PicCon

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PicCon

Written by

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PicCon is short for "Picture Converter". This is a utility made for programmers, which will convert IFF ILBMs (plus any pictureformat you've got support for in your datatypes library) to an appropriate image format. This is an essential stage mainly in the development of games, but is also useful in development of other software (like demos, applications, etc.). Not only whole pictures can be converted, but also parts of pictures can be cut out to be saved as e.g. sprites or small bitplanes.

Features include:

o Uses datatypes.library to read pictures (can load and process e.g. JPEGs and GIFs if you've got the datatypes) (3.0 only). If wanted, PicCon can also be run without the datatypes.library present, as custom IFF ILBM loading is included.

o ANIM support!

o Compatible with all screenmodes on OCS, ECS and AGA-chipsets.

o Display independent code and use of Commodores standard screenmoderequester (2.1+ only) secures that PicCon will run in any displaymode on a capable monitor.

o Correct handling of all screenmodes, including extra halfbrite (EHB) and Hold-And-Modify (both HAM6 and HAM8).

o Saving in numerous image formats, like ordinary bitplanes, chunkymode, sprites (even AGA-specific spriteformats), IFF ILBM, workbench icons plus more.

o Saving of palettes in many formats, both ECS-compatible (4-bits-per gun, 12 bits per entry) and AGA-compatible (8-bits-per-gun, 24 bits per entry), OCS/ECS copperlists, AGA copperlists, IFF, and more.

o Manipulation of cutted frame (autocropping and flipping).

o Choose to save data as binary, assembly, C, E or Pascal source for including directly into your own sourcecode. Or save as linkmodules for inclusion in the linking process (handy for larger projects).

o Automatic leftaligning of frames and blanking of trailing bits and bytes upon saveoperations (no need to keep your images on 8-pixel alignments).

o Gridsave for saving loads of blocks of images in one go (for e.g. maptiles, frames in a spriteanimation, ...).

o Special autoscan modus for fast processing of whole screens packed with graphical objects to be converted. It would even be possible to have all sprite- and animationframes your game containes in a single screen, and convert them all in one go (!).

o Some often used imageprocessing functions included (some of which are very handy for programmers, though not included in any bitmap drawing-packages).

o Extensive SNES support.

o Sega Megadrive support.

o plus more...

NOTE:

PicCon is shareware software. If you find it useful, please register to get the full version. Please refer to the How to Register section of this documentation.

The demoversion has got these 'nags':

1) No loading and saving of preferences - which means that PicCon will start up 'blank' each time you run it. With the full version, saving and loading of preferences will preserve filenames (with paths) for the different filerequesters and all minor and major settings done in the program for speedier and less frustrating operation.

2) No iconifying - in the full version, you might iconify to get the PicCon screen 'out of the way' while you're not using it, but still keep the program, the current image and all settings intact in memory. Then pop up PicCon again when you want to use it.

3) Some extra requesters here and there - just to remind you that you're not a registered user...

Please notice that you are not entitled to use the demoversion on a regular basis without registration. The demoversion is only for evaluation of the program. If you don't use it, delete it. If you use it, register.

Your name and a personal code will be inserted in the registered version of PicCon.

1.3 PicCon/SNES

SNES is an abbreviate for Super Nintendo Entertainment System, also known as the Super Famicom in the U.S. of A.

SNES support in an Amiga graphicsconverter is not such a stupid idea as you might think for several reasons:

1) Lots of people do SNES development partly or fully on the Amiga.

2) SNES emulation on the Emplant is promised.

3) Parts of the Amiga and SNES demoscenes (yes, there really is one!) 'overlap', by which I mean to say that many Amigacoders also program for the SNES.

The SNES support in PicCon was implemented by request from Daniel Hansson. Thanks for your help, mate!

1.4 PicCon/Sega Megadrive

The Sega Megadrive is also known as the Genesis in the U.S. of A.

Sega Megadrive support in an Amiga graphicsconverter is not such a stupid idea as you might think for several reasons:

1) Lots of people do Megadrive development partly or fully on the Amiga.

2) Megadrive emulation on the Emplant is promised.

3) Conversions are often done between Amiga and Megadrive software (the main CPU of the Megadrive is a MC68000).

1.5 PicCon/Emplant

Emplant is a plug-in card developed by Utilities Unlimited that should make it possible to emulate lots of different machines from the homecomputermarket on your Amiga. So far, only Mac emulation is done, but IBM-PC i486 emulation and other modules (C64, Apple][, SNES, ...) might follow soon.

1.6 PicCon/AHRM

AHRM is an abbreviation for the Amiga Hardware Reference Manual, which should be present in any good Amiga coder's personal library!

(The ISBN code for the second printing is 0-201-18157-6).

1.7 PicCon/Requirements

REQUIREMENTS

Any Amiga with Kickstart 2.04 (or greater).

Tested on:

o A500 - A4000

o MC680x0, 0 <= x <= 4

o Kickstarts 37 - 40

o 0.5 - 2.0MB CHIPRAM, 0 - 16MB FASTRAM

o All screenmodes on all monitortypes distributed with OS3.0 (except the A2024 monitortype, which I haven't been able to check up)

Also tested with Enforcer and Mungwall. As far as I can tell, PicCon is free from hits (please let me know if you find any).

If you find any bugs under your configuration, please contact me (address in the Disclaimer and Author Info section).

1.8 PicCon/Installation

INSTALLATION

Just drag the PicCon drawer to the place on your harddisk where you want to install PicCon.

If you don't have a harddisk, install these libraryfiles on your bootdisk; diskfont.library and asl.library. (reqtools.library is also recommended, as it is much more comfortable than asl.library). From the distribution, only the main executable is needed.

Also make sure that if you want to take advantage of the datatypes.library, you have to have datatypes.library installed in LIBS:, some picture datatypes installed in SYS:Classes/DataTypes and the corresponding datatypes descriptors in Sys:Devs/DataTypes. (Take a look at the WorkBench disks supplied with your Amiga to get this set up correctly).

1.9 PicCon/FilesInDistribution

FILES IN DISTRIBUTION

PicCon/PicCon - main program

PicCon/PicCon.info - workbench icon for program

PicCon/PicCon.guide - AmigaGuide Help/Documentation for PicCon

PicCon/PicCon.guide.info - workbench icon for docsfile

PicCon.info - drawer icon

PicCon/Extra/

PicCon/Sources/

PicCon/MagicWB/

In the PicCon/Extra/ drawer:

Example1 - example image file #1 (for the quick tutorials)

Example2 - example image file #2 (for the quick tutorials)

In the PicCon/Sources/ drawer:

Asm/

5planespic.s - asmsource for displaying a picture in 5 planes (PAL)

8planespic.s - asmsource for displaying a picture in 8 planes (PAL)

6planesHAMpic.s - asmsource for displaying a HAM6 picture (PAL)

8planesHAMpic.s - asmsource for displaying a HAM8 picture (PAL)

16pixSprite.s - asmsource for a moving 16 pixels wide sprite

64pixSprite.s - asmsource for 4 moving 64 pixels wide sprites

init.i - initialize and reset system routines

includes.i - system includes

sprite16.raw - a spriteimage to go with the 16pixSprite.s source

sprite64.raw - spriteimages for the 64pixSprite.s source

(Note about the sources: all sources have been compiled successfully with AsmOne, DevPac and PhxAss. The sources are only meant as a help for novice assembler coders on the Amiga. Be aware that all sources shut down the multitasking, and if you have a problem with this, don't use them. The two *.raw files only serve as examples to use in the spritesources (you have to make the other raw-files yourself (with PicCon), as they were too big to include in the archive)).

C/

imageexample - compiled executable of the examplesource

imageexample.c - C source to show off the struct image saveformat

In the PicCon/MagicWB/ drawer:

PicCon.info - a very nice icon to use for PicCon if you've installed MagicWB. Thanks to Niels Jørgensen for the sending me the icon!

1.10 PicCon/Usage

USAGE

PicCon can either be started from CLI by typing its name in a shell/cli-window, or by doubleclicking it's icon.

Upon CLI-startup, PicCon can be run in it's special Scan modus .

On startup you'll be presented with information on the version of the program and the license (or information on how to register if you are using the demoversion).

After clicking "Ok" you'll have the program waiting for input through the menubar or the keyboard. Click below for full explanation on each of the menuchoices:

Project Edit Settings Miscellaneous

..or here for some other information concerning the use of PicCon:

General info

I've also whipped up a few quick tutorials for some of the functions:

Grab frame

Autoscan

Remap pens

Trace pens

1.11 PicCon/Usage/Scan modus

If PicCon is started from the command line with exactly 3 parameters, it'll enter it's special scan modus. The effect of this is the same as if you (from inside PicCon) load a picture and then use Autoscan . (If PicCon is started with any other number of parameters than 3, it will start up in it's normal way).

The syntax for the 3 parameters is like this:

PicCon [picturefile] [savefile] [boxpen#]

PicCon will then start, load the picturefile, scan the picture and save all the frames boxed in the boxpen, and join them to the savefile. The settings that decide the imageformat and the saveformat will be taken from the S:PicCon.prefs file (as the number of different possibilities you have with the various imageformats is getting pretty high, this was the best way of doing this that I could think of).

This option should lead to considerable savings of time spent mucking about in graphics converters during big projects (like games), as this option makes it easy (with a bit of thought) to save all the graphical images your project contains with a single command in the CLI!

Now, how is this possible? Easy, just use this approach:

1. Make boxes in a specified pen on the picture which your graphician should draw the images (used in the project) inside. Keep only images of the same type on the same pictures (do not mix f.ex. spriteimages and interleaved blitterdata).

2. Make a drawer on your disk (f.ex. MyDisk:ScriptFiles), into which you put the preferencesfile for each imagetype you're using in your projects.

3. Make a scriptfile that in turn copies the prefs-files to S: and runs PicCon.

Here's a quick example just to make things completely clear:

Let's say I'm making a game. In this game I use a whole bunch of images in spriteformat, 16 pixels wide attached and with no CTRL words, (for animated parts of a mothership, or something...) and I need a lot of images in interleaved format, all with an extra blitterword attached to the left of the frames (for the rest of the moving objects on the screens (BOBs)). All sprites have to use the same palette, and all BOBs also use the same palette. Before I start this project, I make two huge screens in DPaint with loads of boxes (in the same color), maybe with some descriptive text in it, to show my graphician what I need and how I

want the graphics. After the graphician now has drawn some (or all) of the frames I need, I enter PicCon, set the imageformat to "Sprite 16, Attached on, CTRL words off" and set the saveformat to "Binary". All the images are of the same size, the .offsets of the individual frames are not interesting, so I also turn off Save Autoscan offsets in the Miscellaneous menuoption. I then save the preferences file (with Save prefs). I make a directory on my harddisk (MyDisk:ScriptFiles) and copy the S:PicCon.prefs file to this drawer as "Prefs1". I now set the imageformat to "Interleaved, Blitterwords left" and save the prefs again. I copy the S:Piccon.prefs file to MyDisk:ScriptFiles/Prefs2. Then I make a script that looks like this (assume the boxes have been drawn with pen #15):

copy S:PicCon.prefs MyDisk:ScriptFiles/TempPrefs

copy MyDisk:ScriptFiles/Prefs1 S:PicCon.prefs

PicCon MyDisk:IFFs/SpriteFrames MyDisk:RAWs/SpriteFrames 15

copy MyDisk:ScriptFiles/Prefs2 S:PicCon.prefs

PicCon MyDisk:IFFs/BlitFrames MyDisk:RAWs/BlitFrames 15

copy MyDisk:ScriptFiles/TempPrefs S:PicCon.prefs

delete MyDisk:ScriptFiles/TempPrefs

Then just set the 'script'-bit in the scriptfile's modebits, and each time your graphician has changed some of the graphics, and you want to try out how it looks in your game, just enter the name of the scriptfile in the CLI, and seconds after you've got the files containing the raw, ready-to-use images in your 'MyDisk:RAWs' drawer. Not bad, eh? ;)

BTW, to avoid having requesters pop up to inform you about what you saved, etc, just remove the requesters (in the Miscellaneous settingswindow) before you save the preferencesfiles. If you do this, no user interaction will be necessary at all (unless something goes wrong).

If anything in this explanation seemed unclear, please check out the documentation on the Autoscan function (if you're still stuck, try playing around a bit, look at the size of the savefiles, etc).

1.12 PicCon/Usage/Tutorials

Quick tutorial to show the use of the AutoScan function:

1. Load the file "Example2".

2. Select Autoscan in the Edit menu.

3. Choose the filename for the savefile.

4. Pick the correct boxpen from the palette (which is the last-but-one entry (pens range from 0 - 15; pen #14) in this case).

5. The 5 frames in the boxes will now be saved to the file you specified, and the offsets into the file for the individual frames will be saved to the file "[filename].offset". The frames will be saved in the format you've specified in Imageformat .

This way, it's possible to save all the frames in e.g. a game in one go (!). This should lead to considerable savings of valuable time for most programmers.

1.13 PicCon/Usage/Tutorials

Quick tutorial to show the use of the Grab function:

1. Load the file "Example2".

2. Hit 'g' or select Grab frame .

3. Pick the correct boxpen from the palette (which is the last-but-one entry (pen #14)).

4. Click somewhere inside one of the boxes. The inner frame will now be selected, just as if you'd framed it manually.

5. Do your stuff here (like saving, flipping, cropping etc).

6. Repeat the process by again hitting 'g'. Notice that you'll not be requested for the boxpen any more, as it's assumed it's the same as the first time you 'grabbed' a frame. To change the pen by which you wish to grab boxed frames, choose Set new grabpen .

1.14 PicCon/Usage/Tutorials

Quick tutorial to show the use of the Remap function:

1. Load the file "Example1".

2. Notice that the graphician here did two mistakes;

a) he filled the background with pen #11 instead of pen #0 (which should always be used for the background if you're doing graphics for e.g. games)

b) some of the (dark) pixels inside the bee-image is drawn with pen #0, which is not good, as any background graphics will show through it if it's moved and animated over other graphics (as it would be in a game)

Now, how should this be solved? Using DPaint, you'd have to either redraw parts of the image by hand (ugh!), or you'd make a stencil (which sounds easy, but in most cases it's very cumbersome). Instead you should use this function in PicCon.

3. Hit 's' to get the Set frame window. Now change the x2-value to 71, and y2 to 54. The brush has now been framed.

4. Select Remap pens in frame from the Miscellaneous menu. Pick pen #0, hit "Swap", hit pen #11, hit "Done".

5. To get the colorvalues correct, now choose Modify palette from the Project menu. Pick pen #0, hit "Swap", hit pen #11, hit "Ok".

Voila!

6. After this, you might want to select Reselect systempens to get menus and requesters that would be nicer to look at.

1.15 PicCon/Usage/Tutorials

Quick tutorial to show the use of the Compress pens function:

1. Load the file "Example1".

2. Hit 'i' to bring up the Info-box. Notice that the picture uses 5 bitplanes (32 colors).

3. Choose Trace unused pens from the Miscellaneous menu.

4. You'll be prompted with a requester telling you that 20 colors are unused, and if you want the palette to be compressed. Select 'Yes' to shift all used pens to the lowest pennumbers.

5. You'll now be prompted with a new requester, asking you if you want to remove the extra bitplane. Answer 'Yes' again.

6. The picture is now reduced to 4 bitplanes (hit 'i' to conform this), and the unused pens is the 4 equal colorvalued pens at the back (as you can see by choosing Modify palette from the Project menu).

1.16 PicCon/Usage/General info

Here are some general hints about using PicCon:

o You can modify the dimensions of the current frame by using the cursorkeys. Cursorkeys only to expand frame, shift + cursorkeys to reduce size of frame.

o Press left or right shift to lock x- or y-position when framing pictures (like DPaint).

o You don't have to select Cut frame to start framing a picture, just hold down left mousebutton when a picture is loaded and start framing.

o The option to swap the picturecolors with the WB colors has been removed as this option should in most cases be superfluous in version 2 (and later) of PicCon, as the program is now coded to make controlled use of the systempens. Only the most extremly strange palettes (like all monocolored entries) should cause the menus and requesters to be rendered unreadable. Note that not all systempens can be controlled under OS2.0, and therefore PicCon will switch in 4 standard paletteentries when you use menus in PicCon on a 2.0 Amiga.

o As you can see, the most used functions in the program have hotkeys. You can not only activate them by holding the Right Amiga key and pressing the appropriate hotkey, but also by pressing the hotkey alone. This way it's possible to operate PicCon by keeping one hand on the keys, and one hand on the mouse (like e.g. DeLuxePaint). (Oh, BTW, try to find the "hidden mode"...)

o The cutted box' dimensions, the current imageformat and the current paletteformat will usually be displayed in the screen titlebar. The image- and paletteformats are shortened (so I could be sure that it always fits in the smallest screens). The shortversions shouldn't be so hard to figure out, e.g. Imageformat set to packed chunky and Save data as set to assemblersource would insert this on the titlebar: CHNK/PCK/ASM, and a spritesave with attachment and CTRLwords saved as a linkobject: SPR32/AC/LNK.

o The RAW files which are saved from PicCon have some information regarding their format and dimensions set in the file's Comment-field. Use the DOS command 'list [filename]' to see what I mean. This format is pretty easy to understand too: first there's a 4 letter abbreviate of the format (e.g. BPLS for bitplanes), then there's Width x Height x Depth, and finally there's a longword that describes the screenmode ID used in PicCon upon saving. This feature can be turned off in the Miscellaneous settings window.

1.17 PicCon/Disclaimer and Author Info

PicCon Information

The registered version is copyrighted, and is a personal license only. The demoversion is freely distributable as long as all of the files are included in their original form without additions, deletions or modifications of any kind, and only a nominal fee can be charged for the distribution. This software is provided "AS IS" without warranty of any kind, either expressed or implied. By using PicCon, you agree to accept the entire risk as to the quality and performance of the program.

Please send your comments, wishes and bug reports for PicCon to:

Morten Eriksen

Lauritz Jenssens gt. 10

7045 Trondheim

NORWAY

Or by email:

mortene@idt.unit.no

Please remember to state the version number you are using, in all correspondance.

1.18 PicCon/How To Register

How To Register

To register, send me an errorfree double-density disk and USD $15 (or GBP £10, FFR 75, DM 25, NKR 100, SKR 110, DKR 100, or an equal amount in any currency). Cash only, please. This will earn you the latest full version plus any number of free upgrades.

If you've got the possibility of receiving the package through email, send only money (no disk), and let me know how to contact you.

If you're a registered user and want to upgrade; send money to cover for a disk, packing and postage (one 2DD disk is approx. $1 USD, packing approx. $1 USD and postage is approx. $1.5 inside Europe and approx. $2 USD outside, which should sum up to ~$3.5 - $4 USD). This is not necessary if you've got an email adress where you can receive the upgrade, as they will be emailed to you free of charge upon request.

Notice that the demoversion is only an evaluation version. If you use it regularly, you should register.

Mail to:

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Lauritz Jenssens gt. 10

7045 Trondheim

NORWAY

Email:

mortene@idt.unit.no

Also contact me for questions, ideas for future releases, bugreports, wanted new formats (no matter how weird! Anyone want to have 3DO support? C64 sprites? Sure! Just inform me on the format specifications/limits), or anything else. Most of the new features and other program improvements from version 1 to 2 were suggestions and demands from the users.

Please support Amiga shareware, don't spread the registered version, nor use a pirated version. Increased support means better and more software for the Amiga range of computers.

1.19 PicCon/Project

Menuchoices on the "Project"-menu:

Open picture

Fit picture

Open ANIM5

Load image

Load palette

Save image

Save palette

Save grid

Save ANIM

Save data as

Change screenmode

Modify palette

Load prefs

Save prefs

Info

About PicCon

Iconify

Quit

1.20 PicCon/Project/Open picture

Choose the picturefile to load. PicCon will load the file if it either is an IFF ILBM or a picture in any picture format which you have support for in your datatypes library. The IFF ILBM datatype specification is delivered as standard with the distribution of WorkBench3.0, but there's many more in the Public Domain and as shareware (including JPEG, GIF, PCX and BMP).

After the file has been loaded and depacked (this might take some time, especially with JPEG-pictures), you'll be presented with a requester displaying some information on the picture. Click "Ok", and the picture will now be displayed on your screen (the "Ok"/"Cancel" requester can be turned off in the Miscellaneous settings window if it annoys you). From here on you can start cutting out and saving pieces of the picture in many different image formats, save this picture's palette, etc.

1.21 PicCon/Project/Fit picture

This function will load a picture just like the Open picture function, but instead of using the depth and the palette which it was saved with, "Fit picture" will scale the picture to the same depth as you had in PicCon after the last picture you loaded and also remap the colors to the old palette.

Now - what is the point with this? Consider how the latest adventure games are done: all graphics are handdrawn and then scanned. Using a function such as this one, you can have all the scanned graphics conform to the same palette - avoiding the need to make special code or to make assumptions about how the spritepalette in the game should avoid to clash with the backgroundpalette. Another use could be when you want to make icons of pictures that don't use the workbenchpalette or have the wrong depth. Then first load an icon (to get the correct depth and palette) with Load image , then use "Fit picture" to load your icondesign. Now cut and save.

I'm sure you're going to *love* this function as soon as you understand what it does... :)

1.22 PicCon/Project/Open ANIM

Load an IFF ANIM with op5 compression (default from DPaint). Select frame with '+' and '-' keys, and treat the frames as ordinary bitmaps (cut, save, etc etc).

If you want to save all frames in one go - use the Save ANIM function.

1.23 PicCon/Project/Load image

This function will load RAW data and display it as if it were loaded as an ordinary picture. Useful for loading old RAW files (for which you've deleted the IFF ILBM-file), among other things.

When selecting this function, PicCon assumes that you want to load a RAW file in the same format as you have specified in the Imageformat settings and with the same dimensions as specified in the @{ " Image load " Link ImageLoad} settings. When the frame has been loaded, you're free to treat it as any file loaded with Open picture (cut frames, save images etc).

With this function, you can even load the images contained in workbench icons and Amiga fontsets (most Imageformats are supported, except SNES and Megadrive RAW charactersets and the truecolor chunkymodes).

Note that this option ignores the Save data as setting, as only binaries can be loaded.

See also Save image .

1.24 PicCon/Project/Load palette

This function loads and inserts a palette into the picture currently displayed. The paletteformat is assumed to be the same as the one you've specified in the Paletteformat settings window.

Note that this option ignores the Save data as setting, as only binaries can be loaded.

See also Save palette .

1.25 PicCon/Project/Save image

Save the picture information contained in the frame in your chosen image format. If no frame is cut, this option will save the whole picture in your specified format. See also: Imageformat and Save data as . The dimensions of the selected frame is normally displayed in the menubar.

1.26 PicCon/Project/Save palette

Save this picture's palette in your specified format. See also: Paletteformat and Save data as .

1.27 PicCon/Project/Save grid

Save a bunch of frames ordered in a grid. Very useful for saving maptiles, groups of spriteanimationframes etc. This function will save the tiles you've decided to save (with the Grid settings) exactly in the same way as if you've saved all tiles by hand, and then joined together the files.

See also: Grid settings and Save data as .

1.28 PicCon/Project/Save ANIM

Saves all the frames in a loaded animation, starting with the one displayed and ending with the one that is previous to the one you're currently showing.

When you specify the filenames to save the frames to, be sure to include some '%'-signs where you want the numbering to occur. E.g. this filename, "animframes%%%.raw", would lead to these files:

'animframes000.raw'

'animframes001.raw'

'animframes002.raw'

.

.

1.29 PicCon/Project/Save data as...

Choose if the saved data should be output as RAW binary, assemblysource, C source, E source, Pascal source or as a linkable objectmodule.

Data output as assembly sourcecode will look like this:

SECTION mydata,DATA

dc.b $45,$fe,$12,$56,$12,$56,$12,$56,$45,$fe

dc.b $14,$2e,$32,$52,$1f,$fe,$ee,$16,$23,$23

.

.

.

dc.b $a2,$ba,$11,$01

C sourcecode will be saved in this format:

UBYTE myData[] =

{

0x45,0xfe,0x12,0x56,0x12,0x56,0x12,0x56,0x45,0xfe,

0x14,0x2e,0x32,0x52,0x1f,0xfe,0xee,0x16,0x23,0x23,

.

.

.

0xa2,0xba,0x11,0x01

};

...while Pascal sourcecode will be saved in this format:

Const

myData : Array[$0..$[# of entries - 1]] of Byte =

(

$45,$fe,$12,$56,$12,$56,$12,$56,$45,$fe,

$14,$2e,$32,$52,$1f,$fe,$ee,$16,$23,$23,

.

.

.

$a2,$ba,$11,$01

);

...and E source:

myData:

CHAR $45,$fe,$12,$56,$12,$56,$12,$56,$45,$fe,

CHAR $14,$2e,$32,$52,$1f,$fe,$ee,$16,$23,$23,

.

.

.

CHAR $a2,$ba,$11,$01

These examples show how a sourcecode will be saved in byte-format, but PicCon recognizes if word- or longwordformat would be more appropriate. E.g.: 16 pixels wide sprites will be saved with two words on each line, while 64 pixels wide sprites will be saved with 4 longwords on each line.

NOTE:

Often you want the saved data to reside in CHIP RAM. To obtain this, you'll have to specify for your compiler to place it in a chipdata section. In assembly you'll do this by appending either ',CHIP' or '_C' to the 'DATA' keyword, e.g.:

SECTION mydata,DATA_C

All assemblycompilers may not be completely compatibel with this use of the CHIPMEM option, check your manual.

In SAS/C, you'll insert the keyword 'chip' between the 'UBYTE' keyword and the name of your datasection (e.g. myData):

UBYTE chip myData[] =

{

.

.

.

};

When saving as a linkmodule, you'll be asked to specify the external definition (which is the name of the pointer that points to the beginning of the data. This pointer can later be referenced in your sourcecode with "xref [name]" (assembler) or e.g. "extern void *[name]" (C-source)). You must also specify the type of memory you want the module to be loaded to.

1.30 PicCon/Project/Change screenmode

Sometimes when you load a picture it will be loaded in a screenmode which is not very convenient for cutting out pieces of the picture (pixelperfect framing in SuperHires is not easy...). Then use this menuchoice to change the screenmode. All screenmodes contained in your Monitor-drawer (in DEVS:Monitors/) will be listed out for you to choose from.

The screenmode requester wasn't available in the Amiga's operating system until version 2.1, so this option will be ghosted if you're running on 2.04 or 2.05.

1.31 PicCon/Project/Modify palette

A standard paletterequester has now been included in PicCon for editing the paletteentries on the fly. If you've ever used a paletterequester before, no explanations should be needed on this option. ;)

1.32 PicCon/Project/Load prefs

Load and set the preferences in the S:PicCon.prefs file. This is also automatically done upon starting PicCon. See Save prefs too.

1.33 PicCon/Project/Save prefs

Save settings to S:PicCon.prefs. This file will be automatically loaded upon startup, but can also be done manually by choosing Load prefs from the menu.

Settings included in the preferences file are: savetype (binary/ assemblysource/C source/linkmodule), image format, palette format, last used directory and filenames on loading/saving, plus lots of other settings and some internal data.

This option is handy if you grow tired if reselecting the same directory/ filename/menuoptions every time you load PicCon.

1.34 PicCon/Project/Info

Displays information about the picture and the framed box.

1.35 PicCon/Project/About

Displays information about the program, the author and the license.

1.36 PicCon/Project/Iconify

Frees up the memory taken by the screen and the window that PicCon uses. Select the iconify-bar that pops up on the Workbench and click the right mouse button to reenter the program.

1.37 PicCon/Project/Quit

Exits program.

1.38 PicCon/Edit

Menuchoices on the "Edit"-menu:

Cut frame

Grab frame

Box frame

Set frame

Free frame

Autocrop

Autoscan

Flip X

Flip Y

1.39 PicCon/Edit/Cut frame

After selection of this menuitem, your mousepointer will be followed by a cross. Upon pressing the left mousebutton, you now have the possibility of selecting an appropriate piece of your picture for saving in RAW format. Just keep the left mousebutton pressed while you drag the mousepointer so that you boxes in the piece you want to save. See also Grab frame , Box frame and Set frame .

Press left or right shift key to lock to a specific x- or y-coordinate.

Notice that your mousepointer will contain coordinates which tell you the current position in your picture, and when framing, the current size of your framebox. Upon 8-pixels boundaries, the coordinates in the mousepointer will change color to indicate this. Notice also that you don't need to put your frames on 8-pixel offsets and bytemultiple boundaries to get a correct saved image. PicCon will automatically adjust, left-align and blank any trailing bits and bytes on the boxed frames upon any saveoperations.

If your picture is 'open' (clearly seperated items on the screen) you can use the Autocrop option after selection to avoid having to do pixelperfect boxing of your frame.

If you misplace the selection, you might want to use the Set frame option to correct some of the coordinates.

1.40 PicCon/Edit/Grab frame

If you keep the graphical objects you want to cut out in boxes (f.ex. to guide your graphician, so he doesn't draw too big objects), then you can use this option to frame the images. Just select the pen by which the box is drawn, and click somewhere inside the box.

Notice that the box have to be complete, "holes" in the boxwalls will make the box unusable.

If you've got many frames stored in this "boxed" format, you might consider using the Autoscan function, which will save all your boxes in one go.

The second time you use this option, you will not be requested for the boxpen, as it's assumed that it is the same as the first time you use this function. Change the selected boxpen with the Set new grabpen setting. Please note that there is no restrictions on the boxpen concerning usage in your frames (the algorithm will only react on complete boxes).

See also Cut frame , Box frame and Set frame plus the quick tutorial: Grab frame .

1.41 PicCon/Edit/Box frame

This function let you cut out your frame with a fixed sized box. The size of the box is set from the current frame, or manually in case there is no cutted frame.

This is handy if you want to cut several pieces with the same size out of your picture. See also Cut frame , Grab frame and Set frame .

1.42 PicCon/Edit/Set frame

Instead of selecting a frame by dragging out the framebox, you can use this function to manually input the coordinates of the corners of the framebox. See also Cut frame , Grab frame and Box frame .

This function is also handy if you miss slightly when you use the mouse to select the framebox; just pop up the coordinates inputbox and modify the coordinates.

1.43 PicCon/Edit/Free frame

Frees the selected framebounds (by setting the max dimensions).

1.44 PicCon/Edit/Autocrop

After framing a piece of the picture, you might want to use this option to make the framing 'perfect' (no extra space included). This function excludes the need to do pixelperfect framing.

1.45 PicCon/Edit/Autoscan

If you're working on large projects, it's very timeconsuming to manually cut and save the individual frames. With a bit of planning and the help of this option, you can greatly reduce the time spent in PicCon. First you have to keep all the graphical objects in boxes, as you would with the Grab frame function (and all boxes have to be in the same color). Second, select your wanted imageformat (e.g. Bitplanes, Sprites or whatever). Now use this option to get PicCon to automatically scan and save all boxed frames in one go. The frames will be saved to a single file, while the offsets to the different frames in the file will be saved to another file with the same name, but with ".offset" appended to the filename.

The frames will be saved top-to-bottom and left-to-right, which means that frames with lower topmost y coordinates will be appended first to your savefile, while frames with identic topmost y coordinates will be saved according to leftmost x coordinates (lowest leftmost x coordinate -> saved first).

Note that it is the inner box that will be saved (the borders are not included). So to save e.g. a 64x64 frame, you'd have to make a 66x66 pixels wide box (including the borders). There is no restrictions on the use of the boxpen otherwise in your picture, other than that all "insides" of boxes made with that particular pen will be saved to the file (single pixels drawn with the boxpen in your frames will be discovered and not reacted on in the autoscan-algorithm, so your graphician is free to use all the available pens in his masterpieces...).

Note also that this function will work exactly as if you'd cutted and saved all the frames individually, and then joined the files afterwards.

The .offset-file will consist of ASCII-text, in this format:

frame_000 EQU $00000000

frame_001 EQU $00004000

frame_002 EQU $00007800

.

.

frame_xxx EQU $yyyyyyyy

(Labels on the left side, offsets on the right side. This format should be compatible with most assemblers).

See also the quick tutorial: Autoscan .

1.46 PicCon/Edit/Flip

Will flip your selected frame in the chosen direction (if no frame is cutted, the whole picture will be flipped).

This option will be useful if you don't want to have flip-routines in your code, but rather include the flipped frames as binary data.

1.47 PicCon/Settings

Imageformat

Paletteformat

Grid settings

Miscellaneous

Image load

Set new grabpen

1.48 PicCon/Settings/Imageformat

The settings in this window is for selecting the way the boxed frame will be saved when choosing Save image in the Project menu.

Settings in the "Imageformat"-window:

Bitplanes

Chunky

Sprites

WB icon

Fontset

IFF ILBM

SNES modes

Megadrive

1.49 PicCon/Settings/Imageformat/Bitplanes

Set RAW save to ordinary bitplaneformat:

<- framewidth ->

+--------------+

| | ^

| | |

| Bitplane 0 | frameheight

| | |

| | |

+--------------+ v

| | ^

| | |

| Bitplane 1 | frameheight

| | |

| | |

+--------------+ v

| | ^

| | |

| Bitplane 2 | frameheight

| | |

| | |

+--------------+ v

|

|

.

.

etc

About HAM8 pictures: the two controlplanes in HAM8 pictures are supposed to be at the front (bitplanepointers in $dff0e0 and $dff0e4), but when setting up HAM8 screens through OS functions, they are inserted at the back of the eight planes. PicCon will save RAW HAM8 images with the controlplanes at the front.

Blitterwords: If you set this format to any other than "None", an extra column of words (16 pixels, 2 bytes) will be saved to either the left or the right (or both) of the raw bitplaneframe. This is necessary to be able to use the blitterchip's shiftmodus.

Alignment: Align frame to either whole bytes (8 pixels), words (16 pixels), longwords (32 pixels) or quadwords (64 pixels) (some of the new AGA modes requires bitplane data to be on 64 pixels boundaries). As an example, consider a frame that is 65 pixels wide. This frame will be saved either 72, 80, 96 or 128 pixels wide - depending on your chosen alignment.

Interleaved: Useful for blittergraphics and fast displays. Bitplanes will now be saved like this:

+--------------+--------------+

| | |

| | |

| | |

| | |

| Bitplane 0 | Bitplane 1 |-- . . etc

| | |

| | |

| | |

| | |

+--------------+--------------+

(Check your copy of the AHRM).

struct Image: The frame will be saved as ordinary bitplanes, but an image structure will be appended. Image structs are used in some OS functions. Image structs can not be saved as binaries or linkmodules - only as source.

Mask: If this option is selected upon saving, a mask of the current frame will be created and saved. The mask is created by OR'ing all the bitplaneframes together, effectively making a 'shadow' of the object within the frame. Such frames are necessary to use when you want to animate or move blitter objects on top of some backgroundgraphics. Otherwise some of the background bitplanes will "crash" with your object's bitplanes. Just set up the blitter (or use the CPU) to perform this logic function on all common background- and objectplanes:

bckgnd mask result

0 0 0

0 1 0

1 0 1

1 1 0

(result = mask & ~bckgnd)

This is referred to as the cookie-cut method in the AHRM .

If the "Interleaved" option is set, the selected frame will be saved as a blittermask in this format:

+----------+----------+ +----------+

| | | | |

| | | | |

| | | | |

| | | | |

| Mask | Mask |..... | Mask |

| plane0 | plane1 | | planeN |

| | | | |

| | | | |

| | | | |

+----------+----------+ +----------+

The mask will be saved as many times as there's bitplanes in the picture (N).

This format makes it possible to mask out unwanted bits in all bitplanes with only one blitteroperation (if you've made your screen interleaved).

Invert mask: If you switch on the "Invert Mask" option, all zeroes in your frames will be turned to 1's, and vice versa. This is for making the above equation a bit easier/faster for CPU operations (result = mask & bckgnd).

1.50 PicCon/Settings/Imageformat/Chunky

Chunkymode is an often used IBM-PC format, but will also be used in the Amigascene with the introduction of the Akikochip in the CD32-console (and besides; the IBM-PC Emplant emulation is supposed to be out soon).

Ordinary: In ordinary chunkymode, 1 byte is saved for each pixel in the picture. E.g.: If you've got 5 bitplanes, with bits set in planes 0 and 3, and unset in planes 1, 2 and 4, the pixel will have this value:

% 0 0 0 0 1 0 0 1 = $09 = dec 9

bit# 7 6 5 4 3 2 1 0 (bits in unused bitplanes will be unset)

Packed: If you do set the "Packed chunky"-option, the pixels from each byte will be leftshifted to remove any superfluous bits (e.g. in the above example we'll get the value: %01001xyz, where xyz will be shifted in from the next byte in the framedata).

ModeX: Save the picture in byte-per-pixel IBM PC-compatibles ModeX (the picture will be saved in 'byteplanes' instead of a single hunk).

12 bit truecolor: Instead of saving the pixels as paletteoffsets (as is usually done), save the true colorvalues of each pixel. E.g. will a pixel that is completly red be saved as $0f00, or one that is medium gray like this $0888. This mode is useful for direct copper screens and 12-bit (4096 colors) Wolfenstein/Doom clones. Each pixel will be saved as 1 word. Note that EHB and HAM pictures will be correctly converted to truecolor before saving.

24 bit truecolor: As "12 bit truecolor", but with 8-bits-per-gun instead of 4 - giving a total of 16.777.216 different colors. Each pixel will be saved as 3 bytes (R + G + B).

As longwords: Choose to save the truecolor pixels with 1 longword each (for faster access).

Transpose matrix: Transpose the pixelmatrix like this before saving:

original matrix: 123

456

789

transposed matrix:

147

258

369

Rotate matrix: Rotate the matrix the given angle before saving:

original matrix:

0123

4567

90°:

37

26

15

04

180°:

7654

3210

270°:

40

51

62

73

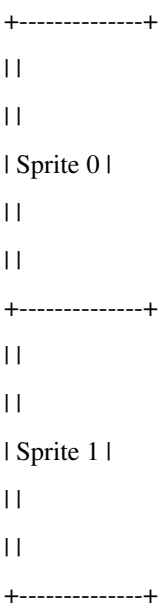
1.51 PicCon/Settings/Imageformat/Sprite

Will set RAW saveformat to Amiga sprites.

You must also set the spritewidth, attachment and CTRLwords options:

Spritewidth is set to either 16, 32 or 64 pixels. 32 and 64 pixels wide sprites might only be used with the AGA chipset. Spriteheight is unlimited on any version of the Amiga chipsets.

For displaying sprites with more than 3 colors, you'll have to make them attached. This means that you must overlap two sprites to get 15 colors to choose from. The sprites will be saved like this:



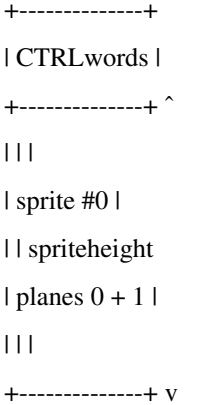
(Check your copy of the AHRM).

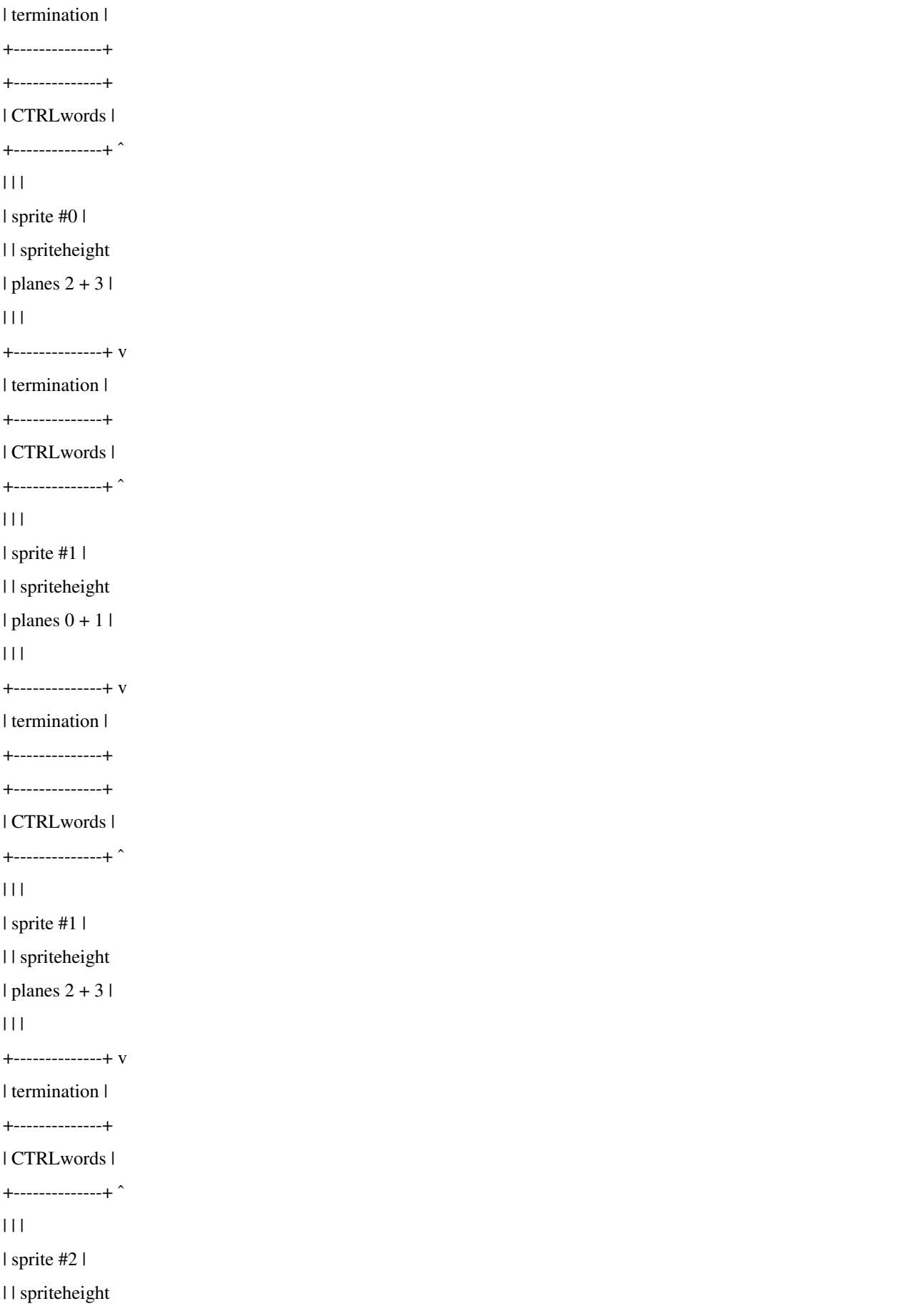
Setting the "CTRLwords" option will make the program append some blank bytes in front of and behind the sprite(s) when saved. The bytes in front of the sprite is used to set position, attachment and other control bits. The bytes behind the actual imagedata is used for spritetermination.

The number of bytes appended to the actual spritedata will depend upon your selected spritewidth. If you're using 16 pixels wide sprites, 2 words will be appended in front of the sprite(s) and 2 words behind. For 32 pixels wide sprites, you'll get 2 longwords extra in front and behind, and for 64 pixels wide sprites it'll be 2 double longwords.

(Check your copy of the AHRM).

Notice that if your frame is wider than the width of one sprite (16, 32 or 64 pixels), several sprites will be appended to the same savefile. This makes it possible to save a whole row of sprites in one operation. E.g. a 48-pixels wide frame of 16-pixels wide, attached sprites with CTRLwords will be saved like this:




| termination |
+--------------+
+--------------+
| CTRLwords |
+--------------+ ^
| | |
| sprite #0 |
| | spriteheight
| planes 2 + 3 |
| | |
+--------------+ v
| termination |
+--------------+
| CTRLwords |
+--------------+ ^
| | |
| sprite #1 |
| | spriteheight
| planes 0 + 1 |
| | |
+--------------+ v
| termination |
+--------------+
+--------------+
| CTRLwords |
+--------------+ ^
| | |
| sprite #1 |
| | spriteheight
| planes 2 + 3 |
| | |
+--------------+ v
| termination |
+--------------+
| CTRLwords |
+--------------+ ^
| | |
| sprite #2 |
| | spriteheight

| planes 0 + 1 |

| | |

+--------------+ v

| termination |

+--------------+

+--------------+

| CTRLwords |

+--------------+ ^

| | |

| sprite #2 |

| | spriteheight

| planes 2 + 3 |

| | |

+--------------+ v

| termination |

+--------------+

1.52 PicCon/Settings/Imageformat/WBIcon

This option sets the image format of the savefile to standard Amiga workbench icon. The format and type of the icon must also be set:

Formats supported:

WBDISK:

Same type as e.g. the RAM Disk icon.

WBDRAWER:

Same type as any drawer in your workbench.

WBTOOLS:

Executable files (and scriptfiles).

WBPROJECT:

Files that need a program to "treat them", e.g. docfiles.

WBGARBAGE:

Same type as the standard Amiga garbage can.

WBDEVICE:

I don’t know what kind of files that use this icontype, as I don’t think I have ever seen a "device-icon". I can’t save icons of this format either, as they have no default in the 3.0 workbench (well, not in my workbench, that is). Maybe this is a future format?

WBKICK:

These icons can be saved under my configuration, but I still don’t know what they are good for, as I have never seen any files with a WBKICK icon.

WBAPPICON:

Same story here as with WBDEVICE, it don't seem to be possible for me to obtain specifications on this iconformat, as the defaulticon can't be loaded with the icon.library function "GetDefDiskObject".

Gadgettypes supported:

Complement:

If this option is set, your iconimage will be complemented when

picked by the user.

Backfill:

If this option is set, your iconimage will be "backfilled" when picked by the user.

Image:

Set this option if you want your icon to have two different images, one for when the icongadget is up, and one for when it's pressed down. If this option is on upon choosing Save image , you'll be prompted to cut out another frame for use as the "selectrender image" (icongadget down). The frame that you've already picked will be used as the icongadget up image.

When you specify the filename of the workbench icon, you don't need to include the .info extension, as this will be done automatically.

If you choose to Save image with this option on, the Save data as settings will be ignored, as workbench icons are always pure binaries.

1.53 PicCon/Settings/Imageformat/Fontset

This option will let you convert fontsets drawn in ordinary bitmaps to the Amiga's custom font format. This makes it possible to draw fonts in f.ex. DPaint, and then save them as fonts ready to be used in any word processing package, on the Workbench, in your texteditor, in videotitling etc. Currently, PicCon supports only monospaced and monocolored fonts. To learn how this option works, it's best to load one of your existing fonts from disk (set imageformat to Fontset, then choose Load image), and then save it back to disk (under another name, in case you should do anything wrong). Just frame the box which containes the data to all your fonts, set the appropriate values in the Options-window and select Save image .

The Options-window values should be set as specified here:

XSize:

Set the width in pixels of a single character.

YSize:

Set the heigth in pixels of a single character.

Baseline:

Set the baseline of the font (must be at least 1 less than YSize). Baseline tells any applications using the font how to handle "low" characters (like g, j, y, etc).

LoChar:

First character in the block you want to save (if this is f.ex. the space, set LoChar to 32 (as the ASCII value for space is 32)).

HiChar:

Last character in the block you want to save (if this is f.ex. the 'Z', set HiChar to 90 (as the ASCII value for 'Z' is 90)).

Note that if your picture consist of several bitplanes, only the bits in bitplane #0 will be saved to the fontsfile, as PiCon does not (yet) support multicolored fonts.

1.54 PicCon/Settings/Imageformat/IFF

Frames saved with this option on will be saved as IFF brushes/pictures (useful for inclusion in drawing packages, DTP programs etc). If you choose to Save image with this option on, the Save data as settings will be ignored, as IFF frames are always pure binaries.

1.55 PicCon/Settings/Imageformat/SNES modes

If you're not familiar with the SNES graphics architecture or if you've just started using PicCon, please check out the explanation of the SNES' different graphicsmodes: SNES hardware .

Now for the SNES-mode options:

2-bit characters:

Save data in frame as a 2-bit characterset.

4-bit characters:

Save data in frame as a 4-bit characterset.

8-bit characters:

Save data in frame as an 8-bit characterset.

Mode 7:

Save data in frame as a chunkypixel bitmap characterset.

Swap Hi/Low bytes:

If this option is set and you're saving 2-, 4- or 8-bit characters, the two bytes (representing the bitplanes data) in each character-graphics word will be swapped. F.ex. will a 4-bit character not be saved like this:

1010101010101010

3232323232323232

...but like this:

0101010101010101

2323232323232323

If this option is on and you're not saving an ordinary 2/4/8-bit character screen, but a Mode7 screen, the high and low bytes in the screenposition words will be swapped:

+--------------------+

|bitmapdata|character| (= 8 + 8 bits)

+--------------------+

...will become:

+--------------------+

|character|bitmapdata| (= 8 + 8 bits)

+--------------------+

No redundancy:

Don't include unused bitplanes in the saved characterset. E.g. would a 3-planes 4-bit characterset with this option on not be saved like this:

10101010101010103232323232323232

...but like this:

10101010101010102222222222

Pack equal chars:

Remove duplicated characters from the characterset before saving. You normally wouldn't want to use this option unless you're also specifying to save the screenpositions of the characters (or a MODE7 screen) aswell. This option works with both the ordinary characterbased displays and with the MODE7 characters.

Pack flip chars:

Remove characters that can be duplicated by flipping some of the other characters in the characterset. Use this option for maximum optimization (beware that characterpacking with this option is ~4 times slower than ordinary equal characters packing). You normally wouldn't want to use this option unless you're also specifying to save the screendata aswell. The correct bits will be set in each screendata word if this option is switched on (and you're saving the screenposition data along). This option only works with the ordinary characterbased displays (as there's no bits for characterflipping in the MODE7 screendata).

Priority:

Use this option to set the priority bit to either 0 or 1 in the screendatawords (use this to f.ex. set the priority for SNES-objects to 1, while ordinary screendata have priority 0). This option only works with ordinary non-MODE7 displays, as MODE7 screendata have no prioritybit to set.

Save positiondata:

Save out a file containing the screendata positions (characterselection words) along with the characterset. The screendata file will be saved to a file with the same name as the filename you specified for the characterset data, but with ".screen" appended to the filename. In the ordinary characterbased displays, the screendata in this file will also have the flip- and prioritybits set correctly.

The position data will always be saved in word-format.

With 2-, 4- or 8-bit characters:

+--------------------+

|y|x|p|pal|characters| (= 16 bits)

+--------------------+

(y - yflip, x - xflip, p - priority, pal - paletteselection, characters - characterselection)

...and with Mode7:

+--------------------+

| characters | (= 16 bits)

+--------------------+

If this option is not set, only the characterset which would make up the graphics in your selected frame will be saved, with no information what-so-ever on the individual positions they have on the screen. This will normally only be used with charactersets which haven't been packed in any way, or on SNES objects.

(.screen files for charactersets that have not been optimized in any way will just be a monotone incrementing row of numbers: $0000, $0001, $0002, $0003.. while on frames/screens that are packed, the screenposition data will make all duplications and flip-duplications be set correctly.)

Make MODE7 screen:

This option will join, "interleave" and save the characterbitmap data and the screendata positions to the same file, ready to use in a MODE7 display. The bitmapdata will normally be in the highbytes and the characterselection bytes in the lowbytes (opposite if the "Swap" flag is set).

Note that there's no hardcoded limits on any of the saveformats. If you need to save exactly one SNES screen, it's up to you to make sure that the frame you're saving is 256x256 pixels wide. I avoided setting limitations on these saveformats so that PicCon would be as flexible as possible (most often you don't want to save whole screens, as most of the data is just objects or parts of screens, and if PicCon could only save whole screens, lots of storage would be wasted).

There's one exception from this rule, though (regarding flexibility). If you want to make a MODE7 screen and save it, your savefile will always be $8000 bytes, as characterbitmap data for up to 256 characterbitmaps will always be joined with a $80x$80 grid of character selection bytes, no matter how wide and high your selected frame is. The upper left corner of your frame will also be the upper left corner displayed in the MODE7 screen. This is the only way of displaying a MODE7 screen on the SNES. So if you want to make a full MODE7 screen, you have to cut a 1024x1024 pixels wide and high frame, with not more data than can be held in maximum 256 characters. If you cut a frame that is less than 1024x1024 pixels, the rest of the MODE7 screen will be filled up with character number zero in the chunky characterset. If this behavior is not wanted, don't set the "Make MODE7 screen" option as the chunky characterset and the screenposition data will then be saved to two seperate files (as with the ordinary 2/4/8-bit characterbased modes).

If there's anything you didn't quite understand here, it might help to read the SNES hardware section. If things are still unclear, or if you think there's some stuff I've not implemented that should be included in a SNES converter, please mail (or email) me. Address in the Disclaimer and Author Info section of this document. (I'm generally not very hard to ask... :)

1.56 PicCon/Settings/Imageformat/SNES hardware

The SNES graphicsmodes can be viewed as two seperate issues: characterbased and chunkymode. I'll explain the characterbased displaymodes first:

The characterbased displays are made up of screens of 32x32 wordpointers (each word is pointing to a character in a pre-defined characterset, and a character is 8x8 pixels wide and high). A SNES screen is therefore 32*8 = 256 pixels wide and high. Here's a sample screen:

Word pointers

||

TopLeft ||

+------------------\/----------------/------+

$0000 |XX XX XX XX XX XX XX XX XX XX XX XX \ XX XX|

$0020 |XX XX XX XX XX XX XX XX XX XX XX XX / XX XX|

$0040 |XX XX XX XX XX XX XX XX XX XX XX XX \ XX XX|

$0060 |XX XX XX XX XX XX XX XX XX XX XX XX / XX XX|

. \

. |/\

. \

$03e0 |XX XX XX XX XX XX XX XX XX XX XX XX / XX XX|

+---+

Bottom

Right

The bits in each pointer are used like this:

+---+

|bit:| F | E | D | C | B | A | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

+----|-------|--|

|-FLIP- |-P-| -PALETTE- | -CHARACTER- |

| v h | r | | |

| e o | i |(1 out of 8| (1 out of 1024 available) |

| r r | o | available)| |

| t i | | | |

+---+

------- --- -----------

| | |

| | +-

| | These bits are used to

| | select the palettebuffer

| | for this character. (The

| | palettebits will not be

| | used by PicCon in it's

| | current state).

| |

| +-

| This bit is used to set priority.

|

+-

These bits choose if the characterdata

should be flipped around the x- or y-axis

(or both).

...and the 10 characterselection bits are used as pointers into a charactergraphics table (a characterset).

Now...how are the characters stored in this characterset? There's 3 different characterbased displaymodes, 2- 4- and 8-bit:

A 2-bit character:

+--+--+

|p1|p0| 2 bytes, 8 + 8 pixels, bitplanes 1 and 0, row 0

+--+--+

|p1|p0| 2 bytes, 8 + 8 pixels, bitplanes 1 and 0, row 1

+--+--+ .

. . .

. . .

+--+--+ .

|p1|p0| 2 bytes, 8 + 8 pixels, bitplanes 1 and 0, row 6

+--+--+

|p1|p0| 2 bytes, 8 + 8 pixels, bitplanes 1 and 0, row 7

+--+--+

p1 - byte in plane 1

p0 - byte in plane 0

A 4-bit character is built with two 2-bit characters; one containing

planes 1 and 0, and one containing planes 3 and 2. Like this:

1010101010101010

3232323232323232

(4-bit characters are also used in building up the SNES' equivalent of the hardwaresprites of the Amiga (they're called "objects" on the SNES): an object must be 16xYYY characters (YYY is max 512) wide and high (so the SNES-objects have up to 16 different colors, and are 8*16 = 128 pixels wide). So be aware that to extract SNES "sprites" from PicCon, you have to cut a 128xYYY pixels wide frame in 4-bit character mode).

An 8-bit character is built with four 2-bit characters; one containing

planes 1 and 0, one containing planes 3 and 2, one containing planes

5 and 4 and one containing planes 7 and 6. Like this:

1010101010101010

3232323232323232

5454545454545454

7676767676767676

(Each number represents the next byte in the respective plane).

And now for the chunkymode (which is also sort of an charactermode (I'll bet you're confused now, huh?)):

In the SNES' version of chunkypixels (called MODE7) the display is made up of characters aswell, although the characters now take up 8 * 8 = 64 bytes, as each character is a small chunkybitmap:

+--+--+--+--+--+--+--+--+

|00|01|02|03|04|05|06|07|

+--+--+--+--+--+--+--+--+

|08|09|0a|0b|0c|0d|0e|0f|

+--+--+--+--+--+--+--+--+

|10|11|12|13|14|15|16|17|

+--+--+--+--+--+--+--+--+

|18|19|1a|1b|1c|1d|1e|1f| (8 * 8 pixels, one byte

+--+--+--+--+--+--+--+--+ each pixel = 64 bytes

|20|21|22|23|24|25|26|27| each character)

+--+--+--+--+--+--+--+--+

|28|29|2a|2b|2c|2d|2e|2f|

+--+--+--+--+--+--+--+--+

|30|31|32|33|34|35|36|37|

+--+--+--+--+--+--+--+--+

|38|39|3a|3b|3c|3d|3e|3f|

+--+--+--+--+--+--+--+--+

A screen in MODE7 have to be $80x$80 characters wide and high (= 1024x1024 pixels). Each character on the screen is selected with a byte that indicates the offset into the characterset (1 byte = 8 bits = 256 different characters). 256 different characters, each built up with a 8x8 chunkybitmap yields 256*8*8 bytes = $4000 bytes. When you set up the MODE7 screen, the $4000 bytes of characterbitmaps are combined with the $80x$80 = $4000 bytes of character selectors to $4000 words (= $8000 bytes) of MODE7 screendata. The highbytes of the screenpositions contain the characterbitmapdata and the lowbytes contain the characterselection bytes. So if the first characterbitmap is all $ff's and the first $40 characters of the MODE7 screen are all unique, the first $40 words of the MODE7 screendata would look like this:

+-----+-----+-----+-----+-----+-----+-----+-----+

|$ff00|$ff01|$ff02|$ff03|$ff04|$ff05|$ff06|$ff07|

+-----+-----+-----+-----+-----+-----+-----+-----+

|$ff08|$ff09|$ff0a|$ff0b|$ff0c|$ff0d|$ff0e|$ff0f|

+-----+-----+-----+-----+-----+-----+-----+-----+

|$ff10|$ff11|$ff12|$ff13|$ff14|$ff15|$ff16|$ff17|

+-----+-----+-----+-----+-----+-----+-----+-----+

|$ff18|$ff19|$ff1a|$ff1b|$ff1c|$ff1d|$ff1e|$ff1f|

+-----+-----+-----+-----+-----+-----+-----+-----+

|$ff20|$ff21|$ff22|$ff23|$ff24|$ff25|$ff26|$ff27|

+-----+-----+-----+-----+-----+-----+-----+-----+

|$ff28|$ff29|$ff2a|$ff2b|$ff2c|$ff2d|$ff2e|$ff2f|

+-----+-----+-----+-----+-----+-----+-----+-----+

|$ff30|$ff31|$ff32|$ff33|$ff34|$ff35|$ff36|$ff37|

+-----+-----+-----+-----+-----+-----+-----+-----+

|$ff38|$ff39|$ff3a|$ff3b|$ff3c|$ff3d|$ff3e|$ff3f|

+-----+-----+-----+-----+-----+-----+-----+-----+

...or if the character in position (3,0) on the screen is equal to the one in position (0,0) and the ones in positions (1,0), (2,0), (4,0), (5,0), and so on are unique, we'd get these data for our MODE7 screen (the "Pack equals" option is on):

+-----+-----+-----+-----+-----+-----+-----+-----+

|$ff00|$ff01|$ff02|$ff00|$ff03|$ff04|$ff05|$ff06|

+-----+-----+-----+-----+-----+-----+-----+-----+

. . . . . .

. . . . . .

...and so on (character 0 will be duplicated in position (3,0) and the character in (3,0) will not be saved to our characterset).

1.57 PicCon/Settings/Imageformat/Sega

If you're not familiar with the Sega Megadrive's graphics architecture or if you've just started using PicCon, please check out the explanation of the Megadrive's different graphicsmodes: Sega Megadrive hardware .

Now for the Megadrive options:

Pack equal chars:

Remove duplicated characters from the characterset before saving. You normally wouldn't want to use this option unless you're also specifying to save the screenpositions of the characters.

Pack flip chars:

Remove characters that can be duplicated by flipping some of the other characters in the characterset. Use this option for maximum optimization (beware that characterpacking with this option is ~4 times slower than ordinary equal characters packing). You normally wouldn't want to use this option unless you're also specifying to save the screendata aswell. The correct bits will be set in each screendata word if this option is switched on (and you're saving the screenposition data along).

Save positiondata:

Save out a file containing the screendata positions (characterselection words) along with the characterset. The screendata file will be saved to a file with the same name as the filename you specified for the characterset data, but with ".screen" appended to the filename. In the ordinary characterbased displays, the screendata in this file will also have the flip- and depthbits set correctly.

The position data will always be saved in word-format:

+--------------------+

|d|y|x|pal|characters| (= 16 bits)

+--------------------+

(d - depth, y - yflip, x - xflip, pal - paletteselection, characters - characterselection)

If this option is not set, only the characterset which would make up the graphics in your selected frame will be saved, with no information what-so-ever on the individual positions they have on the screen. This will normally only be used with charactersets which haven't been packed in any way, or on Megadrive sprites.

(.screen files for charactersets that have not been optimized in any way will just be a monotone incrementing row of numbers: $0000, $0001, $0002, $0003.. while on frames/screens that are packed, the screenposition data will make all duplications and flip-duplications be set correctly.)

Depth:

Use this option to set the depth bit to either 0 or 1 in the screendatawords.

Note that there's no hardcoded limits on any of the saveformats. If you need to save exactly one Megadrive screen, it's up to you to make sure that the frame you're saving is 320x224 pixels wide. I avoided setting limitations on these saveformats so that PicCon would be as flexible as possible (most often you don't want to save whole screens, as most of the data you want to save is just sprites or parts of screens, and if PicCon could only save whole screens, lots of storage would be wasted).

If there's anything you didn't quite understand here, it might help to read the Sega Megadrive hardware section. If things are still unclear, or if you think there's some stuff I've not implemented that should be included in a Megadrive converter, please mail (or email) me. Address in the Disclaimer and Author Info section of this document. (I'm generally not very hard to ask... :)

1.58 PicCon/Settings/Imageformat/Megadrive hardware

The Sega Megadrive graphicsmode is solely characterbased. This means that the whole display is made up of layers of 8x8 pixels wide characters (that acts as small bitmaps).

The characterbased displays are made up of screens of 40x28 wordpointers (each word is pointing to a character in a pre-defined characterset, and a character is 8x8 pixels wide and high). A Megadrive screen is therefore 40*8x28*8 = 320x224 pixels wide and high. Here's a sample screen:

Word pointers

||

TopLeft ||

+------------------\/----------------/------+

$0000 |XX XX XX XX XX XX XX XX XX XX XX XX \ XX XX|

$0028 |XX XX XX XX XX XX XX XX XX XX XX XX / XX XX|

$0050 |XX XX XX XX XX XX XX XX XX XX XX XX \ XX XX|

$0078 |XX XX XX XX XX XX XX XX XX XX XX XX / XX XX|

. \

. |/\

. \

$0438 |XX XX XX XX XX XX XX XX XX XX XX XX / XX XX|

+---+

Bottom

Right

The bits in each pointer (XX) are used like this:

+---+

|bit:| F | E | D | C | B | A | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

+----|---|-------|-------|---|

|-d-| -PAL- |-FLIP- | -CHARACTER- |

| e | | v h | |

| p |(1 out | e o | (1 out of 2048 available) |

| t | of 4) | r r | |

| h | | t i | |

+---+

--- ------- -------

| | |

| +- +---------------------+

| These bits are used to |

| select the palettebuffer |

| for this character. (The +-

| palettebits will not be These bits choose

| used by PicCon in it's if the characterdata

| current state). should be flipped

| around the x- or y-

+- axis (or both).

This bit is used to set depth.

...and the 11 characterselection bits are used as pointers into a charactergraphics table (a characterset).

Now...how are the characters stored in this characterset? This is the format used:

lp - left pixel

rp - right pixel

0,1,2,3 - bit in 0.,1.,2. or 3rd bitplane

.lp..rp. .lp..rp. .lp..rp. .lp..rp. -> 8 pixels in a row

32103210 32103210 32103210 32103210 |

32103210 32103210 32103210 32103210 |

32103210 32103210 32103210 32103210 |

32103210 32103210 32103210 32103210 +- 8 pixelrows

32103210 32103210 32103210 32103210 |

32103210 32103210 32103210 32103210 |

32103210 32103210 32103210 32103210 |

32103210 32103210 32103210 32103210 |

Megadrive hardware sprites are also made up of the same kind of characters. A sprite can be up to 4x4 characters wide and high (sprites can therefore be anything from 8x8 to 32x32 pixels).

1.59 PicCon/Settings/Paletteformat

The settings in this window is for selecting the way the picturepalette will be saved when choosing Save palette in the Project menu.

Settings in the "Paletteformat"-window:

4 bits

8 bits

32 bits

LoadRGB4

LoadRGB32

IFF ILBM

SNES 5 bits

Megadrive 3 bits

VGA 6 bits

Copperlist

1.60 PicCon/Settings/Paletteformat/4bits

Will save out your palette in the standard old chipset and enhanced chipset formats (4-bits-per-gun, 1 word per color).

E.g.:

White is $0fff, red is $0f00 and purple is $0f0f.

^blue component

^green component

^red component

^unused

1.61 PicCon/Settings/Paletteformat/8bits

Will save out your palette in the new AGA chipset format (8-bits-per-gun, 2 words (1 longword) per color).

E.g.:

White is $00ffffff, red is $00ff0000 and purple is $00ff00ff.

^^blue component

^^green component

^^red component

^^unused

1.62 PicCon/Settings/Paletteformat/32bits

Will save out your palette in the internal systemformat (32-bits-per-gun, 3 longwords per color)).

E.g.:

Purple is $ffffffff00000000ffffffff.

^^^^^^^^blue component

^^^^^^^^green component

^^^^^^^^red component

1.63 PicCon/Settings/Paletteformat/LoadRGB4

Will save the palette as an array ready to be passed to the graphics.library function "LoadRGB4".

Look up the autodocs specification of "LoadRGB4" if you’re unfamiliar with the format.

1.64 PicCon/Settings/Paletteformat/LoadRGB32

Will save the palette as an array ready to be passed to the graphics.library function "LoadRGB32".

Look up the autodocs specification of "LoadRGB32" if you're unfamiliar with the format.

1.65 PicCon/Settings/Paletteformat/IFF

Saves out the palette in IFF format (e.g. for reading in DPaint). If this option is set, the Save data as setting will be ignored (IFF files are always of binary format).

1.66 PicCon/Settings/Paletteformat/SNES 5 bits

Will save out the palette in the format used by the SNES :

E.g.:

Purple is %0111110000011111:

^^^^^red component

^^^^^green component

^^^^^blue component

^unused

Note that the RGB-components have been swapped to BGR (done by Nintendo to

get them in the correct alphabetical order...).

1.67 PicCon/Settings/Paletteformat/Megadrive 3 bits

Will save out the palette in the format used by the Sega Megadrive :

E.g.:

Purple is %0000111000001110

^^^^ ^ ^ ^unused

^^^red component

^^^green component

^^^blue component

Note that the RGB-components have been swapped to BGR.

1.68 PicCon/Settings/Paletteformat/VGA

Will save out your palette in the VGA format (6-bits-per-gun, 1 longword per color).

E.g.:

Purple is %00000000000000111111000000111111

^^^^^^blue component

^^^^^^green component

^^^^^^red component

^^^^^^^^^^^^unused

1.69 PicCon/Settings/Paletteformat/Copperlist

Will save out your palette as a list of commands that the Amiga graphicscoprocessor (a.k.a. COPPER) understands. Insert the palette coppercommands into your own custom copperlist to make use of the paletteentries.

PicCon knows the format of both OCS/ECS and AGA chipsets, and will save in the appropriate format according to the number of bits-per-gun specified:

4 bits-per-gun: OCS/ECS copperlist.

8 bits-per-gun: AGA copperlist.

The other options (32bits, LoadRGB4, LoadRGB32 and IFF) will ignore the Copperlist setting.

1.70 PicCon/Settings/Grid settings

Imagine this: you are coding a game where you need loads of background graphicstiles (say, 16x16 pixels wide, which are then combined to make bigger objects in the background). To get maximum speed (minimum CPU/blitter load), you need to have each one of them in interleaved RAW format. What do you do? You'd probably save out the whole bitmap with an IFF-converter and then code your own custom formatconverter to get the tiles the way you wanted them. This is not necessary any more, as PicCon is able to save a grid of frames in any of the usual formats, except as IFF ILBMs or as Workbench icons.

The options in the grid settings window are explained below:

Save as.. Rows/Columns:

Choose to save the tiles in either left-to-right (rows) or top-to-bottom (columns) fashion.

(As an example, let's say we've got a 3x3 grid of frames:

+---+---+---+

| | | |

| 1 | 2 | 3 |

| | | |

+---+---+---+

| | | |

| 4 | 5 | 6 |

| | | |

+---+---+---+

| | | |

| 7 | 8 | 9 |

| | | |

+---+---+---+

With rowsaving, these frames will be saved in this order 1,2,3,4,5,6,7,8,9, while if you set column saving, the internal positions in the saved file will be like this: 1,4,7,2,5,8,3,6,9.)

Blockwidth:

Set the width in number of pixels in the individual tiles.

Blockheight:

Set the height in number of pixels in the individual tiles.

Blocks horiz.:

Number of blocks horizontally. (3 in the above example)

Blocks vert.:

Number of blocks vertically. (3 in the above example)

Total #:

The total number of blocks you want to save (if no blocks are "missing" in your chunk of tiles, this number will usually be (blocks horiz.)*(blocks vert.)). (9 in the above example)

Note that your chunk of frames to be saved must have the upper left pixel in the absolute upper left corner of the screen (at (0,0)).

The gridsave option will not be influenced by any box you've cutted in the picture. The individual tiles will all be saved in the format you select in the Imageformat window. All tiles will be appended together in a single file.

See also Save grid .

1.71 PicCon/Settings/Miscellaneous

The options in the "Miscellaneous settings" window are supposed to be an easy way to configure PicCon so that you can remove things that might annoy you.

Always open panel:

Always open the panel (with coordinates ++) when you load a new picture.

Auto save prefs on exit:

If you always want to restart in the state you left PicCon.

Confirm loads:

Use this option to turn on or off the requester that pops up before the current picture is swapped with the one you want to load (the requester that gives you some information about the picture, and let you have the choice of cancelling a load).

Confirm overwrites:

Ask the user before any files get overwritten.

Confirm quit:

Ask the user if he's sure.

Include pen 0 in penstats:

Often the frames containes mostly transparency, and in that case, the Pen stats isn't very helpful. Then use this option to not include pen 0 in the penstatistics window.

Inform saves:

Pop up a requester after you've saved a file to tell you what you actually saved.

Lock mode:

Lock a screenmode that all loaded pictures will be displayed in.

Requesters on Workbench:

If you've got a palette that makes it difficult to see requestertext - set this option to have all requesters appear on the Workbench screen.

Save Autoscan offsets:

If you use the Autoscan function, and all the frames in your picture are of the same size, you probably don't need the information contained in the .offsets-file.

1.72 PicCon/Settings/Image load

Set the parameters needed when you want to Load image . When loading most RAW formats, PicCon needs to know width, height and depth. Some loadformats will ignore some of the settings, though. Loading of Workbench icons, IFF ILBMs and fontsets will ignore all the settings.

1.73 PicCon/Settings/Grabpen

Choose a new boxpen to search for in the Grab frame function.

1.74 PicCon/Miscellaneous

Menuchoices on the "Miscellaneous"-menu:

Panel...

@{ " Open panel " Link OpenPanel}

@{ " Close panel " Link ClosePanel}

Animation...

@{ " Next cell " Link NextCell}

@{ " Prev cell " Link PrevCell}

Image manipulation...

Trace pens

EHB->normal

Remove plane

Append plane

Make gray

Make brighter

Make darker

Make negative

Scale size

Scale depth

Reselect pens

Frame manipulation...

Pen stats

Remap pens

SNES support...

Fake SNES

Remake Amiga

1.75 PicCon/Miscellaneous/Open panel

Open a panel that dynamically displays x- and y-coordinates plus boxwidth and -height. The panel also has 'quick' buttons for Save image and Save palette .

1.76 PicCon/Miscellaneous/Close panel

Close the helppanel.

1.77 PicCon/Miscellaneous/Next cell

Show next animationframe.

1.78 PicCon/Miscellaneous/Prev cell

Show previous animationframe.

1.79 PicCon/Miscellaneous/Trace pens

This function will find all the unused and duplicated pens in the palette and "push" them at the end (by moving all pixels set with other pens into the front of the palette). If the number of unused and duplicated palette- entries are so high that 1 or more bitplanes are not needed (say, if you only use 13 pens in a 5 bitplanes picture (which has 32 pens available), it would be possible to render the exact same picture in 4 bitplanes), you'll also be asked if you want to remove the superfluous bitplane(s).

See also the quick tutorial: Trace pens .

1.80 PicCon/Miscellaneous/EHB->normal

This function converts a 6 bitplanes picture in extra halfbrite modus (with 32 editable paletteentries) to an ordinary 6 bitplanes picture (with 64 editable paletteentries).

This also makes it possible to use the other simple "imageprocessing" tools in PicCon to work on these pictures.

1.81 PicCon/Miscellaneous/Remove plane

Remove the last plane.

1.82 PicCon/Miscellaneous/Append plane

Append an extra plane.

1.83 PicCon/Miscellaneous/Make gray

Make all paletteentries gray.

1.84 PicCon/Miscellaneous/Make brighter

Make all paletteentries brighter.

1.85 PicCon/Miscellaneous/Make darker

Make all paletteentries darker.

1.86 PicCon/Miscellaneous/Make negative

Negate all paletteentries.

1.87 PicCon/Miscellaneous/Scale size

Crop and scale frame to the new size.

1.88 PicCon/Miscellaneous/Scale depth

Rearrange palette and scale picture to new depth.

1.89 PicCon/Miscellaneous/Reselect pens

If for any reason the selected systempens (the pens which are used to render the menubar, requestergadgets etc) should make something hard to read, use this function to reselect them.

(The systempens might get changed if you use the palletterequester, and you should then use this function if they get hard to read (or just ugly to look at). This also applies if you use the Load palette option).

Be aware, though, that on Amiga's with OS2.0 it's impossible to control the menubar pens.

1.90 PicCon/Miscellaneous/Pen stats

This function makes a histogram of the relative usage of the pens in the selected frame.

1.91 PicCon/Miscellaneous/Remap pens

I guess this function was pretty high on the "most wanted feature" list by the coders? (It's not included in DPaint, and the version of this function implemented in Brilliance can't work on selected areas of the screen.)

Anyway, it gives you the possibility of either moving or interchanging all pixels of a pen to another pen. This function works inside your selected frame.

Do not confuse the "Move" and "Swap" functions in this feature with the corresponding calls in the "Modify palette" option. Nothing is actually done with the values of the paletteentries, but with the bitrepresentations of the individual pixels in the bitmap.

See also the quick tutorial: Remap pens .

1.92 PicCon/Miscellaneous/Fake SNES

Due to a different videoarchitecture, pictures ported directly from the Amiga to the SNES (or the other way around) will look a bit strange. This is caused by the fact that while the Amiga (in PAL mode) uses 320x256 pixels to build one ordinary low resolution screen, the SNES uses 256x256 pixels to make the exact same display. So while the SNES has a 'pixelratio' of 1:1, the Amiga has a ratio of 5:4. The "Fake SNES" function is supposed to simulate the way your graphics will look on a SNES display. This is achieved by first duplicating all pixels 5 times horizontally and then 'divide' the pixelwidth of all pixels horizontally by 4 by setting the SuperHighRes mode. By doing this, we'll get the same pixel aspectratio as the SNES does. Clever, huh? Thanks to Daniel Hansson for coming up with this excellent idea!

To use this function, your picture has to be displayed in lowres, non-interlaced, non-HAM on a PAL screen (otherwise, the aspectratio would still come up all wrong...). If your picture is not in this format, and you still want to use this function, you may change the displaymode with the Change screenmode option in the Project-menu.

Don't save any graphics from this display for use on the SNES, as this display will be treated the same way as any other PicCon display (that is; all pixels would be saved 5 times horizontally). You may wish to save out the picture as IFF ILBM in this new format for further editing in DPaint, though, as you can infact draw in this 'faked' SNES displaymode by using a 5x1 pixel brush (and only insert the 'SNES-pixels' on a 5x1 grid). Later you can then use the Remake Amiga function to obtain an ordinary Amiga display (and then save out the graphics in the SNES RAW modes).

1.93 PicCon/Miscellaneous/Remake Amiga

Before you read this, you might want to read about the Fake SNES function.

Use this function to convert a faked SNES display back into the ordinary Amiga display. This is done by discarding 4 out of the 5 even pixels and resetting to the low resolution display. Note that this function will also work with ordinary PAL SuperHires Non-Interlaced screens, but will in that case just partly destroy your picture.

1.94 PicCon/Thanks to...

Thanks to...

o my girlfriend Guri (for lousy support..?)

o my brother Mads (for not being hard to ask for graphics)

o Stian (for nice coding - but you really should try to finish some of your projects...)

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... and to everybody else who has helped me with bugreports and clever suggestions for enhancements, and last (but certainly not least): those who have registered.

1.95 formats

Imageformats saveable:

o Bitplanes, ordinary

o Bitplanes, interleaved

o Bitplanes, ordinary/interleaved with extra blitterwords
at left, right or both sides
o Blittermasks, for ordinary bitplanes or interleaved displays, with
or without blitterwords
o Inverted blittermasks (for CPU "blits")
o Bitplanes saved as image structs (for system functions)
o Chunky, ordinary byte-per-pixel (mode 13h)
o Chunky, packed, n bits-per-pixel
o Chunky, VGA mode X ("byteplanes")
o Chunky, 12 bit truecolor (4 bits-per-gun, 4096 different colors),
word-per-pixel (optional longwordalignment), with HAM-6 and HAM-8
support/conversion
o Chunky, 24 bit truecolor (8 bits-per-gun, 16777216 different colors),
3 bytes-per-pixel (R, G, B) (optional longwordalignment), with HAM-6 and
HAM-8 support/conversion
o Chunkymodes can also be transposed and/or rotated 90, 180 or 270 degrees
o Sprites, 16 pixels wide (OCS/ECS/AGA), with or without controlwords,
attached (16 colors) or in monomode (4 colors)
o Sprites, 32 or 64 pixels wide (AGA), with or without controlwords,
attached (16 colors) or in monomode (4 colors)
o Amiga Workbench icons, all sizes and depths, all icon- and gadgettypes
supported
o Amiga fontsets, nonproportional and monocolored
o IFF ILBM
o Super Nintendo/Famicom 2-bit, 4-bit or 8-bit charactersets with selective
high/low bytes, optional character- and characterposition compression with
optional positiondata output
o Super Nintendo/Famicom chunky characters and optional chunkyscreens
for MODE 7
o Sega Megadrive/Genesis charactersets with optional screendata output and
charactercompression
Imageformats loadable:
o All bitplane formats
o Ordinary and bitpacked chunky
o All spriteformats
o All iconformats
o Nonproportional, monocolored fontsets
o IFF ILBMs
o everything you’ve got datatypes support for (OS 3.0+)

Paletteformats saveable:

o 12 bits, 4 bits-per-gun (word per palettentry)

o 24 bits, 8 bits-per-gun (longword per palettentry)

o 12 bits OCS/ECS/AGA copperlists

o 24 bits AGA copperlists

o 32 bits-per-gun (3 longwords per palettentry)

o Arrays for the LoadRGB4 graphics.library function

o Arrays for the LoadRGB32 graphics.library function

o IFF ILBM (loadable and saveable by paint packages)

o Super Nintendo/Famicom 5 bits-per-gun

o Sega Megadrive/Genesis 3 bits-per-gun

o VGA 6 bits-per-gun

Paletteformats loadable:

o All formats that are saveable are also loadable (including copperlists

and LoadRGB arrays)