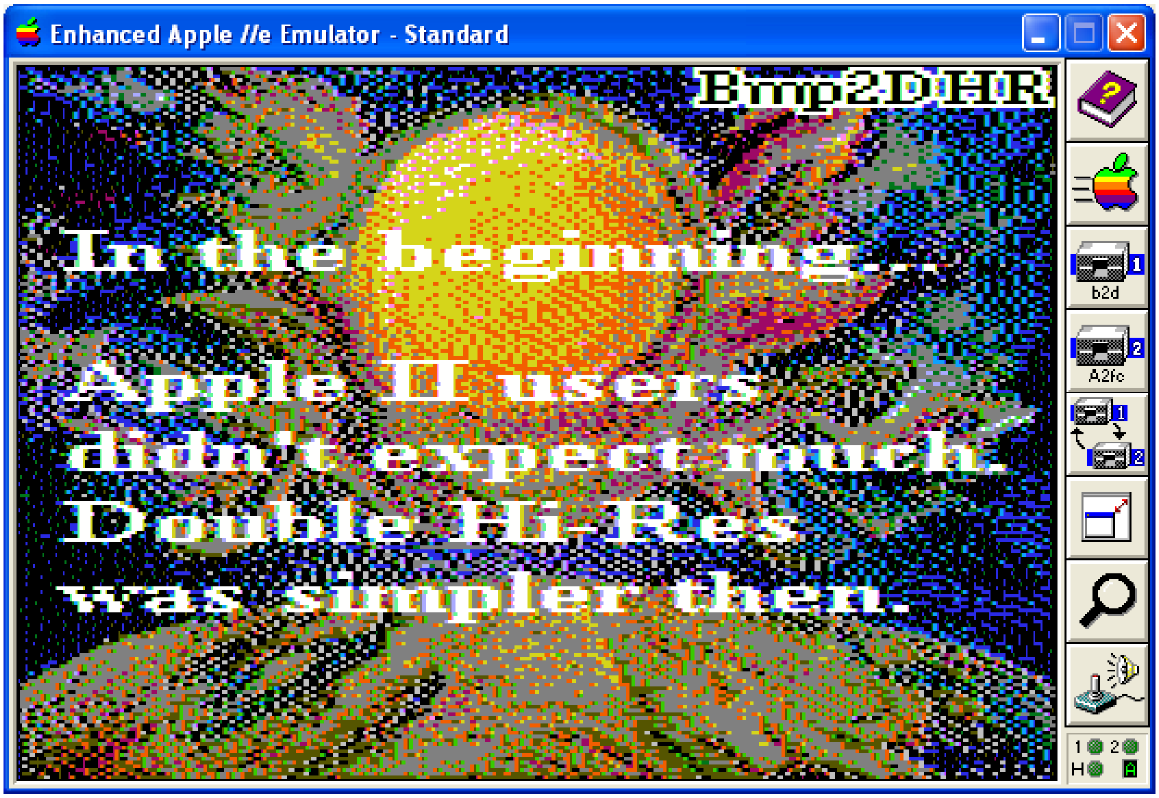
Using an Overlay File in Bmp2DHR



Bmp2DHR

In the beginning...

Apple II users didn't expect much.

Double Hi-Res was simpler then.

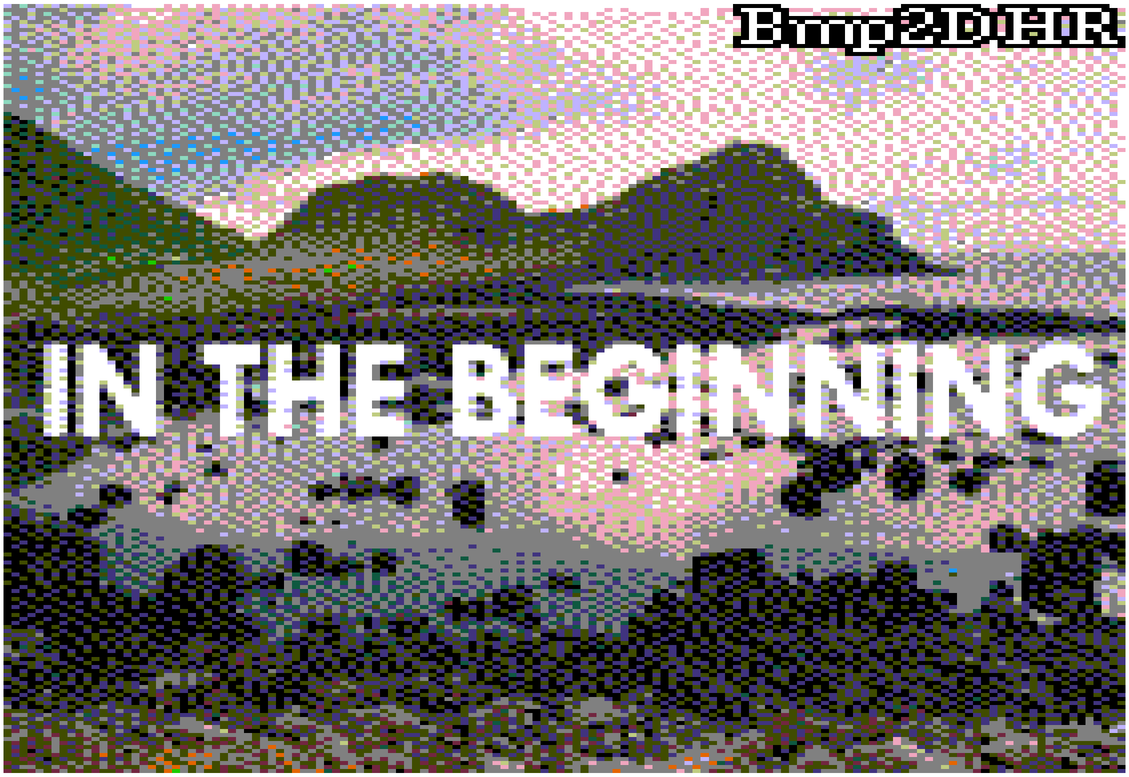
Dithered DHGR pictures can look gorgeous (and even better if you are watching them from the neighbour's house...) but with only a 15 inch screen, a limited resolution of 140 x 192 and only 15 DHGR colors, dithered text blends-in to the image, spoiling both the image and the text. Stay away from dithered text.

Overlaying a dithered and rendered file with discrete pixel to pixel text from a separate image (as shown above) is the best way to present clear and readable titling on the Apple II DHGR display’s coarse resolution of 140 x 192. That’s pretty coarse!

If you are preparing a complex BMP image in a Paint Program, for later conversion using Bmp2DHR, you should focus on getting the best results you can within the limited DHGR range first, and afterwards add your lettering using a second “Overlay File” (which will not be dithered during the conversion process).

BMP Mask File – Option “O” - Overlay	140 x 192 x 256 Color – Fixed Format
Format is Fixed to 14 of 16 DHGR palette index colors only. This feature works but is not complete.	Transparent Color = 4 (grey 128,128,128) • Option Omaskfile.bmp • Option O1 to O15 – Color over-ride

Using a second file for lettering and other titling like simple borders and frames also preserves the background image file as a clean unlettered file for mind changes.

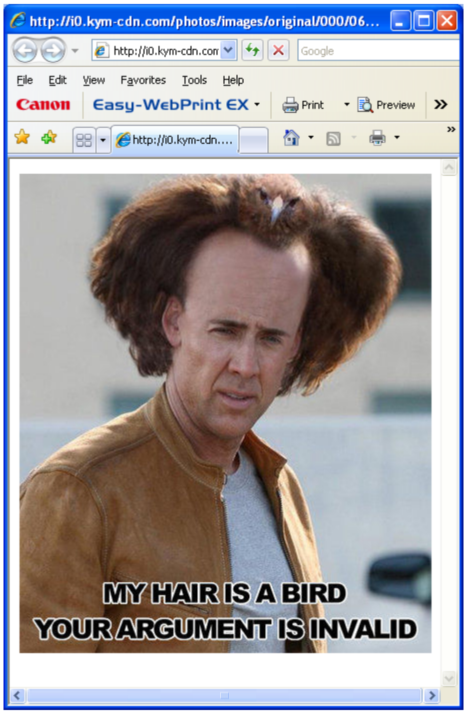


Paint Programs like Windows Paint create extra colors when lettering in color mode (see above) but create perfect letters in monochrome mode. So when we create an Overlay File, we start with a 140 x 192 monochrome BMP and prepare our titling in black and white, then we promote the monochrome BMP to a 256 color BMP to add a transparent color (usually grey 128,128,128).

Here are the steps we follow from start to finish to create a lettered DHGR image with overlaid lettering using Bmp2SHR.

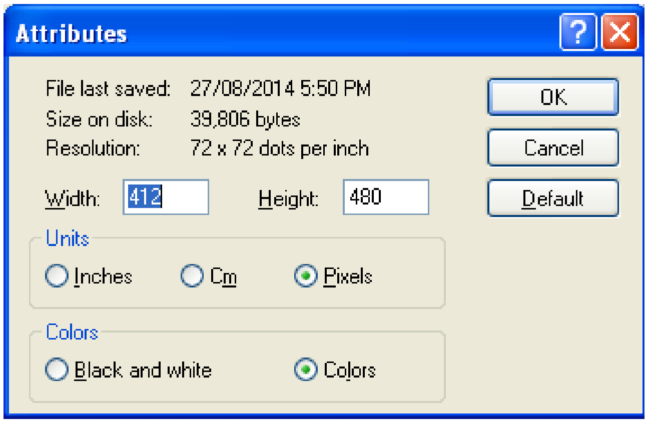
Acquire and Prepare the Image

You can use your web browser to find and save an image from an Internet Site for conversion to DHGR:



After saving you will need to crop and scale the image and save as a BMP file for conversion. You can do this entirely in a Paint program like Windows Paint.

In Windows Paint you first find the image size.



File last saved: 27/08/2014 5:50 PM
Size on disk: 39,806 bytes
Resolution: 72 x 72 dots per inch

Width: 412 Height: 480

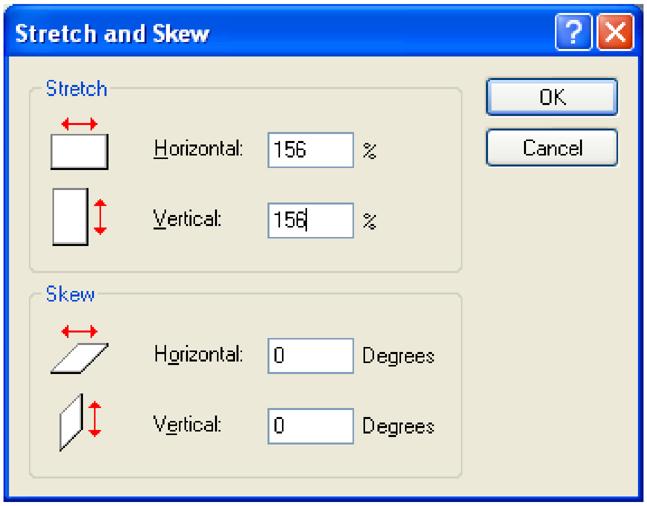
Units: ○ Inches ○ Cm ● Pixels

Colors: ○ Black and white ● Colors

After finding the image size you scale the image. 640 x 480 is the size that works best for conversion of even scaled photos in Bmp2DHR.

640 divided by 412 gives us an upscale of 156%:

So we stretch the image by 156% in both the horizontal and vertical axis. Now we are ready to crop the image to size.

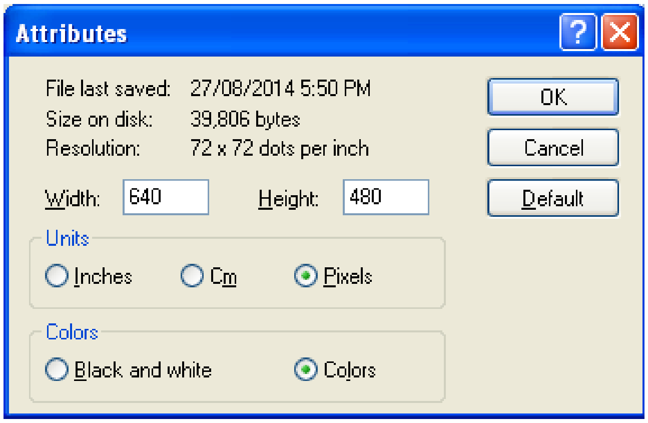


Stretch
Horizontal: 156 %
Vertical: 156 %

Skew
Horizontal: 0 Degrees
Vertical: 0 Degrees

After cropping the image to size by using the file attributes dialog and clicking OK it is time to "save as" a 24 bit BMP and do a test conversion with Bmp2DHR to fine-tune the dithering and rendering.

The test conversion is done using the "DEBUG" command option and the preview command option.



Attributes

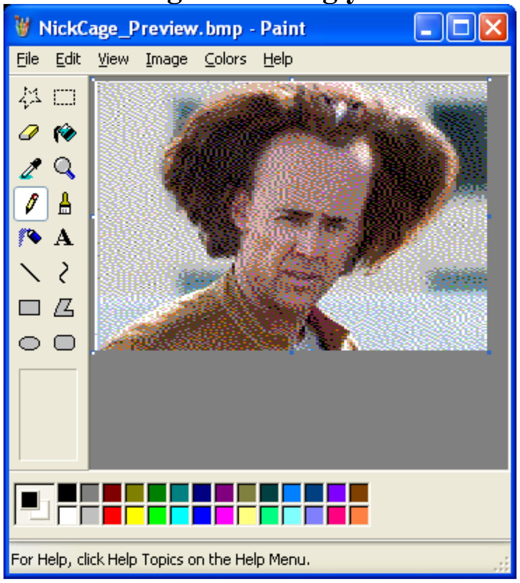
File last saved: 27/08/2014 5:50 PM
Size on disk: 39,806 bytes
Resolution: 72 x 72 dots per inch

Width: 640 Height: 480

Units
○ Inches ○ Cm ● Pixels

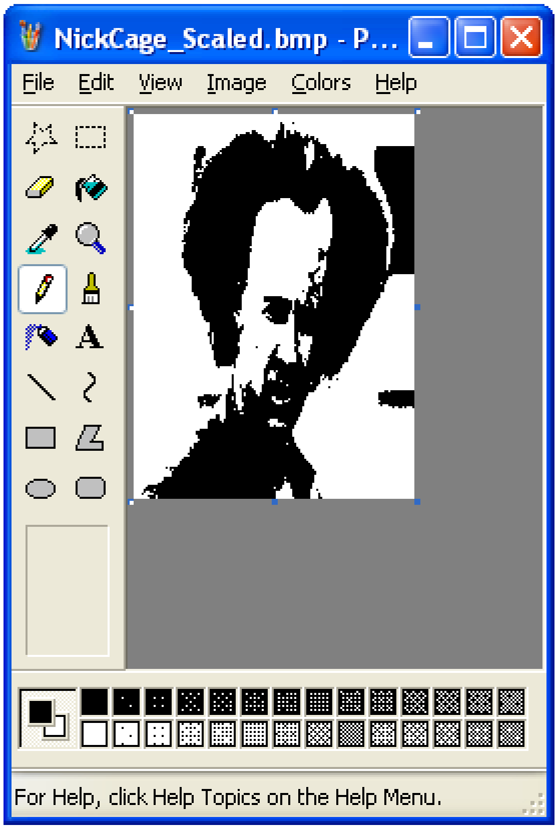
Colors
○ Black and white ● Colors

b2d NickCage d v debug y3



NickCage_Preview.bmp - Paint
File Edit View Image Colors Help

For Help, click Help Topics on the Help Menu.



For Help, click Help Topics on the Help Menu.

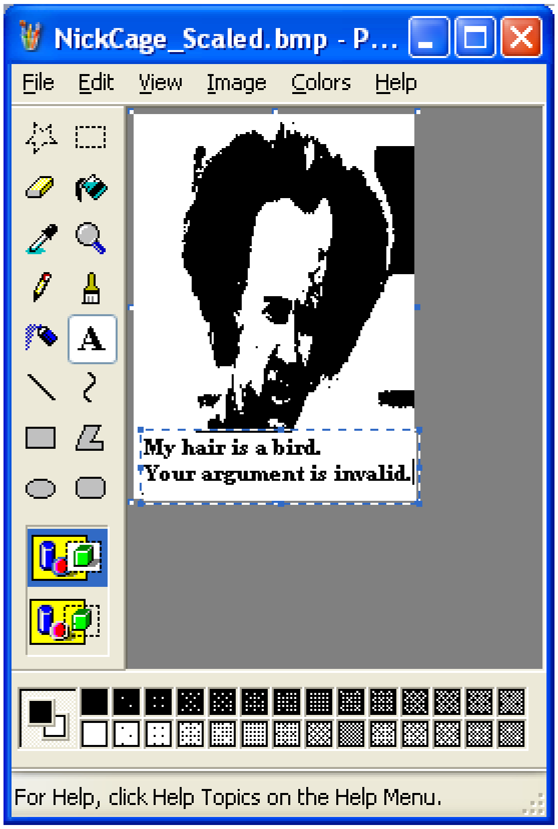
After you are satisfied with your picture conversion it is time to create the overlay file for clearly lettering the image.

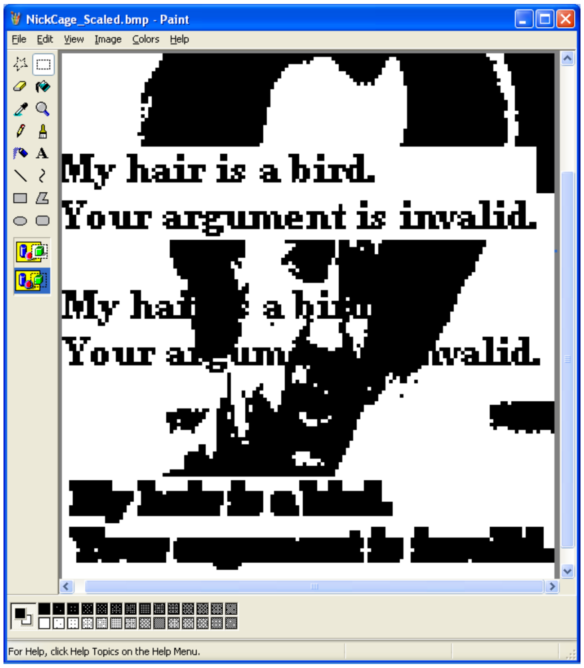
First, load the Scaled preview. This file is 140 x 192. The normal preview is 280 x 192 but when debug mode is used this scaled preview is also available.

We will use the scaled preview as a layout for our text, so save the scaled preview as a monochrome BMP

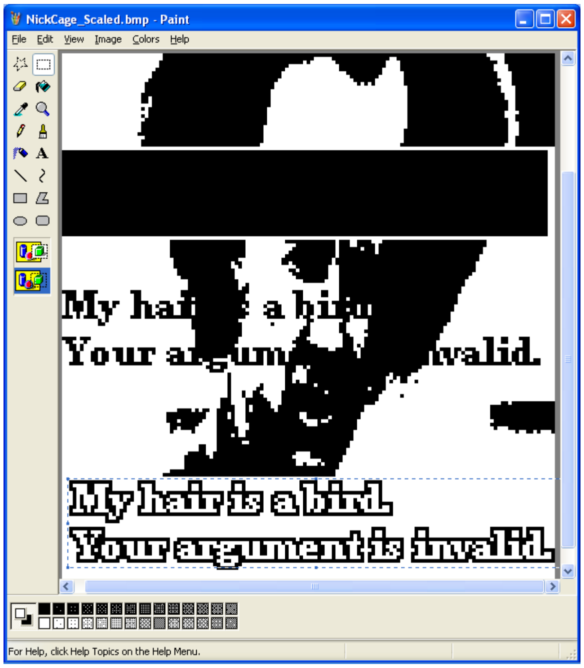
The idea here is to use a black and white copy of the picture you are converting to position your text so you don't clobber an important part of the image. An outline font is a nice feature of a paint program to letter over a photo. But so far I haven't found one in Windows Paint. In Monochrome Mode however, it is very easy to make outline and shadowed fonts. Do all your font work in Monochrome mode. You'll see demos on the Internet that show blending techniques to make outline fonts in Windows Paint, but that introduces new colors if you are in color mode. My technique is tedious and precise and after all we are only clicking on a mouse so it takes but seconds!

Prepare the Overlay File


NickCage_Scaled.bmp - P...
File Edit View Image Colors Help
My hair is a bird.
Your argument is invalid.
For Help, click Help Topics on the Help Menu.


NickCage_Scaled.bmp - Paint
File Edit View Image Colors Help
My hair is a bird.
Your argument is invalid.
For Help, click Help Topics on the Help Menu.

After laying your font, view at 600% or so save a clean paste aside, and then transparent paste a block 3 wide x 3 high.


NickCage_Scaled.bmp - Paint
File Edit View Image Colors Help
My hair is a bird.
Your argument is invalid.
For Help, click Help Topics on the Help Menu.

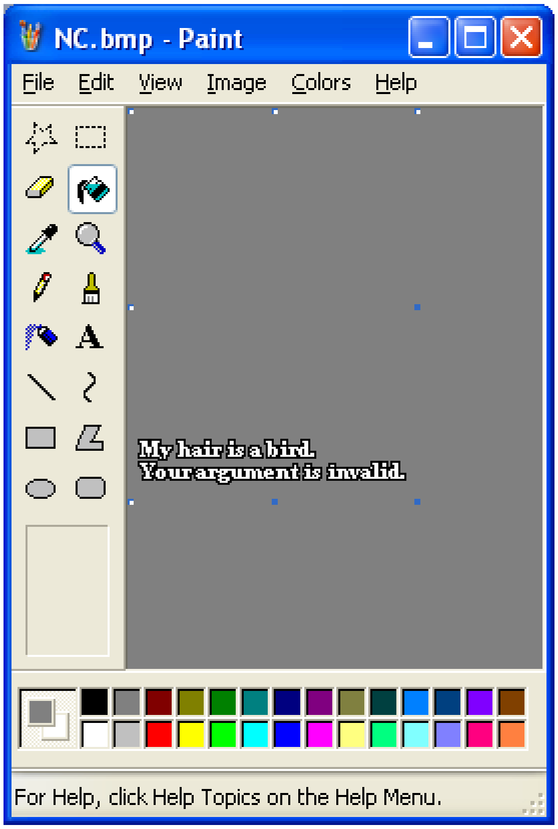
Then invert the clean paste of your lettering that you saved before your paste session, and move it into position after inverting your background and foreground colors.

Then clean-up all your bits and pieces except for your finished font. Remember it is already in position, so there is no need to actually try it.

And now that you have cleaned-up, save as a 256 color BMP, and use a different name. I called the BMP that I used for dithering "NickCage.bmp" so I called Nick's overlay NC.bmp so I it was easy to type and so I could keep track of it somehow. A conversion session of dozens of images is harder to manage than imagine.

We have two more steps in this process.

Laying Down Transparent Color



My hair is a bird.
Your argument is invalid.

For Help, click Help Topics on the Help Menu.

At the outset, I noted that this method of lettering is experimental. It’s not really; it’s a lazy way of doing a mask. I have programmed Bmp2DHR to use a color number as a mask ID. This color number corresponds to the conversion palette currently being used. When I set-up the transparent color, I allowed any colors IDs 0-15 to be used as a transparent color.

But be careful here, because the mask is interpreted in the colors of the currently loaded palette. To make a long story short, if you are making an overlay file make sure you know the RGB values of your palette, and make sure your mask color is exactly the same RGB values. Either that or stick to the default grey 128,128,128 (color 5) and you can’t go wrong.

Fill all parts of the overlay file that will be clear with the transparent color and save.

Converting and Displaying

The final step in the whole process is to convert your image together with the overlay file, again using preview mode so that you don’t need to put this image on a real Apple II to see what you have done.

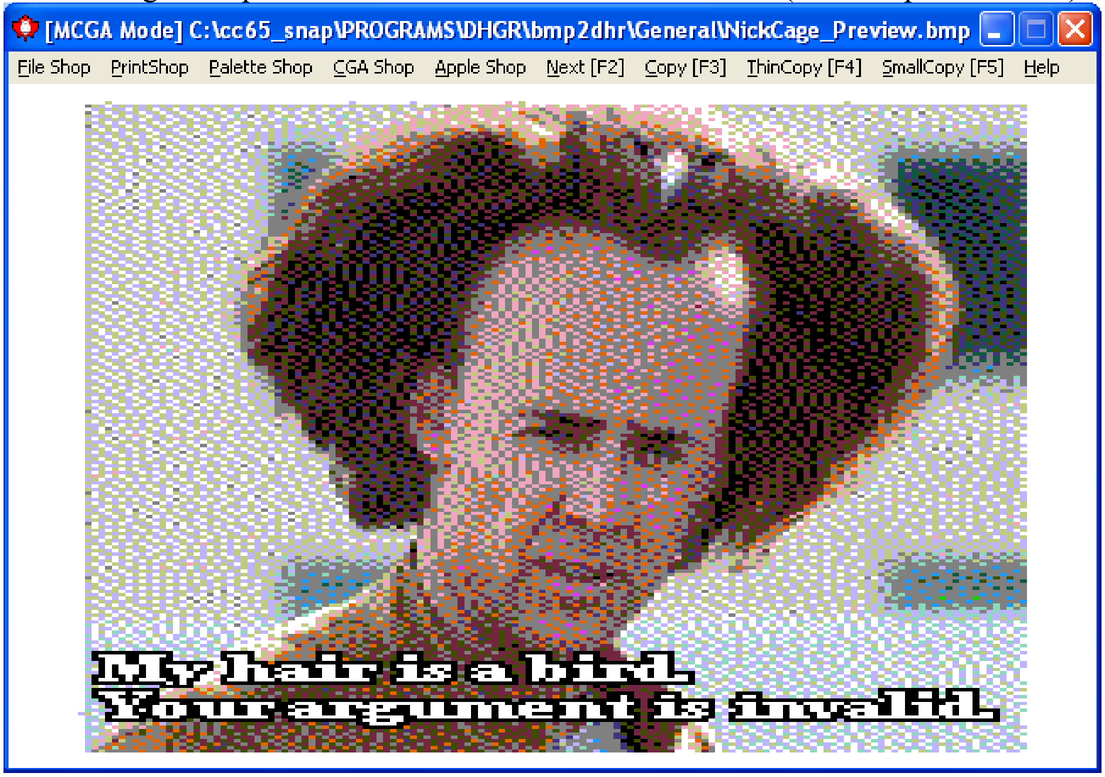
Proponents of WSYWIG will be shaking in their boots from fear at this point of course, because here we are using a GUI editor to work around a GUI editor, but it just goes back to my fundamental belief that an average person should be able to use average tools that come with most computers. Always keep in mind that Windows Paint and other modern editors are not designed to letter on DHGR images. In fact, Windows Paint is not designed to do anything fancy. It’s light-weight like a programmer’s text editor.

But it has good scaling features, and converts between PNG and jpeg and BMP well, and converts GIFs to BMP well enough, and needs only classic paint program knowledge to use effectively.

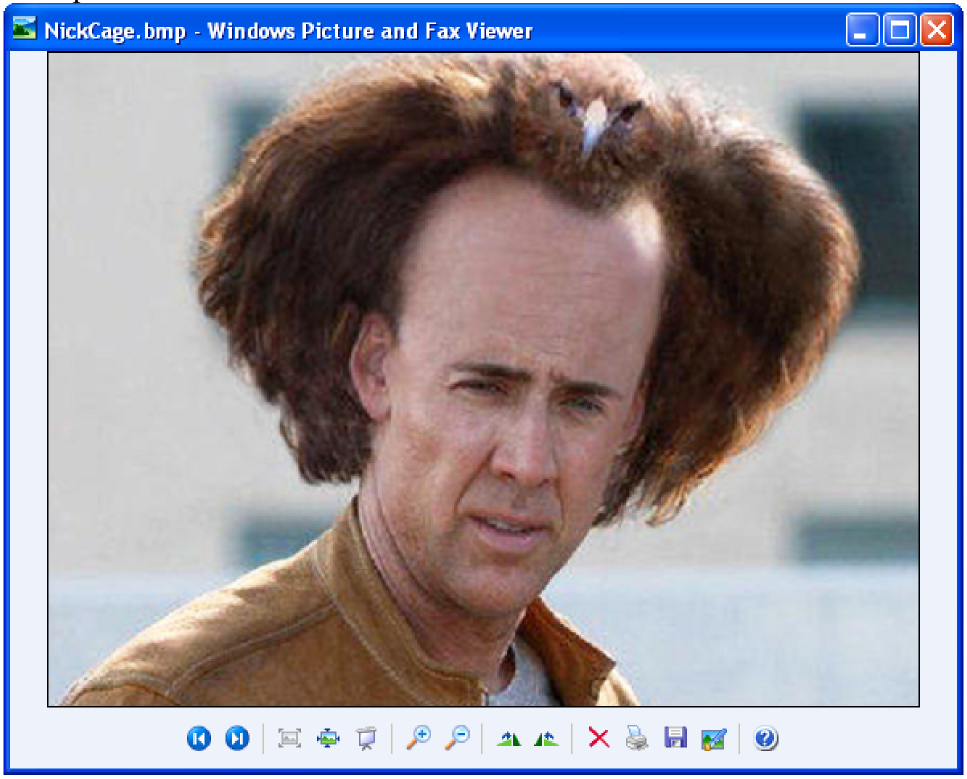
The command line that produced our final overlaid output is:

“b2d NickCage d v y3 onc”

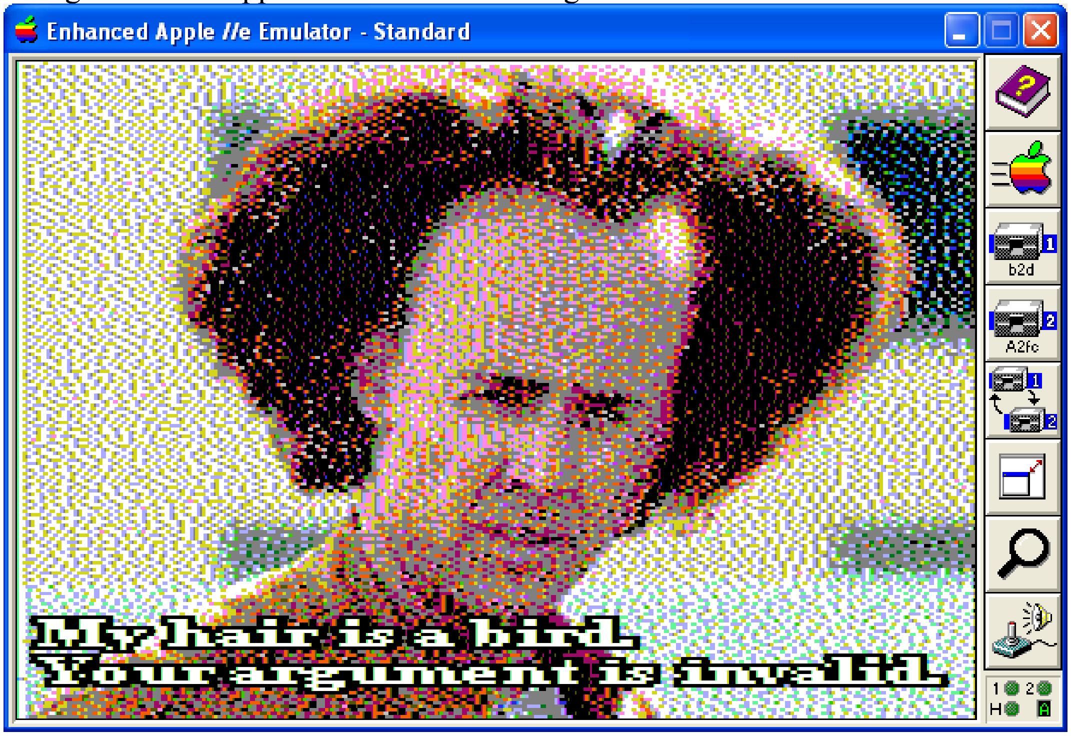
The following is Bmp2DHR's Preview of the final conversion (the Wikipedia Palette):


[MCGA Mode] C:\cc65_snap\PROGRAMS\DHGR\bmp2dhr\General\NickCage_Preview.bmp
File Shop PrintShop Palette Shop CGA Shop Apple Shop Next [F2] Copy [F3] ThinCopy [F4] SmallCopy [F5] Help
My hair is a bird.
Your argument is invalid.

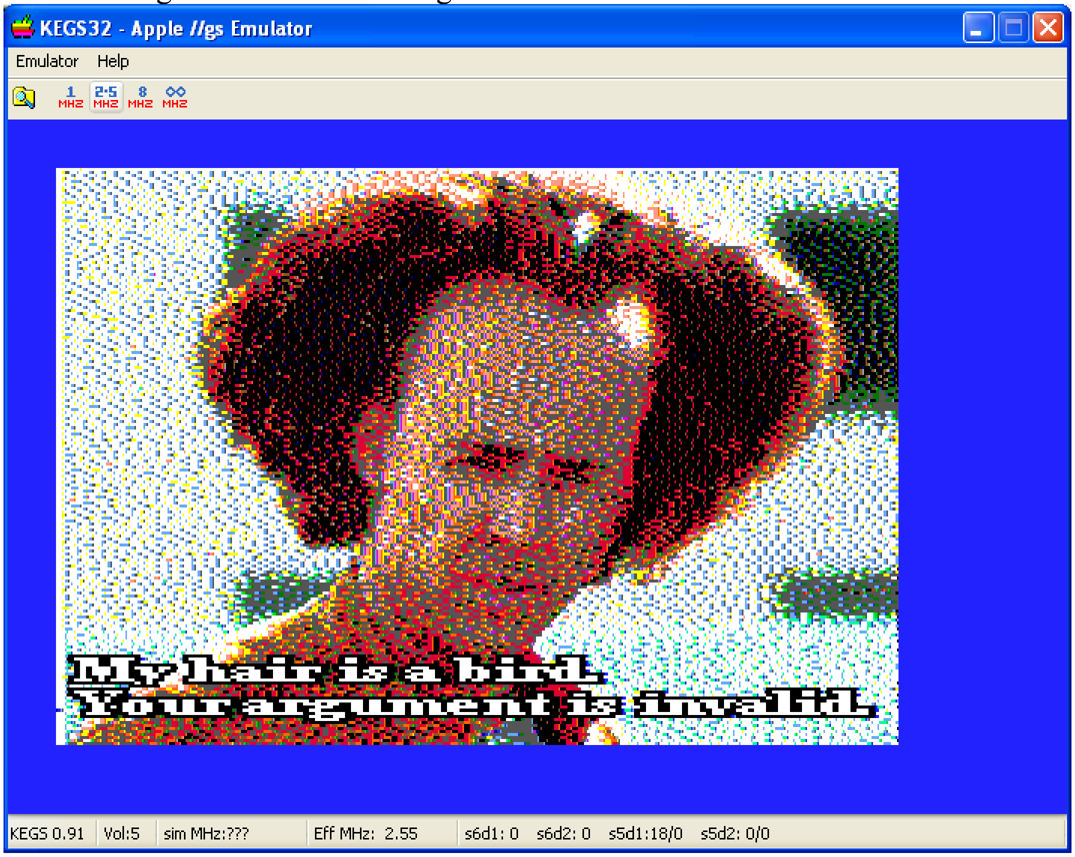
Here's the input 640 x 480 BMP:



The image below is AppleWin's color rendering. It is not accurate.

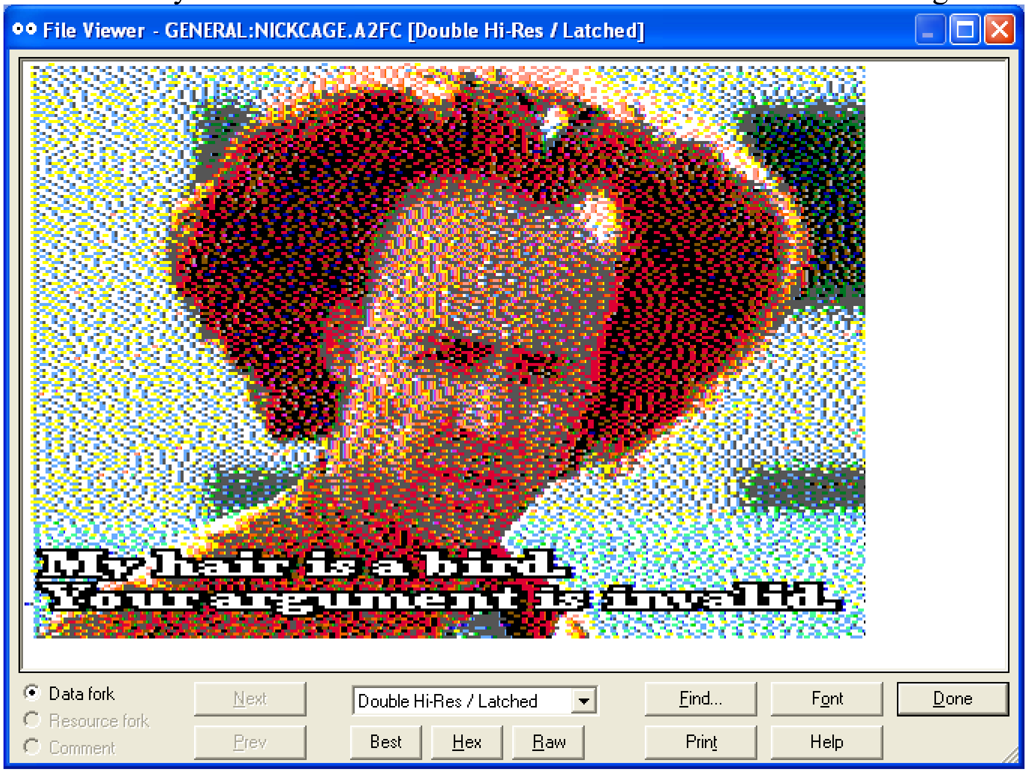

Enhanced Apple //e Emulator - Standard
My hair is a bird.
Your argument is invalid.
b2d
A2fc
1 2
H

This is what kegs32 thinks of Mr. Cage's Hair.



KEGS 0.91 Vol:5 sim MHz:??? Eff MHz: 2.55 s6d1: 0 s6d2: 0 s5d1:18/0 s5d2: 0/0

.Emulators are only emulators. Utilities like CiderPress also do their own thing:



A real Apple IIe will display DHGR in balance with the Wikipedia Palette used by Bmp2DHR for conversion. What I can tell you is that this image will look much better on my real Apple //e with my RGB monitor, and the preview mode will be very accurate. My real Apple II makes the solid colors look softer and more blended, which I really can't imagine on my modern LCD flat-screen (especially given these inaccuracies of emulators).

All the best,

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