

## **akPNG\_Documentation**

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## Chapter 1

# akPNG\_Documentation

### 1.1 akPNG : Documentation

akPNG.datatype V44.43

- SHAREWARE -

© 1996-99 by Andreas Ralph Kleinert. All rights reserved.

A PerSuaSiVe SoftWorX PRODUCT.

Needs Kickstart V3.x

Release Date : 18.07.1999

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

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

Copyright  
Disclaimer  
Distribution  
Payment  
Usage and Notes  
Free algorithms... PNG: successor of GIF ...and free speech !  
Datatype FAQ  
68020-68060, PPC  
Prefs  
Correspondence  
Hall of Fame  
Version-History

\_ //  
Only \X/ Amiga makes it possible!

Please visit:

WWW Support Site  
<http://www.ar-kleinert.de> (AWeb-II)

The CHAOS theory:

"Like finding that bloody butterfly whose flapping wings cause all these storms we've been having lately and getting it to stop." (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 1996-99 by Andreas R. Kleinert. All rights reserved.

The right of using this program is granted to you by paying the SHAREWARE-fee of 15 DEM (10 U\$) or equivalent (e.g. in Euro) to the author.

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:

libpng 1.0.3  
Copyright (c) 1995, 1996 Guy Eric Schalnat, Group 42, Inc.  
Copyright (c) 1996, 1997 Andreas Dilger  
Copyright (c) 1998, 1999 Glenn Randers-Pehrson

zlib:

zlib 1.1.3  
(C) 1995-1998 Jean-loup Gailly and Mark Adler

akDT\_Installer by Robert C. Reiswig ©1996-1998.

If you wish to use any part of this installer you must ask. May not be integrated/placed into any other package! Changes, suggestions or problems: [akDatatype@vgr.com](mailto:akDatatype@vgr.com)

WarpUP Elfloader (ElfLoadWOS) code originally by Peter Annuss <[paladin@cs.tu-berlin.de](mailto:paladin@cs.tu-berlin.de)> which it is needed for loading/executing EGCS 2.91.57 WOS PPC binaries under AmigaOS (see <http://cs.tu-berlin.de/~paladin/> for further information). Has been completely rewritten and quite somewhat enhanced and bugfixed in the meantime, though.

---

Prefs GUI design improved by Georg Rottlaender <Georg.Rottlaender@bonn.netsurf.de>  
under use of a 'NewIcon' graphics by Philip Vedovatti <vedovatt@u.washington.edu>  
- included with kind permission by the 'Team NewIcons'

The patch files were created using the scompare SAS Binary File  
Compare Program V6.50 which is copyright © 1992-1993 SAS Institute,  
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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 only be included in commercial packages or commercial  
program collections with my written permission - ask for it.

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 !

### Installation and Usage

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

While the datatype itself can be placed elsewhere within a valid search path, the .ppc module HAS TO be placed to SYS:Classes/Datatypes/ - not a problem, if you use the installer script, otherwise please remember...

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).

If there's enough RAM available, VMEM: won't be used.

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 PNG datatype, which is based on the latest PNG sources (zlib V1.1.3, libpng 1.0.2).

So it does support 8 Bit color mapped files (colorspace expanded to 8 bit per component always) and True color files (24/48 Bit, alpha channel ignored, 48 Bit 16:16:16 cut down to 24 Bit 8:8:8).

So the following types of PNG images (all valid ones) should be imported in the described way:

Bit depths	Interpretation
1,2,4,8,16	pixels are grayscaled samples
8,16	pixels are R,G,B triple samples
1,2,4,8	pixels are palette indices

(plus variations with - here ignored - alpha channel)

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 picture.datatype V43 as well 24 Bit may be exported unmodified.

There are picture.datatype V43 versions available for both, CyberGraphX and Picasso96, while the one for Picasso96 does work with ECS/AGA, too - simply use the appropriate one.

You must use the included preferences program for best configuration - of course you can also use one of the alternative prefs programs from Aminet, which should deliver the same functionality (but please remember not to send any corresponding bug reports to my address).

akPNG.datatype is SHAREWARE, the future depends on YOU.

## 1.7 Datatype FAQ

CTRL-E support ?

-----

No, not this way, mate !

Keyfile system

-----

Yes, there's now a keyfile system used for this datatype - one could say, that this has been demanded, since it seems that most users obviously would like to get some value for their registration and also would like to see that "Registered ?" text disappear in the progressbar, after they indeed did register.

Please note, that the keyfile actually does not enable any "extra functionality" except making the PPC module fully functional and just replacing that "Registered ?" text in the progressbar.

Since the shareware fee of 15 DM is very low, and the keyfile is just an extra gimmick, I won't send any keyfiles via snail mail. If you want to receive the key, please mention your email address (clearly written) with your registration ! Otherwise I'd assume, that you don't need/want the keyfile...

If you registered the datatype earlier (when there wasn't a keyfile system at all), simply send me an email and request your keyfile afterwards.

NOTE: keyfile can be placed to either S: or where KEYPATH (env-variable) does point to.

PPC module (WOS)

-----

This one is experimental and follows nearly exactly the same rules as the one for PPC - it just is named "akPNG.wos" (190K) and uses powerpc.library V14+ instead.

The external program "C:LoadElfWos" will be used for running the PPC ELF module (with speed penalties!) unless

---



LOADELF\_WOS=OFF has been set in the preferences file.

Remarks for LOADELF\_WOS=ON:

Maybe making "C:LoadElfWos" resident (set the "p" bit and say "Resident C:LoadElfWos" in s:user-startup) may give a little speed-up. However, you need a version of C:LoadElfWos that actually can be made resident. Maybe you'd simply like to try that out...

Remarks for LOADELF\_WOS=OFF:

In case LOADELF\_WOS=OFF has been set, stability problems (\*) with some programs may occur (e.g. with dopus\_pattern or WBPatten). Program specific settings may make sense here (e.g. explicitly use LOADELF\_WOS=ON for these programs, but set it to LOADELF\_WOS=OFF for others).

Using the CACHE\_WOS option will avoid re-loading of the ELF module from disk every time when it is invoked, but instead keeps it in memory all the time (needs twice as much memory, even during the decoding process, but should be noticeably faster). CACHE\_WOS setting may be changed during run-time.

CACHE\_WOS=ON is recommended, if you want the highest possible speed and don't care so much about memory usage - however be careful, if memory gets too low, the PNG loader may fail, which again will mean an even bigger disadvantage. (\*) reason: unknown

Last words:

The datatype's ELF module for ppc.library basically already do work with the latest beta version of Frank Wille's ppc.library emulation for WOS (V0.6b or higher) - I'd recommend to simply try out, which version does run faster: the native WOS version or the emulated PPC version. Since the PPC version does not need "C:LoadElfWos", this is an open question.

The latest ppc.library emulation for WOS can be found on Frank Wille's homepage under <http://home.owl.de/~frank/>

PPC module (ELF)

-----

Yes, this datatype is prepared for a great speed up with phase5's powerUP (TM) boards.

For this, the ELF PNG decoder module has to be placed at location SYS:Classes/Datatypes/akPNG.ppc - the installer script will manage this for you on demand.

Make sure that you've the 68040/060 versions of the datatype installed, since the 68000/030 versions don't contain the necessary extra code (there are no powerUP boards with 68000/030s CPU available or planned as far as I know). Also, don't install the ELF module and/or ppc.library if you don't have a PPC board plugged in.

---

Raw loading speed up should be very impressive with this PPC module, although it of course can't increase rendering or dithering (remapping) speed of other system modules or the calling program.

HAM conversion or ordered dithering (for 24 bit images, i.e. if not in V43 mode) are NOT yet PPC optimized - get a graphics card !

Please note, that this optional ELF decoder only will become fully functional for registered users of this datatype, who have a keyfile installed.

If you don't have a keyfile installed, you have two choices:

1. remove the PPC module and make use of the plain 68k decoder
2. make use of the PPC module but get only every 3rd line of the image (the whole image will be loaded and decoded, but only every 3rd line will be passed to the caller)

Speed: to test the speed of the decoder, you should go online with AWeb and load a WWW page with several large PNG graphics. Then go offline again, and load the same page from the cache: this will show you the raw decoding speed, without any influence of download time or other tasks.

Best is, to do the speed tests in V40 mode when using the demo version, since in V43 mode, the demo restrictions themselves (= not exporting every line of the image) will have some (undetermined) influence on speed - those lines explicitly have to be \*cleared\*, which needs some time on a 24 bit image. Sorry - this was introduced after V44.2 with a bugfix.

NOTE: decoding will need about twice as much memory as with the 68k decoder, plus approximately another 145K for the loaded ELF module, 16K for stack and 16K for I/O buffers (you know, RISC is 'reduced instruction set' and not 'reduced memory usage' - but now you are able to actually make use of all that expensive RAM ;-)

Also, the progressbar is not available for PPC decoding (does not make much sense when e.g. WWW browsing, anyway).

#### Small PPC FAQ

-----

Q: Why is a 060/PPC combo faster than the 040/PPC combo ?

A: Perhaps because the 060 can process the I/O requests (aka OS calls) faster than the 040. Small differences may also be caused by using different hard drives - to minimize this, one could put the files into RAM: for example, but this wouldn't deliver real-life results. The following question is related, too.

Q: Can't PPC loaders be faster than this datatype one ?

A: Yes, they actually \*can\* be faster than the measured results may indicate. Problem is, that datatypes have to deal with bitmaps, which slows everything down. For example, in 24 bit mode DTM\_WRITEPIXELARRAY still has to be performed by the 68k, and in 8 bit mode, the same does apply to WritePixelLine8() - the latter one may include a c2p conversion on systems without

a graphics card. To avoid the latter, one for example could try the PPC native loaders for SuperView-Library instead.

Q: Why are there different speed-up factors for different images ?  
I've performed Jan Uerpmann's PicBench test from his site  
<<http://www.tu-bs.de/~y0002723/files/PicBench.lha>> and it seems to indicate this.

A: The "larger" the images, the more the PPC can help increasing decoding speed; however, file size, image size and compression ratio of the PNGs will influence the benchmark results, i.e. a small file with a high compression ratio may be more suitable for the PPC than a large file with only low compression (while keeping the image dimensions). Larger images, on the other hand may deliver better results than smaller images (keeping the compression factor constant). This benchmark does not check/proove this, we just tried "average" (accidental) images.

More datatypes ?

-----

On Aminet:util/dtype/ you can also find the akJFIF and akTIFF datatypes.

No V43 with AGA ?

-----

There's a V43 picture.datatype coming with the Picasso96 RTG package (on Aminet), which works with plain AGA, too.

Crashes ?

-----

The first reason for a crash often is stack size. Not enough stack size.

IPrefs/WBPatterns has this problem, and others as well.  
Checking this and/or using FastIPrefs (the replacement) is recommended.

For other programs, you may have to increase their stacksize in the program icon or for the CLI/Shell they are called from (e.g. with PPaint).

Using (Fast)IPrefs in PPC mode may not be a good idea at all, but for some people, the following did help in s:startup-sequence:

```
Wait 8 secs
C:FastIPrefs W M L A G
```

For the others, the trick from the Picasso96 FAQ should do the job: put the tool "CPUBlit" (an old patch available on Aminet) to your s:startup-sequence \*before\* the monitors are started. You must call it as follows:

```
CPUBlit -a -b
```

You may also wish to check out tools like FBlit, FastBlit, CpuBlit98 and related ones from Aminet:util/boot - some may work perfectly on your machines, others perhaps won't at all. But experimenting may be worth it.

No write support ?

-----

---

Sorry, there won't be write support (DTM\_WRITE method), since I think, that datatypes are mainly a system for data exchange and not to do the job of existing conversion utilities.

To explain it even further:

The datatype mechanism certainly is a system to HIDE implementation and data format details. If one does offer too much choices for destination file formats, this would - in my opinion - completely be against this concept. The ideal way of keeping the datatypes' concept cleanly OOP would be to internally handle everything in an amiga-unique IFF format - which BTW is quite essential for clipboard data exchange as well. Unfortunately IFF-ILBM isn't very suitable for color depths greater than 8 bit. Maybe IFF-RGFX could be a good choice, here.

Why are "interlaced" image files not displayed progressively ?

---

Because picture.datatype's API (upto V43) relies on complete bitmaps to be returned by a datatype of subclass "picture".

Unfortunately the datatype cannot:

- supply many small bitmaps, one for each line
- give control back to picture.datatype during reading a file
- write into an existing, given bitmap

(to just supply some possible considerations how to solve this problem), so there currently is no way of displaying images progressively.

When running in PPC mode, progressive display BTW would be a bad idea, anyway.

Odd screenmode selection

---

graphics.library's BestModeID function isn't so well designed.

Try Patching to a better one, e.g. with Aminet:util/sys/ModeP.lha

Transparency (general)

---

PNG supports transparency levels for each color out of a given image.

For colormapped images, this is managed via a "shadow" colormap, which supplies 0..255 ranged values for specific colors:

"0" means "fully transparent", while "255" means "not transparent at all".

Since the datatypes interface (upto V43) is not prepared for handling such cases, we simply search for the first transparent color, which matches a transparency level of "0", thus semi-transparent colors are ignored always (you can't reproduce these on a 256 color display, anyway). So, if you create your own WWW pages containing transparent PNG graphics: please make sure that there's only one transparent color being used, and that this one actually is fully transparent! The number of the transparent color is irrelevant - many people prefer color #0, though.

Transparency for true/high color images (more than 256 colors), i.e. via an alpha channel, is not supported at all (and perhaps never will be, for the V43 picture.datatype).

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. `PDTA_Screen` will be checked first, as well - but usually this won't work at all.

#### IBrowse troubles

-----

If you want to bypass the internal (68k) loaders of IBrowse and use the (PPC) datatypes instead, there may occur problems sometimes (not decoding and displaying all the graphics, but only some).

This seems to be caused by using the wrong priorities for internal and external decoders and data tranfers (and/or by MCP ;)

If you really want to use datatypes for decoding, you should set their priority to e.g. 10 and the others to 0.

(original report by Boris Bojic <bbogic@arco.met.fu-berlin.de>

#### Ramlib Crashes

-----

If you get "ramlib" gurus with this or any other program, then try installing Aminet:util/sys/StackAid.lha

#### 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...

And make sure, that you don't use `picdtpatch` (v39.2) from the Hypertext.datatype archive by Stefan Ruppert.

## 1.8 Making use of 680x0 CPUs and PPC accelerators

Basically, this program does run with a plain 68000 CPU.

However, if you do own an 68020/030+68881/882 FPU or 68040/060+FPU, or maybe a dual processor board with PPC, you may wish to make use of the extra horse power.

There are certain configuration options, special libraries and/or patches available, so you perhaps should investigate into that issue a little bit deeper - but carefully.

#### PPC Support

=====

1. With CyberStorm PPC cards, it may make sense to make use of the "SetFastAvec" and "Set60nsMode" (SetMemMode) tools,

which should speed up the system performance somewhat, i.e. by addressing your RAM with 60ns instead of 70ns access time. Newer versions allow to do these settings fromout the card's bootmenu. If you get random crashes, step back to 70ns.

2. Make sure, that you have a lot of RAM on the accelerator, so that the PPC isn't forced to make accesses to the slow motherboard RAM. If you get random crashes, make sure you followed the installation instructions, and did not configure SIMMs of different vendors for a 64 bit access bank.
3. This program does make use of "ppc.library". So: Make sure, that you a) don't have "powerpc.library" installed or b) have a version of "powerpc.library" installed, which does not conflict with "ppc.library" (V7 is said to work together with ppc.library). Don't install ppc.library without having a PPC board plugged in. Always make use of the newest 68040/68060.library plus ppc.library - as available under ftp.phase5.de or Aminet.

(There's BTW now support for powerpc.library V14 as well, so you can decide. Basically, it even does work to run the PPC-Library version under Frank Wille's ppc.library emulation for WOS [V0.6b or higher].)

4. Read the corresponding FAQ pages for more information on PPC support and configuration - especially note, that a keyfile is required for fully functional PPC support within this datatype.

#### 68020/030+68881/882 FPU and 68040/060+FPU Support

=====

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 FFP libraries don't support an FPU at all.

But there are certain patches available on Aminet, to speed up FPU support in general, add FPU support for the FFP libraries or in general allow more efficient use of the 040/060 CPUs, e.g. by avoiding unnecessary emulation of missing instructions through 68040/68060.library.

Make sure, that those patches don't conflict with certain versions of the 680x0 libraries or even are part of these already. If you've carefully read the docs you may wish to check out the following solutions:

1. Fix bugs within the math libraries

This one has nothing to do with the FFP libraries, but since there's also a bug in mathieeesingbas.library (which resides in ROM), you should install a patch for that:

- a) best solution is a newer SetPatch Version V43.x  
(available from ftp.amiga.de somewhere in "/pub/")
- b) if SetPatch V43 does not work with your OS version,  
you should try for example "SetMathPatch"  
(coming e.g. with GhostScript - see Aminet:gfx/show)

Those patches may conflict with some math library replacements - it seems to be logically, that a completely rewritten replacement library of course does not need to be patched any further. At least not for the same bugs...

## 2. Patching the math#? libraries for better (or introducing) FPU support:

- a) - FMath V40.6   Aminet:util/libs/FMath406.LHA  
      - FFPPatch    Aminet:util/boot/ffppatch.lha
- b) - HSMathLibs   Aminet:util/libs/HSMathLibs\_040.lha  
      Aminet:util/libs/HSMathLibs\_060.lha
- c)   various other patches from the "util" area of Aminet

With the 68040/68060.libraries of p5, according to their docs, further patches of the math libraries are not recommended - however may work nevertheless.

## 3. General 040/060 speedup

For automatic speedup on 68020+ systems, this datatype makes use of utility.library.

This one has nothing to do with the FPU, but if you do own a 060 and OS 3.0 you should perhaps consider to install "Mult64Patch", which claims to implement the 64 bit integer functions UMult64/SMult64 of utility.library V39+ (which have to be software emulated on the 060) two times faster than the patches done by 68060.library and four times faster than the trap emulation. A speed test program is included.

That program can be found under Aminet:util/boot/Mult64Patch.lha - however, it may already be obsolete for newer versions of your 68060.library. Do the speed check, then decide.

## 4. Better performance on 680x0 and PPC

Here, the following tools work quite fine on a 040/PPC board (taken in this order from s:startup-sequence):

```
C:FastExec >NIL: <NIL: NOEXEC FASTSSP FASTVBR FASTEXP FASTMEM FASTINT ↔
REBOOT
C:SetPatch QUIET
```



```
C:QuickRom >NIL: <NIL:
Run >NIL: <NIL: C:CpuBlit
```

```
FastExec V2.9      (Aminet)      -> various speedups
SetPatch V43.6b    (www.amiga.de) -> OS patches
QuickRom V36.08    (Aminet)      -> ROM to RAM
CpuBlit98          (Aminet)      -> let the CPU do blitting
```

This all runs fine in 60ns mode, together with SetFastAvec,  
PPCInstall and CyberGraphX V3.

## 1.9 correspondence

\*\* General PerSuaSiVe SoftWorX WWW Support Site is <http://wdo.de/ark/>  
 \*\* - actually redirected to <http://www.ar-kleinert.de>

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	
Until 30 Sep 99	As With 1 Oct 99
Andreas R. Kleinert	Andreas R. Kleinert
Sandstrasse 1	Am Kornberg 48
D-57072 Siegen	D-57076 Siegen
Germany, Europe	Germany, Europe
+49-271-22869	(to be announced)
(also FAX + AM)	
Weekdays after 18.00h.	
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@News.wwbnet.de](mailto:ARK@News.wwbnet.de), and keep  
 them smaller than 16 KB - otherwise ask before.  
 Please think twice before sending them - my postbox  
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\* Do not send binaries via Fido or Fido-Gates ! \*

- Fido    Andreas Kleinert 2:2457/350.18
- Usenet
  - >>>    info@ar-kleinert.de
  - Andreas\_Kleinert@gmx.de
  - ARK@News.wwbnet.de
- If nothing else works, try one of these public Fido-Usenet gateways:
- In Germany:
    - Andreas\_Kleinert@pl8.f350.n2457.z2.fido.sub.org
  - From USA or elsewhere:
    - Andreas\_Kleinert@pl8.f350.n2457.z2.fidonet.org

## 1.10 thanks

Thanks go to (in order of appearance ;-)

=====

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| - Anders Drejer       | - Olivier Pertin      | - Colin Keefe             |
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| - Paul Kieffer        | - Yves Liebercier     | - S. Lichtendahl          |
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| - Chris Dallimore     | - Paul Sadlik         | - Matthew Sawyer          |
| - Jeffrey Grzanich    | - John Hart           | - Ian Tyrell              |
| - Walt Challenger     | - Martin Sprenger     | - Pekka Sippola           |
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- |                   |                        |                     |
|-------------------|------------------------|---------------------|
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- ...the people from phase5, namely Ralph Schmidt and Claus Herrmann
- ...the picture datatype V43 programmers, namely Frank Mariak and Olaf Barthel
- ...the other programmers of datatypes, for information exchange and useful comments
- ...dozens of people I forgot to mention here !

## 1.11 prefs

akPNGPrefs

-----

akPNGPrefs is the Preferences Program for akPNG.datatype.

GUI has been designed with StormWizard 2.0, so this program needs "wizard.library" V37+ (you can find a copy on Aminet under "biz/haage/WizardLibrary.lha" or even newer versions under ftp.haage-partner.com).

Icon by Bert Bosma <lmb@wxs.nl> (based on NewIcons).

An alternative MUI prefs program replacement by Alvaro Thompson (originally) and Achim Stegemann (later) is now available as util/dtype/akMUIPrefs.lha - there also are various other replacements.

Task (process) specific settings also can be done - either using the preferences program (which allows to select the corresponding process from a list as long as it actually is running at the same time) or by hand, following the scheme below:

### OPTIONAL

----- 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.

-----

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) INTERLEAVED\_BM8
- 6) DISPLAYABLE\_BM8
- 7) PROGRESSBAR=(ON|OFF)
- 8) SPEEDUP
- 9) CUSTOM\_MODES
- 10) PPC=(ON|OFF)
- 11) AUTO=(ON|OFF)
- 12) PPCLIB\_EMU=(IGNORE|USE)
- 13) CACHEWOS=(ON|OFF)
- 14) LOADELF\_WOS=(ON|OFF)
- 15) NOASPECT
- 16) DEBUG

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
DISPLAYABLE_BM8=OFF
PROGRESSBAR=ON
AUTO=ON
PPCLIB_EMU=IGNORE
CACHE_WOS=ON
LOADELF_WOS=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

## 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  $2^{\text{depth}}$ ).

## 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 and maybe BMF\_DISPLAYABLE 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) DISPLAYABLE\_BM8

-----

ON: will output displayable bitmaps upto 256 colors

OFF: will output normal bitmaps (BMF\_CLEAR and maybe BMF\_INTERLEAVED) - you may turn displayable mode on for specific programs, which want to use datatype generated bitmaps directly as screen bitmap. If they are enabled to do this, this may save some memory (for another bitmap). This is recommended for systems without graphics card and only few chip memory.

## 7) PROGRESSBAR

-----

ON: pop up percentage display

OFF: do not pop up percentage display

## 8) SPEEDUP (hidden option)

-----

Activates some bitmap related optimizations, including a special hack for making image loading with AWeb somewhat faster.

---

## 9) CUSTOM\_MODES (hidden option)

-----  
When the keyword CUSTOM\_MODES is set,  
only viewmodes out of the standard set  
will be generated:

- LowRes ( 320x200/256)
- HighRes ( 640x200/256)
- SuperHighRes (1280x200/256)
- LowRes Lace ( 320x400/512)
- HighRes Lace ( 640x400/512)
- SuperHighRes Lace (1280x400/512)

When CUSTOM\_MODES=0x##### (e.g. CUSTOM\_MODES=0x00000000)  
is set, the specified hexadecimal viewmode ID will be used always  
- alternatively, you can specify the viewmode name as plain text,  
for example "CUSTOM\_MODES=PAL:HighRes". Note, that spelling is  
very critical here.

For HAM output, this is only true, if the mode ID actually is  
capable of HAM (this usually is indicated by OR'ing it with HAM\_KEY),  
otherwise a different ID will be computed.

## 11) PPC (hidden option)

-----  
ON: If .ppc or .wos modules are installed, they'll be utilized.  
OFF: When the option PPC=OFF is set, the PPC encoder module won't  
be used, even with a PPC available. Instead the datatype will  
fall back to 68k mode. Useful e.g. for speed comparisons.

This is a RUNTIME switch. AUTO and PPCLIB\_EMU will be processed always.

## 12) AUTO

-----  
ON: Try to find out, which PPC kernel is installed.  
OFF: Simply assume, that it's ppc.library

With AUTO=OFF it's not even tried to open powerpc.library.  
May cause trouble, if V14+ is installed and gets active sometime  
(unless we have have a PPCLib emulation running).

## 13) PPCLIB\_EMU

-----  
IGNORE: With AUTO=ON and WOS installed, make use of the WOS versions  
USE: With AUTO=ON and WOS installed, use the PPCLib emulation

Of course, this only is true for WarpOS' powerpc.library V14+

## 14) CACHE\_WOS

-----  
This option is explained in the FAQ.

## 15) LOADELF\_WOS

-----  
ON: This will make use of "C:LoadElfWOS" instead of the internal  
ELF loader code, to avoid some certain problems e.g. with  
the DOpus viewer or the DOpus/WB background pattern tools.  
Do not specify CACHE\_WOS at the same time (it would be a  
waste of memory).

OFF: The internal ELF loader code will be used, CACHE\_WOS may make sense. If you encounter problems with this option, try increasing the stack of the calling application first (e.g. increase MultiView's stack to 32768 in the icon).

#### 16) NOASPECT (hidden option)

---

If x/y aspect generation produces buggy results, e.g. with PictIcon, this option may be used to always force 1:1 to be returned.

#### 17) DEBUG (hidden option)

---

Not implemented yet. Will enable debugging output, i.e. info requesters.

## 1.12 history

Known Bugs: - some people reported problems with the installation scripts in the past. If you encounter any problems or bugs, please report these directly to the script author Robert C. Reiswig <akDatatype@vgr.com>

- please use at least V41.101 of wizard.library. You should find a copy coming with demo versions of various programs under ftp.haage-partner.com
- viewmode selection may not always be 'perfect'

Hint:

- if you use this datatype with a WWW browser, then create a separate partition (sized 30-70 MB) for temporary data storage and do assign VMEM: and your browser's cache directory to it. Also, make sure that it has a decent AddBuffers setting (128 or more). When partitioning (danger: data loss), it may make sense to increase the filesystem block size to a higher value, as well (1024). And make sure, you're using the latest FFS file system 43.x from www.amiga.de - note, that you may update the FFS without repartitioning, but you have to be very careful when doing this fromout HDToolBox.
- even better: use a faster file system (at least) for your cache partition, like the commercial PFS2 (formerly AFS, now by Schatztruhe - see <http://www.schatztruhe.de>) or the free SFS (see <http://www.xs4all.nl/~hjohn/SFS/> )

Keyfile problems:

People, who did not receive their keyfile within 2-4 weeks after sending their registration should also contact me. (During sommer, please note, that it not always does make sense to call after 2 weeks - some people tend to make holiday sometimes...)

---



## History

=====

- V44.43 (18.07.99): - my postal address will change. Updated docs!  
- progress bar's position and title text changed  
(-> Petr Voralek)
- V44.42 (11.07.99): - added new installer script by Rob Reiswig,  
which should fix the recent "040 gets installed  
with 060" and "devs:datatypes not properly  
installed" problems
- V44.40 (26.06.99): - Aminet release
- V44.39 (16.06.99): - added new installer script by Rob Reiswig
- V44.38 (05.06.99): - fixed "Work:" access
- V44.37 (04.06.99): - prefs: - adjusted PPC part of GUI following  
Georg Rottlaenders suggestions/work  
- there's an Enforcer hit left in akPNGPrefs  
(don't ask me why, it's not in my code -  
maybe try the MUI prefs or a different  
wiz-lib version instead)
- there again have been reports about some  
faked keyfiles generated by a thing called  
\*\*\*\*\* (I won't repeat the name for fame, here).

However, I don't care anymore about these (and  
especially not about any comments in broken english  
made in some related .readme files).

There'll always be faked keyfiles and generators for  
these - if people want me to stop development, they have  
to continue with that, otherwise they should register.  
Call it a democratic decision 8-)

Related note: to understand, how PPC and PPC-datatypes  
do work, one has to understand how PPC works and  
how the datatypes system in general does work  
(a good config with pic-dt V43 and actually owning a PPC  
card plus gfx card may help as well). However, it's  
not suprising that certain people aren't capable to  
prove that they a) actually understood it and b)  
can't do it better (in case I should have been wrong).

A software worth using is worth buying - otherwise  
simply delete it and "feel better".

- the recommended alternative for WarpOS (WOS) users  
is, to upgrade to WarpOS V4.0 and install the  
latest ppc.library emulation by Frank Wille  
(V0.6d or higher, V0.6 will not suffice), then  
run the PPC datatype in emulation mode (see prefs).

The latest ppc.library emulation for WOS can be found on  
Frank Wille's homepage under <http://home.owl.de/~frank/>

- if you need to create/optimized PNG (PiNG) graphics for WWW uses or other purposes, please have a look at our PNG-Box tool, which has been designed especially for this purpose (Aminet:gfx/conv/PNG-Box.lha)
  - credit card online registration via RegNet now is possible. Some special Offers have been set up for you, some of which are derived from the usual Discount list.  
Or go to <http://www.ar-kleinert.de> to the Amiga Software Area (RegNet page) and order with only one click! Please have a look!
  - please note our new WWW domain [www.ar-kleinert.de](http://www.ar-kleinert.de)
- V44.36 (30.05.99):
- the FAXX datatype now officially has been dropped from my side; if you're interested in future development, please contact GPSoft (they got all the sources)
  - switched back to LHA 1.38
  - Aminet release
- V44.35 (24.04.99):
- now using LHA 2.1 for generating the distribution archive (hopefully it'll get smaller, then ;)
  - added Rob's newest Installer (thanks again ;)
  - PPC settings now can be done fromout the preferences tool (no longer hidden); added several new options to allow fine-tuning for the used PPC kernel, i.e. it is no longer necessary to delete the .wos module if the PPCLib emulation for WOS is to be used
  - changed the whole docs accordingly (hey, do you even read these from time to time ?!)
- V44.32 (18.04.99):
- WOS: - recompiled using new compiler version and link libraries; let's see, what happens
- V44.31 (10.04.99):
- misc changes
- V44.30 (23.03.99):
- WOS: - completely rewrote, enhanced and bugfixed internal ELF loader (again)
  - reduced loader size to ~2K (LoadElfWos is ~8K in size)
  - and did a special 060 version (which actually differs from the 040 version now ;)
  - also better optimized
  - no longer a .lib, but a single .o file
- fixed small, longstanding (possible) bug in progressbar
- V44.28 (21.03.99):
- WOS: - fixed possible cache problem with LOADELF\_WOS=OFF; maybe this was the cause for unregular crashes
  - recompiled using new compiler and new link libs
- V44.27 (08.03.99):
- fixed several typos in the docs
  - added PFS2/AFS, SFS recommendations (for caching)
  - use of CMQ no longer recommended (Move16 problem)
-

- V44.26 (28.02.99): - "DEBUG" now is a reserved, hidden switch  
(non-functional yet)
- V44.25 (21.02.99): - added some tips and hints on performance optimization  
to the 680x0/PPC section (list of programs and patches  
that run fine, here)  
- added note about Frank Wille's ppc.library emulation  
for WOS  
- various changes to the docs
- V44.24 (12.02.99): - DANGER: LOADELF\_WOS option now is a switch,  
either specify LOADELF\_WOS=ON or  
LOADELF\_WOS=OFF - "on" is default  
(this is because so few WOS users  
seem to do a RTFM before or even  
after installation)  
- changed docs and FAQ accordingly
- V44.23 (10.02.99): - please upgrade at least to wizard.library 41.101
- V44.22 (29.01.99): - upgraded to libpng 1.0.3  
- added additional \$VER string to make everybody  
happy (hopefully)
- V44.21 (10.01.99): - WOS: used fixed EGCS/cwos link library  
(-> Peter Annuss)
- V44.20 (09.01.99): - WOS: the V44.17 fix actually was MISSING !  
- WOS: minor changes
- V44.19 (07.01.99): - fixed LoadElfWOS option
- V44.18 (06.01.99): - added the "LOADELF\_WOS" option to work around the  
Dopus bug (which is still there)  
(-> various)
- V44.17 (05.01.99): - hopefully fixed Dopus start-bug in akJFIF.wos  
(-> various)
- V44.15 (01.01.99): - new-year cleanup  
- forgot to bump version last time (still was 44.12)  
- added optional WOS (WarpOS) PPC support:  
it exactly works the same way as with akJFIF
- V44.14 (22.12.98): - fixed documentation at various places
- V44.12 (19.12.98): - fixed some typos in the docs and related text files  
- updated docs  
- added PPaint 'stack crash' note  
- prefs program now again compiled using SAS/C instead  
of StormC: reduced size from 41328 bytes to 22844  
- this also fixes possible stack problems with the prefs  
- added new installer by Robert C. Reiswig (taking  
care of any possible .wos and LoadElfWos files)  
- added new (hidden) DISPLAYABLE\_BM8 option, which  
is recommended for systems without graphic cards
-

and allows to: save some memory and display larger images (with certain programs, only)

- V44.6 (16.9.98):
- added modified Prefs GUI by Georg Rottlaender
  - the newest wizard.library version seems to be V41.101; you can find it in the archive with the AmigaWriter demo version under ftp.haage-partner.com; however, if the prefs still tend to crash, maybe you'd just need to adjust the stacksize to 32768 bytes...
  - PPC mode: fixed memory leak in "ordered dithering" mode, ← which could have taken place when memory was very low; did not happen during normal usage
- V44.5 (1.9.98):
- now at least requires ppc.library V45 (V46 recommended !)
  - 68k I/O speedup
  - general speed improvements (68k)
  - prefs program now allows loading of task-specific (or again default) settings files (via menu); saving already was possible
  - PPC: under OS 3.1 PNGs with upto 256 colors now will be moved faster to their destination bitmaps (registered version, only). Does not apply to dithered 24 bit.
  - removed history entries for versions below 44.1
- V44.4 (9.8.98):
- \*\*\* MAJOR RELEASE \*\*\*
- This version seems to be quite stable now.  
Updates will appear when necessary.
- checked using the PNG Suite test icons and found some bugs
  - 68k: ordered dithering of \_interlaced\_ true color images with alpha channel resulted in black images
  - long-standing bug: gray scaled images (in 8 or 16 bit) \_with\_ 8 or 16 bit alpha channel would not have been read correctly; some strange kind of colored true color image would have been exported. On the PPC side, even crashes (through damaged memory list) were possible. Perhaps the same problems could have happened with 8 bit colormapped files plus alpha channel, not sure.
  - in normal 8 bit mode, a temporary bitmap wasn't released. Caused a small memory loss. (-> Troels Walsteds Hansen)
  - fixed small problem in PPC startup code
  - stripped ELF module (~2000 bytes)
- V44.3 (29.7.98):
- semaphore locking now more restrictive; possible problem when under heavy parallel use of the
-

- PPC decoder ?
  - stackswap in LibInit now only when necessary and only to 8K (not 16K)
  - rewrote the docs section about 040/060 and math patch recommendations; don't patch your system worse !
  - addressed minor cacheflush problem (strlen+1)
  - rewrote major parts of the documentation; check it out!
  - PPC: fixed problem with partially trashed 24 bit bitmaps when in demo mode; assumed that the destination bitmap was empty (== black lines), which wasn't necessarily true. Now explicitly clearing those lines, which MIGHT slow down the PPC demo mode when compared to the registered PPC mode.
  - PPC: while fixing this, noticed, that the 32 bit (24 bit + alpha channel) mode never would have worked as expected. Nothing was written to the V43 bitmap. Additionally, there was another, more general problem with alpha channels in PPC mode - causing bad output in all modes. The same goes for \*interlaced\* alpha channel graphics (another bug). (yes, really - three bugs in one routine; 2 on the 68k side, 1 on the PPC side)
  - fixed "can't close shell window problem" (thanks to Michael Merkel for pointing out)
  - fixed problem with SAS/C's stdio initialization that could cause crashes when there was tried to do an Open("...", ...) - now all the three stdio handles are NIL: since we don't use these, anyway. This finally should fix the problems we sometimes ran into with DOpus and IPrefs/WBPattern. Also, they're now properly unlocked (which was a problem related to the reuse of our ELF module and caused those shell problems).  
(-> thanks to Michael Merkel, Javier Marcet and Ralph Ewers for beta testing, Olaf Barthel, Frank Mariak, Dr. Greg Perry and Jonathan Potter for useful comments and Steve Krueger and Jim Cooper for all their work on SAS/C for PPC as we have it now).
  - fixed 1032 byte memory leak, as introduced in one of the latest versions  
(-> Troels Walsted Hansen)
  - fixed problem in prefs file handling, that could occur under low memory conditions
  - PPC: the demo version wasn't actually displaying every third line, but... following a different scheme  
(-> Javier Marcet)
- V44.2 (15.7.98):
- upgraded to zlib 1.1.3
  - added info on new, permanent Shareware discount (bundling) offer
-

- removed commercial header in guide file
  - added info on FBlit, FastBlit, CpuBlit98 to FAQ (get your bitmaps into fast ram and/or utilize the CPU for blitting)
  - increased stacksize in prefs' icon from 4096 to 32768 bytes to avoid crashes from WB
  - added IBrowse info to FAQ
  - made some efforts to reduce stack usage within the datatypes' 68k code where possible; may help to avoid crashes sometimes
  - iffparse.library was opened although not needed
  - added temporarily 16K stackswap to init code, where it is safe (I will not do that for the main datatype dispatcher, it would most likely cause a bunch of new problems)
  - added StackCheck mechanism that will put up a requester and will allow you to make the choice to quit - giving a low memory error - before its too late. It's been tested with MultiView and DOpus5.
  - if you get "ramlib" gurus with this or any other program, then try installing the following patch:  
Aminet:util/sys/StackAid.lha
- V44.1 (27.6.98):
- upgraded to libpng 1.0.2
  - completely recompiled PPC part and 68k png parts
  - prefs program now allows to do task-specific settings directly
  - jumped to V44 since some people seem to prefer version inflation over clarification
  - you should upgrade to ppc.library V46 (ftp.phase5.de)

## 1.13 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://www.cdrom.com/pub/png/>

[3] PNG upgrade tools like gif2png  
-> Aminet:gfx/conv/gif2png-0.6.lha

[4] programs capable of PNG, like PPaint, SuperView,

or PNG-Box, etc.

## 1.14 PNG-Box - WWW tool for PNG writing

PNG-Box

- SHAREWARE -

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A PerSuaSiVe SoftWorX PRODUCT.

Program information

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Now you can easily switch to PNG !

PNG-Box loads graphics files via SuperView-Library and allows to convert these to PNG (PiNG) file format for WWW usage with several WWW-specific options to be set:

- progression on/off
- transparency on/off  
(and set a transparent color ranged in 0..maxcolors)
- compression 0..9

The GUI will show you compression efficiency (byte sizes) and display various other useful information.

It's style guide conformeous and based on wizard.library.

It's also possible to view the PNG compression source and destination files in a window on workbench. This way there's a preview possible (since PNG is non-lossy, it always should look similarly, though ;)

Includes PPC/WOS optimized saver module (registered version, only) and takes advantage of SuperView-Libraries' PPC/WOS (loader) modules as well.

See program archive for copyright and distribution information.

See Aminet:gfx/conv/PNG-Box.LHA for download.

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