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Introduction

Purpose

This document is intended for red or amber AlphaEclipse 2500, 2600, and 3500 signs. It explains how to use Jasc Software's Paint Shop Pro and Animation Shop to

- use existing graphics, such as Internet images, digital photographs, and GIF animations.
- create simple graphics from scratch.

Revision history

Revision	Date	Notes
9700-0130	July 24, 2003	First release
9700-0130A	May 24, 2004	Second release

Related documentation

Part #	Manual title	Description
9708-8081F	AlphaNET Version 2.0.3 User Manual	Explains how to create and send messages to signs using AlphaNET software.

NOTE: If possible, either print this document in color or view it as a PDF file on a computer screen to see the color images used in this manual.

NOTE: Paint Shop Pro version 5.03 and Animation Shop version 1.03 software were used in this document.

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Signology 101

Before starting to work with images, it is necessary to understand how size, color, and aspect ratio affect graphics displayed on a sign. A basic knowledge of these three properties will make it easier to select, modify, and create a graphic, and, hopefully, improve its appearance on a sign.

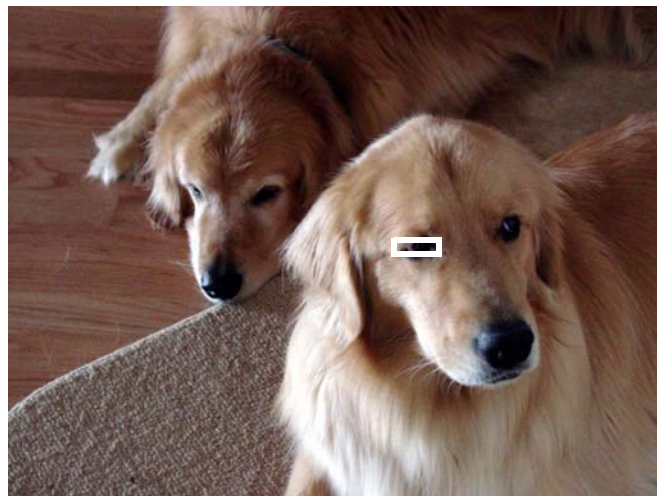
Lesson 1: Only small graphics can be displayed on a sign

Both sign and graphic sizes are measured in pixels — the smallest unit or building block of a sign or image. Examples below compare typical graphic sizes with AlphaEclipse sign sizes:

- This GIF graphic of the United States is 110 pixels long by 76 pixels tall (or simply 110 x 76):



- This picture of dogs, taken with a 3-megapixel digital camera, has 24-million colors and is 2048 x 1536 pixels. *This is big! In order to fit on this page, the image had to be reduced by 75% because its actual size is over 28 x 21 inches.*



- By comparison, the size of AlphaEclipse 3500 signs range from 32 x 8 to 144 x 32 pixels. Using the two graphics above as examples, here is what you would see on the largest (144 x 32) sign:



While the length of the United States image (110 pixels) fits on this sign, only about half of its height (76 pixels) appears.



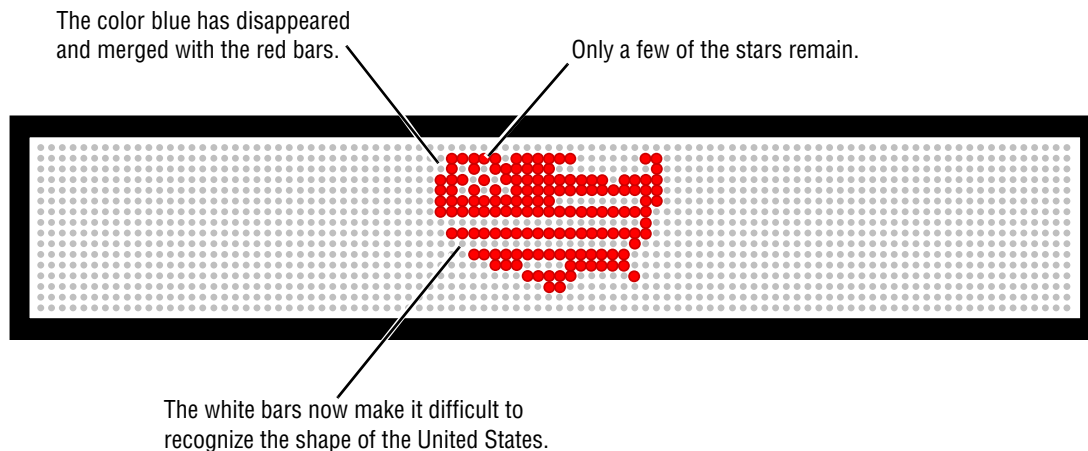
The only part of the dog photograph that would be visible on the sign is the eye of one of the dogs (shown by the white box on the picture above).

Lesson 2: Very few details in a graphic can appear on a sign

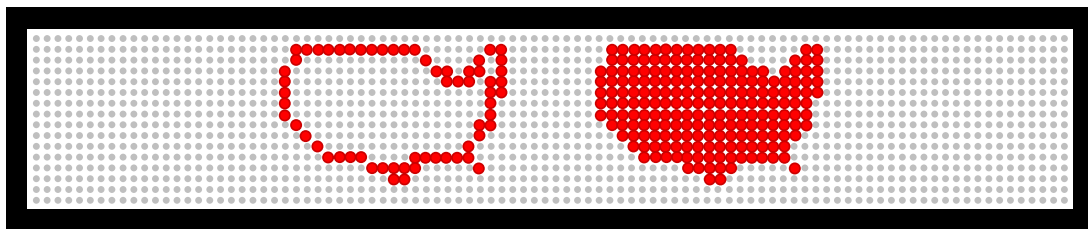
Because a sign can only display very small graphics, there are not a lot of pixels to work with. In addition, a sign only has two colors — LED on (either red or amber), LED off. All the colors in an image must be reduced to just two colors. This loss of color ensures that many details will be lost.

These two factors, small size and limited colors, greatly reduce the amount of detail that can be included in an image. Despite this, there are still many graphics available, especially on the Internet, that can be used with little or no modification to liven up a sign's message. See "Resources" on page 14 for a list of sources for these images.

This is how the United States graphic from the previous page would look on a 96 x 16 sign:



Here is a version of the United States graphic, modified using PaintShop Pro, with less detail:



Lesson 3: Use PaintShop Pro and Animation Shop to edit graphics

PaintShop Pro is designed to edit regular (non-animated) GIF graphics. However, if an *animated* GIF is edited with PaintShop Pro software, only the first picture or frame of the animation will be saved. Unless the original animated GIF was saved, all the movement would be lost. Animation Shop should be used for animated GIFs

Examples



Example 1 — Using a still image on a sign

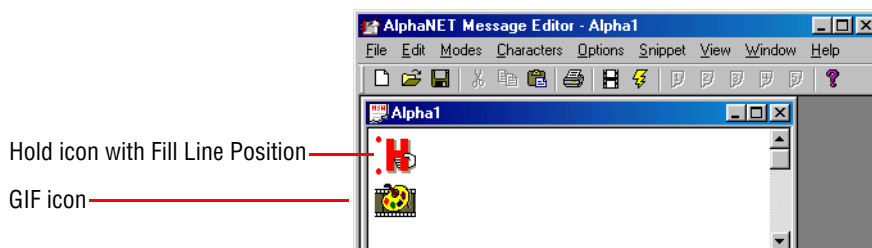
In this example, this 256-color, 64 x 64 pixel clock GIF graphic (shown above as twice its actual size) will be edited in Paint Shop Pro for a 96 x 32 sign. This graphic was downloaded from IconBAZAAR (see “Resources” on page 14).

In order to use the clock GIF, both its size and colors must be scaled down. This reduces the amount of detail in the graphic and could leave the final image unrecognizable and unfit for use. There is really no way of knowing except by trial and error and by developing a keen eye for spotting usable images. Previewing an image with AlphaNET software will help in this process.

Preview the graphic using AlphaNET software

Before beginning to edit, check for potential problems by previewing the graphic with AlphaNET software.

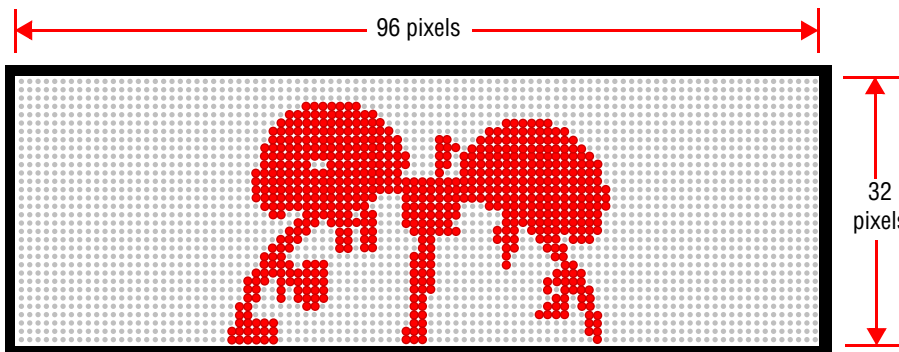
1. Click *Start > Programs > AlphaNET > Message Editor*.
2. In the message window, click *Modes > Hold > Fill* (for *Line Position*). The Hold mode makes the graphic look better because it prevents the sign from using Automode.



3. Click *Options > Gif* and select the GIF file you want to preview, in this case the alarm clock.
4. Click *File > Simulate* to preview the clock graphic:

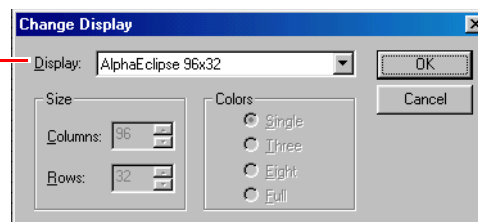
Even though this clock graphic must be reduced in size, it looks like it can be used on this sign.

However, some detail will be lost. Numbers on the clock face will probably not be recognizable when this graphic is scaled down.



NOTE: Set the simulator to the correct sign size. To do this, place your cursor over the simulator and right click. From the pop-up, click *Change Display* and select the sign type and size (96 x 32 in this case).

If no image appears on the simulator, try selecting *AlphaEclipse 3600* instead and type in the number of *Columns* and *Rows*. (The AlphaEclipse 3600 can display almost any color.)



Shrink the graphic

- In Paint Shop Pro, click *File > Open* and select the still image. Then click *Open*.
- Click *View > Image Information* for a list of properties about this graphic. Check the dimension and colors:

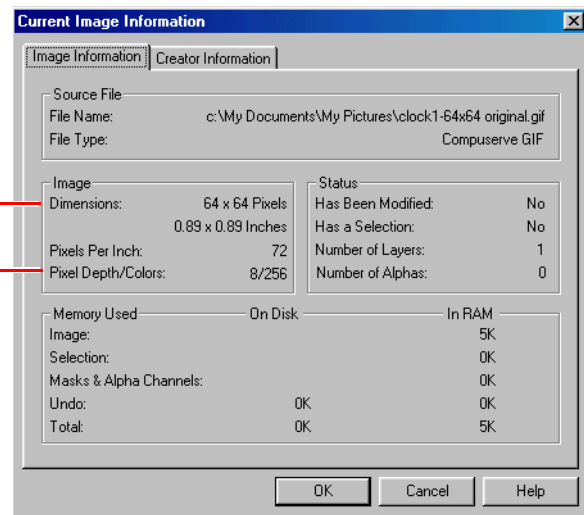
Dimension = 64 x 64 Pixels

To fit on the sign, the height must be reduced to 32 pixels. The height and width should both be reduced proportionally, preserving the graphic's aspect ratio. Otherwise, the image could end up looking "squashed", like the alarm clock on the right.

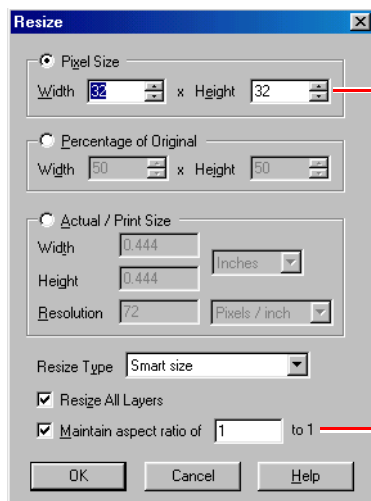


Pixel Depth/Colors = 8/256

The *Pixel Depth* is the amount of color information each pixel holds in the graphic. In this case, the amount of color information or depth is 8 bits which equals 256 colors (or 2^8). Color rich graphics are 24- or 32-bit deep which results in 16.7 (2^{24}) million or 4.3 (2^{32}) billion colors, respectively. Remember, sign graphics must be reduced to 2 colors or 1-bit (2^1). All those "extra" colors will be reduced to either LED "on" or "off".



- Click *OK* to close the *Current Image Information* window.
- Next, click *Image > Resize > Pixel Size*, and after *Height*, type the sign's height (in this case, 32):



Width x Height

After a height is typed, the width will change automatically.

Check Maintain aspect ratio of 1 to 1.

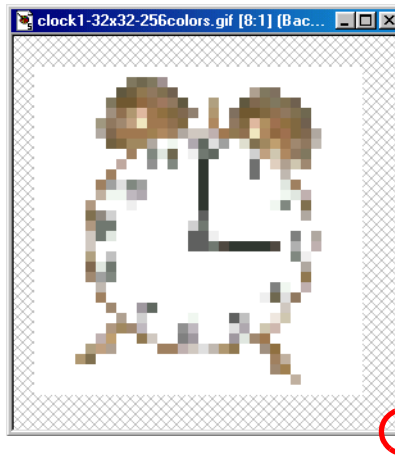
This means that, for example, if a graphic's height is reduced by 25%, its width will also be reduced by the same percentage. This avoids "squashed" graphics.

- Click *OK* to close the *Resize* window.

Reduce the number of colors in the graphic


10. Since the resized graphic is very small, make it more viewable on screen. Click *View > Zoom In > 8:1*:

After the graphic is reduced in size, the numbers on the dial have become unreadable.

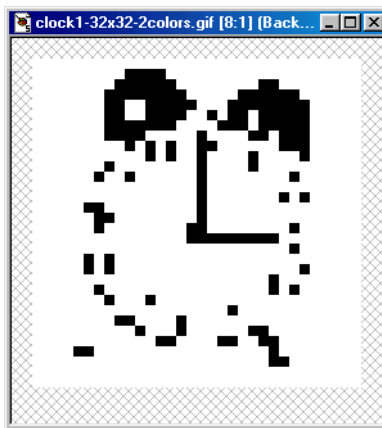



Click and drag this corner down until the hatched area appears on all sides of the graphic. This will make it easier to select.

Outline the graphic in black

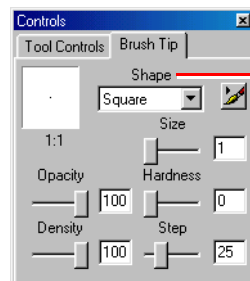
Before reducing the colors in this GIF graphic from 256 to just two, use the paint brush tool  in Paint Shop Pro to outline the alarm clock in black. If this is not done and the image is reduced, the graphic may “fall apart” and become unrecognizable as shown below:

This graphic was not outlined in black before it was reduced to two colors. Because of this, some of the colors have simply disappeared.



11. To start outlining the image, click on the paint brush tool .

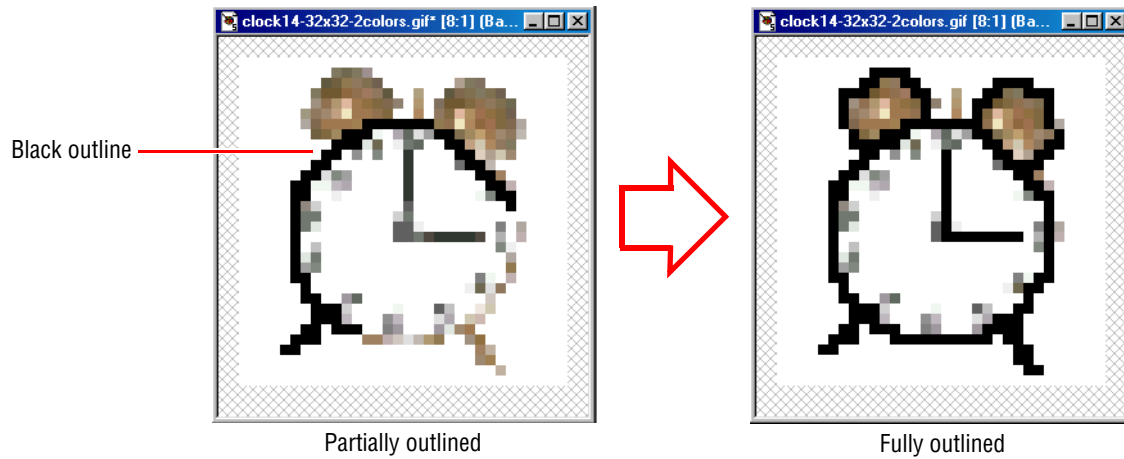
12. If the *Controls* palette is not displayed, click  and then *Brush Tip*:



Set Shape = Square.

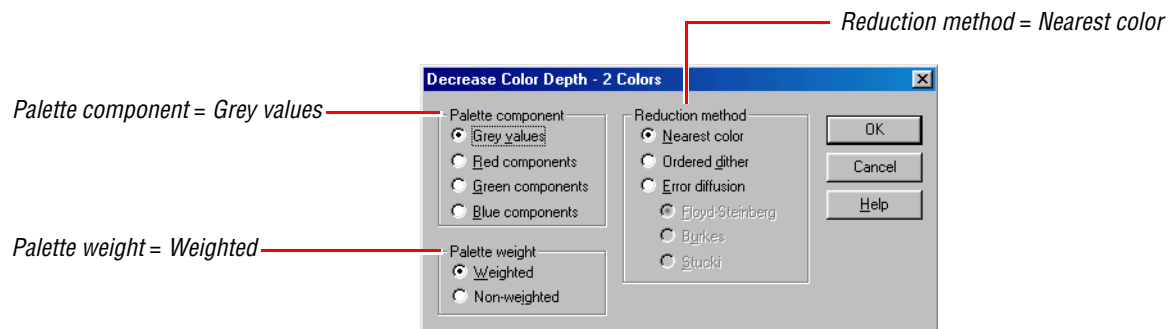
Set Size = 1.

13. Use the paint brush tool to outline the alarm clock graphic in black:



Decrease the number of colors in the graphic to two

14. After outlining the graphic, click *Colors > Decrease Color Depth > 2 Colors (1 Bit)*:



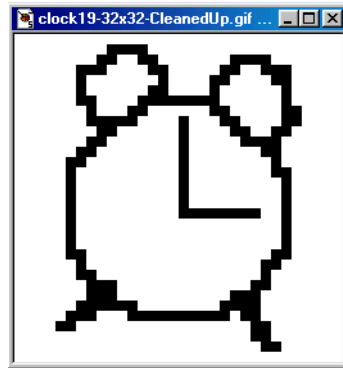
15. Click *OK* to close the *Decrease Color Depth* window:



Clean up the graphic with the paint brush and eraser tools

NOTE: Make sure that *Brush Tip > Size* in the *Controls* palette is set to 1 for both the paint brush and the eraser tools. Otherwise, too many pixels may be added or erased in the graphic.

16. Edit the graphic by removing unnecessary parts with the eraser tool, and by adding detail with the paint brush tool:



8:1 Zoom In

As you edit, occasionally view the graphic at a reduced zoom, like 2:1.

This smaller size more accurately represents how the image will look on the sign.



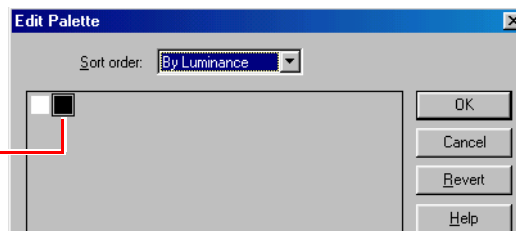
2:1 Zoom In

Convert black to red

If the alarm clock graphic was displayed on a sign as it is now, nothing would appear. This is because both black and white turn sign LEDs off. However, a red graphic will appear on a sign.

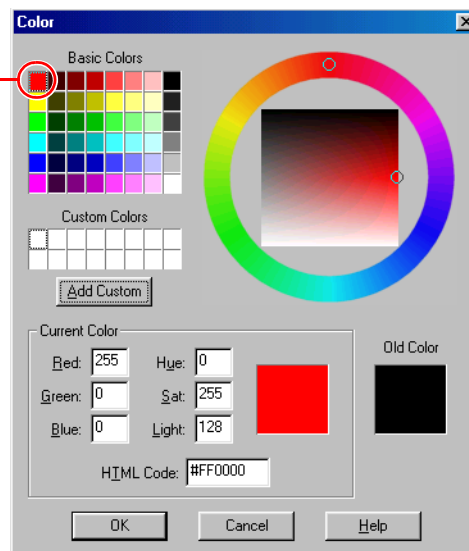
17. Click *Colors > Edit Palette* to display all the colors used — in this case, two — in this graphic. Then double click on the color black:

Double click on the color black.

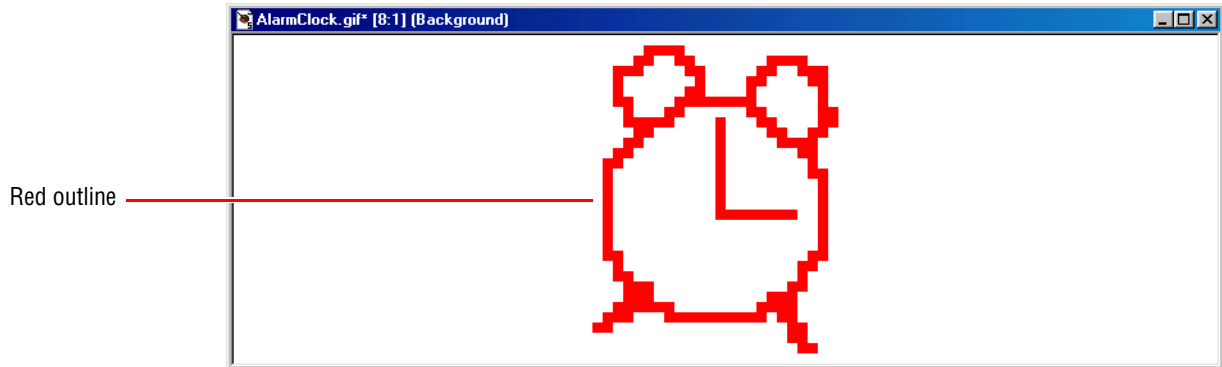


18. When the *Color* window appears, click on the color red:

Clicking on red will replace black with red in the alarm clock graphic.



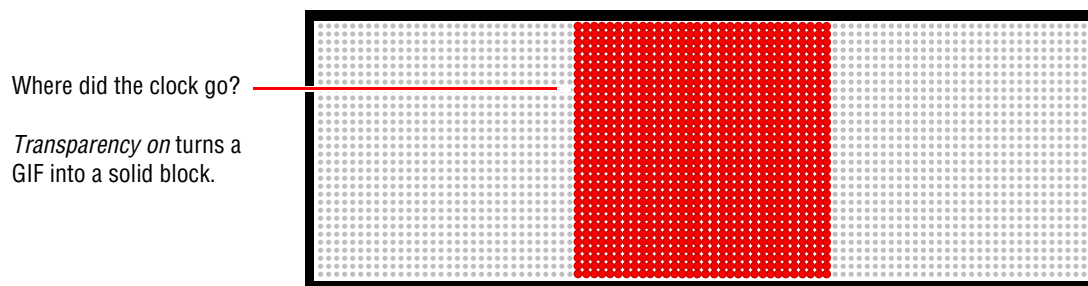
19. Click *OK* to close the *Color* window. Then click *OK* again to close the *Edit Palette* window. This changes black into red in the alarm clock:



Turn Transparency off

“Transparency” is a special property of a GIF file that is usually used to make the white background of a GIF invisible so that a graphic blends into a web page.

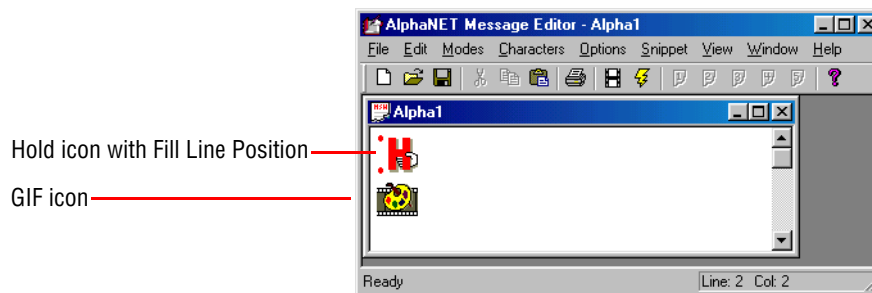
However, on a sign, if the alarm clock GIF is displayed *with transparency on*, this is what would appear:



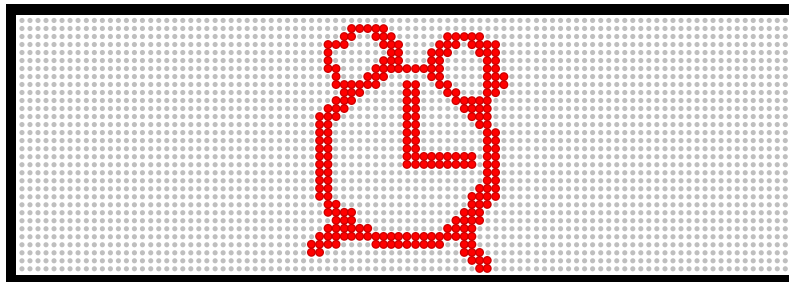
20. Click *Colors > Set Palette Transparency > No transparency > OK*.
21. Then click *File > Save* to save the alarm clock GIF file.

Test the graphic on a sign using AlphaNET software

22. Click *Start > Programs > AlphaNET > Message Editor*.
23. In the message window, click *Modes > Hold > Fill* (for *Line Position*). The Hold mode makes the graphic look better because it prevents the sign from using Automode.



24. Click *Options > Gif* and select the GIF file you just saved.
25. Click *File > Transmit*. At the prompt, select either *To All Sites* or *To Selected Sites* depending on how your sign is set up. Then click *OK*. In a few moments the clock GIF will appear on the sign:

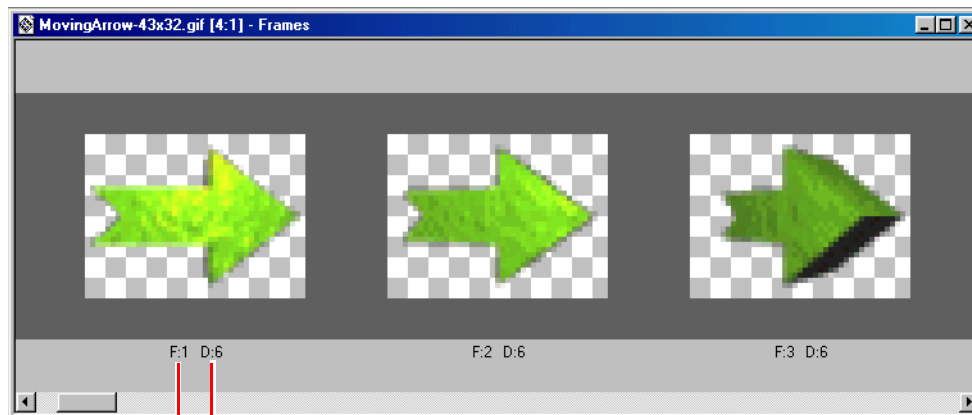


Example 2 — Using animated graphics on a sign

Like still images, either select or create an animated GIF that is simple and not full of detail.

Unlike still images, colors should not be reduced in an animated GIF. Though it is possible to change the colors in a GIF file, it is very tedious, especially in animations with many frames such as the following example.

In this example, a 256-color, 64x 48 pixel, 44-frame animated GIF arrow is used. This GIF was downloaded from IconBAZAAR (see “Resources” on page 14):



Frame number
(1 of 44 in this animated GIF)

Display time in 1/100th seconds
(In this case, Frame 1 will be displayed
6/100 seconds. Then the animation will
go to Frame 2, and so on.)

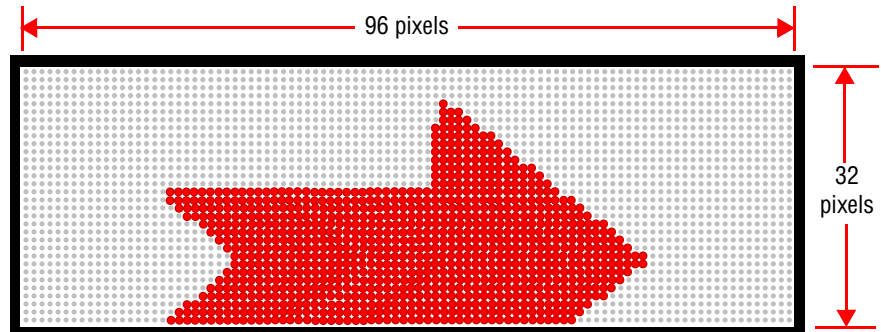
Preview the animated GIF using AlphaNET software

Before beginning to edit, check for potential problems by previewing the graphic with AlphaNET software.

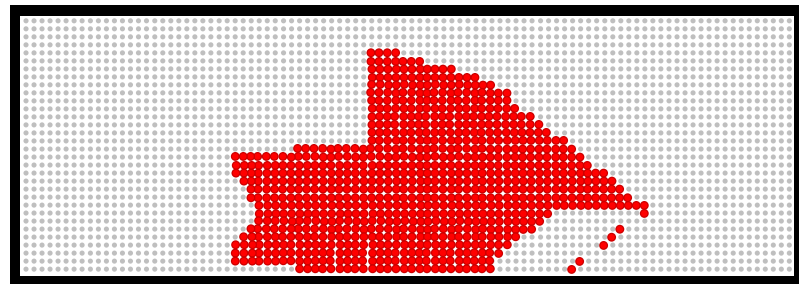
1. Click *Start > Programs > AlphaNET > Message Editor*.
2. In the message window, click *Modes > Hold > Fill* (for *Line Position*). The Hold mode makes the graphic look better because it prevents the sign from using Automode.
3. Click *Options > Gif* and select the GIF file you want to preview, in this case the moving arrow.
4. Click *File > Simulate* to preview the moving arrow. Two of the 44 frames in this animated graphic are shown:

In order to display this graphic, the simulator had to be set to *AlphaEclipse 3600* (see following note).

Frame 1

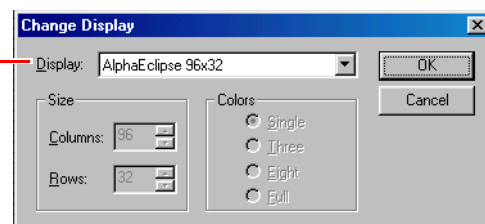


Frame 3



NOTE: Set the simulator to the correct sign size. To do this, place your cursor over the simulator and right click. From the pop-up, click *Change Display* and select the sign type and size (96 x 32 in this case).

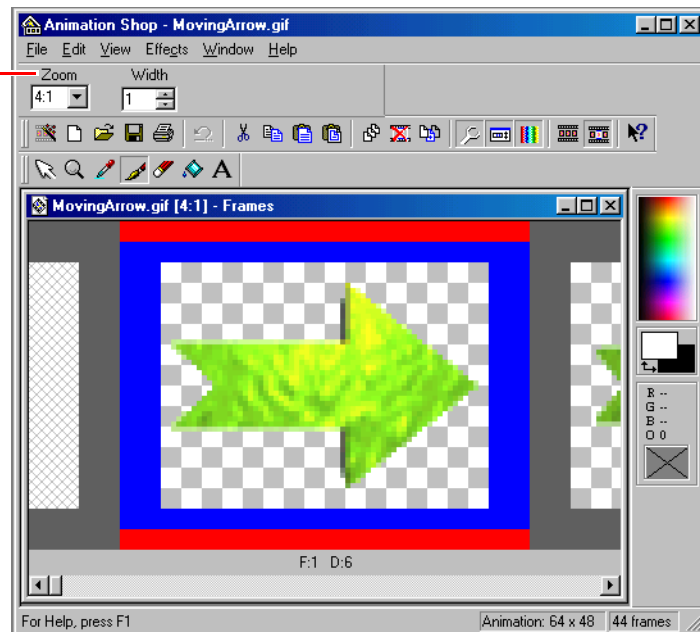
If no image appears on the simulator, try selecting *AlphaEclipse 3600* instead and type in the number of *Columns* and *Rows*. (The AlphaEclipse 3600 can display almost any color.)



Shrink the animated GIF

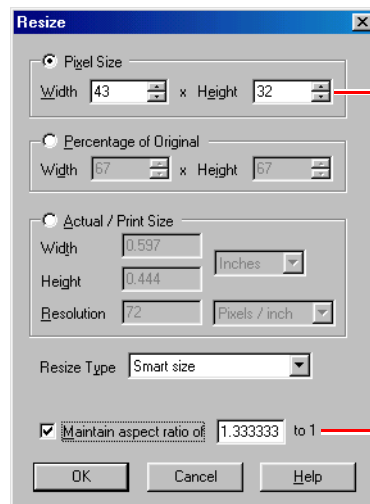
5. In Animation Shop, click *File > Open* and select the animated GIF file. Then click *Open*:

Zoom
Increases/decreases the
view of each frame.



Style Bar
The size and number of frames in the animation.

6. Click *Edit > Resize Animation* and after *Height*, type the sign's height (in this case, 32):



Width x Height
After a height is typed, the width will change automatically.

Check Maintain aspect ratio of 1 to 1.
This means that, for example, if a graphic's height is reduced by 25%, its width will also be reduced by the same percentage. This avoids "squashed" graphics.

7. Click *OK* to close the *Resize* window.
8. Click *File > Save* to save the resized animation.

Test the animated GIF on a sign using AlphaNET software

9. Do the steps in "Test the graphic on a sign using AlphaNET software" on page 10.

Resources

Web links

URL	Site Name	Description
http://www.adaptivedisplays.com	Adaptive Micro Systems	The Adaptive site contains monochrome and color animations for 16-, 24-, and 32-row signs.
http://www.tickermedia.com	Ticker Media	Source for custom content for indoor or outdoor advertising displays.
http://www.iconbazaar.com	IconBAZAAR	Source for small images and animated GIFs.
http://www.icon-editor.net	Icon Editor Software	Software designed for creating and editing 16 x 16, 32 x 32, 48 x 48, or 64 x 64 graphics that have a small number of colors.
http://www.icons-online.com	Icons Online	Companion site for the Icon Editor software.
http://www.davedigitalworks.com	DaveDigitalWorks	This site has free sign animations for Adaptive signs.

Color table

The table below shows how 16 common colors appear on an AlphaEclipse sign:

Color	RGB values	Visible on a RED AlphaEclipse?	Visible on an AMBER AlphaEclipse?
Black	R000 G000 B000	No	No
Dark Blue	R000 G000 B128	Yes	Yes
Blue	R000 G000 B255	Yes	Yes
Dark Green	R000 G128 B000	No	No
Teal	R000 G128 B128	No	No
Green	R000 G255 B000	No	No
Light Blue	R000 G255 B255	No	No
Brown	R128 G000 B000	Yes	Yes
Purple	R128 G000 B128	Yes	Yes
Olive Drab	R128 G128 B000	Yes	Yes
Gray	R128 B128 B128	Yes	Yes
Light Gray	R192 G192 B192	Yes	Yes
Red	R255 G000 B000	Yes	Yes
Pink	R255 G000 B255	Yes	Yes
Yellow	R255 G255 B000	Yes	Yes
White	R255 G255 B255	No	No