Aros *Fractals* for Windows95 and Windows NT

Welcome to the wonderful world of fractals and long compute times! With Aros *Fractals* you will explore classical images of mathematical objects that have captured the fancy of many. Even if you have played with other fractal programs, you should check out the true color support of Aros *Fractals* -- the complexity of the Mandelbrot Set is even more impressive when viewed in HiColor.

Short feature list

- High resolution color fractals, generated at 8-bit, 16-bit and 24-bit levels.
- Print to any color printer at the highest resolution available on it.
- Save images as BMPs or create custom wall papers.
- Color cycling of images, even for 16-bit or 24-bit images!
- Multi-threaded operation. Compute many fractals simultaneously.
- A variety of color tables for 8-bit images.

Further Information

- If this is the first time that you are using this program, you should check out the short tutorial
- A list of fractals and their description in Aros *Fractals*.
- Learn more about the technical details of this program.
- If you are encountering some problems with Aros *Fractals*, consult the list of known bugs and their workarounds.
- Feedback and Support for Aros *Fractals* over internet.
- Copyright and other Legal Information.
- Whodunit?!?

Aros *Fractals* Short Tutorial

- Click on any tool button to bring up a window in which that type of fractal is immediately computed.
- Dragging with the left mouse button allows you to zoom into an area of interest. The rubber-banding rectangle is centered around the point of left-click and maintains the aspect ratio of the image.
- **Right-clicking** (Cmd-Click on MacOS) on a Mandelbrot image will pop-up a Julia Set for the point where the mouse is clicked.
- Click on
◀◀ or
▶▶ to start color flaring. Repeated clicks speed up or slow down the flare. Clicking on
⭕ stops the flare. You can single step the color map by clicking on
◀ or
▶.
- Resizing the window when the "Absorb Window Size" option is selected automatically resizes the fractal.
- **Caution**: Computing extremely large fractals can sometimes momentarily freeze Aros *Fractals*. This is because it is trying to allocate memory. If your computer doesn't have sufficient memory, Aros *Fractals* uses the harddisk to get more storage space -- this procedure can take some time.

Aros *Fractals* Supported Fractals

Mandelbrot Set
 The iteration $z(n+1) = z(n) \wedge 2 + c$ is computed, where c is any point in the complex plane. N is used as a color value when $|z(N)| >= 2.0$ or N reaches a preset limit.

Mandelbrot Julia Set
 The Julia set for $z(n)\wedge 2 + c$ is computed in a manner similar for the Mandelbrot Set.

Newton's Method (Cubic)
 The roots of the equation $z\wedge 3 - 1 = 0$ are computed using the Newton's Method. The colored regions represent the number of iterations for reaching a tiny proximity threshold.

Plasma Cloud
 A randomly perturbed 3-d sinusoidal waveform is plotted as a cloud.

Aros *Fractals* Design Details

Developed using Microsoft VC++ 2.0 and 4.x on a 486 DX2/66 & PentiumPro200 for Win32. Symantec and Codewarrior compilers on a Quadra700 w/ PowerMac upgrade card   for MacOS.

The Mandelbrot routine is hand coded assembly. All FPU registers are used in the compute loop.

Color flaring is not implemented as color palette animation! All the pixels are "rotated" via pieces of assembly code routines.

The Macintosh and Win32 versions of Aros *Fractals* share 70% of their code through Aros Portable Class Library.

Aros *Fractals* Known Bugs

 Our apologies for bugs in Aros *Fractals*. We strive to maintain the highest quality in our software and will fix these problems in a future version. Please let us know of other problems at *bugs@ArosMagic.com*

🔴 Printing sometimes spits out a blank page. Change the resolution of printing as a workaround. For example, if the printer is set to 360 dpi printing mode, change it to 720 dpi.

🔴 In case Aros *Fractals* does not thaw after a few minutes, it is necessary to terminate it from the task window. (Double click on Windows NT or ctrl-alt-del on Windows95). **Caution**: All unsaved images will be lost if you follow this procedure. Some possiblities: the compute thread is taking a long time before giving up control, a bug in the program has deadlocked itself or the amount of memory requested for an image is thrashing the disk.

⚪ Color flaring speed is greatly determined by the video card and the video driver software on your machine. Aros *Fractals* makes use of StretchDIBits Win32 function. If it is slow, color flaring is slow.

⚪ Saving an image as a wallpaper does not persist after a reboot. Our best understanding is that Microsoft uses a proprietary mechanism to make this happen. You will have to go into the Property sheet of the desktop and manually select the Aros *Fractal* image for persistence after reboot.

⚪ Trying to zoom in while a fractal is still being computed results in "garbage" lines being left around as the zoom rectangle changes size. They disappear when one lets go of the mouse and a new zoomed image is re-computed.

⚪ Color Mapping information is not stored in a saved file. However, 8-bit images are stored with their associated color-table. This means that when a 8-bit image is loaded   and you select any color mapping, there is no way to go back to the original colors, except by reloading the image. This also means that copying a High Color image to the clipboard will not reflect the Color Map chosen for it.

⚪ Aros Magic software is designed for both Mac and Windows. Whereever there are differences in these operating systems, we try to use the *best* approach of that platform. Still you might feel our implementation is over-compromised. Your feedback on this will be greatly appreciated.

Aros *Fractals* Copyright

Aros *Fractals* Credits

Aros Magic Research is dedicated to the development of technologies that are indistinguishable from magic.

Design and development by Arun Sagar.
Testing by Arun Sagar, Scott Quinn and Anna Clarke.
Additional Testing: Charles Scheinbaum, Richard Jernighan IV and Heather Gray.
Additional technical input from Scott Quinn.

Aros Magic Feedback

 We would love to hear from you! Considering that this is a free program, please do not expect extensive support. Nevertheless, we will attempt to address your concerns as best as we can. Here are some url's for contacting us online:

World Wide Web: http://*www.ArosMagic.com*.
Technical support: mailto:*support@ArosMagic.com*
Feedback: mailto:*feedback@ArosMagic.com*
Bug Reports: mailto:*bugs@ArosMagic.com*. Please mention details of your machine (CPU, video, memory, etc)