Microangelo™ GIFted Quickstart User Guide

Microangelo GIFted was designed to provide a powerful set of drawing and editing tools for GIF animations. It also includes GIF file optimization algorithms that were engineered so users can fully concentrate on their animation, freed from the burdens of selecting image disposal methods and frame-by-frame cropping of update areas. These tasks, until now, have taken away some of the enjoyment found in creating animated GIFs.

Let's Get Started!

This document is divided into three sections. The first section is a brief introduction to using GIFted. The second and third sections contain information on color palettes and the files size and performance optimizations of animated GIF files. The information in sections two and three is also included in GIFted's online Help. This information will help users create better animations with less work and enjoy the program to its fullest.

Section #1: Quick-start Introduction

Microangelo GIFted is unique in two significant ways:

(1) GIFted provides drawing and editing tools for full-frame editing of every frame in an animation as they would appear if created for a movie on film.

(2) GIFted provides incredible file optimization automatically. Let's face it. Optimizing GIF animations is a boring, tedious, painful process. The kind of work that you bought your computer to do for you! GIFted makes it so. Tests performed at Impact Software showed that GIFted improved the optimization of almost every animation we could find - just by choosing Save.Optimized and letting GIFted do the work!

Using GIFted

GIFted's online Help includes an excellent tutorial to help you get acquainted with creating an animation. The following information will help you become familiar with the program before you begin.

Main Menu

Many menu items should be familiar to Windows users. The file menu includes a Properties selection used to set the loop count of an animation, insert a comment, and view general information.

Upper Toolbar

Mostly standard buttons (New, Open, Save..). The last two buttons on the right are used to add and delete frames from an animation.

When more than one frame exists, two additional controls are displayed at the far right of the bar. The first is an edit control used to set the desired time a frame is displayed in hundredths of a second. The second is a drop down control used to choose the current frame to edit. Clicking once in the frame selection control (not on the arrow button) allows easy "flipping" between frames using the arrow keys on the keyboard.

Lower Toolbar

Tool buttons on the left are used to nudge pixels left, right, up or down, or to flip (mirror) images right-to-left or top-to-bottom.

Two controls centered over the editing grid provide zoom access. The first control drops down to select a zoom level, the second is an on/off toggle that will switch between the zoom selection and actual size.

The right side of the bar includes four buttons to control painting of pixels by drawing tools as well as the current selections for **Color A** and **Color B**. The Color A and Color B selections are very important - they indicate which colors are currently selected for use by the drawing tools. The buttons directs tools to paint all pixels, or to confine their painting to "every other" pixel.

Drawing Tools
The left edge of the main program window contains tool buttons used to select a drawing tool. Tools are available for drawing pixels, lines, rectangles, ellipses, as well as specialty tools used for creating text, locating colors, erasing by color, and selecting cut, copy and paste areas. Place the mouse cursor over any tool for a moment for a tool tip to identify the tool and the tool's function to be displayed in the status bar.

Editing Grid
The editing grid is where all drawing and editing of images takes place. A visible grid can be displayed, if desired, by selecting the Grid option on the View menu. The visible grid will only display when the zoom level is set to six or higher.

Palette Window
The Palette window can be displayed or hidden from the View menu. This window displays ink wells for 256 different colors, the most allowed in a GIF image. Click on any ink well with the left mouse button to select a new Color A, or with the right mouse button to select a new Color B. Double-click on any well to change the color of ink it contains.

Preview Window
This window, also displayed or hidden from the View menu, displays the current frame being edited. When the "play" button is pushed on the Preview window, the animation is played instead. You can edit images in the editing grid while the animation is playing. The slider control is used to change the overall speed of the animation - move left to slow and right to increase the rate at which the animation plays.

Section #2: Colors and Color Palettes

The tables that contain the actual red, green, and blue intensities of colors used in computer graphics are often referred to as palettes. Microangelo GIFted displays the current color table in its Palette window in 256 different ink wells of colors that can be used to paint and draw with.

Colors and color palettes play a significant role in the development of an animated GIF. Selecting a palette of colors that is most appropriate for your work BEFORE you begin developing an animation is crucial to both the quality of your results and the level of effort you will expend editing new colors. GIFted allows several options that you can use to initialize the palette of colors for an animation. These are described below in, "Initializing the Color Palette".

To develop high-quality animations, it's important to understand a few limitations that are imposed on the use of color by the Graphics Interchange Format (GIF) file specification and also by GIFted itself.

The GIF specification allows for a maximum of 256 colors to appear within any single image. It allows one of the 256 color entries to be designated as being "transparent". Greater color depths, often referred to as "high color" or "true color", are not possible within a GIF image.

The GIF specification allows a file that contains multiple images (such as a GIF animation) to contain more than one color palette. The first color palette that appears in the file is the global palette. The colors defined in the global palette are used for every image in the GIF file. The exception to this is called a local palette. Any image in a GIF file may be preceded by a color table of its own. This color palette overrides the global palette and is used only for the frame that immediately follows.

Going Global

Microangelo GIFted is not designed to incorporate multiple color palettes within GIF animations. For this reason, GIFted will not edit animations that contain local color palettes. Animations produced by GIFted are limited to a maximum of 256 different colors.

One of the primary goals of GIFted is to produce animations that provide maximum performance, optimized update areas and reduced file sizes. Local color palettes are in direct conflict with maximized performance and reduced file size. A significant and somewhat related goal of GIFted is to provide painting tools to allow animations to be created within the program itself. In most instances, 256 colors provides an adequate availability of color for this purpose.

Animations that require multiple color palettes are often composed of imported photos or graphics. In these instances we recommend using the graphics utility of your choice together with a GIF engineering tool such as Microsoft® GIF Animator.

In most cases, we recommend that you reserve one of these entries to be defined as transparent, even when an animation does not use transparency. The reason for this is because GIFted can achieve higher levels of compression between frames of the animation when allowed to substitute transparent color values across areas of the update area that do not change between frames. The exception to this, when it isn't important to reserve a color entry for transparent, is when the pixels in the animation always change color between each frame. An example of this would be the presentation of still image "photos" that contain various different color patterns by nature.

Browsers and Color Palettes

It is important to be aware that other users' software and hardware may cause your animation to appear differently to them than as you designed it. Some computer video displays are limited to 256 colors. Some video display drivers are limited to 256 colors. If either of these cases is true, the software that is displaying the animation (perhaps a web browser) will be limited to 256 colors. It will not be possible to provide the animation with all 256 specific colors that it desires.

Complicating matters further, if a computer's hardware or software does not allow it to achieve full 24-bit color depth (8 pixels each for red, green and blue), it will probably not be able to display the exact RGB values that are defined in an image's color table.

Due to anomalies like these, an overwhelming majority of browsers always include a standard 236 colors in their active color palette. These color values are often referred to as the "non-dithering" browser color values because they are guaranteed to be available across all popular hardware and software platforms. This means that the software will never attempt to translate an area of an unavailable color into patterns of two or more different colors to approximate the original. When you

use non-dithering color values you can be assured that the image will appear to everyone else exactly as it was designed.

How significant these factors are to your animations depend on several criteria. Who will be your audience? If you are developing a web site to attract as wide an audience as possible, then the non-dithering color values may play a significant role in your artwork.

Another item you may want to consider is that almost all new hardware and software are able to support high color depths very well. If you're creating web content for a clip art retailer on the Internet, you may be able to depend on your audience's ability to display good color depth.

The Non-dithering Color Palette

GIFted includes a color palette that contains all 236 non-dithering colors organized by color hue and intensity. Some colors such as pure red, blue, cyan, and others are duplicated along with the four non-dithering grays at the end of the palette for easy access. The colors in this palette file are always available on all hardware and software platforms capable of displaying at least 256 colors.

Initializing the Color Palette

Always initialize the color palette with an available array of colors most appropriate for your work whenever you begin a new animation. GIFted initializes the color palette to the default palette file (stored in "muagif.pal") whenever the program starts and when a new file is opened. You can initialize the palette to a different set of colors from another palette (*.pal) file, or from a GIF or bitmap image on your computer. Select the Palette.Open command and choose Palette or Image in the file type to locate the source you want to use.

If you plan on importing an image into your animation that you want to appear in the highest possible quality, you may want to consider initializing the palette using the image file you will be importing. However if you plan to create the animation with the drawing tools within GIFted, choosing the Balanced or Non-dithering palettes provided with GIFted may be good choices.

Editing the Color Palette

You can change the color of ink in any well of the Palette window by double-clicking on the color in the well (unless the Color Locator tool is active). Each ink well represents an entry in the global color palette. Changing the color in any ink well will also change the color of all pixels previously painted with ink from that well.

Any ink well may be designated as a transparent color. Transparency can be used to show through the background that the animation is displayed on top of. Only one ink well may be designated as transparent. To select a different well as transparent, first reset the color in the current transparent well to a normal color.

Saving the Color Palette

You can choose to save the current palette to a palette (*.pal) file at any time by selecting the Palette.Save command. Later, you can use the Palette.Open command and select the palette file you just saved in the event that you would like to create more animations using the same set of colors.

Saving to the special palette file "muagif.pal" will replace the default colors used by GIFted whenever the program starts or a new file is opened.

Section #3: GIF File Optimization

One of the goals of the GIF (Graphics Interchange Format) file specification is to allow image information to be stored in a compressed form. This is extremely beneficial to GIF images and animations that are posted on web pages. The smaller the file size, the quicker the web page will download and display to the user.

The GIF file specification, however, only supplies a "toolkit" for producing compact files. The degree to which the overall file size is minimized is completely dependent on the way that the toolkit is used. Programs that are able to save single image GIF files are quite common, and the degree of compression that they achieve is quite close if not equal. Utilities that save GIF animations are newer, less common, and quite often require the user to take manual actions to achieve any reductions in file size.

Microangelo GIFted performs many different optimization techniques automatically. It is able to consistently save GIF animations in smaller file sizes than any other utility that we are aware of.

"It's Out of Your Hands, Now"

Microangelo GIFted does not provide any type of interface for the user to crop frames or select their disposal methods. It is much easier for GIFted to find the smallest update rectangle and to analyze the changes throughout the animation and select the best disposal methods between frames. Those are just a few of the steps that are performed to produce an ultra-compact file as a final result. Frames are compared pixel by pixel, not just from one frame to the next, but throughout the entire animation. Algorithms determine the best disposal methods to produce the smallest update areas. And even when an animation does not define any transparent pixels, GIFted can use transparency within each frame's update area to achieve higher levels of compression than that of conventional methods. The result? The artist is freed from the normal burdens of file optimization and allowed to concentrate on the artwork of the animation. GIFted produces a more efficient and compact file than can be achieved by the user – even more compact than other GIF utilities.

How to Optimize

Optimizing GIF files with Microangelo GIFted is easy. Simply select the "Save Optimized" command from the File menu, or select "Save As…" and choose the Optimized GIF option as the File Type.

When to Optimize

GIFted saves GIF animations in full frame by frame format unless directed to perform optimization. This method takes much less time than the thorough analysis required for optimization. We recommend using GIFted's special optimization only when necessary to check an animation's size during development and as the last step when publishing the animation.