

# **Documentation for SIRDS\_GEN V2.1**

Michael Mutschler

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## Chapter 1

# Documentation for SIRDS\_GEN V2.1

### 1.1 Documentation for SIRDS\_GEN V2.1

SIRDS  
\_GEN V2.1

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What's it for?

Features

Disclaimer

Distribution

Requirements

What are SIRDS?

Usage

Menu

Prefs-Window

Keyboard

Options

Planing

Address

Thanks

---

## History

### 1.2 Disclaimer

#### DISCLAIMER

This program was first made, for testing the code for generating  
SIRDS  
. After  
a while, so much variables and other things came in, that I made the  
Preferences-Window, and made everything ready to release it.

This Program is distributed without any warrenty.

### 1.3 Distribution

#### Distribution

This Program is Picture-Ware. You may use the program, as long as you send me  
a good picture (preferrable the source picture, for generating others...).  
Snailmail, or email (amiga2@info2.rus.uni-stuttgart.de uuencoded) or upload it  
to ftp.rus.uni-stuttgart.de in pub/systems/amiga/incoming. Copying & Spreading  
this program is allowed, as long as no money is taken for it, and as long the  
following files stay together:

```
cave.pic
cave.pic.sirds
cave.pic.sis
SIRDS_GEN
SIRDS_GEN.info
SIRDS_GEN000
SIRDS_GEN000.info
SIRDS_GEN.guide
SIRDS_GEN.guide.info
testpattern.iff
```

Any Picture generated with SIRDS\_GEN may not be used in any commercial manner  
without the permission of the author.

The newest Versions will be available

- via anonymous FTP: ftp.rus.uni-stuttgart.de in pub/systems/amiga/gfx  
there will be pictures too, so send them!!!
- Mailbox: The Abyss: +49-711-617291 & +49-711-6159399  
Type "u1;16" at the main prompt to get in the right subboard.

### 1.4 Purpose

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## Purpose

This program calculates of given picture a  
SIRDS  
or  
SIS  
.

## 1.5 Features

### Features

- free choice of screen-mode
- scaling of the picture
- should run on Gfx-cards too (not much tested, but Picasso II is working)
- automatic correction of the eyewidth to the displaymode
- uses datatypes for reading the picture
  - you can load everything you got a datatype for :-)
- 32-bit color-funktions are used.
- uses a symmetric algorithm
- generation of  
SIS  
possible
- flimmering
- various Settings possible
- 3 different pattern-modes
- ...

## 1.6 Requirements

### Requirements

Requires only Kickstart 3.0+ & Workbench V3.0

Note: I will not make a Kick2.0 runnable version, due to massive usage of 3.0 functions (e.g. datatypes, 32-Bit colors, doublebuffering, ...)

An accelerator with FPU is nice, but not recommended

## 1.7 Usage

How to use the program:

Choose the right version: If you own a computer with at least a 68020 AND a 68881 then you can use the normal version. Otherwise you have to use the 68000-version.

After starting you are asked via an ASL-Request for a file to load. Now the

---



Picture will be loaded into a Screen (the PIC-Screen). Another Screen (the SIRDS-Screen) will be opened, and the  
SIRDS  
will be calculated.

Due to the fact, that a shared Userport is used for both screens (if the Pic-Screen is open), you have the same menus, and keyboard funtions.

## 1.8 Menu

### Menu Functions

Menu

"Load Pic"

Loading of a new picture

"Save Pic"

"ILBM"

saving of the current screen as ILBM

"GIF"

saving of the current screen as GIF

"Quit"

exiting the program

"ReCalc"

Perform a new calculation

"Switch Screen"

switch to the other screen

"Preferences"

Brings up the preferences window. All funtions there correspond to the ToolTypes.

## 1.9 Keyboard

### Keyboard

PIC/SIRDS-Screen

Prefs-Window

## 1.10 PIC/SIRDS-Screen Keys

---

## PIC/SIRDS-Screen Keys

```

l      : Loading of a new picture

s      : saving of the current screen as ILBM
g      : saving of the current screen as GIF
q      : exiting the program
ESC    : exiting the program

r      : Perform a new calculation
t      : switch to the other screen
p      : brings up the preferences window. All funtions there correspond to ←
the
       ToolTypes.

f      : start/stop
       flimmering
       (you have to enable it first)

```

## 1.11 Preferences-Keys

## Preferences-Keys

The Keys usable in the Prefs-Window are all the underscored ones, plus a few more:

```

q      : CANCEL
ESC    : CANCEL
h      : hidden
e      : Auto Eye-Width
E      : activate the Eye-Width Gadget when possible
u      : USE
RET    : USE
s      : Get Source Screenmode
d      : Get Destination Screenmode
b      : beep
a      : Auto Source Screenmode
y      : cycle EyePos
c      : switch Colors
m      : switch camg-mask
i      : switch Invers
f      : flimmer enable
w      : activates the width-gadget
p      : switch pattern-mode

```

## 1.12 Prefs-Window

## Prefs-Window

All the settings here reflect the options via Toolstypes or CLI. See the descriptions there for their meaning.

## 1.13 options

Here are the Options for configuring the Program.

- you can use them as ToolTypes (e.g. HIDDEN=TRUE)
- use them as CLI-Argument (e.g. SIRDS\_GEN "DST\_SCREEN=PAL:HighRes Interlace" EYEPOS=BOTTOM)
- or click on the corresponding Gadget in the Prefs window

SRC\_SCREEN

DST\_SCREEN

DST\_WIDTH

DST\_HEIGHT

SRC\_DEPTH

EYEPOS

EYEWIDTH

HIDDEN

PIC\_DEPTH

BEEP

CAMG\_MASK

INVERSE

COLORS

FLIMMER

FILE

(Startup only)

PATTERN

PAT\_MODE

(Startup only)

SHOW\_SRC

WBPREFS

(Startup only)

## 1.14 SRC\_SCREEN

SRC\_SCREEN

Screenmode for the Pic-Screen. If no valid Screenmode is found, BestModeID() is used for getting the right mode.

DEFAULT: PAL:LowRes

## 1.15 DST\_SCREEN

DST\_SCREEN

Screenmode for the SIRDS-Screen.

DEFAULT: NTSC:HighRes Interlace

## 1.16 DST\_WIDTH

DST\_WIDTH

Width of the SIRDS-Screen. If zero, the STANDARD Overscan width of the screenmode will be used. Try bigger value than StdOscan. The Autoscrolling looks really nice.

DEFAULT: 0

## 1.17 DST\_HEIGHT

DST\_HEIGHT

Height of the SIRDS-Screen. If zero, the STANDARD Overscan height of the screenmode will be used.

DEFAULT: 0

## 1.18 SRC\_DEPTH

SRC\_DEPTH

Maximum depth of the Pic-Screen

DEFAULT: 5

## 1.19 EYEPOS

EYEPOS

Position of the Eyes:

"TOP" = At the Top (default)

"MID" = in the Mid of the Screen (if you like it...)

"BOTTOM" = at the bottom

"NONE" = No Eyes (for those you dont like it at all)

---

## 1.20 EYEWIDTH

### EYEWIDTH

The space between the eyes. If you specify "0", the space will be adjusted to the screenmode:  $EYEWIDTH = OSCAN\_STANDARD / 10$ .

Actually EYEWIDTH is the number of pixels per inch. You can use this option if you want to calculate a

SIRDS

for another Media, e.g. for printing.

DEFAULT: 0

## 1.21 HIDDEN

### HIDDEN

If set, an algorithm for removing hidden layers is used.

DEFAULT: OFF

## 1.22 PIC\_DEPTH

### PIC\_DEPTH

The virtual depth of the

SIRDS

. Its calculation is the following:

$visible\_depth = 20 / PIC\_DEPTH * max\_visible\_depth$ . Due to this formula PIC\_DEPTH has to be  $\geq 20$ .

DEFAULT: 55

## 1.23 BEEP

### BEEP

If TRUE, a DisplayBeep(0) is generated after each calculation, to indicate a picture is finished. Some people find this nerving, right Jens?

DEFAULT: TRUE

## 1.24 CAMG\_MASK

### CAMG\_MASK

When saving as ILBM, some (in fact one) want to mask the screenmode in the CAMG-chunk to apply a default-monitor. If this flag is true, the screen-mode will be masked with (INTERLACE | HIRES\_KEY)

DEFAULT: FALSE

---

## 1.25 INVERSE

### INVERSE

If set, the virtual depth of the  
SIRDS  
will be reversed: The Highest area  
will be the lowest, and vice versa. Useful for people who cross their view  
before the picture for viewing  
SIRDS  
.  
DEFAULT: FALSE

## 1.26 COLORS

### COLORS

If set, the colors are sorted. So the highest color will be the front-most  
position in the  
SIRDS  
. The colors are sorted in the followin way:  
r-Val + g-Val + b-Val, and the sorted.  
DEFAULT: FALSE

## 1.27 FLIMMER

### FLIMMER

If set, a second plane will be drawn additionally, and you can use the  
flimmering-key, to start  
flimmering  
. If you dont like it, tun it off,  
to get more speed & mem for the one picture.  
DEFAULT: OFF

## 1.28 FILE

### FILE

Here you can specify a file for loading. If none specified, you will  
be asked for one.  
DEFAULT: <none>

## 1.29 PATTERN

PATTERN

requires a File, which will be used as pattern for  
 SIS  
 s. The loading is  
 done via datatypes, so you can use any format you like. The  
 SIS  
 -mode is  
 automatically activated, when this options is specified.  
 DEFAULT: <none>

### 1.30 PAT\_MODE

PAT\_MODE

3 different Pattern-modes are possible:

- 1 - The Pattern will be displayed normally on the left, and adjusted to the right
- 2 - The Pattern will be displayed normally in the mid, and adjusted to both sides
- 3 - The Pattern will be displayed normally on the right, and adjusted to the left

This setting is only possible at the start of the program. It was thought for my personal use only, but everybody should be able to test it.  
 If you pass a wrong value, a  
 SIRDS  
 will be generated.  
 DEFAULT: 2

### 1.31 SHOW\_SRC

SHOW\_SRC

If OFF, no screen for the source-picture will be opened. Just to save a little Chip-Mem for bigger SI(RD)Ss.  
 DEFAULT: ON

### 1.32 WBPREFS

WBPREFS

If set, the Prefs-Window will open on the default PubScreen.. Otherwise it will open on the current screen.  
 DEFAULT. TRUE

### 1.33 flimmering

One word about the flimmering:  
The flimmering consists of drawing 2x the same  
SIRDS  
, and then swap them.

This way, you get a more accurate sight of the contour of the original picture. This was just for experimental use, but try it. It isn't that good, but I left it in the program, for others to see it. It takes more time when you enable it, due to 2x usage of WritePixel(). The second pic has to be drawn somehow. Therefore, you have the possibility to turn the thing off, to get more speed & mem.

### 1.34 future things

I am planning the following things:  
currently everything i want is implemented

### 1.35 Address

The Author there reachable:

Bugs/Suggestions/donations :-)) to the following address:

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FIDO: 2:246/1115.1

### 1.36 Thanks

Greetings: Markus Wolf for the nice Test-Picture(s).  
Hans-Jörg Malthaner for the GIF-Save routine

"The Graphics Interchange Format(c) is the Copyright property of CompuServe Incorporated. GIF(sm) is a Service Mark property of CompuServe Incorporated."

### 1.37 History

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## History:

englisch history starting with V1.6.

Version 1.6

Version 1.7

Version 2.1

### 1.38 History Version 1.6

changes for Version 1.6:

The Background of the  
SIRDS  
is now black

Patterns implemented

few small fixes

Flimmer &

SIS  
exclude each other. Even in the Prefs-Window

Key-Change in Prefs-Window. "p" now activates patterns. "y" now for Eye-pos used.

Bug Fix: If a Picture is loaded, recalculation is startend immediately

### 1.39 History Version 1.7

changes for Version 1.7:

Filelength now set to 100. Patterns couldn't be loaded if the path was too long.

Synchronos loading of the picture.

Usage of the Bitplane of the Datatype:

- ReadPixel() to the Picture is faster due to FAST-RAM access
- Pic-Screen not necessary anymore

fri\_Dimension.Width does not return the right width of the picture. Caused the black border of the Patterns. Fixed.

---

Bug Fix: The depth of the  
           SIRDS  
           screen now adapts to the pattern, if  
           SIS  
           s are  
 rendered

New Flag: WBPREFS. Faster & better display of prefs & Filerequester.

## 1.40 History Version 2.1

changes for Version 2.1:

New Release, new version.

## 1.41 Glossary

### Glossary

SIRDS means Single Image Random Dot Stereogram  
 A picture of random dots is calculated

SIS means Single Image Stereogram  
 Instead of random dots, a pattern is used for rendering.

## 1.42 What are SIRDS?

### What are SIRDS?

SIRDS means Single Image Random Dot Stereogram

The trick of SIRDS is, that you have to know how to view them. When just looking at them, like you look at normal picture, then you will just see some random placed pixels, which seem to not make any sense at all.

So how do you look at them?

There are basically two ways of viewing SIRDS: Wide-Eye view (WE) and Cross-Eye view (CE). WE ist the easier way, though I have a friend, which can only see them with CE.

WE:

You have to try to look behind the picture, actually the same distance, as you are away from it. To help doing this, you can put a glass over it, and look at your own mirrored face, and the try to get the SIRDS sharp. Then you should see the picture with a real 3D effect.

For better help the "Eyes" in the picture can be used: When you got it, you see 3 of them. And the middle one must be sharp. The sharp middle one, is on the farrest plane.

CE:

Instead of looking behind, you must cross your eyes in front of the picture. A pencil is useful to hold between the eyes and the picture, concentrate on the pencil, and make the SIRDS sharp.

The difference of viewing CE and WE is, that CE swaps the depth of the picture: the farrest plane ist the nearest, and vice versa.

How does it work?

When looking normally, you look with both eyes on ONE point. When looking on SIRDS, you have to look on TWO points. Each eye is looking at a different point. This way, the brain thinks it is one point with a virtual depth. Now, you can vary the depth with inserting/leaving out pixels. Inserting means the point more far away.

This is not limited to graphics. You can make them out of plain ASCII too, but they don't look that good.

Example SIRTS

## 1.43 Example SIRTS

Small example

Here is how to make SIRTS (Single Image Random Text Stereogram)

```
*****
#include <stdlib.h>
#include <stdio.h>

main()
{
char m[100], s[80];
int j,i,e;

srand(time(0));
for(e=0; e<6; printf("X%13s", ""), e++);
for(puts(""), scanf("%d\n", &j); gets(m), j>=0; puts(s), j--)
for(e=s[79]=i=0; i<79; s[i++]= (e||i<14)?'!' +rand()%92:s[i-14])
for(e=0; m[i-14]== '#' && i<79 && i>13; e=1, s[i++]=s[i-13]);
}
*****
```

compile the program and start it with "a.out <sirt.inp"

for an input (e.g. sird.inp) you can use the following:

```
*****
17
```

```
-----
-----
-----
-----#####-----
-----#####-----
-----#####-----
```

