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This software performs best with a color card and monitor capable of displaying at least 256 colors. Even in the 256 color mode, some colors may appear to be in error. This is caused by Window's reservation of 20 system colors for its own use. If 20 colors of the displayed color map are not close to the 20 Windows system colors then the color display will be in error. When you use the map with Fractint, it will be accurate.

Overview

The Fractint Color MAP maker has the following options for making 256 color maps:

Sine function generated MAPs

Color MAPs are generated using the absolute value of the simple sine function. One to eight periods with different colors sets can be used in generating a MAP.

Fourier function generated MAPs

Color MAPs are generated using a seven term Fourier series.

HSI generated MAPs

Color MAPs are generated using a nested iteration of Hue-Saturation-Intensity values.

RGB generated MAPs

Color MAPs are generated using a nested iteration of Red-Green-Blue values.

In addition, the maps can be edited:

A single click with the mouse on a color box will select and highlight the box. A single click on the same box again will de-select the box. A single click on a different box will generate a color gradient between the first box and the second box,

A double click on a box will bring up a color dialog box which will allow the selection of any custom color for the box.

The ">" key will rotate the color map forward.

The "<" key will rotate the color map backward.

The generated maps can be displayed in a grid or bulls-eye format. The grid format is similar to the display generated by the Fractint palette editor. The bulls-eye display is particularly useful, as it allows a full contiguous display of the color MAP. You must, however, be using a Windows display mode of 256 colors or higher to get the full benefit of the bulls-eye. Existing color MAPs can also be loaded for viewing.

Sine function MAPs

The sine function MAP generator uses the absolute value of the sine function. The MAP can have up to eight different sine segments, each with its own color set. When Sine is selected from the Palette type Menu a dialog box will appear allowing the user to select the number of sine segments and the maximum value of the RGB color triplet for each sine segment. Color values less than 0 will be treated as a 0, and color values greater than 255 will be treated as 255. The default data values or any entered data values can be cleared using the "Clear Data Entries" button.

With the parameters

Segments = 3
Segment 1 = (255,80,120)
Segment 2 = (0,255,0)
Segment 3 = (0,0,255)

A MAP very similar to the Neon MAP will be produced.

Fourier function MAPs

The Fourier series MAP map generator uses the series

$$f(x) = a_0 + a_1 \cos(c_1 x) + a_2 \cos(c_2 x) + a_3 \cos(c_3 x) + b_1 \sin(s_1 x) + b_2 \sin(s_2 x) + b_3 \sin(s_3 x)$$

A separate series is used for each color component. When Fourier is selected from the Palette type Menu a dialog box will appear allowing the user to select the values for the Fourier series color components. After the coefficients are chosen each series is automatically scaled to the range of 0-255. If $a_0 < 0$ it will be set to zero. Constant functions ($a_0 > 0$ and $a_1 \dots = 0$) are scaled to 255 and zero functions are scaled to zero. The default data values or any entered data values can be cleared using the "Clear Data Entries" button

HSI MAPs

Hue-Saturation-Intensity parameters are generated using a nested series of iteration loops. The user can select the order of iteration for the three parameters and the step size for each iteration. In addition the initial Hue value (in degrees) can be selected, and the initial and final values of H-S-I (0-1.000).

The product of the three iteration parameters should be 256. If it is less than 256 the palette array will be filled with the last calculated value. If the product is more than 256 the array will be filled up to 256 entries and the higher numbers will be ignored.

Some examples of parameters (any order) would be:

16	4	4
16	8	2
16	16	1
32	2	4
64	2	2

With the parameters

Hue = 256
Saturation = 1
Intensity = 1
Initial Hue = 325 degrees

A nice rainbow MAP will be produced.

RGB MAPs

Red-Green-Blue parameters are generated using a nested series of iteration loops. The user can select the order of iteration for the three parameters and the number of iterations for each loop. An additional parameter, called *Alternate*, can be used. The *Alternate* parameter changes the mapping to the Windows palette. As the RGB triplets are streamed to the palette they are divided into groups of 16. The first 8 values are streamed as presented, while the second eight values are streamed in reverse order.

In addition the user can select the initial and final values of the Red-Green-Blue parameters. These should be in the range of 0-255. Values less than zero will be converted to zero while values greater than 255 will be converted to 255.

The parameters should be chosen so that at least 256 iterations occur. If fewer than 256 iterations occur the palette will not be completely filled and the higher palette entries will be filled with the last calculated value. If more than 256 iterations occur, iterations greater than 256 will be ignored.

Some examples of parameters (any order) would be:

4	8	8
2	8	16
4	4	16
2	2	64
2	4	32

With the parameters

Red = 1
Green = 128
Blue = 2

A MAP suitable for Moire patterns with the Fractint "potential" mode will be produced.

Commands

Palette type Menu Commands

Options Menu Commands

Help Menu Commands

Palette type Menu Commands

Sine

Brings up the dialog box for the Sine palette MAP generator.

Fourier

Brings up the dialog box for the Fourier palette MAP generator.

HSI

Brings up the dialog box for the HSI palette MAP generator.

RGB

Brings up the dialog box for the Fourier palette MAP generator.

Load Map File

Allows the selection and viewing of Fractint MAP files.

Save Map File

Saves the custom generated MAP file to a file name of the user's choosing.

Options Menu Commands

Grid

Displays the MAP file in a format similar to the Fractint palette editor. This display mode can be used with any color adapter and monitor since color dithering is used if the adapter and driver support fewer than 256 colors. With a 256 color driver a few of the displayed colors may be incorrect because Windows reserves several colors for its own use which cannot be readily changed.

Bulls-eye

Displays the MAP file as a continuous bulls-eye with the highest palette numbers in the center of the bulls-eye and the lowest numbers on the outer rim. This display supplies a continuous spectrum useful in judging the appearance of the MAP when used to color a fractal image. This format is useful only for Windows 3.1 operating with a color card, monitor and driver operating with a minimum of 256 colors.

First Color Black

Sets the first color in the map to black. This is the default for Fractint maps since the first color is normally not cycled in color cycling.

Help Menu Commands

Index

Opens the help file and displays the help Index.

About

Displays the About dialog box.

Fractint color MAPs are ASCII files with three columns containing the color values for Red, Green and Blue, respectively. The color values for each color can range from 0 to 255. A MAP contains 256 such Red-Green-Blue (RGB) triplets, each representing a row in the ASCII file. Note that the Fractint palette editor scales the color values to 0-63.

Red Green Blue

One of the standard ways to represent color values is to use a Red-Green-Blue primary color triplet. Typically a 0-255 scale is used for each color component. A triplet of (0,0,0) would represent Black, while a triplet of (255,255,255) would represent White.

Hue Saturation Intensity

The most intuitive way to represent color values is to use Hue-Saturation-Intensity. Hue represents the "color wheel" rainbow of colors progressing from Red (0 degrees) to Green (120 degrees) to Blue (270 degrees) and finally back to Red (360 degrees). Saturation provides a measure of how much White is in the color. A Saturation of 0 will have no color (only White and shades of Gray) while a Saturation of 1.0 will give a color with no White. The Intensity, on a scale of 0-1, is a measure of the amount of total color (including White).

