

XTrace

Ronny Schütz

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	<i>TITLE :</i> XTrace		
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Chapter 1

XTrace

1.1 Contents

```

##      ## ##### ##### ##### #####
##  ##  #   ##  ##  ##  ##  ##
#####  #   ##### ##### ##  #####
##  ##  ##  ##  #   ##  ##  ##
##    ##  ##  ##  ##  ##### #####

```

V 1.0 by

Ronny Schütz
/ Condor's, Inc.

```

1. Introduction
Introduction, Copyrights, Registration, Updates

2. Usage
Menues, Windows

3. Misc
Formats, Worldmap, ...

4. Appendix
ToDo, Bugs, ...

```

1.2 1. Introduction

```

1. Introduction
=====

```

```

1.1 What is XTrace ?

1.2 Where does XTrace run

```

- 1.3 Copyrights
- 1.4 Registration
- 1.5 Distribution
- 1.6 Error reports
- 1.7 Author
- 1.8 Updates

1.3 2. Usage

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2. Usage

- 2.1 General
- 2.2 Menues
- 2.3 Windows

1.4 3. Miscellaneous

Miscellaneous

- 3.1 Exportformats
- 3.2 Project Worldmap

1.5 4. Appendix

=====

4. Appendix

- 4.1 To Do
 - 4.2 Thanks
 - 4.3 Glossary
 - 4.4 Known bugs
 - 4.5 History
-

4.6 Advertising

1.6 1.1 What is XTrace ?

1.1 What is XTrace ?

XTrace is an image processing program, which can convert bitmap pictures to vector pictures by automatically tracing the original picture. These vector images are very useful for DTP (DeskTop Publishing).

Basic DTP knowledge is necessary (technical terms) in order to use Xtrace.

To get the best possible results, pictures can be manipulated in many forms before and after being traced.

Features of XTrace :

- change colors
 - digital filters
 - change hue, contrast and saturation
 - internal list of about 400 colors with their own names
 - shows the pictures in grayscale, with the possibility to show single realcolors
 - histogram
 - get rid of unused colors
 - conversion between different colortypes (palette, gray, b/w)
 - powerful palette editor
 - scaling
 - border pprocessing
 - change of aspect / DPI

 - 3D- rotation
 - noise reduction
 - flip picture
 - usage of Bezier-curves

 - uses Clipboard
 - usage of XPK

 - own compact IFF-file format to save all relevant parameters
 - loads IFF-ILBM files directly, with support for other formats using Datatypes
 - export tracs image as IFF-DR2D, EPSF, EPSI

 - magnifying, cut, paste funktions
 - undo

 - unlimited (depends on memory :-)) simultaneous usage of pictures
 - window cleanup
-

- screen- and fontsensitive GUI
- call AmigaGuide-Online-Help at any time with the HELP-key

XTrace is the only available Shareware-prog, which converts bitmap pictures to vector pictures.

The unregistered version of XTrace places a "DEMO" (text) in every traces picture.

1.7 1.2 Where is XTrace running ?

1.2 Where is XTrace running ?

XTrace runs on any AMIGA®, which requires the following equipment:

- AmigaDOS 3.0
- 2 MB RAM
- MC 68000

For better performance of the complexe calculations of XTrace a MC 68030 25 MHz and 5 MB RAM are recommended. A FPU is used if present, but is not necessary. XTrace can use virtual memory. (tested with VMM).

XTrace requires the following libraries to be present in the LIBS: directory:

- reqtools.library
- iffparse.library
- xpkmaster.library + compression
- rexsyslib.library
- datatypes.library

These libraries will be installed during installation of XTrace or belongs to the AMIGA OS. The BOOPSI-Gadgets gradientslider.gadget and colorwheel.gadget are in the SYS:Classes/Gadgets directory which belongs to the AMIGA OS 3.x.

Xtrace was succesfully tested on these AMIGA systms:

A2000C	MC68030/M68882	10 Mb	3.1	ECS
A2000C	MC68030/M68882	11 Mb	3.1	Picasso II / CyberGfx
A3000	MC68030/M68882	16 MB	3.1	TIGA A2410 / EGS driver
A4000	MC68030	16 Mb	3.0	AGA
A4000	MC68060	16 Mb	?.?	Cybervision 2 Mb

1.8 1.3 Copyrights

1.3 Copyrights

Xtrace and all including files (filters, icons, guides, install-scripts, keyfiles), except for those files mentioned below are copyrighted © 1994 - 1996 by Ronny Schütz / Condor's, Inc. Leipzig. All rights reserved.

reqtools.library is copyrighted by Nico François & Magnus Holmgren. Available from Aminet under util/libs/reqtools#?.

The XPK-Package is copyrighted by Urban Dominik Müller, Bryan Ford, and other authors. Available from Aminet under util/pack/XPK#?.

Encapsulated postscript® (EPS), Encapsulated postscript file® (EPSF) and Encapsulated postscript interchange® (EPSI) are registered trademarks of Adobe, Inc. and copyrighted by Adobe, Inc.

XTrace is provided "as-is", without any warranty expressed or implied. The

author

will in no case be

liable for direct, indirect, incidental or whatever damages or loss of data resulting from the use of this software. The risk concerning performance and results of this software is run entirely by the user. In other words: Your fault, not mine.

1.9 1.4 Registration

1.4 Registration

XTrace was released under the concept of "Shareware". It is distributed as a crippled program. To use the full functionality of XTrace you have to become a registered user. You will get your personal KeyFile with your name, address and ID-Number.

No person(s) or businesses other than the

author

are authorized to accept any registration or distribution fees in any form whatsoever except as specified by the author. Exclusively people who have sent US\$ 25.00, DM 30.00 or more (US\$ 25.00 because of falling US\$ to DM exchange rate and rising bank fees) to the author will be regarded as registered users. Only these two currencies will be accepted.

Payment can be made in one of the following ways :

- Transfer US\$ 25.00 or DM 30.00 to

my

bank

account Nbr.: 1823660556

at the Sparkasse Leipzig / Germany bank code 86055592.

- Send

me
an Eurocheque for the amount of
DM 30.00. Don't forget the card number. ;-)

- Send

me
a letter with the money inside, but
this is a very unsave way. If possible use the other ways
instead of this one.

Please do also send

me
your name, second name and address.

I also want you to tell me the name of the next larger
neighbour town, if you are living in a small town or village.
I need this name to accomplish my
Worldmap Project
with
the residences of all registered users.

After

I
have received your money transfer, you will get a
disk with your personal keyfile. This keyfile unlocks the blocked functions
of XTrace. In NO CASE this keyfile is to spread.
If you should spread the key I will proceed legal prosecution against you.
The keyfile will be locked for all later versions of XTrace.

If you like, the keyfile can also be send as uuencoded e-mail.

If you want to translate the XTrace documentation (AmigaGuide file) (and
all related text files) to other languages, please get in contact with
me.

If you are the first to translate it to another language (also all changes
in future documentations of XTrace) you will get a free
registration. (but first send me the translation)

1.10 1.5 Distribution

1.5 Distribution

The program may be distributed and copied freely as long as the
following conditions are fulfilled :

- The sales price must not be higher than the cost of an (empty)
disk plus a nominal copying fee plus costs for shipping. The
total price must not be higher than DM 5.00 (or an equivalent
in other currencies).
 - All parts of the program, except the KeyFile, and the docu-
mentation must be complete. The distribution of single parts or
-

incomplete subsets of the original packet is NOT ALLOWED.

- The KeyFile may NOT BE COPIED. In case the KeyFile is passed on to third persons
 - I
 - will take judicial proceedings against this registered person. The copied KeyFile will be blocked in all following versions of XTrace.
- Program and documentation may not be changed in any way.
- Permission has been given for distribution through Aminet, Fish, Time, Saar AG and AmigaMagazin Networks, CDs and Disks.

For other conditions please contact the
author
.

1.11 1.6 Error-Reports

1.6 Error-Reports

Please contact

me
, too, if you encounter bugs, in case
you have ideas for making XTrace better, or if have you comments, criticism,
contributions, questions, gifts etc.

Only send bug reports if the
unknown
errors are related
to XTrace and not system errors or errors from other tasks.

An error report should include the following informations:

- exact error description
- XTrace-version (versionsnumber, evolutionlevel, CPU-version)
- configuration of used Amiga (CPU, memory, gfx card)
- describe the complete working process of XTrace until the error appeared so that
 - I
 - can try to locate the error.

If the error only occurs with one or several pictures, send these pictures to me (e-mail uuencoded).

If the error only occurs with some settings or/and operator parameters, send these too, please.

1.12 Author

1.7 Author

snail mail : Ronny Schütz
 Lene-Voigt-Straße 8/304
 04289 Leipzig
 Germany

e-mail : rschuet@imn.th-leipzig.de

1.13 1.8 Updates

1.8 Updates

If you are already user of XTrace and want to use this version, please notice these change(s):

Updates from V 1.00 to V 1.01

- you must delete the setting-file(s) of XTrace from the XTrace-Directory/Prefs directory. If you don't do it, problems with grayscale display can occur.

1.14 2.1 General

2.1 General

To start XTrace just double click its icon or type its programname in a Shell window. Further assigns, pathes or stack values are not necessary.

Operations which do change a picture, show their results in a requester when finished. The picture can be displayed by selecting "Display Gray" or "Display Color". Optionally you can select "Undo", "Undo & Redo" and "Redo". With "Ok" you do accept the changed picture.

Undo isn't available after "Ok" is selected!

1.15 2.2 Menues

2.2 Menues

The XTrace menue is accessible from the XTrace window and from the following windows:

Tools window
 ,
 Pen display window
 ,
 Loaded pictures list window
 and all
 Picture windows
 .

Menuetitle	Menuitem	Description
Project	Load picture	
	Load picture	
	Save picture	
	Save active picture	
	Save picture as	
	Save active picture	
	Export picture	
	Export active picture	
	Close picture	
	Close active picture	
	Delete file(s)	
	Delete files	
	Read picture from clipboard	
	Load picture from clipboard	
	Write picture to clipboard	
	Save picture to clipboard	
	Export picture to clipboard	
	Export active picture to clipboard	
	Free clipboard	
	Free clipboard	
	Help	
	Open AmigaGuide-helpfile	
	Program info	

Infos about XTrace

System info

Infos about Computer System

About program

About XTrace

About key

About your keyfile

Quit

Leave XTrace

Picture(s)

Info

Informations about picture

Display annotation

Display annotation

Loaded pictures list

Lists all loaded pictures

Pen display

Show pen

Cleanup windows

Cleanup windows

Cleanup & Minimize windows

Cleanup & minimize windows

Copy picture

Copy picture

Bitmap process

Remove unused colors

Remove unused colors

Convert color

Convert color

Display histogram

Show histogram

Edit palette

Edit palette

Adjust saturation

Adjust saturation

Adjust brightness
Adjust brightness

Adjust contrast
Adjust contrast

Scale
Scale picture

Border process
Add/remove border

Apply digital filter
Apply digital filter

Change aspect
Change aspect

Change DPI & real sizes
Change DPI & picture size

Trace
Trace

Copy selected area
Copy selected area

Fill selected area
Fill selected area

Display gray
Display picture in gray tones

Display color
Display picture in colors

Display selected area gray
Display selected area in gray tones

Display selected area color
Display selected area in colors

Vector process

Remove unused colors
Remove unused colors

Edit palette
Edit palette

Adjust saturation
Adjust saturation

Adjust brightness
Adjust brightness

Adjust contrast
Adjust contrast

Supress noise
Supress noise

Slope
Slope

Flip X
Flip horizontally

Flip Y
Flip vertically

Rotate
Rotate 3D

Change aspect
Change apsect

Change DPI & real sizes
Change DPI & picture size

Display gray
Display picture in gray tones

Display color
Display picture in colors

Settings

GUI
GUI settings

Permanent windows
Permanent Windows

Picture display
Picture Display settings

Gray calculate type
Calculate gray type

Monitor dimensions
Monitor dimensions

```
Icons
  Icons

Paths & Patterns
  Paths & patterns

Save packer
  Packer-settings

File IO buffers
  File buffer

EPSI
  EPSI-settings

Memory
  Memory-settings

Vector / Object banks
  Vector / Object banks

General
  General

Default values
  Default values

Main settings
  Main settings

Temp settings
  Temporary settings

Save all settings
  Save all settings
```

1.16 Load picture

```
-----
Load picture
```

This menu opens a file-requester to choose the file to load into XTrace. XTrace loads these file formats:

```
    IFF XTUF
    , IFF ILBM
```

and available Datatypes.

If the file has successfully been loaded, a new
 Picture window
 opens
 which displays the loaded picture.

1.17 Save picture / Save picture as

Save picture / Save picture as

Saves

IFF XTVF

files. As this fileformat must include
 the vector datas of the picture, the picture has to be traced to be saved.

1.18 Export picture (to clipboard)

Export picture (to clipboard)

This very important menu of XTrace allows the exportation of bitmaps and
 vector pictures in
 formats
 , which can be
 processed/loaded by paint (Dpaint, XiPaint) or DTP (PageStream 3) progs.
 A window pops up, in which different
 settings
 can be changed or chosen from.

Pictures can also be exported directly to the
 clipboard

This way they can be used by other programs.

This version of XTrace allows to export 3 different
 vectorformats

1.19 Close picture

Close picture

This menu removes the picture from memory. If the picture has been changed
 a requester pops up to remind you to save the picture or cancel the 'Close
 picture' action.

The Closegadget on the picture window has the same effect as this menu.

1.20 Delete files

Delete files

Well, this menu deletes selected files. A security check is done.

1.21 Read picture from clipboard

Read picture from clipboard

This function allows you to load IFF ILBM and
IFF XTVE
pictures into XTrace from the
clipboard
.

The Listviewgadget shows all 256 clipboards, with Unit-number, Loadable,
Type, Size in bytes and its Name. XTrace can load the clipboard if L (Loadable)
is marked with a "*",

It is possible to specify the to be loaded Unit with the number-gadget and the
unit-number.

1.22 Write picture to clipboard

Write picture to clipboard

This menu saves
IFF XTVE
pictures to the clipboard.

These clipboard files can be loaded in a second running XTrace.

The Listviewgadget shows all 256 clipboards, with Unit-number, Loadable,
Type, Size in bytes and its Name. XTrace can load the clipboard if L (Loadable)
is marked with a "*",

It is possible to specify the to be loaded Unit with the number-gadget and the
unit-number.

1.23 Free clipboard

Free clipboard

This function deletes files saved to the
clipboards
.

1.24 Help

Help

Opens the main XTrace AmigaGuide® help-file, as long as the right path has been set correctly in
Settings / Paths & Patterns
.

1.25 Program info

Program info

This menu item shows the memory usage of XTrace at the moment and the name of the ARexx-port.

1.26 System info

System info

This function shows the memory usage of XTrace at the moment, how much memory there is still available and which CPU & chips are in the Amiga® XTrace is running ↔
.

1.27 About program

About Program

A window pops up which shows informations concerning XTrace: Copyright-, Disclaimer-, Shareware-, Distribution- and Register-informations, as well as informations about the computer used to develop XTrace, acknowledgements and dedications.

1.28 About key

About Key

This window only pops up if you have registered XTrace.
It will show infos about your personal keyfile.

1.29 Quit

Quit

This menu item leaves XTrace. A security requester asks for confirmation. If there are still unsaved pictures open or changed settings which have not been saved yet, a security requester pops up asking you to either save the picture/settings or to cancel the "Quit"-requester.

1.30 Info

Info

This menu function displays informations about the actual active picture, like path and filename and if the picture has already been traced the following infos:

- the size of the Bitmap.- and of the vector-picture
- - Color-Type
 - and
 - aspect
 - about the Bitmap.- and Vector-picture
- - Used Colors
 - number of
 - objects
 - ,
 - vectors
 - and the
 - maximum
 - number of these
 for this picture
- used memory for the actual picture

1.31 Display annotation

Display annotation

This menu shows you comments and annotations of the actual active picture. These comments are included in IFF ILBM and IFF XTVE pictures.

1.32 Loaded pictures list

Loaded pictures list

Opens the "Loaded pictures list" window.

This windows opens in an async manner, in order to continue your work with Xtrace. Just put it to the background.

It lists all opened pictures and if they have been changed or traced. The list is udated any time when you change, save or close a picture.

If you want this window to be opened automatically when you start XTrace and its position remembered, change the settings in
Settings / Permanent windows

.

1.33 Pen display

Pen display

This menue opens the "Pen display" window.

This windows opens in an async manner, in order to continue your work with Xtrace. Just put it to the background.

If this window is opened, the eyedropper symbol in the
Tools window
is activated too. With the selected eyedropper tool and the left mouse button pressed you can read color informations in the PenDisplay window below the eyedropper tool.

These informations are as follows:

Pen - The pen-number of this color. This number is important if you want to ←
change the
color values in the
Edit palette

.

Red,
Green,
Blue - The
RGB
- values of this color.

Hue
Satur.
Brigh. - The
HSB
- values of this color.

Gray - The gray value to be used to display the picture in the Picture window.

Real - The real color of the pixel under the eyedropper.

Name,

Match - The name of the color, as it is available from the internal list. This list only contains a range of colors/names, as this list can not include all existing colors. The Match-value tells you how similar the shown colorname matches the real color.

If you want this window to be opened automatically when you start XTrace and its position remembered, change the settings in
Settings / Permanent windows

1.34 Cleanup windows

Cleanup windows

This menu item allows you to cleanup all open picture windows. XTrace tries to not overlap the windows. If there isn't enough place, the windows will be placed to their standard positions.

1.35 Minimize & Cleanup windows

Minimize & Cleanup windows

Like

Cleanup windows
, only this time the windows are minimized
to their smallest size before they are re-positioned.

1.36 Copy picture

Copy picture

The complete active picture (with its vector data etc.) is copied and displayed in a new Picture window.

1.37 Remove unused colors

Remove unused colors

This function removes unused colors from a picture. Depending on the menu item chosen this occurs as follows:

Bitmap picture

The maximum possible number of colors per picture is defined by its depth. A depth of e.g. 5 means $2^5 = 32$ possible colors. If this maximum number of available colors is not used by the picture, this menu item allows you to remove all unused colors of the 32. Pens with identical

RGB

values will be resumed to one pen. The used colors will be moved ← together on

the first positions of the color palette and unused memory will be given free.

This works only, if this picture uses the

Color-Type

palette.

Otherwise no colors can be removed.

Vector picture

This menu item joins pens with identical

RGB

-colorvalues

to one pen.

1.38 Convert color

Convert color

This menu allows you to change the

Color-Type

of the active

picture. The Color-type can be changed with the "Type"-gadget, the number of pens with the "Pennumber"-gadget.

The method to be used to convert color picture to grayscale or black/white pictures can be selected/changed in

Settings

.

1.39 Display histogram

Display histogram

This menu shows the color histogram of the active picture.

If the left mouse button is pressed, when you move the mouse pointer over the histogram, the following information is shown:

Pen - The pen-number of this color. This number is necessary if you want to change the color values in the

Edit palette

.

Number - Number of pixel used by this pen.

Part - % of this pen used in the picture.

Real - The real color of the pixel.

Name,

Match - The name of the color, as it is available from the internal list. This list only contains a range of colors/names, as this list can not include all existing colors. The Match-value tells you how similar the shown colorname matches the real color.

1.40 Edit palette

Edit palette

This function enables you to change the color palette of a picture, either a vector picture or if it's a bitmap picture, with the Color-Type palette. This depends on the choosen menu item.

Functions of the Edit palette window:

With the slider on right top side and the palette gadget below you can change the active pen.

The gadgets "Copy", "Swap" and "Reset" allows you to copy, swap pens (like any color program on the Amiga ;-)) or reset all pens to their original colors.

The colorwheel and the gradientslider are used to change the colors of the active pen according to the HSB -colormodel.

The 3 sliders "Red", "Green" and "Blue" in the middle of the window are used to change the colors of the active pen according to the RGB -colormodel.

"Real" shows the real color of this pen. "Name" is the name of the color, like it is used in th internal list. The Match-value tells you how similar the shown colorname matches the real color.

The popup-gadget besides the name opens a requester window with all available colornames (

Color names
).

1.41 Adjust saturation

Adjust saturation

Allows you to change the saturation of a picture. The change is achieved on a percental basis.

- 100 % equals old saturation - 100 % of the old saturation
= saturation 0 = gray scales

+ 100 % equals old saturation + 100 % of the old saturation
= double saturation

The changes can also be viewd with the
Pen display window

.
The saturation ca not be changed with
gray
. - and
B/W
-Bitmap-pictures.

1.42 Adjust brightness

Adjust brightness

Allows you to change the brightness of a picture. The change is achieved on a percental basis.

- 100 % equals old brightness - 100 % of the old brightness
= brightness 0 = all black

+ 100 % equals old brightness + 100 % of the old brightness
= double brightness

The changes can also be viewd with the
Pen display window

.

1.43 Adjust contrast

Adjust contrast

Allows you to change the contrast of a picture. The change is achieved on a percental basis.

- 100 % equals old contrast +/- 100 % of the old contrast
 +/- depends on the old contrast. If it's lower than 50 %
 contrast will be added else subtracted.
- + 100 % equals old contrast +/- 100 % of the old contrast
 +/- depends on the old contrast. If it's greater than 50 %
 contrast will be added else subtracted.

The changes can also be viewd with the
 Pen display window
 .

1.44 Scale

Scale

Allows you to scale a picture. The change can be done by pixel (absolute)
 or on a percental basis.

If "LockAspect" is enabled, then the
 aspect
 of picture
 will not be changed when scaled.

1.45 Border process

Border process

This function removes or adds borders of pictures.

In the upper part of the window you can specify if the borders on the
 left, right, upper or lower side should be removed. Only those borders
 will be removed which do have the color shown in "Pen". The color can
 be

changed
 by clicking the PopUp-gadget.

In the lower part of the window you can spcify if a border should be
 added. The size and pen for the border (again left, right, up, lower)
 can be changed.

The other 4 adjust-gadgets enables you to transfer the border size to
 all borders. The
 aspect
 of the picture will be taken
 into consideration. This way the borders on all sides of the picture will
 be the same size.

1.46 Apply digital filter

Apply Digital Filter

The digital filter is one of the strongest function in XTrace. The digital filter can smooth borders, emboss the picture, smooth the contrast...

Filters can be applied on all

Color-Types

. However don't use

the linear filters on pictures with the color-type palette, as the exact ←
calculated

color value can't be used, but the available color value of the picture.

Later versions of XTrace will have 24bit processing inside the filter routine.

General

A filter consists generally in a quadratic matrix with odd height and width. It contains values for the different pixels of the picture.

XTrace uses 2 filter types: linear and non-linear. The type to be used can be changed with "Type"-gadget. If you change the filter type from linear to non-linear and the matrix contains values different from 0 or 1, then a requester pops up asking to change the matrix, as a non-linear matrix can contain values equal 0 or 1 only. If you click "Ok", all values different from 0 or 1 will be converted to 1.

XTrace supports filters of 1x1, 2x3, 5x5 and 7x7 sizes. The size can be changed with the "Size"-gadget. The "Optimize"-gadget checks the filter and sets the size so that all values different from 0 will be used.

"Clear unused elements" sets all values to 0, which are outside the defined matrix size.

Of course it is possible to name, save and load the defined filter.

To use a filter it is necessary to specify what to do with pixels outside of the picture. In this situation parts of the filter will apply outside of the picture. The resulting picture will be wrong, thus a pen should be
chosen

which occurs often on the picture border.

Linear filter

With linear filters the filtermatrix is applied to all pixels of the picture. Where the actual pixel is the center of the matrix. The color values of the pixels under the matrix are multiplied by the values of the matrix. The sum of these products will be divided by the "Divider"-value and the result is added to the "Bias"-value. This new color value is applied to the actual pixel. This new color value must be inside the possible color range, if not the minimum or maximum possible color value will be used.

The divider-value is the arithmetical mean value of all matrix values.

The bias-value is an offset.

The "calculate-divider"-gadget calculates the mostly used divider (sum of all matrix values)

A divider = 0 is not possible/allowed.

The matrix values can be any integer number.

Example:

A simple rectangle-lowpassfilter uses values of 1 only. Bias equals 0 and the divider must be calculated. This filter removes noise from the picture but the it looks blurred.

Non-linear filter

With non-linear filters the filtermatrix is applied to all pixels of the picture. Where the actual pixel is the center of the matrix. The color values of the pixels under the matrix are multiplied by the values of the matrix. The results of these products are ordered inside a list. According the the rank ("Rank"-gadget), either the first value of the list (minimum), or the mean value of the list (median) or the last value of the list (maximum) will be used as new actual pen and applied to the actual pixel. This new pen value must be inside the possible color range, if not the minimum or maximum possible color value will used.

Matrix values can only be 0 or 1.

Example:

A simple median-filter uses values of 1 only. The rank is median, hence the name. This filter removes low noise from the picture without affecting other parts of the picture. (not blurred as with the lowpassfilter)

Supplied filters

The effects of most of the supplied filters are difficult to describe. Best is to try them and observe the results carefully.

Emboss#?	- like chiseled in stone
Erosion#?	- smooth dark image parts
Diletation#?	- smooth white image parts
Laplace#?	- edge detection
LowPass#?	- noise filter
MedianCut#?	- noise filter
Negative	- negative

For more informations concerning digital filters please check literature about it.

1.47 Change aspect

Change aspect

This menu item changes the aspect of a picture.

If you don't know which aspect you need, but the ScreenMode, you can select it with the "ScreenMode"-Gadget.

If you click on the "Correct for monitor dimensions" gadget, then the aspect for the

monitordimensions
is set

accordingly. The best is if you leave this gadget checked.

1.48 Change DPI & real sizes

Change DPI & real sizes

Enables you to change the real size of a picture and the resolution (dpi), as it is used in DTP programs

If you change a value, all other 4 values are changed automatically.

1.49 Trace

Trace

This is the main function of XTrace. It transforms (Tracing) the active bitmap-picture into a vector picture. You can select different options which enables XTrace to speed up its tracing:

- Use Bytemap - Copies the complete picture into an internal buffer. The different pixels can be accessed much faster this way. When the tracing is finished the buffer will be released again.
The "If possible" gadget, allows you to only use this option if there is enough free memory, as this option needs a lot of memory.
- Use AreaInside - This options enables a graphical algorithm, which is faster than the mathematical Inside-algorithm, but uses a lot of memory. The "If possible" gadget has the same function as in the option above.

When you have finished selecting the options, the Trace window pops up.

1.50 Copy selected area

Copy selected area

Copies the area (marked with the Tools window symbol "frame") into a new Picture Window . To differentiate between the 2 pictures, the filename of the new one is preceded by a "C_" (C_ut).

1.51 Fill selected area

Fill Selected Area

Fills the selected area (marked with the Tools window symbol "frame") with a selectable pen.

1.52 Display gray

Display gray

The active picture (either bitmap or vector) will be displayed on an own screen in grayscales. The parameters of this screen are selectable

.

If there are more grayscales in the picture as are displayable on the screen similar grayscales will be used, How these grayscales are calculated is selectable in Settings

.

You can leave the screen by hitting any key or clicking the mouse.

1.53 Display color

Display color

The active picture (either bitmap or vector) will be displayed on an own

screen in color. The parameters of this screen are selectable

.

If there are more colors in the picture as are displayable on the screen similar colors will be used,
You can leave the screen by hitting any key or clicking the mouse.

1.54 Display selected area gray

Display selected area gray

The selected area (marked with the Tools window symbol

"frame") of the active picture will be displayed on an own screen in grayscales. The parameters of this screen are selectable

.

If there are more grayscales in the picture as are displayable on the screen similar grayscales will be used,
How these grayscales are calculated is selectable in Settings

.

You can leave the screen by hitting any key or clicking the mouse.

1.55 Display selected area color

Display selected area color

The selected area (marked with the Tools window symbol

"frame") of the active picture will be displayed on an own screen in colors. The parameters of this screen are selectable

.

If there are more colors in the picture as are displayable on the screen similar colors will be used,
You can leave the screen by hitting any key or clicking the mouse.

1.56 Suppress noise

Suppress noise

This function removes small objects, which may appear in a noisy bitmap picture.

Different noise-suppress types are available:

"Type to use"-Gadget : Use sizes and number of vectors
 Use sizes only
 Use number of vectors only

Depending on the type used, only some of the following options are available:

The "Maximum X size"-gadget sets the maximum horizontal size of the
 objects
 to be removed. The "Maximum Y size"-gadget does
 the same for the maximum vertical size.

The "Maximum vectors"-gadget sets the maximum number of
 vectors
 of the to be
 removed
 object
 . Use this option to remove primitive objects like
 a simple square.

The values depend from the size of the picture. Values of 1% for the
 "Maximum X size" and "Maximum Y Size" and 10 "Maximum vectors" are
 acceptable values. Best is to try with every picture.

1.57 Slope

Slope

This function removes jaggy lines from the traced picture. Normally these
 lines will be traced into many vector lines, but the slope function only
 makes one vector line of this or transforms a curve into

Bezierlines

.

These lines look much "cleaner" and less jaggy. The vectorized picture will
 also use less memory.

4 values set the conversion of lines and curves:

"Convert 'stairs' to lines" transforms jaggy lines into less jaggy
 lines (less 'stairs').

Th "Tolerance"-gadget sets the number of pixels the new line can vary from
 the original jaggy line. This option is necessary because most paint
 programs do use different algorithms to draw lines, this complicates the
 analysis of these lines. Good values range from 0 to 1.

The "Min. length of lines"-gadget sets the minimum length of the lines to

be converted. This values is expressed in % of the longest line in the picture (the diagonal line of the picture).
 This way, only longer lins will be converted to vector lines. All other lines (shorter) will be converted to Bezier-curves.
 Best values range from 1 to 5 %.

"Convert curves to bezier-curves" enables the transformation of Bezier.curves.

WARNING: Depending on the settings and the complexity of the picture and AMIGA system, this conversion can take a lot of time. Please you should not be irritated if the
 progress indicator
 shows 0% for a long period. This can not be changed for the moment ←
 , or the
 slow processing will become even slower.

The "Max. aberration"-gadget sets the aberration of the traced curve vs. the original curve. The aberration is measured in pixels. A value of 2 to 5 gives best results. Higher values accelerate the conversion but is less accurate. Lower values take much more time and the picture becomes bigger in size.

The "Max. length of part of curves"-gadget sets the length of lines of the object to be converted to a beziercurve. This value is given in % of the longest possible line of the picture. (the diagonal).
 A lower value (1 to 5 %) gives best results.

1.58 Flip X / Flip Y

Flip X / Flip Y

Flips the vector picture on its horizontal or vertical axis.

1.59 Rotate

Rotate

Rotates the vector picture either in 2 or 3 dimensions.

"Around X", "Around Y" and "Around Z" sets the angle the picture should be rotated. The angle is given in degree and ranges from -180degree ... 180degree ←
 degree .



```
|/
*----- Y-axis
```

The right quarter of the options-window represents a rectangle with the same proportions as the to be rotated picture. The folded corner represents the right, upper corner of the picture.

"Enlarge picture for better results" allows you to enlarge the vector picture if it's too small. This will give better results (roundness errors when rotating the picture). The real size of the picture will be unchanged.

1.60 GUI

```
GUI
```

```
---
```

Here you can change the

```
GUI
```

```
-settings of XTrace.
```

With "Screen mode" you change the ScreenMode and with "Screen font" the font.

XTrace needs at least a screen resolution of 640 x 256 pixels and a minimum depth of 3 bit (8 colors). A non-proportional font is necessary too. If you use more colors, the pictures can be displayed with better contrast in grayscales.

"Change Palette" enables you to
change
the first 4

colors of the XTrace screen. The other colors of the color palette are used for the grayscale display.

If you change the ScreenMode or ScreenFont, XTrace closes all open windows and screens and reopens them with the new settings. If problems (above all memory shortage) occur during this process, the actual picture will be released WITHOUT ANY confirmation. Only change these settings if there are no important unsaved picture windows open. If there is a shortage of Chip memory, no requester can be opened.

1.61 Permanent Windows

```
Permanent Windows
```

```
-----
```

```
Sets the positions of the permanently opened windows. (Loaded pictures
list window" link MENU_LOADEDPL},
    Pen display window
    ,
```

```
Tools window
)
```

The "Place"-gadget sets the position where a manually or automatically opened window should appear on the XTrace screen. If "Find free area" is checked, XTrace will try to find a free area on the screen to open the window.

If the "Open at startup"-gadget is set then this window will open automatically at the selected position on XTrace startup.

1.62 Picture Display

```
Picture Display
-----
```

This menu sets the screen to be used with

```
Display gray
,
Display color
,
Display selected area gray
and
Display selected area color
.
```

Any screen size and depth (depends on your Amiga system) can be used.

1.63 Gray Calculate Type

```
Gray Calculate Type
-----
```

With this menu you set the method to be used to calculate the color to grayscale conversion.

The settings are used in the following windows or menus:

```
Picture-Windows
,
Display gray
-screen,

Display selected area gray
-screen and for the
conversion
of
```

color to grayscale pictures.

The "Gray calc type"-gadget sets the maximum value of the
RGB

setting

or if a userdefined value should be used if a color is converted to gray.

A userdefined value can range from 1 ... 10000. There are 2 predefined values (luminance and average).

This method was necessary because it is difficult to display a picture with maximums or values. So you can choose between the 2 methods. If e.g. a picture is made only of bluescales, it is nearly impossible to display it with "luminance", but not with "maximum".

1.64 Monitor dimensions

Monitor dimensions

This menu item sets the size of your monitor (width / height). Only the proportion of width to height (aspect of the monitor) is of interest at the moment. Usually this ratio is 13:9, but may vary from monitor to monitor.

1.65 Icons

Icons

Tells XTrace to save its files with or without an icon. The icons are in the PROGDIR:Icons directory as defxt_#?.info (where #? stands for the file type).

1.66 Paths & Patterns

Path & Patterns

Sets the paths and patterns to be used in file requesters. You may type in the paths manually or click on the DirectoryRequester-gadget to select a directory.

On startup, XTrace always loads the settings from the PROGDIR:Settings.

The other 2 path-gadgets sets the position of XTrace's AmigaGuide-helpfile and the path for temporary files.

Best is to set the path for the temporary files (above all if you use

XPK

-packed files) to your harddisk, because these files are unpacked to the RAM disk, and if you use RAM: as temporary file these files are 2 times in memory.

1.67 Save packer

Save packer

Here you have the possibility to
choose
the
XPK
-packer
to be used or not when saving graphic files.

Before using XPK-packer be sure to set the
Paths & Patterns

.

IFF ILBM files can use their own internal packer. These files can be read by any Amiga paint program.

1.68 File IO buffers

File IO buffers

Sets the decrunch-buffer to be used when loading IFF ILBM files.
Standard size of this buffer is 32 kB.

You can also set an I/O buffer for any file operations. If you often save on disk you should make the buffer larger. Standard is 20 kB.

1.69 EPSI

EPSI

Here you define the size and number of colors to be used by the EPSI-preview-picture. At the moment a smaller copy of the bitmap picture is used. This means if you do export a rotated EPSI picture, an un-rotated preview-picture will be included in the file.
The next version of XTrace will have a TRUE preview-picture.

1.70 Memory

Memory

This menu item tells XTrace how much memory the program should not allocate and if/when an alert requester should tell you that too much memory is used. This way you still have memory used by background processes.

XTrace also can flush the memory and release unused libraries, devices etc. if memory gets low.

Hint: set reserved memory to 100 kB, alert limit to 200 kB and flush on.

1.71 Vector / Object banks

Vector / Object banks

XTrace manages objects and vectors semi-dynamic and saves them in memory banks of fixed size. The maximum number of these banks is fixed too.

You can set the maximum number of banks and the banksize for objects and vectors separately. The product of these 2 values is the maximum number of objects/vectors usable in a picture.

These values are only limited by available memory and can be set independently from each other. Take care not to use unlogical values, which uses a lot of memory (e.g. some but large banks or many but small banks) or are too small.

Good values are maximum 50000 objects and maximum 100000 vectors. These values can be higher if you use very complex pictures.

If a requester pops up telling you that no more objects or vectors are available during tracing / loading, you have to increase the values.

Good values are 256 banks with 2048 vectors respec. 384 objects.

1.72 General

General

Sets the general settings / features of XTrace.

The "Undo" function allows you to get back the last processing step of XTrace. This function should always be enabled, unless you have an Amiga system with low memory.

"AppIcon" puts the XTrace-AppIcon (Application Icon) on the Workbench. If you drag and drop picture-icons on this AppIcon, the picture will be loaded

in XTrace. Or if you doubleclick this icon, the XTrace screen will pop to front. The AppIcon is defined in "PROGDIR:Icons/defxt_AppIcon.info".

With "Save temp settings at exit" you tell XTrace to automatically save, eventually changed temporary settings (the paths and patterns of the file requesters and global operator settings), when leaving XTrace.

1.73 Default Values

Default Values

Here you set the standard values, to be used by XTrace, if these values should be missing when loading files.

At the moment only the DPI-value for IFF ILBM files can be set.

1.74 Main settings

Main settings

The settings of XTrace are divided into Main settings and Temp settings.

The Main settings hold all values you can change in the Settings-menue. The Temp settings holds all values which occur or change during work with XTrace. e.g. actual paths and patterns in requesters and global operator settings.

The submenus of the Main settings menue allows you to reset the settings to default (Reset to default), load (Load ...) new settings or replace (Save) the original settings file or save (Save as...) it with a new name.

If you do a "Reset to default" all settings will be reset, including those for screen and windows (these will reopen). (also check

GUI
)

1.75 Temp settings

Temp settings

The settings of XTrace are divided into Main settings and Temp settings.

The Main settings hold all values you can change in the Settings-menue. The Temp settings holds all values which occur or change during work with XTrace. e.g. actual paths and patterns in requesters and global operator settings.

The submenus of the Temp settings menu allows you to reset the settings to default (Reset to default), load (Load ...) new settings or replace (Save) the original settings file or save (Save as...) it with a new name.

1.76 Save all settings

Save all settings

This menu saves both settings, Main settings and Temp settings. It just resumes the submenus "Save" of
Temp settings
and
Temp settings
.

1.77 2.3 Windows

2.3 Windows

These windows are available in XTrace :

Background-Windows (they run in async mode, you can continue your work with XTrace, if these windows are open):

Tools
Toolbox

Loaded pictures list
List of loaded pictures

Pen display
Pen display

Information-Windows :

About program
About XTrace

Info
Informations

Progress
Progress display

Requester-Windows :

Choose filetype to export

Choose File Type

Choose pen
Choose Pen

Color names
Color name

Clipboard
Access Clipboard

Operator-Windows :

Convert color
Convert Color-Types

Display histogram
Display histogram

Edit palette
edit color palette

Adjust saturation
Adjust saturation

Adjust brightness
Adjust brightness

Adjust contrast
Adjust contrast

Scale
Scale picture

Border process
Remove/add border

Apply digital filter
Apply digital filter

Change aspect
Change aspect

Change DPI & real sizes
Change DPI and picture size

Trace
Trace

Fill selected area
Fill selected area

Supress noise
Supress noise

Slope
Slope

Rotate
Rotate 3D

Settings-Windows :

GUI
GUI settings

Permanent windows
Permanent windows

Picture display
Picture Display settings

Gray calculate type
Gray calculate type

Monitor dimensions
Monitor dimensions

Icons
Icons

Paths & Patterns
Paths & patterns

Save packer
Packer-settings

File IO buffers
File buffer

EPSI
EPSI-settings

Memory
Memory-settings

Vector / Object banks
Vector / Object banks

```

General
  General

Default values
  Default values

XPK
  XPK settings

Edit palette
  Edit color palette

```

Picture-Window :

```

Picture
  Picture-window

```

1.78 Trace window

```

-----
Trace window

```

This window shows the trace-process:

The upper part of the window shows how the picture is being traced. Below you see the filename, the size and actual number of objects and vectors

The lower part shows the process bars of the different tracing processes.

"Pause" stops the process temporarily (to continue press "Pause" again).

"Abort" cancels the process completely.

1.79 Picture window

```

-----
Picture window

```

Each of these windows displays a picture. If the window-name shows this (example):

```
1: - T LAGear.XTVF
```

it has the following meaning :

"1" - Number of the window (used internally by XTrace). At the moment a

maximum of 50 opened windows at the same time is possible.

- "-" - The picture has not been changed since it has been loaded. Any change in the picture converts the "." to "*".
- "T" - The picture has been traced. If the windows just shows a bitmap picture there's a "-".
- "LA.." - The name of the loaded file.

The picture windows has horizontal and vertical scrollbars. This way the picture can be scrolled, if it doesn't fit inside the picture windows (Tools-Window).

With the size-gadget you change the size of the window. The close-gadget closes the window.

The method used to calculate the grayscales to use can be changed in Settings .

1.80 Choose filetype to export

Choose filetype to export

In this window the file format can be set (depends which submenu is choosen: bitmap / vector / export / export to clipbaord) ("Filetype"- ↔ Listviewgadget).

You can also set which packer type to use ("Packtype"-Cyclegadget) :

- none file will not be packed
- ByteRun1 internal packer, can only be used with IFF ILBM and IFF XTVF files
- XPK use one of the external XPK -packers, which must be set . You can not use XPK when accessing the clipboard.

If the file type allows extra settings, these can be changed with the "Settings"-Buttongadget.

1.81 Tools window

Tools window

This window is the Toolbox for all open
Picture windows

Here is an explanation of the differnt symbols:

Arrow - normal mouse pointer, is not a tool

Frame - the mouse pointer is now a cross. It is used to draw a frame in the picture window. If this window already contains a frame it will be deletes. The frame has little squares in each corner and in the middle of each side. If the arrow of the toolbox is used to click these squares (left mouse button pressed) the frame behaves as if it had scroll/slider or size gadgets. The frame can be resized to your wish. If you click inside the frame with the arrow tool you can move the frame. The frame can be deleted by pressing the "Del"-key,

The frame is used to

copy
or

fill
parts of the picture.

Magnifier - this mouse pointer allows you magnify the picture twice if you press the left mouse button. Pressing it again enlarges the picture again twice its size etc. The right mouse button reduces the picture by a factor of 2 (half size) etc. (WARNING: this menue doesn't work yet!!!) The middle mouse button or the "space"-key displays the picture in its original size again.

You can use the scroll-bars to move the picture if the picture is magnified.

Hand - This mouse pointer allows you to move around a magnified picture (click inside the picture, press the left mouse button and move the mouse).

Eyedropper - This mouse pointer is only activated if the PenDisplay-Window is open. If you move the eyedropper (while the left mouse button is pressed) over the picture, you can see infos in the PenDisplay-window about the color under the eyedropper.

1.82 XPK settings

XPK settings

In this window you can change the settings of the actual packer mode. The

XPk

-packer can be changed with the "packer"-Listviewgadget (only those XPk-packers are shown which use loss-free compression and no encryption). The name, full length name, description and the packer mode description are displayed.

Please read the documentation of the XPk package. It's available on Aminet.

If the packer is changed, the default mode setting for this mode is used.

XTrace can read and save XPk-packed files, as long as the packer is known to the system and the file format of the packed file is compatible with XTrace.

1.83 Choose pen

Choose pen

In this window you set the actual active operator of the used pen.

Above you see the active pen. With the "Defined pen"-gadget you select the pens of interested area of the picture. Below this there are all grayscale pens. On the right of the window are

RGB
.- and
HSB
-values

of the actual pen.

The lower part of the window shows the real color and its name (as it stands in the internal list). As not all existing colors can be included only a selected fixed range is available. The Match-value tells you how similar the shown colorname matches the real color.

1.84 Color names

Color names

XTrace contains a list of about 400 color values with their names. In this window you can choose a color from this name list.

On the left side are the names, on the right side are the

RGB
.- and

HSB
values. Below right is the color and the grayscale.

1.85 Edit palette

Edit palette

Is used to edit the colors of the XTrace-screen.

The palettégadget (above right) is used to change the active pen.

The gadgets below "Copy", "Swap" are used to copy and swap pens. The "Reset" gadget resets all the pens to their default colors.

The colorwheel and the gradientslider are used to change the colors of the active pen according to the

HSB
-colormodel.

The 3 sliders "Red", "Green" and "Blue" in the middle of the window are used to change the colors of the active pen according to the

RGB
-colormodel.

"Name" is the name of the color, like it is used in the internal list. The Match-value tells you how similar the shown colorname matches the real color.

The popup-gadget besides the name opens a requester window with all available colornames (

Color names
).

1.86 Progress

Progress

This window displays the progress of an operation.

"Pause" temporarily stops the process (press "Pause" again to continue) and "Abort" cancels the process.

It is possible that during lengthy operations, the "Pause" and "Abort" gadget react with a certain delay, This won't be changed as otherwise XTrace would slow down.

The progress bar also shows its status in %. If the operation is linear the necessary time (HH:MM:SS.MS) is shown too else only "--:--:--.--" is displayed (non-linear operation).

1.87 Clipboard

Clipboard

A kind of file requester for the
clipboards

.

The Listviewgadget shows all 256 clipboards, with Unit-number, Loadable, Type, Size in bytes and its Name. XTrace can load the clipboard if L (Loadable) is marked with a "*",

It is possible to specify the to be loaded Unit with the number-gadget and the unit-number.

1.88 Formats

3.1 Formats

Load :

IFF ILBM - Amiga standard format, up to 256 color format supported
compressed or uncompressed (ByteRun1 / XPK)
no 24 bit pictures yet

Datatypes - all installed and to the system known picture Datatypes are supported

IFF XTVEF - XTrace-format

Save :

IFF XTVEF - XTrace-format

Export :

IFF DR2D - very compact IFF.vector format, used by PageStream, ProVector etc.
Very usefull for Amiga-only applications (PageStream, Provector,
DrawStudio...)

EPSF - system independant vector format by Adobe®
Copyright by Adobe, Inc.

Is supported by nearly all DTP-programs and others, as well as
UNIX, Mac-OS, BE, Amiga OS, MS-DOS and Windoze.

Needs lot of memory, but high compress factor.

EPSI - system independant vector format by Adobe®
Copyright by Adobe, Inc.

Like EPSF, but includes a preview picture in ASCII-format

IFF ILBM - see above, usage of Xtrace bitmap operators.

1.89 Project Worldmap

3.2 Project Worldmap

This project shows where XTrace is used worldwide. Every registered user will be marked in a worlmap picture.

To realise this I need the name of the next big city in your neighbourhood (if you are living in a small town or village) when you are registering

.

This map is included with XTrace and can be viewed.

1.90 To Do

4.1 To Do

- analysis of objects made of thin lines
- macros for filters in order to automatically use several filters to process the picture
- 24 bit processing when using filters
- EPS and IFF DR2D Loader
- Adobe® Illustrator Saver
- more vector-exporter (if you do have some file format descriptions, email them to the author)
- ARexx port
- Halftone Removing
- changable color lists by the user
- true EPSI-preview-picture
- many new functions

1.91 Thanks

4.2 Thanks

I want to thank everybody who helped me in any way writing this program or encouraged me to continue.

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- Amiga Technologies
- SAS Institute, Inc. für SAS/C
- Nico François & Magnus Holmgren for the reqtools.library
- the XPK-Team for XPK and all packer-Authors

1.92 Glossar

4.3 Glossar

Aspect	describes the ratio of width to height of a pixel. An aspect of 4:5 means that a pixel has a width of 4 units and a height of 5 units. The aspect is important with picture painted on computers. Scanned pictures generally have an aspect of 1:1.				
Bezier-curve	this curves is defined by a starting and ending point - in the middle are to handle points. These handles are used to rotate / change or move the middle part of the curve. Complex curves can be made of several Bezier curves.				
Clipboard	memory used by the system to save CLIPS: The maximum number of available clipboards is 256 (0 .. 255). Only IFF-files can be used with the clipboards. XTrace uses a Clipboard-Requester to make its handling easier.				
Color-Type	XTrace uses 3 internal color types				
	<table border="0"> <tr> <td style="vertical-align: top;">Palette</td> <td>- The picture can use up to 256 colors. The color values can be changed, all operators are available.</td> </tr> <tr> <td style="vertical-align: top;">Gray</td> <td>- The picture can use up to 256 fixed grayscales. You can not change them. Operators like Remove Unused Colors, Adjust Saturation or Edit Palette are not available.</td> </tr> </table>	Palette	- The picture can use up to 256 colors. The color values can be changed, all operators are available.	Gray	- The picture can use up to 256 fixed grayscales. You can not change them. Operators like Remove Unused Colors, Adjust Saturation or Edit Palette are not available.
Palette	- The picture can use up to 256 colors. The color values can be changed, all operators are available.				
Gray	- The picture can use up to 256 fixed grayscales. You can not change them. Operators like Remove Unused Colors, Adjust Saturation or Edit Palette are not available.				

B/W - black / white - like gray but only with 2
grayscale

For bitmap pictures these colortypes can be converted from
one to another with the menu
Convert color

.
For vector pictures the colortype is not important.

DPI Dots per inch

GUI Graphic User Interface

HSB A color model like RGB. It's a subtractive mixture of a Hue-,
a Saturation- and a Brightness-value.
This model is excellent for manual color mixture. The
values of HSB colors, are the position of the Hue-value on
the colorwheel and the procental values of the saturation
and brightness.

IFF XTVF Internal file format of XTrace (XTrace Vector Format)
used to save all data of the bitmap and vector picture.

Object made of several (or many) vectors.

RGB A color model like HSB. It's an additive mixture of a
a Red-, a Blue- and a Green-value.
This color model is not as suitable as the HSB model to
mix the desired color. The values range for each R, G, B
color from 0 .. 255, which gives a total range of 16777216
different colors. (BTW that's the maximum number of colors
the human eye can distinguish.)

Used Colors The maximum possible number of colors per picture is
defined by its depth. A depth of e.g. 5 means $2^5 = 32$
possible colors. If this maximum number of available colors
is not used by the picture, this menu item allows you to

remove all unused colors
of the 32. Pens with
identical
RGB
values will be resumed to
one pen. The used colors will be moved together on the
first positions of the color palette and unused memory will
be given free.

Vectors is made of coordinates, which are used to draw the vector
picture. Several (or a lot of) vectors define an object.

XPK External Packer - A modular
packer concept, used to compress files with different
algorithms (compressor-libraries in the LIBS:Compressors
directory).

1.93 Known Bugs

4.4 Known Bugs

- sometimes the slope function creates Bezier-curves that are larger than the object to convert. This can be corrected (sometimes) if you set the accuracy to lower values. (See Slope chapter for values giving best results.)

1.94 History

4.5 History

V 1.00 Evolution Level 18249 Aminet Release 30.04.1996

- first released version

V 1.01 Evolution Level 18475 Aminet Release 13.05.1996

- changed limitations for unregistered users
- removed some bugs (reported by Michael Merkel & André Rothe)
- Settings completely changed. This was necessary, so that future changes automatically change the old settings without loosing them. There are now main- and temporary settings
- Worldmap included
- Slope improved

1.95 Advertisement

4.6 Advertisement

Other released programs on AMINET by me:

- LoC_V??.?.lha, aminet/dev/c
Counts the lines in C-source code (sorted as code, comments, spaces)
 - XStat_V??.?.lha, aminet/util/pack
Does some statistics on several XPK-packed files.
 - Galaxy_V??.?.lha, aminet/util/blank
Blankermodul for Garshneblanker: draws rotating and collapsing galaxies.
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