Contents:

Configuring Ultra Fractal	7
Creating a new Fractal	5
Colours	
Colour cycling	8
Gradient Editor	9
Configuring Ultra Fractal	7
Creating new Fractals	5
Installing Ultra Fractal	1
Rendering Images	11

Theory:

Ultra Fractal is a shareware program that generates fractals. Fractals are wonderful complex and chaotic images. Working with fractals can give you a sense of the infinite and the *numinous*.

Shareware programs often have time limits or other limitations placed on them. Unlike the current version of Ultra Fractal which is version 4.04, version 2.04 has no time limits, or other limitations. It is a fully functional versions. The other advantage for of version 2.04 is that it is 5 times smaller than version 3.02 and can just fit onto a single floppy disk.

Because Ultra Fractal is distributed as shareware I can give you a copy. If you continue to use the program for more than 30 days you are morally obliged to register it. At present registrations of the standard version costs US \$59.

To download a copy of the current version of Ultra Fractal or to learn more about its features visit the Ultra Fractal home page at: http://www.ultrafractal.com

Version 2.04 can be downloaded from http://www.rupert.id.au/fractals/UF204.exe

Installing Ultra Fractal

Note: Each time you want to use Ultra Fractal on a computer in one of the University labs you will have to install it. If you install it at home you will only have to go through this process once.

🛃 3½ Floppy (A:)

31/2 Inch Floppy Disk

X

- 1) Insert the floppy disk into the computer.
- 2) Double click on the My Computer Icon which is located on the computer desktop. My Computer
- 3) Double click the $3^{1}/_{2}$ Floppy (A:) disk drive icon
- 4) Change the Unzip to folder: WinZip Self-Extractor - UF204.exe X to c:\UF204 To unzip all files in UF204.exe to the specified Unzip 2 folder press the Unzip button. 5) Click Unzip Run WinZip 4 Unzip to folder 6) click OK Close c:\UF204 Browse... verwrite files without prompting 7) Click Close About Help WinZip Self-Extractor X 3 file(s) unzipped successfully OK 2 WinZip Self-Extractor - UF204.exe To unzip all files in UF204, exe to the specified Unzip folder press the Unzip button. 8) Use My Computer to browse the folder Run WinZip Unzip to folder: c:\uf204 c:\UF204 Browse ... Close 9) Double click on the Setup program Overwrite files without prompting About

🔁 uf204		_		Help
<u>File Edit View Go</u> F <u>a</u> vorites	s <u>H</u> elp			
↓ ↓ 1	y	È	»	
Back Forward Up	Cut	Сору		
Address 🗀 C:\uf204		•	Links »	
README.TXT				
Setup.dat				
Semple y 9				
		-		
3 object(s)	,	📙 My Compute	er //	

Copyright © 2007 Rupert Russell. rupert.russell@acu.edu.au Permission is granted to copy, distribute and/or modify this document under the terms of the GNU Free Documentation License, Version 1.3 Ultra Fractal 2.04 Notes: Version 1.3 April 21, 2007 http://www.rupert.id.au/tutorials/ultra_fractal/index.php

Installing Ultra Fractal cont...



Installing Ultra Fractal cont...

- 17) Click Don't show this again
- 18) Click Yes





Creating a new Fractal

Theory:

The most famous of all fractals the Mandelbrot Set was discovered by Benoit B. Mandelbrot, while working as Research Fellow at IBM Thomas J. Watson Research Center, set sometime between 1975 and 1980 (accounts differ). The Mandelbrot set is only one of many thousands of different types of fractals now known.

When creating a new fractal in Ultra Fractal the first step is to select one of the hundred or so builtin fractal types.

"Clouds are not spheres, mountains are not cones, coastlines are not circles, and bark is not smooth, nor does lightning travel in a straight line." Mandelbrot, B. (1983). The Fractal Geometry of Nature. Freeman. San Francisco.

1) Select File I New | Fractal or CTRL + N



Copyright © 2007 Rupert Russell. rupert.russell@acu.edu.au Permission is granted to copy, distribute and/or modify this document under the terms of the GNU Free Documentation License, Version 1.3 *Ultra Fractal 2.04 Notes: Version 1.3 April 21, 2007 http://www.rupert.id.au/tutorials/ultra_fractal/index.php*

Creating a new Fractal cont...

Theory:

As well as having many built-in formulas Ultra Fractal also comes with 50 built-in parameter sets. Each parameter set generates a different fractal. If you join the Ultra Fractal e-mail distribution list you will receive upwards of 11 - 10 new parameter sets per day. This is a good way to see the vast range of fractals and effects that Ultra Fractal is capable of producing.

The distribution list is a great place to ask questions, share tips and exchange parameter files. To join, send an e-mail message to majordomo@icd.com containing the text "subscribe ultrafractal" in the message body. You can also go to the Ultra Fractal web site (http://www.ultrafractal.com/) to subscribe.

To open a parameter set use the keyboard short **CTRL + B**.

- 1) To open a parameter file use the keyboard shortcut **CTRL + B**
- Select a parameter file from the list, for example open the dmj-exam folder and select CMYK Fire or any of the other examples
- 3) Click OK



http://www.rupert.id.au/tutorials/ultra_fractal/index.php

Page 6 of 11

Copyright © 2007 Rupert Russell. rupert.russell@acu.edu.au Permission is granted to copy, distribute and/or modify this document under the terms of the GNU Free Documentation License, Version 1.3 Ultra Fractal 2.04 Notes: Version 1.3 April 21, 2007 http://www.rupert.id.au/tutorials/ultra_fractal/index.php

Colours

Theory:

One of the most enjoyable aspects of using Ultra Fractal is the ease with which you can play with different colour pallets.

Each point on the fractal can be cycled through the colour pallet using the colour cycling tool. Both the direction and speed of colour cycling can be changed. Cycling colours is a good way to appreciate the depth that can be found in the infinite numbers of spirals that line the edge of the Mandelbrot set.

The gradient editor makes it easy to adjust the colour pallet. Ultra Fractal is also supplied with 12 colour pallets. You can create your own colour pallets and save them for later use.

To open the gradient editor use the keyboard short **CTRL + G**.

Colour Cycling



- 3) Change the cycling speed by dragging the slide bar .
- 4) Stop the colours cycling by clicking the left or right arrow again.

Colours cont...

The Gradient Editor



Copyright © 2007 Rupert Russell. rupert.russell@acu.edu.au Permission is granted to copy, distribute and/or modify this document under the terms of the GNU Free Documentation License, Version 1.3 *Ultra Fractal 2.04 Notes: Version 1.3 April 21, 2007 http://www.rupert.id.au/tutorials/ultra_fractal/index.php* Colours cont...

The Gradient Editor cont...

- 1) Open the gradient editor
- Change the position of the gradient with the gradient position slider. (This is similar to using colour cycling tool.)
- Move the position of a control point by dragging it.
- 4) Add control points by holding the control key (Ctrl) and clicking within the gradient window.

1	
🔲 Gradient - Default, Layer 1	4
■3 3 3 3 3	
Control point	
2 3	
Position: 54 Red: 0 Gradient position	

The Gradient editor

Theory:

In order to allow the creation of very large fractal images for high resolution printing Ultra Fractal has a feature called Render to Disk.

Rendering images is one way to save a copy of the fractal as an image. The other way to save an image is to use **File | Export Image...** Exporting images is quick but the size of the image is limited to the size of your display. Also exporting images does not allow anti-aliasing. Anti-aliasing is particularly useful for images which will be viewed on a computer monitor with limited resolution, such as images meant to be placed on the Internet. The advantage of anti-aliasing is that is softens the edges of images and often improves the appearance of the fractal.

To render a fractal choose Fractal | Render to Disk... or CTRL + R.

1) Choose Fractal | Render to Disk... or CTRL + R.

- 2) Choose the size of the image that you want to render.up to 800 x 600 for the Web 2480 x 1860 for printing to A4
- 3) Click **Browse....** and select the drive where you want to save the fractal. Use the J:\ drive at Uni and the C:\ drive at home.
- 4) Click **Render** to start the fractal rendering

Render to Disk			?×
1. Where should the	image be saved?		3
Destination image:			Browse
Temporary file:			14
2 Indicate the dime	nsions of the image:		
	2		
<u>W</u> idth (pixels):	320	Required space:	0.4 MB
<u>H</u> eight (pixels):	240 🗾 🔪	Available:	0 MB
	✓ Use <u>o</u> riginal aspect ratio		
3. Specify the anti-a	liasing options:		
🔽 Use <u>a</u> nti-aliasing	I		4
<u>I</u> hreshold:	0.3 💌		Render
<u>D</u> epth:	1 💌		Cancel