

akPNG_Documentation

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Chapter 1

akPNG_Documentation

1.1 akPNG : Documentation

akPNG.datatype V43.11

- licenseable SHAREWARE -

© 1996-97 by Andreas Ralph Kleinert. All rights reserved.

A PerSuaSiVe SoftWorX PRODUCT.

Needs Kickstart V3.x

Release Date : 15.01.1997

Please consider registration - usually less than 1% of the users of a program do register. That's not much.

<Commercial> BTW: What is SuperView ? </Commercial>

<Note>

BTW: Where's akGIF ?

</Note>

Copyright

Disclaimer

Distribution

Payment

Usage and Notes

Free algorithms...

PNG: successor of GIF

...and free speech !

Problems

68020-68060

Prefs

Correspondence

Thanks

Version-History

_ //

Only \X/ Amiga makes it possible!

Please visit:

WWW Support Site
<http://www.amigaworld.com/support/akpng/> (AWeb-II)

The CHAOS-Theory (rough english translation):

The Chaos theory for example deals with trying to catch the god damned butterfly, which caused the many storms the last times.
(see "Witches Abroad" by Terry Pratchett)

Ahm...well:

...and thanks for all the fish.

1.2 copyright

The akPNG.datatype in this version and its documentation files are (C)opyright 1996-97 by Andreas R. Kleinert. All rights reserved.

The right of using this program is granted to you by
paying
the
a SHAREWARE-fee of 15 DEM (10 U\$) or equivalent to the author,
or by being a owner of a Shareware program or commercial software,
whose authors did avoid that for the users of their software (see below).

This software is based in part on the png reference library (including libpng and zlib), which allows being used e.g. for freely distributable and commercial programs.

libpng:

Copyright (c) 1995, 1996 Guy Eric Schalnat, Group 42, Inc.
Contributing Authors:
Andreas Dilger
Dave Martindale
Guy Eric Schalnat

Paul Schmidt
Tim Wegner

zlib:

(C) 1995-1996 Jean-loup Gailly and Mark Adler

Installer batch file makes use of Roger Hågensen's "AmigaT" utility, which has been included with his kind permission. It is Freely Distributable FreeWare and © Msi Software 1996 (eMail: Msi Software - msi@sn.no, WWW: <http://www.sn.no/~msi/>)

Some of the mentioned names or products within this or other documents may be copyrighted by companies or trademarks of companies or persons.

Should any of the listed terms and clauses within this document not be valid in conjunction with the law of certain countries this does not affect the validity of the other clauses.

1.3 disclaimer

The author takes no responsibility for any results of the use of this program.

This software is provided "AS IS" and there is no warranty of any kind, so that you use this software at your own risk.

The author reserves the right to discontinue development of the program.

1.4 distribution

The akPNG.datatype in this version is freely distributable (SHAREWARE). You may copy it, if the copyright notice is left intact and all of its parts are included in the distribution.

This program MAY be included in commercial packages or commercial program collections without my written permission, nevertheless it must not be sold commercially as a single program.

WHEN being included with commercial or Shareware programs I hereby demand to receive a free copy of the final program - after you did so, the users of your program no longer need to pay the Shareware fee to me (they still may, if they like to support development).

This program may be put on public domain disks or included in public domain disk libraries - when being distributed that way, it is allowed to take a nominal fee including the costs for copying, without considering that as "commercial" in the above mentioned sense.

This program may also be distributed via electronic mail and may be

put into mailboxes as long as the redistribution conditions are respected in all points.

By using or distributing this program you automatically agree to all of the above conditions and terms.

1.5 payment

You may send cash money in an envelope, euro-cheques, or just transfer the 15 DEM (10 U\$) shareware fee to the following account (mention your name): Deutsche Bank Siegen, BLZ 46070090 Kto. 0298174

No foreign cheques, please (euro-cheques or DM-cheques are ok).

1.6 Usage and so on

GIF is obsolete - you neither should use nor support it any longer. If you are doing WWW design, use PNG and JPEG instead. It's important ! ↔

Usage

Just install the datatype files to their appropriate directories, and copy the akPNGPrefs command to SYS:Prefs (optionally).

Please make sure, that there is a directory available, where temporary data can be stored. There must be an assignment called "VMEM:" to this directory (just like with SuperViewLibrary and akJFIF-dt).

Do not assign it to "T:" if it is somewhere on a Ram-Disk (that's why T: is not used by default) - just create a safe place for it.

Program information

akPNG.datatype is a new
PNG
datatype, which is based on the
latest PNG sources (zlib V1.0.4, libpng 1.0 beta 3 - version 0.89).

So it does support 8 Bit color mapped files and True color files (16, 24/32, 48 Bit) while 16 Bit (5:5:5/5:6:5) will be expanded, and 48 Bit (16:16:16) will be cut down to 24 Bit (8:8:8).

With V39-V42 picture.datatype it either produces (upto) 256 color palette-based or HAM6/8 output (256 colors exported unmodified, 24 Bit data either dithered or converted to HAM6/HAM8) with Ralph Schmidt's picture.datatype V43 24 Bit may be done unmodified.

You must use the included preferences program for best configuration.

akPNG.datatype is
SHAREWARE

, the future depends on YOU.

1.7 Problem fields

Some special PNG probs

Reading interlaced 24/32 Bit PNGs in V40 mode has not been tested very well (no pictures), thus problems are possible. Safest prevention against that: install pic-dt V43.

Transparency (esp. Browsers)

There have been many bug reports, where people told me, that the transparency features (you know, many web pages do contain "PNG" graphics with one color being transparent, thus just equal to the background color) did not work at all.

All I can say about is, that at my current state of information this is not my fault.

The transparency information as such definitely is being read correctly, and there is only one necessary step to be done - it needs to be passed to picture.datatype by setting a special flag in the BitMapHeader structure:

```
bmhd->bmh_Masking      = mskHasTransparentColor;
bmhd->bmh_Transparent = (UWORD) ((WORD)trans);
```

With pic-dt V43 there once also was a (now obsolete) special flag for that, but we don't use it (tested it, though):

```
PDTA_TransRemapPen, (LONG)bmhd->bmh_Transparent
```

It seems, that neither pic-dt V39/40 nor V43 do interpret that flag correctly in neither mode (with remapping or without).

Theoretically, there are two possible ways for a program (e.g. a browser) to handle a datatype graphics:

```
let picture.datatype do it
```

```
- load it
- attach it to a screen/window and tell it where to appear
  in which size; allow remapping to the screen's colors
=> in this case, picture.datatype would have to manage the
  transparency handling and replace the transparent
  color's colormap entry with the corresponding screen color's
  values BEFORE remapping to the screen.
  It's SUBJECT TO THE PICTURE-DATATYPE.
```

```
do it yourself
```

```
- load it
- get it without remapping
- remap and display it by yourself, also handle
  transparency by yourself
```


=> thus transparency won't be handled by the datatype at all.
It's SUBJECT TO THE BROWSER.

Obviously both ways don't work with the current release, although I've been told, that an other datatype does the job correctly. Funny enough, the author did tell me, that he did program it the same way as I did.

Well, all I can say is: send any further bug-reports plus the explanation above to your Browser vendor or Pic-Datatype supplier. Can't do anything more about that, until someone tells me, where my assumptions are wrong (but I am not going to screw up the OOP datatypes concept just because of that and do the remapping just rightly to a possibly given screen by myself).

Progressbar and programs (esp. Browsers)

Please note, that the (optional) progress bar will either open on a windows's screen as specified via `pr_WindowPtr`, or on the default Public Screen, thus if your favoured Web Browser does not set `pr_WindowPtr` or does not declare its screen as default pub screen, that's not my fault

Unknown datatypes (V43)

If your datatypes stop working (unknown file format), please don't blame me, but at first check, whether you've still installed an already expired beta version of `picture.datatype V43...`

1.8 Making use of 680x0 CPUs

This program works WITHOUT any FPU, BUT...

If you do own an 68020/030+68881/882 FPU or 68040/060+FPU you may wish to make use of these.

Usually, Amiga OS' mathieeee-Libraries do automatically manage the coprocessor support, but for some reasons, these libraries are not used with this datatype:

- they can't be shared between processes
- they are not actually optimized for 68040/060+FPU as with OS 3.1

Unfortunately, the used `mathtrans.library` does not support an FPU at all.

But there's a solution: it is strongly suggested, to use some of the available math-library replacements and/or patches from Aminet.

FMath from Martin Berndt, for example does replace all of them:

- `mathieeedoubbas.library`
- `mathieeedoubtrans.library`
- `mathieeesingtrans.library`
- `mathtrans.library`

It is strongly recommended to install V40.6 or a newer version from Aminet (Aminet:util/libs/FMath406.LHA).

There's also a bug in mathieeesingbas.library (which resides in ROM), so that you should install a patch for that:
For example "SetMathPatch" (coming with e.g. GhostScript) or a newer SetPatch Version V43.x (formerly available from ftp.amiga.de).

1.9 correspondence

WWW Support Site

<http://www.amigaworld.com/support/akpng/> (AWeb-II)

(try <http://193.203.162.219/>, if you can't connect)

```

|-----|
| You may reach me the following way. |
| Send bug-reports, money or whatever to: |
|-----|
| * SuperView Development & Registration * |
| * DRAFU Development & Registration * |
| * Image Engineer Registration Site Europe * |
| |
| PerSuaSiVe SoftWorX |
| |
| Andreas R. Kleinert |
| Sandstrasse 1 |
| D-57072 Siegen |
| Germany, Europe |
| |
| Any snail mail to the old address will still be routed. |
| |
| Phone: +49-271-22869 also FAX + AM |
| +49-271-22838 |
| |
| Weekdays after 17.00h. |
| |
| When calling via phone you may leave a message, |
| if I'm not available - but don't expect me |
| calling back to USA, Australia, ... since |
| german phone rates are HIGHLY expensive. |
|-----|

```

E-Mail:

Please send binaries via ARK@COB.wwbnet.de, and keep them smaller than 16 KB. Please think twice before sending them - my postbox is not unlimited in size.

```

- Fido    Andreas Kleinert 2:2457/350.18
- Usenet  Andreas_Kleinert@superview.ftn.sub.org (Fido-Gate)
          Andreas_Kleinert@t-online.de       (T-Online)

```

ARK@COB.wwbnet.de (Z-Netz)
ARK@amigaworld.com (AmigaWorld)

- If nothing else works, try one of these public Fido-Usenet gateways:

In Germany:

Andreas_Kleinert@p18.f350.n2457.z2.fido.sub.org

From USA or elsewhere:

Andreas_Kleinert@p18.f350.n2457.z2.fidonet.org

Please note, that the "superview.ftn.sub.org" domain will perhaps be renamed soon.

1.10 thanks

Thanks go to (in order of appearance ;-)

=====

(some of these people did register, others did make suggestions/bug reports - how about you ?)

- Ingo Jürgensmann	- Thomas Boerker	- Andreas Mixich
- Robert Wahnsiedler	- André Laemmer	- Edwin H. Bielawski
- Matteo Tenca	- Jan Skypala	- Adrian Demarais
- Carl-Rudolph Naefe	- Ludwig Berndt	- Roger Hâgensen
- Dr. Rainer M. Herold	- Thomas Steinbichler	- Joern Krueger
- Bodo Thevissen	- Helge Thorsten Kautz	- Thomas Nolte
- Harry W. Turner II	- A. P. Suggitt	

Here's some indirect support (future registered users, I hope :-)

Charts/Ratings #1	03.11.1996
Charts/Ratings #2	10.11.1996
Charts/Ratings #3	17.11.1996
Charts/Ratings #4	22.12.1996
Charts/Ratings #5	29.12.1996
Charts/Ratings #6	05.01.1997
Charts/Ratings #7	12.01.1997

1.11 prefs

akPNGPrefs

akPNGPrefs is the Preferences Program for akPNG.datatype.
GUI has been created with Designer 1.54 by Ian O'Connor.
Icon by Detlef Winkler (same as SVPrefs.info)

[Please note, that there's an alternative prefs program
available from Jan Skypala - its GUI design is somewhat better.]

The global settings will be written to ENV: (and maybe also ENVARC:) into a preferences file called "Datatypes/akPNG.prefs".

----- task specific settings files -----
 Settings specific to different caller programs may be created by copying the global settings from "Datatypes/akPNG.prefs" to an optional task-related prefs file called

"Datatypes/akPNG.prefs_Tasks/TaSkNaMe"

where "TaSkNaMe" means the name of the program as e.g. shown by a system monitor (for obvious reasons, this does work best with workbench programs, which don't require name patterns as some CLI programs might do, like for example "CLI(3):Work:Browsers/XWebber"). So, with AWeb for example, you would just edit your global settings file and then do the following:

```
MakeDir ENV:Datatypes/akPNG.prefs_Tasks
Copy ENV:Datatypes/akPNG.prefs ENV:Datatypes/akPNG.prefs_Tasks/AWebIP"
```

[... and the same for ENVARC: ...]

After that, AWeb will ignore the global settings and fetch its own from the given file.

(Currently you can't edit them locally, sorry - but for e.g. AWeb it should be simple to manage that via ARexx by just including an appropriate script to AWeb's ARexx menu).

 You can do the following settings:

- 1) V43_MODE=(NO_DITHERING|V40_DITHERING)
- 2) V40_24BIT_MODE=(DITHER_ORDERED|HAM_OUTPUT)
- 3) V40_DEPTH=(3..8)
- 4) HAM_MODE=(HAM6|HAM8)
- 5) PROGRESSBAR=(ON|OFF)

That's mostly self-explaining, but as an example, here are the default settings and a short explanation:

```
V43_MODE=NO_DITHERING
V40_24BIT_MODE=DITHER_ORDERED
V40_DEPTH=8
HAM_MODE=HAM6
INTERLEAVED_BM8=ON
PROGRESSBAR=ON
```

General Explanation of Options

=====

1) V43_MODE

 NO_DITHERING: does output 24 Bit data when running pic-dt V43

V40_DITHERING: switches to V40 mode settings when running pic-dt V43

2) V40_24BIT_MODE (when running picture datatype V40 or V43 in V40 mode)

DITHER_ORDERED: does ordered dithering of 24 Bit data
 HAM_OUTPUT: does convert 24 Bit data to HAM6/8 when

3) V40_DEPTH

When dithering to a palette (so: when in V40 mode and ordered dithering being selected) the number of palette colors, which is 256 by default, may be reduced here (e.g. on ECS systems).
 Valid depth values are 3..8 (which results in 16..256 colors, easily calculated by 2^{depth}).

4) HAM_MODE

HAM6: generates HAM6 output for 24 Bit graphics, when running V39-42
 HAM8: generates HAM8 output for 24 Bit graphics, when running V39-42

Note, that HAM8 is native to AGA machines and thus may cause difficulties with graphic boards and won't work with OCS/ECS Amigas. With HAM6 and graphic boards also problems may occur.

5) INTERLEAVED_BM8

ON: will output interleaved bitmaps upto 256 colors
 OFF: will output normal bitmaps (BMF_CLEAR only) - you may switch interleaved mode off for specific programs, which cannot handle it, or when AllocBitmap() has been patched for chunky modes by a graphics card software or e.g. EGSPPlus

6) PROGRESSBAR

ON: pop up percentage display
 OFF: do not pop up percentage display

1.12 history

History

=====

- V43.11 (15.01.97) : - installer script was faulty
 (-> Harry W. Turner II)
 - added "<http://193.203.162.219>" info
 (-> Harry W. Turner II)
 - tmp files would not have been deleted from VMEM:
 - guide now is interactive and connects URLs to AWeb-II if available
- V43.10 (09.01.97) : - added new installer script and "AmigaT" tool by Roger Hâgensen (thanks, Roger). Only slightly modified script.
 - added script icon (using IconX), may nevertheless still be started from shell (-> Roger Hâgensen)
 - added directory icon (-> Roger Hâgensen)

- added note about new homepage
 - completely rewrote docs
 - added "PNG := successor of GIF" note, and explained, that free algorithms are as free as free speech on the internet
- V43.9 (01.01.97) : - reworked docs
- added ordered dithering support for V40 mode (16..256 colors)
 - now allows to run it in V40 mode even with picture-datatype V43, thus HAM6/8 output becomes possible
 - (hopefully) fixed progressive reading, when in V40 HAM6/8 mode, also applied the same fix to ordered dithering: in this case a temporary file must be created at VMEM:
 - added support for task-specific settings (private settings for specific programs)
 - added "transparency" note. Please read.
 - now using zlib 1.0.4
 - 8 Bit only:
now by default uses interleaved bitmaps, which should fix the remaining problems with small sized bitmaps and/or distorted bitmap borders. Can be switched off.
- V43.8 (17.12.96) : - installer script now asks for CPU type and selectively installs the single datatype versions (-> first version worked out by Roger Hågensen)
- now using libpng 1.0 beta 3 - version 0.89
 - now using zlib 1.0.3
 - slightly reduced size (about 4 K each)
 - better compiler optimization on pnglib (esp. 040/060)
 - better compiler optimization on zlib (esp. 040/060)
 - using new libpng API
 - less PNG bugs (libpng)
 - interlaced (progressive) 24 Bit graphics under pic-dt V40 would have caused distorted HAM6/8 display. Now just "bad".
- V43.7 (7.12.96) : - updated/changed docs
- did not create correct mode ID for HAM6 display
 - fixed possible memory leak on temporary memory allocation error
- V43.6 (30.11.96) : - updated/changed docs
- fixed small bug (GadTools)
 - fixed CTRL-C problem (IBrowse) (-> Matteo Tenca)
- V43.5 (24.11.96) : - progress bar now treated like requester. Now will check pr_WindowPtr before trying to open on (default) pubscreen (-> Edwin H. Bielawski)
-

- added special fix for AWeb 2.1, which has pr_WindowPtr correctly set, but does let the Datatype operations do by an "AWebIP" task, which has not. Thus when being called by "AWebIP" we now refer to the pub screen "AWeb" instead of fiddling with pr_WindowPtr
- V43.4 (23.11.96) :
- progress bar window no longer auto activated (-> André Laemmer)
 - when called by IPrefs (e.g. for WBPatters), a progress bar will never pop up
 - did not correctly read interlaced (progressive) PNGs (-> Andreas Mixich)
 - on missing picture.datatype V39, prefs program would have claimed about missing V40 (-> Robert Wahnsiedler)
 - now exports transparency information (256 color graphics only)
- V43.3 (12.11.96):
- completely recompiled with SAS/C V6.57
 - added 68030, 68040 and 68060 version (-> Ingo Jürgensmann)
 - there was a broken version of V43.2 (3.11.96) (in parts still labeled as V43.1) which unfortunately went on Aminet, but hopefully had been overwritten by the right version later on
 - added doc section about 680x0 CPUs and FPU's. Please follow the instructions given and use the FMath patches, also SetPatch 43. The latest version floating around was SetPatch V43.5 - which is currently not on ftp.amiga.de, but maybe available elsewhere
 - progress bar did display "akJFIF" instead of "akPNG"
 - changed PubScreen behaviour of progress bar (-> Thomas Boerker)
- V43.2 (3.11.96) :
- bugfixes
- V43.1 (1.11.96) :
- first release (with V43 support)

1.13 akGIF Support

akGIF-Datatype is no longer uploaded to Aminet as with V43.9.

Most recent version can be found on AmigaWorld's support area at:

<http://www.amigaworld.com/support/akgif/> (AWeb-II)

Please visit also:

<http://www.amigaworld.com/>
<http://www.amigaworld.com/support/>

(try <http://193.203.162.219/>, if you can't connect)

1.14 About PNG - successor of GIF

PNG is the successor of the GIF file format. Other than GIF it is completely free of patent claims and has been designed with free data exchange in mind. Drop GIF for PNG - free algorithms are as important as free speech on the internet:

GIF is obsolete - you neither should use nor support it any longer. If you are doing WWW design, use PNG and JPEG instead. It's important !

For more information on PNG (pronounce: PiNG) for example look at:

- [1] PNG specification (AmigaGuide format)
-> Aminet:docs/hyper/PNG-guide.lha
 - [2] PNG WWW homepage
-> <http://quest.jpl.nasa.gov/PNG/>
 - [3] PNG upgrade tools like gif2png
-> Aminet:gfx/conv/gif2png-0.6.lha
 - [4] programs capable of PNG, like PPaint, SuperView, etc.
-