak DC210 Digital Camera. See **sane−dc210**(5).

dc240

Backend for Kodak DC240 Digital Camera. See **sane−dc240**(5).

dc25

Backend for Kodak DC20/DC25 Digital Cameras. See **sane−dc25**(5).

dmc

Backend for the Polaroid Digital Microscope Camera. See **sane−dmc**(5).

gphoto2

Backend for digital cameras supported by the gphoto2 library package. (See *http://www.gphoto.org* for more information and a list of supported cameras.) Gphoto2 supports over 140 different camera models. However, please note that more development and testing is needed before all of these cameras will be supported by **SANE** backend. See **sane−gphoto2**(5).

qcam

Backend for Connectix QuickCam cameras. See **sane−qcam**(5).

stv680
>   The sane−stv680 backend provides access to webcams with a stv680 chip. See **sane−stv680**(5) for details.

Also, have a look at the backend information page at *http://www.sane−project.org/sane−supported−devices.html* and the list of projects in *@DOCDIR@/PROJECTS*.

MISCELLANEOUS BACKENDS

dll
>   The sane−dll library implements a **SANE** backend that provides access to an arbitrary number of other **SANE** backends by dynamic loading. See **sane−dll**(5).

net
>   The **SANE** network daemon saned provides access to scanners located on different computers in connection with the net backend. See **sane−net**(5) and **saned**(8).

pnm
>   PNM image reader pseudo-backend. The purpose of this backend is primarily to aid in debugging of **SANE** frontends. See **sane−pnm**(5).

pint
>   Backend for scanners that use the **PINT** (Pint Is Not Twain) device driver. The **PINT** driver is being actively developed on the OpenBSD platform, and has been ported to a few other *nix-like operating systems. See **sane−pint**(5).

test
>   The **SANE** test backend is for testing frontends and the **SANE** installation. It provides test pictures and various test options. See **sane−test**(5).

v4l
>   The sane−v4l library implements a **SANE** backend that provides generic access to video cameras and similar equipment using the **V4L** (Video for Linux) API. See **sane−v4l**(5)**.**

Also, have a look at the backend information page at *http://www.sane−project.org/sane−supported−devices.html* and the list of projects in *@DOCDIR@/PROJECTS*.

CHANGING THE TOP-LEVEL BACKEND
>   By default, all **SANE** backends (drivers) are loaded dynamically by the **sane−dll** meta backend. If you have any questions about the dynamic loading, read **sane-dll**(5). **SANE** frontend can also be linked to other backends directly by copying or linking a backend to **libsane.so** in *@LIBDIR@*.

DEVELOPER'S DOCUMENTATION
>   It's not hard to write a **SANE** backend. It can take some time, however. You should have basic knowledge of C and enough patience to work through the documentation and find out how your scanner works. Appended is a list of some documents that help to write backends and frontends.

>   The **SANE** standard defines the application programming interface (API) that is used to communicate between frontends and backends. It can be found at *@DOCDIR@/sane.ps* (if latex is installed on your system) and on the **SANE** website: *http://www.sane−project.org/html/* (HTML), or *http://www.sane−project.org/sane.ps* (Postscript).

>   There is some more information for programmers in *@DOCDIR@/backend−writing.txt*. Most of the internal **SANE** routines (**sanei**) are documented using doxygen: *http://www.sane−project.org/sanei/*. Before a new backend or frontend project is started, have a look at *@DOCDIR@/PROJECTS* for projects that are planned or not yet included into the **SANE** distribution and at our bug-tracking system: *http://www.http://www.sane−project.org/bugs.html*.

>   There are some links on how to find out about the protocol of a scanner: *http://www.meier−geinitz.de/sane/misc/develop.html*.

If you start writing a backend or frontend or any other part of **SANE,** please contact the sane−devel mailing list for coordination so the same work isn't done twice.

FILES

@CONFIGDIR@/.conf*
> The backend configuration files.

@LIBDIR@/libsane−.a*
> The static libraries implementing the backends.

@LIBDIR@/libsane−.so*
> The shared libraries implementing the backends (present on systems that support dynamic loading).

*@DOCDIR@/**
> **SANE** documentation: The standard, READMEs, text files for backends etc.

PROBLEMS

If your device isn't found but you know that it is supported, make sure that it is detected by your operating system. For SCSI and USB scanners, use the **sane−find−scanner** tool (see **sane−find−scanner**(1) for details). It prints one line for each scanner it has detected and some comments (#). If **sane−find−scanner** finds your scanner only as root but not as normal user, the permissions for the device files are not adjusted correctly. If the scanner isn't found at all, the operating system hasn't detected it and may need some help. Depending on the type of your scanner, read **sane−usb**(5) or **sane−scsi**(5). If your scanner (or other device) is not connected over the SCSI bus or USB, read the backend's manual page for details on how to set it up.

Now your scanner is detected by the operating system but not by **SANE**? Try **scanimage −L**. If the scanner is not found, check that the backend's name is mentioned in *@CONFIGDIR@/dll.conf*. Some backends are commented out by default. Remove the comment sign for your backend in this case. Also some backends aren't compiled at all if one of their prerequisites are missing. Examples include dc210, dc240, canon_pp, hpsj5s, gphoto2, pint, qcam, v4l, net, sm3600, snapscan, pnm. If you need one of these backends and they aren't available, read the build instructions in the **README** file and the individual manual pages of the backends.

Another reason for not being detected by **scanimage −L** may be a missing or wrong configuration in the backend's configuration file. While **SANE** tries to automatically find most scanners, some can't be setup correctly without the intervention of the administrator. Also on some operating systems auto-detection may not work. Check the backend's manual page for details.

If your scanner is still not found, try setting the various environment variables that are available to assist in debugging. The environment variables are documented in the relevant manual pages. For example, to get the maximum amount of debug information when testing a Mustek SCSI scanner, set environment variables **SANE_DEBUG_DLL**, **SANE_DEBUG_MUSTEK**, and **SANE_DEBUG_SANEI_SCSI** to 128 and then invoke **scanimage −L .** The debug messages for the dll backend tell if the mustek backend was found and loaded at all. The mustek messages explain what the mustek backend is doing while the SCSI debugging shows the low level handling. If you can't find out what's going on by checking the messages carefully, contact the sane−devel mailing list for help (see REPORTING BUGS below).

Now that your scanner is found by **scanimage −L**, try to do a scan: **scanimage >image.pnm**. This command starts a scan for the default scanner with default settings. All the available options are listed by running **scanimage −−help**. If scanning aborts with an error message, turn on debugging as mentioned above. Maybe the configuration file needs some tuning, e.g. to setup the path to a firmware that is needed by some scanners. See the backend's manual page for details. If you can't find out what's wrong, contact sane−devel.

To check that the **SANE** libraries are installed correctly you can use the test backend, even if you don't have a scanner or other **SANE** device:

        scanimage −d *test* **−T**

You should get a list of PASSed tests. You can do the same with your backend by changing "test" to your backend's name.

So now scanning with **scanimage** works and you want to use one of the graphical frontends like **xsane**, **xs-canimage**, or **quiteinsane** but those frontends don't detect your scanner? One reason may be that you installed two versions of **SANE**. E.g. the version that was installed by your distribution in */usr* and one you installed from source in */usr/local/*. Make sure that only one version is installed. Another possible reason is, that your system's dynamic loader can't find the **SANE** libraries. For Linux, make sure that */etc/ld.so.conf* contains */usr/local/lib* and does **not** contain */usr/local/lib/sane*. See also the documentation of the frontends.

HOW CAN YOU HELP SANE

We appreciate any help we can get. Please have a look at our web page about contributing to **SANE**: *http://www.sane−project.org/contrib.html*

CONTACT

For reporting bugs or requesting new features, please use our bug-tracking system: *http://www.sane−project.org/bugs.html*. You can also contact the author of your backend directly. Usually the email address can be found in the *@DOCDIR@/AUTHORS* file or the backend's manpage. For general discussion about SANE, please use the **SANE** mailing list sane−devel (see *http://www.sane−project.org/mailing−lists.html* for details).

SEE ALSO

saned(8), **sane−find−scanner**(1), **scanimage**(1), **sane−abaton**(5), **sane−agfafocus**(5), **sane−apple**(5), **sane−artec**(5), **sane−artec_eplus48u**(5), **sane−as6e**(5), **sane−avision**(5), **sane−bh**(5), **sane−canon**(5), **sane−canon630u**(5), **sane−canon_dr**(5), **sane−canon_pp**(5), **sane−cardscan**(5), **sane−coolscan2**(5), **sane−coolscan**(5), **sane−dc210**(5), **sane−dc240**(5), **sane−dc25**(5), **sane−dll**(5), **sane−dmc**(5), **sane−epson**(5), **sane−fujitsu**(5), **sane−genesys**(5), **sane−gphoto2**(5), **sane−gt68xx**(5), **sane−hp**(5), **sane−hpsj5s**(5), **sane−hp3500**(5), **sane−hp3900**(5), **sane−hp4200**(5), **sane−hp5400**(5), **sane−hpljm1005**(5), **sane−ibm**(5), **sane−kodak**(5), **sane−leo**(5), **sane−lexmark**(5), **sane−ma1509**(5), **sane−matsushita**(5), **sane−microtek2**(5), **sane−microtek**(5), **sane−mustek**(5), **sane−mustek_pp**(5), **sane−mustek_usb**(5), **sane−mustek_usb2**(5), **sane−nec**(5), **sane−net**(5), **sane−niash**(5), **sane−pie**(5), **sane−pint**(5), **sane−plustek**(5), **sane−plustek_pp**(5), **sane−pnm**(5), **sane−qcam**(5), **sane−ricoh**(5), **sane−ricoh2**(5), **sane−s9036**(5), **sane−sceptre**(5), **sane−scsi**(5), **sane−sharp**(5), **sane−sm3600**(5), **sane−sm3840**(5), **sane−snapscan**(5), **sane−sp15c**(5), **sane−st400**(5), **sane−stv680**(5), **sane−tamarack**(5), **sane−teco1**(5), **sane−teco2**(5), **sane−teco3**(5), **sane−test**(5), **sane−u12**(5), **sane−umax1220u**(5), **sane−umax**(5), **sane−umax_pp**(5), **sane−usb**(5), **sane−v4l**(5), **sane−xerox_mfp**(5)

AUTHOR

David Mosberger-Tang and many many more (see *@DOCDIR@/AUTHORS* for details). This man page was written by Henning Meier-Geinitz. Quite a lot of text was taken from the **SANE** standard, several man pages, and README files.