Using DMONO To Create Monochrome DHGR Files
by Bill Buckels – November 19, 2012

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Intended Audience

I am assuming that you already know what an Apple II DHGR file is and you have utilities to place these on Apple II disks or disk images. I assume too that you have some knowledge of IBM PC graphics files, specifically Windows BMP files. I am also assuming that you know how to use the Windows clipboard and how to use Windows Paint. I am hoping as well that you also know about monochrome graphics and screen resolutions and such. If you don't have this knowledge this document may not be for you.

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Introduction

Back in 2009 I wrote an MS-DOS utility called BMPA2FC.exe which also runs in an XP cmd window or under DOSBox and converts IBM PC graphics files to Apple II color DHGR files as part of a larger collection of programming for the Apple II. When I wrote and recently made changes to that utility I did not offer support for Apple II monochrome DHGR files.

Nor do I offer support for Apple II monochrome DHGR files in any of my other utilities like A2FCBMP.exe which converts Apple II color DHGR files to Windows color BMP files. I do not offer support for Apple II DHGR files at all in my ClipShop program which is a larger effort on my part, and I do not plan on it either.

Yesterday Andrew Hogan who is one of my remaining fellow Apple II users gently pointed-out that support for conversion of Apple II monochrome DHGR files is missing from my otherwise relatively complete suite of these types of utilities. He is a persistent fan of my utilities and therefore he is allowed to take advantage of my predisposition to my programming addiction to get more Apple II toys to play with than he can reasonably use in his own lifetime. From my own extensive experience as a manager in my previous life, he would probably make a pretty good manager in a software shop, hence this attribution.

Rather than complicate my life by adding Apple II monochrome DHGR file support to other programming that I have done, I decided to create a relatively simple utility to convert back and forth between Apple II monochrome DHGR files and Windows monochrome BMP files. Hence DMONO.exe was conjured-up and completed.

This document is a brief summary of DMONO.exe but it is in no way complete. Much more could be said about the "finer" points of all this. But DMONO.exe is distributed with reasonably well-commented source code and sample images in both BMP and Apple II DHGR monochrome formats.

```
/* ------------------------------------------------------------------ */
/* DMONO.C (C) Copyright Bill Buckels 2012                            */
/* All Rights Reserved.                                               */
/*                                                                    */
/* Licence Agreement                                                  */
/* ----------------                                                   */
/*                                                                    */
/* You have a royalty-free right to use, modify, reproduce and        */
/* distribute this source code in any way you find useful,            */
/* provided that you agree that Bill Buckels has no warranty obligations */
/* or liability resulting from said distribution in any way whatsoever. */
/* If you don't agree, remove this source code and related files      */
/* from your computer now.                                            */
/*                                                                    */
/* Written by    : Bill Buckels                                       */
/* Email:          bbuckels@escape.ca                                 */
/*                                                                    */
/* Purpose       : "Round Trip" utility to convert between Windows     */
/*                 Monochrome BMP files and Apple II Mono DHGR files.  */
/*                                                                    */
/* Purpose 1     : This utility will allow you to convert             */
/*                 2 - color (mono) BMP files 560 x 192 or 560 x 384 to */
/*                 Apple II Double Hi-Res 560 x 192 monochrome images. */
/*                                                                    */
/* Purpose 2     : This utility will also allow you to convert        */
/*                 Apple II Double Hi-Res 560 x 192 monochrome images in */
/*                 either .2FC format or BIN AUX format to            */
/*                 2 - color (mono) BMP files 560 x 192 or 560 x 384. */
/*                                                                    */
/*                                                                    */
/* Revision      : 1.0 First Release                                  */
/* ------------------------------------------------------------------ */
/* Written in Large Model 16 bit Microsoft C (MSC) Version 8.00c      */
/* Note: Run in an MS-DOS emulator like DOSBox if you can't run it raw. */
/* ------------------------------------------------------------------ */
```

After reading this document, for detailed information about what it is actually doing and how it does what it does read the source code and run the program. For further enlightenment in such matters I leave the rest to you. I will be fishing and unavailable for comment.

Converting from Windows BMP to Apple II DHGR Monochrome

I have provided 2 "Canvas Files" in Windows Monochrome BMP format to provide you with a starting point for creating your own Apple II DHGR Monochrome files in Windows Paint (or some other BMP editor). Save these away and work on a copy. These "Canvas" files are as follows and represent the only two sizes of monochrome BMP's that DMONO.exe accepts:

Mono192.bmp – 560 x 192 Monochrome BMP "Canvas file" which is exactly the size for a "pixel by pixel" conversion from BMP to Apple II DHGR monochrome. The downside of using this file in Windows is because the "aspect" ratio of an Apple II DHGR monochrome image is generally "squashed" vertically when viewed "as-is" under Windows so Windows graphics need to be "squashed" vertically by 50%, or "stretched" horizontally by 200%, to appear correctly on the converted "official okey-dokey" Apple II files produced by DMONO. In other words, using a "pixel by pixel" BMP file for this
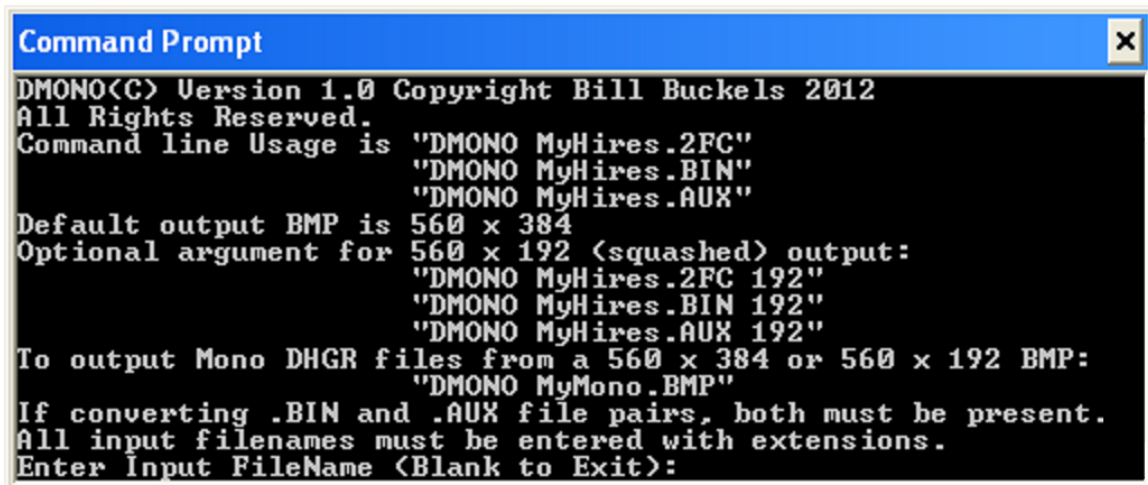
purpose is lots of expert work. This file format is also one of the 2 output BMP formats produced by DMONO.exe when converting from Apple II DHGR monochrome files to Windows BMP, but it is not DMONO.exe's "default" output. It will however produce more accurate output for the Apple II especially on dithered photos and such.

Mono384.bmp - 560 x 384 Monochrome BMP "Canvas file" which is twice as long as a "pixel by pixel" conversion from BMP to Apple II DHGR monochrome. The upside of using this file in Windows is because the "aspect" ratio of an Apple II DHGR monochrome image is generally "squashed" when viewed "as-is" under Windows so Windows graphics need to be "stretched" vertically by 200% to appear correctly under Windows. This file format is also one of the 2 output BMP formats produced by DMONO.exe when converting from Apple II DHGR monochrome files to Windows BMP, and it is DMONO.exe's "default" output. When using DMONO.exe to output Apple II files try using a Mono384.bmp "Canvas file" first, remembering that you will lose every "second scanline" on DMONO.exe's Apple II file output. A more accurate Mono192.bmp "Canvas file" may produce more acceptable output for the Apple II especially on dithered photos and such, but a Mono384.bmp "Canvas file" will likely give you better proportional output for text and "unscaled" graphics. Your choice.

About Using DMONO.exe

As previously stated by using DMONO.exe you can convert from monochrome BMP to DHGR and then back to monochrome BMP effectively performing "round trip" editing of Apple II DHGR graphics files on your Windows computer.
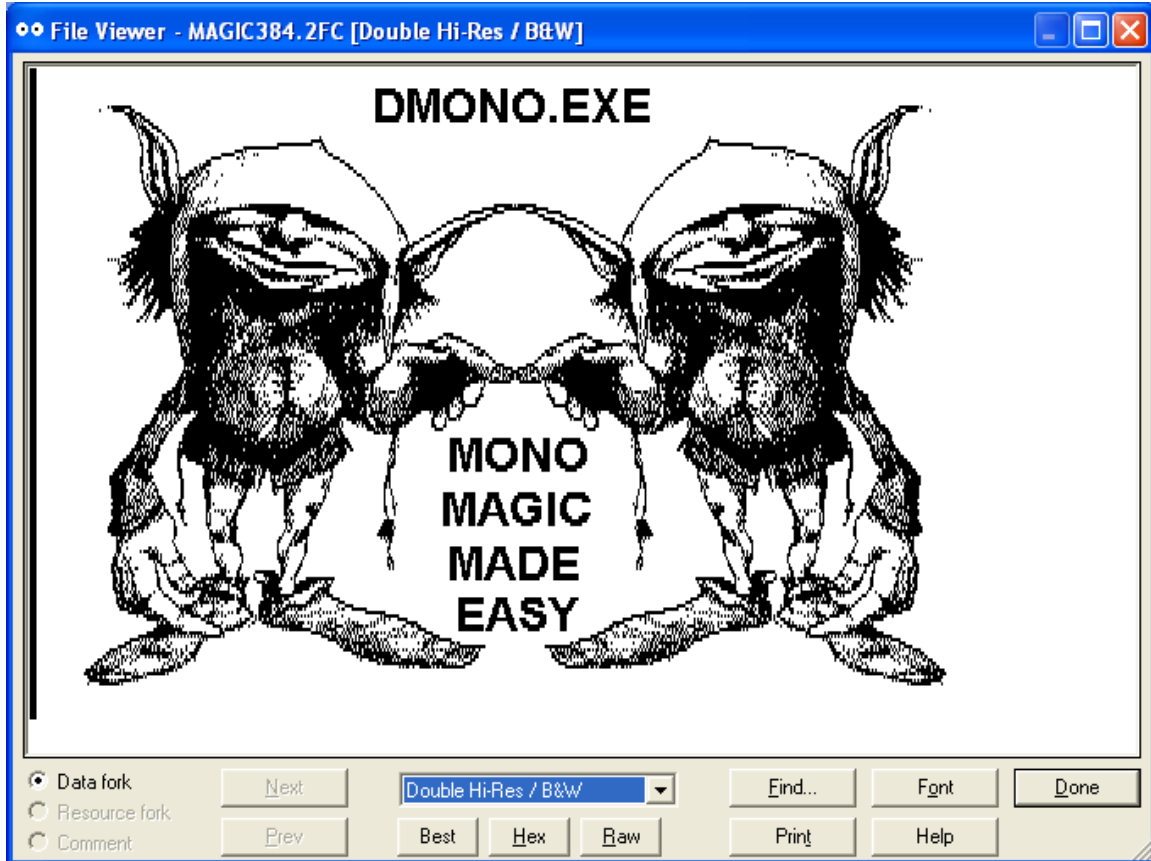
DMONO.exe is a command line utility. When you run it without a filename argument it displays usage. For further enlightenment in such matters I leave the rest to you.

```
Command Prompt                                          ×
DMONO(C) Version 1.0 Copyright Bill Buckels 2012
All Rights Reserved.
Command line Usage is "DMONO MyHires.2FC"
                      "DMONO MyHires.BIN"
                      "DMONO MyHires.AUX"
Default output BMP is 560 x 384
Optional argument for 560 x 192 (squashed) output:
                      "DMONO MyHires.2FC 192"
                      "DMONO MyHires.BIN 192"
                      "DMONO MyHires.AUX 192"
To output Mono DHGR files from a 560 x 384 or 560 x 192 BMP:
                      "DMONO MyMono.BMP"
If converting .BIN and .AUX file pairs, both must be present.
All input filenames must be entered with extensions.
Enter Input FileName (Blank to Exit):
```
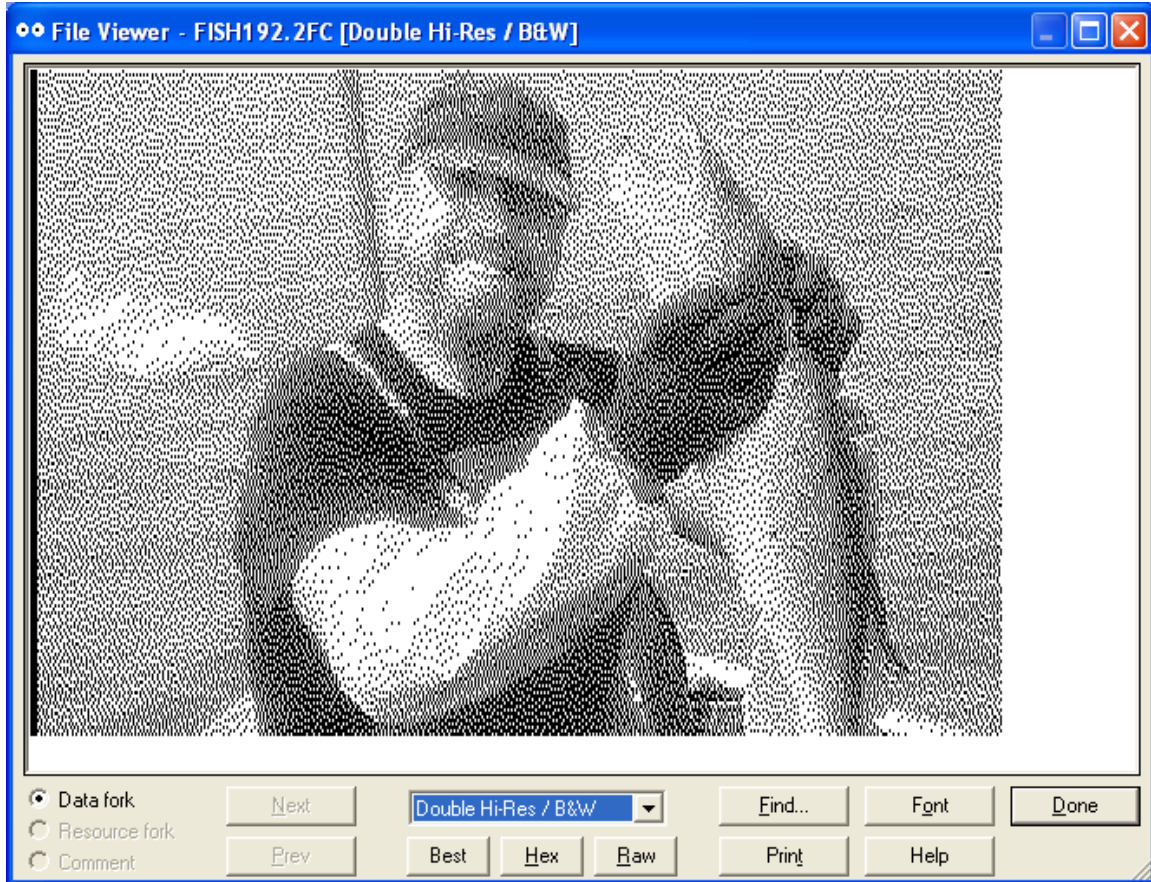
After reading this document, for detailed information about what it is actually doing and how it does what it does read the source code and run the program using either your own files or the samples that I have provided.

Ciderpress Viewing Tip

This is general tip for the .2FC monochrome DHGR files that DMONO.exe creates. If you use Ciderpress you can view these on a DOS33 disk image by clicking on the file and then selecting the Black and White viewing option. I am assuming that you have placed these on your disk image as type BIN with a $2000 load address.

<u>Unsupported Software</u>

None of this is supported by me in any way whatsoever. I have better things to do. You have the source code as well as my work to enjoy and if further changes are desired please feel free to carry those forward without me. I'll be fishing.

All the best,

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