XP-Diff40_E

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COLLABORATORS

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XP-Diff40_E

1.1 Contents

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Chapter 1

Xi-Paint 4.0

Now, you have bought a new version of Xi-Paint - and probably you have many expectations for that new product. And you may be right! Though time was short beetween the releases 3.2 and 4.0, some new, partially revolutional knowledge has been put into it.

As far as I know, there is currently no 2-D paint program in 24 bit, where you can create animations quick and simple and display them as a preview. The built-in simple, but comfortable raytracer is also new.

And there have been many bug-fixes since the last release. That's, why there is a special chapter dedicated to the history of Xi-Paint. Further, I tried to explain frequently asked questions and to give some help at the installation procedure.

As with the release before, we created an addendum to the manual of release 3.2, which itself is based on the manual of 3.0. It doesn't make sense to give every user, which has upgraded recently, a new manual. And there is an advantage for the beginner, too. He's able th start with the much more simple manual of 3.0 and read the advanced features of the 3.2 and 4.0 later on.

1.3 Pictures on this CD, Competition

1.1 Pictures on this CD, Competition

Almost all pictures, that were on the 3.2-CD, have been included

here, too. Some ugly pictures have been deleted and therefore many new and pretty pictures have been added. The old pictures are included as a JPEG file, too.

As it was the last time, there is a competition for you, too: please send your pictures, created with Xi-Paint to my address! Add a small curriculum vitae and your address. The 50 best will recieve the next Xi-Paint-CD for free as reward for their efforts.

Please note, that you should not break any copyrights, and that you have to give me the right to publish your picture on the Xi-Paint-CD.

1.4 Contents of this Manual

1.2 Contents of this Manual

The very detailled tutorials of the 3.0 part remained the same and therefore you can use them to learn the basic functions of Xi-Paint. What has changed dramatically, is the AREXX-Port of Xi-Paint and therefore completly new in this manual. But the functions that were contained in 3.2 remained compatible.

The topic "system-settings" has changed beetween release 3.0 and 3.2. So I recommend to use the 3.2 part for that topic. Only some special settings are new for 4.0 and explained in this part of the manual.

The I/O-system of Xi-Paint has been completely rewritten for release 3.2, it remained the same for 4.0. So in this case, you should consult the 3.2 part.

Some important facts of the 3.2 maunal are also included and extended here. This, for example, are the answers for frequently asked questions concerning the handling of Xi-Paint.

In this 4.0 manual I concentrate on the essentials of animation and raytracing and will explain some new features. Should there remain some questions or confusions, don’t hestitate to contact me:

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1.5 Corrections to the Manual of Version 3.2

1.6 Retina

1.3.1 Retina

On some places, there was mentioned, that the Retina driver will not be included at the CD. But this has changed immediately before the CDs were pressed. So every output driver we've ever written, is contained on the CD.

1.7 Printing the Manual

1.3.2 Printing the Manual

It was offered to ship a paper manual. Some customers of Xi-Paint are willing to pay up to 20$ for it. But sadly this isn't possible. A paper manual would be three times the cost. This is not only caused by the printing, also by the cost of shipping and handling.

Threrfore the manual is contained on the CD only, for printing with DeskJet, LaserJet and PostScript.

It was mentioned, that one could use double sided printing. This is not new to mee, too. But I know from own experience, that if a paper gets stucked you have to reprint the complete manual another time. So I appeal to the ones that wanted to do so, to appreciate that. Doing a double sided manual would cause the anger of the people with not so perfect printers. For those ones, that have AmigaTeX, I have included the DVI-file. With that you can decide, how to print the manual for your own.

Additional the is a file in the CD in the printing dircetory, with that will print the missing page 21.

1.8 Libraries

1.4 Libraries

Starting with release 3.2 on CD, there were many problems with
the Xi-Paint libraries. Some CD-ROM drivers change the file names
to upper case. The operating system needs them to be lower case.
This special problem should be fixed with the 4.0 release of the
Xi-Prefs program. So, from now on, it should be possible to start
Xi-Paint directly from CD. But quitting the program after that will
be no fun, if you worked with brushes. Xi-Paint tries to save them
within the actual dirctory, which obviously fails.

In a later version, the brush-management will contain different li-
braries, that are contained in a database.

On some systems it happens, that Xi-Paint doesn't start or Xi-Prefs
doesn't find any output drivers. Try to step through all parts of
the LIBS: path and delete all Xi-Paint libraries you find there. After
restarting your Amiga delete the ENV:XiPaint variables. If the
problem is still there (and only in this case), copy all libraries from
xipaint/libs to LIBS: (but be careful to put them to lower case
names).

1.9 Chapter 2

Chapter 2

Extended Functions

1.10 Magic Fill

2.1 Magic Fill

This simple but powerful tool allows you to fill colored areas with similar intensity at one pass. An example: you want to brighten the background sky of a digitised picture. Choose the mode "Brighten" an a 1-pixel-pen. Click on the fill symbol (paint pot) to select the fill mode. At the "system-settings", page "picture" you have to switch on the gadget "Magic fill". Though the sky contains more than one blue, it should get filled at once. Since you have choosen the mode "brighter", it will get brighter.

To vary the range of intensity that is accepted, use the slider "Magic Delta" at "system-settings", page "Picture". The greater you set this value, the more diverging colors are concerned by the fill operation.

1.11 Red-Green Composition

2.2 Red-Green Composition

Now you have the possiblity to create depth pictures for those red-green glasses at a very simple way. You only have to load the two pictures for the left and right eye. After that you can shift their origins with the lighttable function. To do so, open the window "Background-Shift".

This window tells you about the current offset beetween front and back picture.

To merge the two pictures, choose "RG-Composition" at the menu "Misc". Now you are asked for the first picture, the red one. After that you have to specify the green picture. After that, the function will generate a third picture with the same size of the first two ones.

The shift of origins you have set at the lighttable-preview is applied
to them. The target picture only contains the red- and green-data
of the source pictures.

1.12 Background Shift

2.3 Background Shift

This function opens a window, where you can specify the shift beet-
ween the front and a selected background picture. This only makes
sense, if you want to rub throuh the background with the corre-
sponding paint mode, or use the shift for red/green-composition.

The background picture automatically gets tiled, even if it is has a
differnt size than the front picture.

Figure: Shift-Requester

1.13 Picture Operations

2.4 Picture Operations

Altough this function were already part of Xi-Paint 3.0, I'd like to
remind you of following shortcuts:

2.4.1 Mirror Picture by x-Axis

2.4.2 Turn Picture by 90\textdegree{}

1.14 Mirror Picture by x-Axis

2.4.1 Mirror Picture by x-Axis

By pressing Alt-y you can mirror the actual project by the x-axis.

1.15 Turn Picture by 90°

2.4.2 Turn Picture by 90\textdegree{}

The shortcut Alt-z turns the current project by 90\textdegree{} counterclock-
wise. It uses very few additional memory!

1.16 Brush Grab

2.5 Brush Grab

In this requester you can select the position, where the mouse pointer (cross-hair) "grabs" your brush. Currently there are only 5 possibilities:

- Upper left
- Lower left
- Upper right
- Lower right
- Center

Figure: Brush-Grab Window

1.17 Coordinates

2.6 Coordinates

It opens a window that shows the current position of the cursor whithin a project window. If a rectangle is drawn, it shows its current width and height.

Figure: Coordinate Window

1.18 Status Informations

2.7 Status Informations

A small window showing the current drawing mode is opened.

Figure: Status Window

1.19 Quick Start Box

2.8 Quick Start Box

The Quick Start Box is a small window with 16 plain buttons in

it. But these buttons represent 16 AREXX-Scripts, which will be executed automatically after clicking on a button. So this window will be your own configurable toolbar! The scripts have to be in the drawer 'xipaint/rexx' an have to be named from 'r1.rx' to 'r16.rx'.

Figure: Quick-Start Box

1.20 Support of Graphic Tablets

2.9 Support of Graphic Tablets

2.9.1 Overview

2.9.2 Switch Tablet-Mode on the Fly

2.9.3 Pressure Menu

2.9.4 Some Hints

1.21 Overview

2.9.1 Overview

If you own a WACOM tablet, you can use it for Xi-Paint with the driver from Roland Schwingel (Shareware, on this CD). Best is version 1.50 or higher.

Other tablets like Summagraphics are currently not supported (may change in future).

You can select the tablet in the Xi-Prefs programs at the list "Available Mouse-Drivers". In the main program XiXi-Paint you must switch on the button "Use Tablett?" in the pressure menu (open the menu with "Misc/Pressure Menu").

At "Available Mouse-Drivers" you can select one mouse driver that is supported by the corresponding output module. Futher you have to set the pressure range and threshold of the tablet. This is necessary since the different WACOM-tablets have different ranges (even physical). So you can set the pressure range by the following gadgets:

Minimum: Sets the minimal pressure, if the pen touches hardly the tablet or is away from it.

Threshold:The value represents the switch-point of the top switch of the pen at newer WACOM tablets.

Maximum: Sets the maximal pressure value the tablet will send.
werden kann.

Some values can be obtained from the used tablet driver, others have to be set by the user. Therefore most drivers have some test-programs. With the driver on our CD, there is a developer-drawer, which contains this programs. By using them while pressing the pen and watching the button state (0 or 1) you can get the values needed. Basically you should be very conservative by setting this values (minimum too high, maximum too low). Otherwise Xi-Paint may crash!

There are following mouse-drivers:

Amiga-Maus: Uses the Intuition mouse-interface and the tablet-interface of the OS 3.0. This allows the usage of any tablet-driver, that supports this interface. Since the OS-interface is misdesigned and doesn't supply the pressure range, you have to find out and set all three values.

Wacom II-S/IV Tablett: This driver uses the passive interface of the driver by roland schwingel contained on this CD. You should use version 1.50 (or greater), this one supplies the pressure range and you must set the threshold only. Since this value varies even beetween same tablet models, there is no way for the driver to find that out.

Wacom Active-Interface: This one supports the new active interface of the 1.50 driver. Because of its design, it is not possible to use it with those output-drivers, that use Intuition windows. So it is not listed, if you select one of them. This interface is the fastest and allows the most natural handling of the tablet. The only value, you have to supply, is the threshold. eingegben werden.

Starting with this version, you can use mouse and tablet simultaneously! So you can click buttons with the mouse and use the tablet for painting only.

1.22 Switch Tablet-Mode on the Fly

2.9.2 Switch Tablet-Mode on the Fly

With the shortcut Alt-p you can switch off the pressure sensitivity on the fly. Then the constant pressure of the pressure menu will be used. Pressing Alt-p again will switch on the pressure mode.

1.23 Pressure Menu

2.9.3 Pressure Menu

If you switch off the "Use Tablett?" at the pressure menu, you can adjust the pressure manually by using a slider. You can use this feature even if you have no tablet.

You can do so to print fonts with full intensity while using a tablet (just switch off the "Use Tablett?" and move the slider to full pressure). You can switch on and off more easily by using the shortcut ALT P.

1.24 Some Hints

2.9.4 Some Hints

If you paint regularly using the freehand airbrush, you should switch off the Antialias mode in the system settings (notebook, page "Line"). Otherwise the lines will not be smooth.

TO SPEED UP: Set the Pixel-Current at e. g. 7 (system notebook, page "Line")! After this you can paint more fluent with freehand line 'Shift D'. Basic rule: the Pixel-Current should be a quarter to a third of the diameter of the brush (if possible, an odd number, so circles are painted correctly). With an airbrush of 30 pixel diameter the optimum Pixel-Current would be 9.

1.25 New System-Settings at the Notebook

2.10 New System-Settings at the Notebook

2.10.1 Brush

2.10.2 Picture

2.10.3 In/Out

2.10.4 System

1.26 Brush

2.10.1 Brush

Autom. As-It-Is:If switched off, Xi-Paint keeps the previous
paint mode as usual. When activated, Xi-Paint selects the
paint mode "As-it-is" if you pick up a brush (cut out or brush-
queue). If you select a pen, the mode is set back to "Solid"

1.27 Picture

2.10.2 Picture

Magic Fill:Activates the new feature for filling areas as described
above. If you switch off this feature, fill only acts on one solid
color.

Magic Delta:Selects the intensity-range for Magic Fill. The big-
ger the value, the more colors get selectes to be filled.

1.28 In/Out

2.10.3 In/Out

Max Entries/Filereq.:For big directories it is useful to limit the
number of files to be listed in the file-requester. You can do
this by adjusting the slider "Max. Entries/Filereq.". So you
can avoid unnecessary waiting if you've selected the wrong
directory.

1.29 System

2.10.4 System

A small hint:
If you mangled up your colors by experimenting with your own
settings, the only way out is to quit Xi-Paint and delete the files
"ENV:XiPaint_User" und "ENVARC:XiPaint_User" before starting
again. All settings will be resetted to their default values. But be
aware, that all other changes in the system-settings (except the ones
of Xi-Prefs) and your personal palette will be lost!

1.30 Chapter 3

Chapter 3

Animation

In version 4.0 Xi-Paint offers animation capabilities for the first time. A note ahaed: Those animations done in 24 (or 32) bit can't be played back by Xi-Paint at full speed and resolution! It rather offers the possibility to process or generate single frames that are related to another. But you can look at a preview of the animation.

When using the preview, you must have a minimum amount of RAM: that is 20kB memory per picture. So, if you have a 50 picture animation, that will be 1 MB of RAM.

Some users, that are accustomed to DPaint 4 may be irritated: - Paint can't use the chip memory of the Amiga, because it allows only a depth up to 8 bit. So a freehand brush animation is not possible.

In the first version with animation, there are still no "animated brushs". But apart of this limitations there are several completely new features.

1.31 Basics

3.1 Basics

Xi-Paint uses single frames for its animations. They have to be within a directory have the extension .000 to .999. Besides that, they have to be in the format IFF-DEEP, since this Loader/Saver is the only one that is built-in into Xi-Paint and therefore operating synchronously. But this is not really a limitation - this format is the fastests one, that Xi-Paint can handle. It also is no compression losses and saves minipics and the alpha channel.

To create an animation you need the description of a process to happen. There are two possibilities to do that: you supply a path a event happens along that path or you supply the difference event beetween two pictures. Both ways are supported by Xi-Paint. In addition to that you can work with a static set of pictures, just to do one operation for all of them one time.

1.32 New Animation

3.2 New Animation

The following requester opens:

Figure: New Animation Requester

Please notice: if there is a project window opened, the active (last used) paint window is taken as base picture for the anim. Every single frame is filled with that picture automatically.

So in this case the supplied width and height is ignored!

If you want to create an empty new animation, you have to close all project windows (painting windows)! Then the width and height is taken from the requester and a sequence of black frames is generated.

Further you must specify the number of frames to be generated and the path where to store the images.

Watch out for enough free space on your hard drive. To store 50 pictures with a resolution of 200x200 pixels, you'll need 10 MByte: The calculation formula:

MByte = FrameCount*((Width*Height*4)+46496) / 1024*1024

50*((200*200*4)+46496) / 1024*1024 = 10MByte

1.33 Load Animation

3.3 Load Animation

Here you can load anims created with Xi-Paint before. You can load every other animation, too. But their single frames must have the file name extensions from .000 to .999 and reside within a directory. Choose the frame with the lowest number you want to work on. All following numbers are loaded automatically.

Take care, that Xi-Paint can only load anima frames saved in the IFF-DEEP format. Also check the Gadget "Generate Minipic" in the main window for anims to be on. The current load-module has to be one, that supports IFF-DEEP.

1.34 Main Window

3.4 Main Window

Figure: Main Window

After you've selected a filename and loaded or created the frames, this window open. It shows three frames of the anim, or if the anim was no created by Xi-Paint (no minipics) three empty rectangles.

There are three sliders below corresponding with theese three pictures. The first slider specifies the first picture of the anim to be processed, the second one the last.

Notice, that theese values have a different meaning than those supplied at load time. So you can load the anim starting from picture 10, but after that you can limit processing e. g. beetween the 14th and 34th picture.

The third slider represents the current frame, that is used as a marker in the path requester.

A click on "Generate Minipic" converts an alien anim into Xi-Paint format and creates the minipics.

3.4.1 Preview

3.4.2 Macro

3.4.3 Effect

3.4.4 Path

1.35 Preview

3.4.1 Preview

Figure: Preview Window

In the preview window you get an approximate impression of you anim. You have the possibility to start playback with "Start" and stop it with "Stop".

On most systems the frame rate will be too fast, then you should set a delay value of 1 or 2. Then every picture is stopped for 1/50 or 2/50 seconds.

With the switch PingPong enabled the anim is played continously from start to end to start.

1.36 Macro

3.4.2 Macro

If you want to do a constant operation on a number of frames, you can do this with AREXX and the Macro function. Record an AREXX macro with Xi-Paint an save it. Adjust the start and end of the frame sequence with the sliders and press the "Macro" button. A filerequester opens, where you can specify the name of the macro created before.

This macro is applied to all frames of the sequence - always at the same position.

1.37 Effect

3.4.3 Effect

This item is designed to do fading effects. It is not very sophisticated rigth now _ this will improve in the next versions of Xi-Paint.

After selecting start- and end-picture you may press this button. Notice, that all frames in the sequence may be manipulated or replaced completely at some operations.

A window opens, where you can select the effect. After that all new frames in beetween are calculated.

1.38 Path

3.4.4 Path

With this switch you get into the menu for brush anims. Before doing that you should select start and end of the frame range you want to process.

1.39 Path

3.5 Path

Figure: Path Window

This window shows you an area, where you can paint the path a brush or macro should take. Fast painting is acceleration, slow painting is deceleration. If you'd like to get constant speed you have to paint your curve smooth.

If the switch "Additive Operation" is on, every single frame shows the changes to their predecessor. This way the move leaves a trace an the previous images.

3.5.1 Preview

3.5.2 Macro

3.5.3 Brush

1.40 Preview

3.5.1 Preview

Figure: Preview Window

In the preview window you get an approximate impression of you anim. You have the possibility to start playback with "Start" and stop it with "Stop".

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1.41 Macro

3.5.2 Macro

If you want to do a constant operation on a number of frames,
you can do this with AREXX and the Macro function. Record an
AREXX macro with Xi-Paint an save it. Take care of the position,
where you draw the macro. This position (relative to the upper left
corner) will be the relative postion of the macro operations to the
path.

After you've fixed the frame range press the "Macro" button. A
filerequester opnes, where you can select the recorded macro. As
with the brush, if you switch on "Additive Operation", the macro
leaves a trace on the previous frames.
The selected macro is applied to all frames within the range - always
at the macro's position relative to the path.

1.42 Brush

3.5.3 Brush

With "Brush" the current brush with the current paintmode and
color is applied to all selected frames. The position is specified by
the path. With this operation the current loader-module is used.
So for fastest speed you should select "Internal DEEP".
The pictures are saved as IFF-DEEP with minipics anyway.

1.43 An Example

3.6 An Example

We open a small procet with a size around 200 x 200 pixels. A
small flower or the St. Stephens Cathedral for example.
Choose "Animation - New" from the menu. Enter the path, where
you have enough space for the animation (see formula above), inclu-
ding the filename for the pictures (without extension).
Open the brush queue and click on a small brush. At the anim
requester click at path and draw a curve (like in the figure above).
After that click on "Brush". Now all single frames get manipulated.
With "Preview" we can look at the completed anim with the brush
moving along our path.

1.44 Chapter 4

Chapter 4

Raytracer

Why a Raytracer in a Paintprogram? - This is the question of many users. But the answer is easy: people want to have the color gold or want to mirror in a ball. Or need some glass-cylinders. This is not solvable in a two-dimensional way. Therefore I thought, a raytracer will be a good idea. In this way you will get a smooth texturing around a ball or cylinder.

This raytracer is not a raytracer like imagine or Real 3D. It is a very simple one, which combines only limited primitives with lights.

Also the interface is new, but not perfect - as well as this manual. I cant explain everything in this little manual - so please try and play with the raytracer!

For the experienced user there is a short abstract of the user-script-language for people, who want to make more, as the XiPaint inter-face gives. For this reasen you have to start ray with the name of the script.

1.45 Basics

4.1 Basics

Working with this tracer is easy: you need a choosen brush (for ma-
ping or background). Then, you open the Raytracer-Masterwindow.

Figure: Raytracer Master Window

The first time, you will be confused because of the many buttons.
But you have only to choose symbols for the first three big gadgets.
The first one selects the shape. The second one the material. If
you want to have only a ball without texture, or glass, you don't
need to select this button. The third one is important: it gives the
surface-parameters for the material.

Then you are ready: click on "Trace It" - and wait. A window will
open with the traced picture inside.

1.46 Shape

4.2 Shape

Select your prefered shape. The window will close. Most of the
objects need more parameters like size. This is adjustable in the
requester, which opens after a click on the button under the last
one, which is also called "Shape".

If more parameters are possible, a window will open to adjust the
new parameters. Else, an errorrequester will apear to say, that no
more parameters are required.

1.47 Material

4.3 Material

Figure: Material Window

Select your prefered material. The window will close. Some of the materials need more parameters like roughness or frequency. This is adjustable in the requester, which opens after a click on the button under the last one, which is also called "Material".

If more parameters are possible, a window will open to adjust the new parameters. Else, an errorrequester will apear to say, that no more parameters are required.

The material is not important, if you want to have a solid object or a glass ball. It is only for 2 or 3 D- textures.

Through this concept, there will be more materials and objects with the same programm in future.

1.48 Surface

4.4 Surface

Select your prefered surface. The window will automatical close. All the materials need more parameters like glossy, suroundlight or mirrorness. This is adjustable in the requester, which opens after a click on the button under the last one, which is also called "Surface".

A window will open to adjust the new parameters.

Surround is a value, which gives the surrond light. Diffuse and Shine gives also the parameters for the light. the light of a scene is composed by the surrond light, the diffuse and the shiny light. This 3 values together should give 1. But if you want to have a brighter scene, you can make them higher. If you have also mirror or / and translucent selected, this factors should also within the sum of one of the light.

Gloss is only a value, which makes the glossy point on an object.

1.49 Colors

4.5 Colors

There are 3 drop-areas in the raytracing-master-window. These are good for the light, the surronunding - light and the color of the material.

Pick a color in the color-requester and let it drop in one of these areas.

1.50 Light

4.6 Light

The raytracer could work with many colors - Xi-Paint gives you only one. The cube beside shows you the position of the light, if you know, that your object is in the middle of the cube. To change the coordinates, change the values with the sliders or direct.

1.51 Shadow

4.7 Shadow

If your object can make a shadow, you have to switch on this button. This costs CPU-power, and therefore this button is normaly disabled.

1.52 View

4.8 View

View gives the parameters how you want to look into a scene. X and Y are the relative height and widht of the virtual window, you look through. Z is the parameter for the distance, you are away from the scene.

This sets the width and height in pixels of the rendered image. Default is the size of the last new project you made.

1.53 Camera

4.9 Camera

To set the camereposition, you can do this with this parameters. The cube shows the position relative to the scene, which is in the middle. Choose a great Z-Value, else the objects are too distorted

There are two sliders for rotating the Camera. This rotates the viewpoint to the scene counterclockwise. The X-Rotation is very important if you have more then one object (like a plane or so).

1.54 Scaling

4.10 Scaling

If your object is to small or to great, you can scale it with this parameters. Also, you can distorrt an object, if the X,Y and Z-coordinates are not the same.

1.55 Scriptlanguage for Professionals

4.11 Scriptlanguage for Professionals

If you want to build more complex objects, you can do this with the script-language of ray. this chapter gives you a short summary.

1.56 Coordinate-System

4.11.1 Coordinate-System

```
left-handed
  +x: to right
  +y: to upper
  +z: in the monitor
```

1.57 Limits of the Interpreter

4.11.2 Limits of the Interpreter

```
maximum pf different surfaces: 100
maximum of different objects: 100
maximum of mapping-oictures: 100

Objects, surfaces and mappings are identified by there number.
These numbers are free after the construction of a new object.
```

1.58 Start Calculation

4.11.3 Start Calculation

```
TRACEIT(objectNr,PicWidth,PicHeight,shadowed)

objectNr: Number darzustellenden objectes
PicWeidth, PicHeight: Width and Height of the new picture in pi-
                      xel

shadowed: 0: no shadow
          1: calculation of shadow
```

1.59 Basic objects

4.11.4 Basic objects

```
Basic objects are generated by the objectNumber and some para-
meters. These objects are situated in the middle of the scene, in
the 0-point. Some Basic objects are cutted by an other object to
make the calculation easier (ETorus, Quart) or to make them real
(EKegel, EZylinder etc.).


KUGEL(objectNr,Radius)

  Ball with radius: Radius
```

```
TORUS(objectNr,Radius)

  Radius:  this is the thickness of the Torus-tube, the big-tube is
  always 1.0. The Torus lies in the X-Z-Plane.


ETORUS(objectNr,Radius)

  Torus cutted with the standardball.


QUART(objectNr)

  Mixture between ball and cube.


ZYLQUART(ObjketNr)

  Mixture between cylinder and cube.


PLANE(objectNr)

  Unlimited Plane in the X-Z-dimension.


KUBE(objectNr,Len)

  Cube with the lenght of 2*Len, centered in the middle.


PYRAMID(objectNr,sides)

  Pyramide with n sides on the X-Z-Plane standing with height 1.0.


OKTAEDER(objectNr, side)

  Combination of 2 n-sided Pyramids.


DODEKAEDER(objectNr)

  "Ball" through 12 Fiveedges.


ZYLINDER(ObejtNr,Radius)

  Unlimitted Cylinder along the Y-axis.


EZYLINDER(objectNr)

  Cylinder with Radius 1, cutted at Y=1.0 and Y=-1.0
```

KEGEL(objectNr)

  Unlimitted double-cone with peak in the 0-point.

EKEGEL(objectNr)

  Cone with Raduis 1.0 cutted at Y=1.0 and Y=-1.0

HYPERBOLOID(objectNr,Value)

  Value for the bending.

EHYPERBOLOID(objectNr,Value)

  Cutted Hyperboloid

PARABOLOID(objectNr)

EPARABOLOID(objectNr)

1.60 Material Definition

 4.11.5 Material Definition

To make an object visible, you have to relate it to a material.

  MATERIAL(NewobjectNr,OldObjketNr,MaterialNr)

With logical operators you are able, to make complex objects. The
following operations are possible:

  Union, (UNION A+B)

  Difference, (DIFFERENCE A-B)

  Intersection (INTERSECTION A and B)

These operators are also good to optimize the calculation, if you
can intersect some obejcts so that the result has less complexity.
The optimized operators (SUNION, SINTERSECTION, SDIF-
FERNECE) are ignoring the material.

INTERSECTION(NewobjectNr, objectA,ObjectB)

  Result: Intersection from object A and B The rsulting object has
  the material from B and the surface from A.

```
DIFFERENCE(NewobjectNr, objectA,ObjketB)

  Result: object A without object B The material comes from object
  A, but at the cutting points, it has the surface from B.


UNION(NewobjectNr, objectA,ObjketB)

  Union from A and B B is there, where is no A.


SINTERSECTION(NewobjectNr, objectA,ObjketB)


SDIFFERENCE(NewobjectNr, objectA,ObjketB)


SUNION(NewobjectNr, objectA,ObjketB)
```

1.61 Transformations

```
 4.11.6  Transformations


TRANSLATE(NewobjectNr, OldobjectNr, dx,dy,dz)


SCALE(NewobjectNr, OldobjectNr, sx,sy,sz)


ROTATE _X(NewobjectNr, OldobjectNr, angular)

  Rotation around the null-pointt (+Z to +Y)


ROTATE _Y(NewobjectNr, OldobjectNr, angular)

  Rotation around the null-pointt (+Z to +X)


ROTATE _Z(NewobjectNr, OldobjectNr, angular)

  Rotation around the null-pointt (+Y to +X)
```

1.62 Color-Textures

```
 4.11.7  Color-Textures


CTEST(NewobjectNr, OldobjectNr,turbulenz)
```

BOZO(NewobjectNr, OldobjectNr,turbulenz)

MARBLE(NewobjectNr, OldobjectNr,turbulenz)

WOOD(NewobjectNr, OldobjectNr,turbulenz)

SKY(NewobjectNr, OldobjectNr,turbulenz)

SPOTTED(NewobjectNr, OldobjectNr,turbulenz)

AGATE(NewobjectNr, OldobjectNr,turbulenz)

GRANITE(NewobjectNr, OldobjectNr,turbulenz)

1.63 Material-Textures

4.11.8 Material-Textures

SCHECKER(NewobjectNr, OldobjectNr,Surface1,Surface2,Value)

3-D Chessboard , Value has no meaning.

PCHECKER(NewobjectNr, OldobjectNr,Surface1,Surface2,Value)

3-D Chessboard, Value has no meaning.

ZCHECKER(NewobjectNr, OldobjectNr,Surface1,Surface2,Value)

CylinderMap for Chessboard, Value is the angular velocity.

KCHECKER(NewobjectNr, OldobjectNr,Surface1,Surface2,Value)

BallMap for the Chessboard, Value is the angular velocity.

1.64 Normalvector-Textures (3-D)

4.11.9 Normalvector-Textures (3-D)

NTEST(objectNrNew,objectNrOld,frequency,Phase,Roughness)

```
RIPPLES(objectNrNew,objectNrOld,frequency,Phase,Roughness)

WAVES(objectNrNew,objectNrOld,frequency,Phase,Roughness)

BUMPS(objectNrNew,objectNrOld,frequency,Phase,Roughness)

DENTS(objectNrNew,objectNrOld,frequency,Phase,Roughness)

WRINKLES(objectNrNew,objectNrOld,frequency,Phase,Roughness)
```

1.65 Picturemapping-Textures

```
 4.11.10  Picturemapping-Textures

TESTMAP(objectNrOld,objectNrNew,sx,sy,dx,dy,repeat,smooth,PicNr)

  Undefined testingfuction. sx,sy: Scaling of the picture
  dx,dy: Shifting of the picture
  repeat: 0: no repetition
  smooth: 0: no smoothing
  PicNr: Number of the mappeing picture

PMAP(objectNrOld,objectNrNew,sx,sy,dx,dy,repeat,smooth,PicNr)

  Planar mapping.

ZMAP(objectNrOld,objectNrNew,sx,sy,dx,dy,repeat,smooth,PicNr)

  Cylinderic mapping

KMAP(objectNrOld,objectNrNew,sx,sy,dx,dy,repeat,smooth,PicNr)

  Spherical mapping.
```

1.66 Adjust Camera

```
 4.11.11  Adjust Camera

KAMERA(width,height,length)

  width, height: Width and Height of the picturewindow
  length: Distance of the eye-point to the 0-point (negative Z-Axis)
  Target is the 0-point.
```

```
TRANSKAMERA(dx,dy,dz)

  Shifting of the camera-target-point.


ROTKAMERAX(angular)

  Rotation of the Camera through the X-axis.


ROTKAMERAY(angular)

  Rotation of the Camera through the Y-axis.
```

1.67 Ambient Light

```
 4.11.12  Ambient Light


AMBIENT(r,g,b)

  Color of the surrounding light.
```

1.68 Light

```
 4.11.13  Light


LICHT(x,y,z,r,g,b)

  Position and color of the light.
```

1.69 Material-Defintion

```
 4.11.14  Material-Defintion


SURFACE(SurfaceNumber,r,g,b,surround,lightd,lights,shiny,mirror,trans,refraction)

   r,g,b: Color of the material
   surround: Part of the surrounding light
   lightd: diffuse part of the light
   lights: mirror part of the light
   shiny: Coefficient for Shinylight (if higher the value, higher the
          shiny)
   mirror: Coefficient for reflexion (0:: < 1:0)
   trans: Coefficient for transparency (0:: < 1:0)
   refraction: Refractionindex (> 0:0, Luft == 1.0)
```

1.70 Mapping-Picture Definition

```
 4.11.15  Mapping-Picture Definition


TESTMAPPIC(PicNr)

  Internal definition.


BRICKMAPPIC(PicNr)

  Internal definiton like the bricks.


LOADMAPPIC(PicNr,"Name")

  To load a mapping-picture (in DEEP-format).
```

1.71 Chapter 5

```
                Chapter  5


 AREXX-Port


In the following chapter the new AREXX commands are explai-
ned. Normally all commands operate on the current paint window.
There are special commands to lock this picture or to load and save
it. At the end of the chapter there is a complete summary of all
AREXX command of Xi-Paint.


  o activatebox boxnr

       boxnr: number of the paintbox 1..255

       Activates a particular paint window for manipulating (all fol-
       lowing commands work on this paintbox)


  o activatebrush nr activatepen nr

       nr: nummer of the brush to be activated

       Selects the brush or pen with the given number


  o boxtofront boxnr

       boxnr: number of the paintbox 1..255

       Moves a particular paint window to front
```

o closeproject mode

mode = 0: no security check desired
mode = 1: make security check
mode = 2: security check only if changes are made to
the picture

Closes the active paint window

o findproject name

name: name of the paint window to find (filename, projectname)

The result is returned in the variable RESULT and is in the
range from 0 to 255 0 means that an error has occured (not
found).

o opennewbox w h

w: width of the new picture
h: height of the new picture

Opens a new paint window with the dimensions w and h. It
is activated automatically.

o openproject filename

filename: path and/or filename of the picture to open

Opens a new paint window and loads the specified picture

o paintmode mode

mode: 0 to 12

Sets the paint mode without changing the current pen/brush

o saveloader

o savesaver

Saves the current loader/saver in a special variable.

o loadloader

o loadsaver

Restores the loader/saver stored with saveloader/savesaver

o savetemp fname

fname: Filename

Saves the current picture to disk in DEEP format including an Anim.mpic

o setloader name

name: name of the loadmodule to be set, it must be within the drawer "modules" befinden.

Sets the requested module. The following modules are available now:

Examples:

```
setloader ''Internal DEEP''
setloader ''PPM(Xi)''
setloader ''HHsUniversalLoader''
setloader ''Targa(Xi)''
setloader ''ReproStudio(Xi)''
setloader ''PPM(Xi)''
setloader ''Multipic_Loader''
```

o setsaver name

name: name of the loadmodule to be set, it must be within the drawer "modules" befinden.

Sets the requested save format/module. The following formats are available now:

Examples:

```
setsaver ''Internal DEEP''
setsaver ''Targa(Xi)''
setsaver ''SGI(Xi)''
setsaver ''PPM(Xi)''
setsaver ''DEEP''
setsaver ''ILBM''
setsaver ''PPM''
setsaver ''SUNRASTER''
setsaver ''JPEG(Xi)''
```

o setoffset x,y

x,y: absolute coordinates

Shifts the offset for the execution of an AREXX macro by x and y.

o workpointer
o waitpointer

Sets the mouse pointer to work/wait mode (busy symbol). If Xi-Paint is in busy mode, no paint operations can be performed (important for AREXX and anims).

5.1 Table of ARexx-Commands

1.72 Table of ARexx-Commands

5.1 Table of ARexx-Commands

The following table lists all AREXX commands of Xi-Paint.

Befehl	Param	String	Menu	Key
activatebox	1	no	no	no
activatebrush	1	no	no	no
activatepen	1	no	no	no
arc	6	no	yes	yes
aslreq	1	no	yes	no
beginpoly	0	no	yes	yes
box	4	no	yes	yes
boxtofront	1	no	no	no
brushload	0	yes	yes	yes
brushsave	0	yes	yes	yes
brushturnd	1	no	no	yes
brushturnx	0	no	no	yes
brushturny	0	no	no	yes
brushturnz	0	no	no	yes
brushxhalf	0	no	no	yes
brushyhalf	0	no	no	yes
brushhalf	0	no	no	yes
brushdouble	0	no	no	yes
brushsize	2	no	no	yes
cls	1	no	yes	yes
closeproject	1	no	no	no
color	4	no	yes	yes
cyclemode	5	no	yes	no
dline	2	no	yes	yes
drawpara	7	no	yes	no
edge	1	no	no	no
ellips	4	no	yes	yes
endfpoly	0	no	yes	yes
endpbrush	0	no	yes	yes
endpoly	0	no	yes	yes
endrexx	0	no	no	yes
exit	0	no	yes	yes
fbox	4	no	yes	yes

```
|          fellips | 4     |   no   |  yes |  yes |
|             fill | 4     |   no   |  yes |  yes |
|      findproject | 1     |  yes   |  no  |  no  |
|          fontdpi | 3     |   no   |  yes |  no  |
|         getbrush | 4     |   no   |  yes |  yes |
|         gradmode | 3     |   no   |  yes |  no  |
|            itext | 0     |   no   |  yes |  yes |
|             line | 4     |   no   |  yes |  yes |
|       lighttable | 0     |   no   |  yes |  yes |
|       loadloader | 0     |   no   |  no  |  no  |
|        loadsaver | 0     |   no   |  no  |  no  |
|         maskclut | 2     |   no   |  yes |  yes |
|         maskmode | 7     |   no   |  yes |  yes |
|          maxmask | 0     |   no   |  no  |  yes |
|          minipic | 1     |  yes   |  yes |  no  |
|      openproject | 1     |  yes   |  no  |  no  |
|       opennewbox | 2     |   no   |  no  |  no  |
|        paintmode | 1     |   no   |  no  |  no  |
|          picload | 0     |  yes   |  yes |  yes |
|          picsave | 0     |  yes   |  yes |  yes |
|      pointlayout | 3     |   no   |  yes |  no  |
|         polymove | 2     |   no   |  yes |  yes |
|         polydraw | 2     |   no   |  yes |  yes |
|             redo | 0     |   no   |  yes |  yes |
|       saveloader | 0     |   no   |  no  |  no  |
|        savesaver | 0     |   no   |  no  |  no  |
|         savetemp | 1     |  yes   |  no  |  no  |
|         savemode | 2     |   no   |  yes |  no  |
|          setfont | 1     |  yes   |  yes |  yes |
|          setgrid | 5     |   no   |  yes |  no  |
|        setloader | 1     |  yes   |  no  |  no  |
|         setsaver | 1     |  yes   |  no  |  no  |
|        setoffset | 2     |   no   |  no  |  no  |
|       setmaxmove | 1     |   no   |  yes |  no  |
|         setpoint | 2     |   no   |  yes |  yes |
|        setshadow | 3     |   no   |  yes |  yes |
|             text | 0     |  yes   j  yes |  yes |
|             undo | 0     |   no   |  yes |  yes |
|          version | 0     |   no   |  no  |  no  |
|         vlabdigi | 0     |   no   |  yes |  no  |
|        vlabinput | 3     |   no   |  yes |  no  |
|     vlabscansize | 4     |   no   |  yes |  no  |
|      vlabdeinter | 0     |   no   |  yes |  no  |
|      workpointer | 0     |   no   |  no  |  no  |
|      waitpointer | 0     |   no   |  no  |  no  |
|             wait | 1     |   no   |  no  |  no  |
 ------------------------------------------------
```

1.73 Chapter 6

```
Chapter  6


Bug-Fixes
```

The following bugs from Xi-Paint were fixed:

- Module XiMulti had Problems with NOT-alpha-Channel selected while saving in IFF or SUNRASTER or PPM
- Module Xijpg crashed on non-fpu-systems while makeing a minipic. Without minipic it works ..
- Notebook-Alpha: was only activatable with doubleclick
- Crash in Cyclewin on first postion-droping
- Negated Line in Polygon now corrected
- Bug in Drag&Drop if bank has changed, corrected.
- Bug if Colorbox is closed fixed.
- Clear Picture now with yes,no, cancel
- Cycle-box: Slider - Bug fixed
- Draco: Cursor and help corrected
- If XiPaint ends, now there is a delay which prevents from disk-validating if it crahes (not testet)
- Bug in Mask if painted with solid fixed
- Lighttable with background-shifting now with mosaic
- jpg-saver corrected: smoothing was on the same value as quality
- All paint-functions with output speeded up to 30
- Fixed bug in endrexx
- No Bug: filerequester filters *.c *.h *.info *.mpic *.o. So Names like bulb.compose are not shown!
- Many Bugs in AREXX fixed (koordinates etc.)
- Filerequester now speeded up to 50
- New Help - System: now only one File- and many help-files are now added.

1.74 Chapter 7

Chapter 7

Common User-Errors

Only the error "Couldn't open Screen" is shown

To Fix: Start XiPrefs and select graphic board and resolution and start XiPaint again.

The error "Old or Demoversion, etc." is shown. Sometimes XiPaint starts - but nothing happens. The menus are empty (no text) and so on...

To Fix: Some configurations are able to load libraries from the current directory (I don't know why). Copy all Xi#?.library nach LIBS:. After that make a reset and start XiPrefs first, then XiPaint.

At start there is only a grey screen - nothing else

To Fix: Press right mousebutton and select item from menubar (like menus-tools or project-new, etc.).

There are no images shown at the browser.

To Fix: You have no minipics for the images in the selected directory. You can generate them by using the normal filerequester. Click into the empty preview area (while the filename of a picture is selected).

There are no images or frames within the browser, no picture can be loaded

To Fix: You've set a wrong loader at the system notebook, section "Load". If you use InternalDEEP and try to load an IFF or JPEG you'll get the effect above. Therefore try to use the XiMulti loader.

Other programs are unable to load XiPaint images

To Fix: Set the saver (at the system notebook) to IFF or another well known format.

Can't choose resolution of display (screen) I like

To Fix: Look at the Retina-Workbench-Emulation's Xi-Paint entry, whether the selected group is capable of doing your resolution. In doubt of that, choose the biggest group listed (e. g. Group 30-38kHz 50-91 Hz).

It's better to switch off the emulation for the retina direct version, since its Intuition screen is only for input purposes and therefore may stay at the Amiga display hardware. So it uses only few (Retina-)memory.

Xi-Paint-screen doesn’t pop to front

To Fix: Activate a window on Workbench, then change the screens
by pressing Amiga-M or clicking the screen-cycle-gadget.

To Fix 2: Install the FKey program of your original Amiga OS
(>= 2.0) disks. Map the program "xsend" to any key you like.
This program is supplied with Xi-Paint in the drawer "User". A
presss on the selected key will pop the Xi-Paint screen to front.

Freehand airbrush lines suffer from irregularities in thickness

To Fix: Switch off the Antialias function in the system notebook
(page "Line").

Xi-Paint can’t load my pictures

To Fix: The default loader after installation is "Internal DEEP".
It is only capable of loading IFF DEEP pictures. So you should
change this setting to "Multipic_Loader" and try again.

If you know the exakt format of your pictures, you can choose
another loader carrying this name as well.

1.75 Chapter 8

Chapter 8

The Future

The release 4.0 contains news like animation and raytracing. Nevertheless development never stops and new features become possible. Though I tried hard, it was not possible to add "Natural Paint" features in this release: this will be a feature of 4.1. There is a "MagicFill" in 4.0, but the "Lasso" selector for brushes has to wait till 4.1.
Some other items are delayed until 4.1, too. If there are any features you need, but Xi-Paint lacks them (yet): mail me - let’s see what I can do for you!
The queue concept for pens and brushes will be improved by libraries. So you can have an own brush library for each of you projects.

A very important aspect of the release 4.1 is the hierarchical an object oriented handling of all data within Xi-Paint. It will contain an own database! With that you can store different versions from your pictures or manage additional data (text, date, author, etc.). This database will be open to all Amiga programs. The sourcecode will be free and compiled to a shared library, open for all users. So maybe you can collect your private addresses with it ...