COMPATIBLE

Enhanced Apple //e, //c, IIc+, IIgs (and emulators)

MAGIC PIXELS

**DOUBLE LO-RES DRAWING / EDITING PROGRAM
AND ACCOMPANYING DISPLAY SUBROUTINES
V2.6.0 WRITTEN BY ROBY SHERMAN**

**crow cousins
micro software**

WHAT IS MAGIC-PIXELS

MAGIC-PIXELS is a very powerful and easy to use drawing program. It allows you to use a mouse, Koala Pad, paddles, or joystick to create drawings and diagrams in double lo-res graphics.

Magic-Pixels is designed to be easy enough for young children to use like a coloring book, yet sophisticated features are included for the serious computer artist.
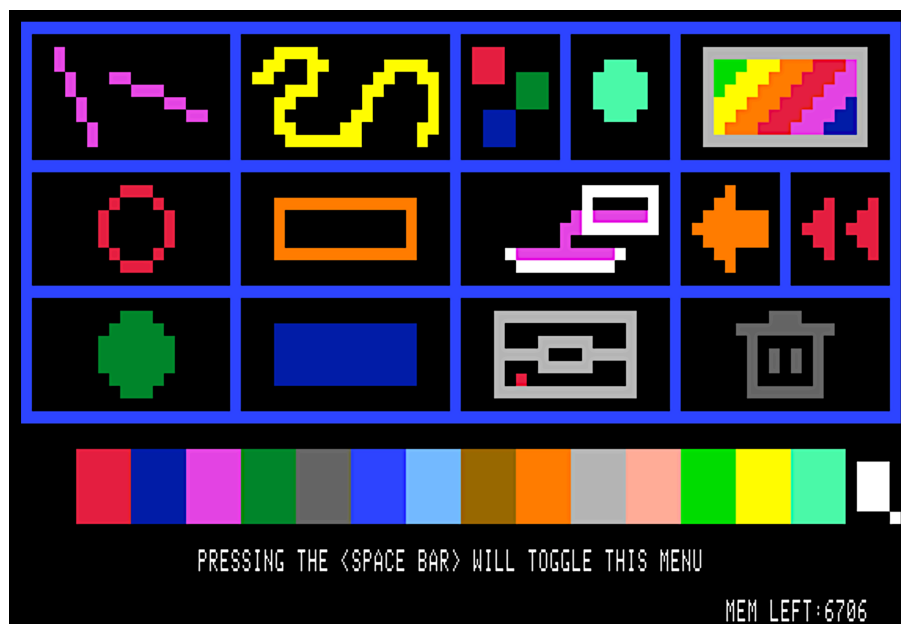
SYSTEM REQUIREMENTS

* An real or emulated enhanced Apple //e, //c, IIc+, or IIgs computer with 128K memory of better

* A drive capable of reading .woz or .dsk diskette images

* A mouse or an input device that uses the paddle connector (e.g. Koala Pad, joystick, etc.)

GETTING STARTED

When you first start MAGIC-PIXELS it will ask you to select either a (J)oystick or a (M)ouse input device. Make your selection and the main program menu will appear similar to the below. (See THE MAIN MENU for more information)

MOVING THE CURSOR

The cursor is a small dot/pixel that will take on the current color selection or white/gray if the cursor color and the background color are the same.

Using your input device, practice moving the cursor around on screen and using its buttons (referred to in this documentation as the ACTION BUTTON) to activate tools, draw, etc. Here's the how the cursor will behave with a variety of input devices:
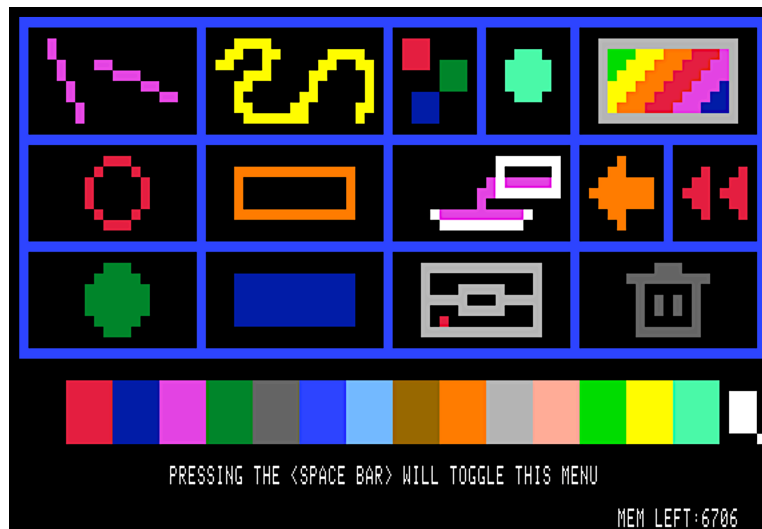
MOUSE - The cursor will track follow the mouse's movement exactly. The mouse button can be used to select menu options, click, click and drag, etc.

JOYSTICK - Push the joystick in the direction you want the cursor to move on the screen. Use either button to make a menu selection, or to draw via "press" or "press and drag" actions.

PADDLES - The paddles provide separate horizontal and vertical control of cursor movement. Pressing either paddle button will allow you to draw via "press" or "press and drag" actions.

KOALA PAD - Use the stylus (or your finger) to move the cursor around on the screen. Use either button on the touch pad to perform "press" or "press and drag" actions.

THE MAIN MENU

The Main Menu contains each of the main program functions shown as a tile with an icon that symbolizes the function. To choose the menu item you want, simply move the cursor to the desired tile and press the ACTION BUTTON.

You can switch back from the main menu to your drawing by either using the ACTION BUTTON to click on one of the tool icons or by pressing the <SPACE BAR>.

At any time, you can get back to the Main Menu by pressing the <SPACE BAR> again.
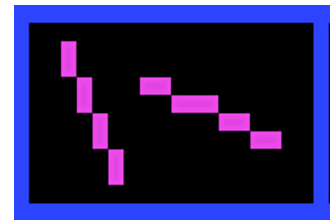
COLOR SELECTION

To change the current drawing color, move the cursor on the main menu to the color strip at the bottom and press the ACTION BUTTON to select the color you want. The color will highlight with a small rectangle, indicating that it is selected:
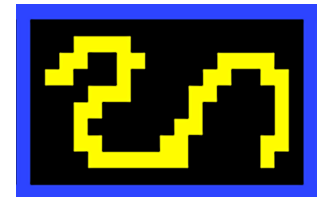

LINE DRAWING TOOL

The line drawing tool helps with drawing straight on angled lines. Position cursor at one end of the line to be drawn, then press and hold down the ACTION BUTTON. As you move around the screen, a second dot will appear representing the line end point. When you have the cursor in the right spot, release the ACTION BUTTON and MP will draw the line.

FREEHAND DRAWING TOOL

This tool is used to create dots and freeform lines. Place the cursor where you want to start drawing. Press and hold down the ACTION BUTTON and then drag to draw. Release the button to stop drawing.

Warning: Freehand drawing tools are very expensive in terms of memory consumption and will quickly inflate the size of the drawing. If you use this tool a lot in your drawing, it might be better to export the image instead.
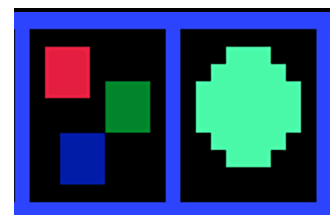
BIG BRUSHES

These "fat" brushes are used to fill in a large area quickly. This can be useful when you want to mask/overlay one MP.* image over or just drawing in big, fun brushes.

Place the cursor where you want to start drawing. Hold down the ACTION BUTTON and draw. Release the button to stop drawing.

Warning: Like the Freehand drawing tool above, the Big Brushes are very expensive in terms of memory consumption and will quickly inflate the size of the drawing.

COLOR WIPE

These wipes can be used to quickly clear the entire image in the color of your choice. Color wipes are MUCH faster than Flood Filling and are highly recommended when creating new images.

Press the ACTION BUTTON anywhere on the drawing screen to erase it in the currently selected color.
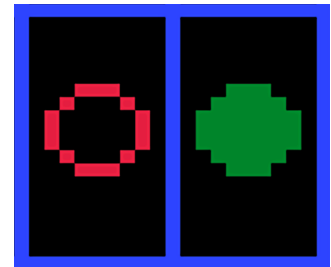
If you would like to overlay one MP.* image with another, you should avoid using the COLOR WIPE on the foreground image (as it will overwrite the underlying image when it is drawn!)
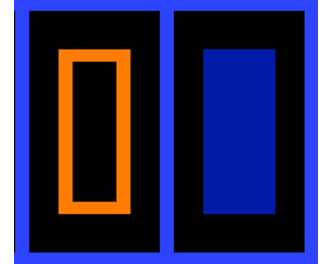
FRAMED OR FILLED CIRCLES

Place the cursor at the center of the circle to be drawn, then press and hold the ACTION BUTTON. Move around the screen with the second cursor to specify the radius of the circle. When you get the circle size that you want, release the ACTION BUTTON to draw the circle on the screen.

FRAMED OR FILLED RECTANGLES

Place the cursor at one of the corners of the box or rectangle you wish to draw, then press and hold the ACTION BUTTON.

Now when you move around the screen, a second cursor will allow you to determine the opposite corner for the rectangle. When you get the final size and shape you want, release the ACTION BUTTON to draw the rectangle on the screen.

FLOOD FILL

This tool is use to fill an enclosed area of the picture. Any area that is already filled with a solid color can be refilled with another color.

The fill may leak out of an area that is not completely enclosed. Areas that are colored with textures / lines will not always accept fills.
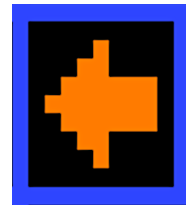
To perform a fill, position the cursor inside of area to be filled and press the ACTION BUTTON.

UNDO

UNDO will reverse the last drawing action performed in Magic-PIxels.

Position the cursor to the UNDO tool icon and press the ACTION BUTTON. The drawing will be displayed with the most recent drawing action removed.

REWIND

Made a big mistake? REWIND can help! After selection the REWIND tool, use the <SPACE> bar to step through the paint actions in <u>any</u> MP.* image, until you see the first sign of where things went horribly wrong.

From this point, press the <RETURN> key and Magic-Pixels will erase the last paint action displayed (along with everything else beyond that point), allowing you to continue with your drawing.

If you accidentally go too far, or you want to abort the operation, you may press <ESC> at any time to abort the REWIND.

Just as a word of caution, you cannot UNDO the REWIND function. Don't even try. It'll create a paradox.

TRASH / CLEAR IMAGE

Move the cursor to the TRASH icon and press the ACTION BUTTON. This will create a blank, new image.
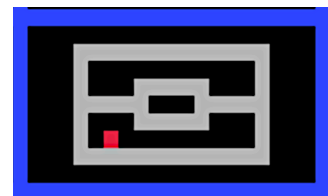
Blank images do not have a pre-filled in background color. This is done so you can create image overlays if desired. If you wish to add a COLOR WIPE, you should do so before you begin drawing your image.

DISK ROUTINES

When you select the disk drive from the main menu, a prompt will appear where you can load / save images, import / export images, CATALOG the current disk, get information about Magic-Pixels, or quit the program.

If you don't wish to perform any of these actions, simply press <RETURN> to cancel.

SAVING A PICTURE

Magic-Pixel's default image format (MP.*) saves each drawing instruction used to create the image (similar to Graphics Magician images or images you might have seen drawn in hi-res adventure games from back in the day)

If you previously loaded an image, the name of the MP.* file will be displayed on the prompt. If you wish to use this name, press <RETURN>, otherwise erase / revise the name as needed. To cancel the save, erase all of the characters in the name.

You must have a formatted data disk to save your picture. If you do not have one, follow directions for FORMAT DATA DISK. Always be careful to save any work that you don't want to lose before starting a new picture.

LOADING A PICTURE

The LOAD command allows you to read MP.* drawings into the Magic-Pixels editor, where the image can be further refined or manipulated.
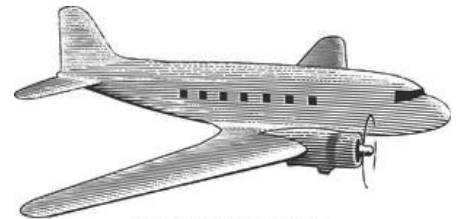
CATALOG

This option will display a catalog listing of all the files on a disk. During the CATALOG, you can press a key to pause the listing.

EXPORT IMAGE

EXPORT is use to save drawings in a bitmap format (*.DBL), rather than a MP.* drawing format. Generally speaking *.DBL files load / display faster than MP.* files but they also take up more disk space (unless you've gone crazy with freehand and brush drawing tools)

The *.DBL suffix will be added automatically to any filename you supply.

IMPORT IMAGE

IMPORT allows you to load and overlay a *.DBL file into memory over your current drawing. This will enable you to perform either of the following actions:

* Use the on-screen image as a template that can drawn/traced over, the resulting actions can then be saved separately in your own MP.* file.

* Modify the on-screen image and then re-export the whole updated image back to a *.DBL format
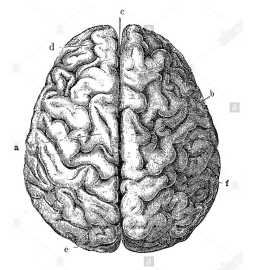
The *.DBL suffix will be added automatically to any filename you supply.

Importing an image does not erase any previous drawing you've created (or the memory it consumes). It simply overlays the screen with the bitmap image, allowing you to continue with your drawing. If you wish to clear memory first (to maximize the drawing memory), select the TRASH CAN tool BEFORE you import!

FREE MEMORY INDICATOR

At the lower right of the MAIN MENU, you will see an indicator on the amount of free memory left for your MP drawing. This memory indicator only applies if you want to save your image in MP format. If you run out of memory, however, you will be forced to save your image.

If you want to keep going with your drawing as a bitmap, export the image as a *.DBL file, click on the TRASH / CLEAR IMAGE tool, then IMPORT the *.DBL image back in and edit it some more. When you're ready, export the final image it back out as a *.DBL file.

INCLUDING IMAGES IN YOUR OWN PROGRAMS

Including MP.* and *.DBL images in your own program creations is simple and easy. We've supplied a number of sample subroutines both on disk and within this documentation to help you get started. Need help? Drop us a line anytime!

PREREQUISITES

Before you can display any of Magic-Pixel graphic images, your program will have to perform a few actions:

1. Load the Dolores DBCOREAMP library
2. Load the MPSCAN.LIB library (if you pla
3. Add a couple of pokes to your hello program

Here's an example HELLO / LOADER program that would demonstrates the actions that you need to perform:

```
10 ?CHR$(4);"BRUN DLCOREAMP,A$8000"

REM *** LINE 20 IS ONLY NEEDED TO DISPLAY
REM *** MP.* IMAGES, NOT *.DBL FILES

20 ?CHR$(4);"BLOAD MPSCAN.LIB,A$7E00"

REM *** LINES 30-40 ARE NEEDED EITHER WAY

30 POKE 104,16:POKE 4096,0

40 ?CHR$(4);"RUN YOURPROGRAM"
```

DISPLAYING MP.* DRAWING FILES

Once you've met the prerequisites above, you are ready to load and display your creations! For example, to display an MP.* image:

BLOAD the .MP file into memory

```
]?CHR$(4);"BLOAD MP.BLAZINGMENU2,A$4000"
```

If you haven't already, switch to double lo-res graphics mode:
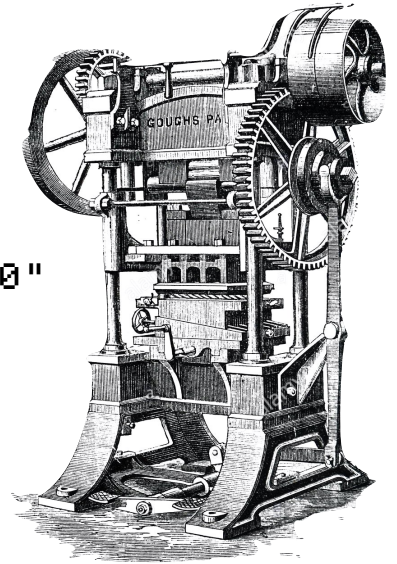
```
]&GR:POKE 32271,48:REM FULL SCREEN
OR
]&GR:&M: REM MIXED MODE
```

Call the MPSCAN.LIB utility to draw the image:

```
]CALL 32256
```

For more examples on how to change image memory locations or to embed routines in your own programs, check out the MP.READER example program, described below.
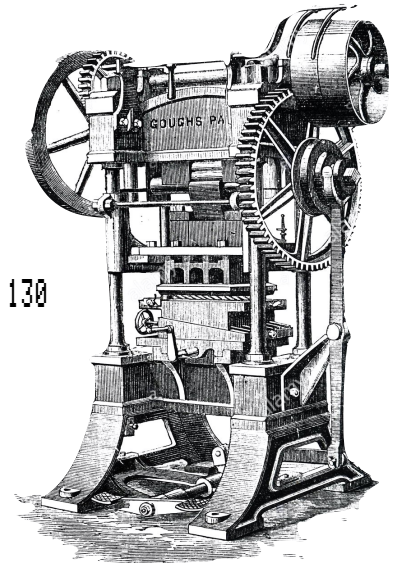
USING MP.READER

On the Magic-Pixels disk, you will find the **MP.READER** example program. This code demonstrates the concepts described in the previous section and shows how MP.* drawings can be loaded to different memory addresses, etc for use in your own software.

```
0 MM=0
10 ?CHR$(4);"PR#3":HOME
20 ?"PUT LINES 63000-63040 IN YOUR PROGRAM TO LOAD/DRAW MP.* FILES THAT YOU LOAD "
30 ?"INTO $4000 (MP VARIABLE)"
35 ?
40 ?"NOTE: THE SUBROUTINE ITSELF DOES NOT AUTOMATICALLY CLEAR THE SCREEN."
50 ?"     THIS IS TO ALLOW YOU TO OVERLAY GRAPHICS ON TOP OF EACH OTHER."
60 ?
65 ?"IF YOU WANT TO CLEAR THE SCREEN, BE SURE TO SELECT 'ERASE TO COLOR' FIRST"
70 ?"IN YOUR DRAWINGS (OR CLEAR THE SCREEN FIRST IN YOUR CODE)"
72 ?CHR$(4);"BLOAD MPSCAN.LIB,A$7E00"
75 ?:INPUT "PRESS RETURN TO CONTINUE ";A$:?
78 ?CHR$(4);"CATALOG":?
80 INPUT "ENTER MP FILENAME: ";F$:IF F$="" THEN END
90 ?CHR$(4);"BLOAD ";F$;",A$4000"
100 ?:?"FULLSCREEN? Y/N :";:GET FS$
110 IF FS$<>"Y" AND FS$<>"y" AND FS$<>"N" AND FS$<>"n" GOTO 100
120 &GR:IF FS$="N" OR FS$="N" THEN &M:VTAB 22:?"PRESS ANY KEY":GOTO 130
125 MM=1
130 GOSUB 63000
140 REM PRESS A KEY TO END
150 POKE-16368,0
160 X=PEEK(-16384): IF X<128 THEN 160
170 &TEXT:VTAB 22:END
```

```
63000 REM ########      MAGIC-PIXELS LOADER      ########
63002 REM ######## ROBY SHERMAN / ICRYPTO623@GMAIL.COM ########
63010 LD=32256:MP=16384: REM WHERE IN MEMORY THE MP.* FILE IS BLOADED INTO
63014 REM *** POKING THE IMAGE READ ADDRESS IN
63015 L1=INT(MP/256):L2=MP-(L1*256):POKE LD+13,L2:POKE LD+14,L1
63019 REM *** VERTICAL DRAWING LIMIT. FULL SCREEN LIMIT = 48. MIXED IS 39
63020 IF MM=1 THEN POKE LD+15,48
63030 CALL LD
63040 RETURN
```

DISPLAYING *.DBL BITMAP IMAGES IN DOUBLE LO-RES

The included **BITMAP.LOADER** example program demonstrates how a *.DBL image can be loaded into your programs and then displayed quickly and easily:

```
10 ?CHR$(4);"PR#3":HOME
20 ?"PUT LINES 63100-63150 IN YOUR PROGRAM TO LOAD/DRAW *.DBL BITMAP FILES LOADED "
30 ?"INTO $4000. DBL FILES ARE CREATED USING MAGIC-PIXEL'S EXPORT FEATURE."
35 ?:INPUT "PRESS RETURN TO CONTINUE ";A$:?
75 ?CHR$(4);"CATALOG":?
80 INPUT "ENTER DBL FILENAME: ";F$:IF F$="" THEN END
90 ? CHR$(4);"BLOAD ";F$;",A$4000"
100 ?:?"FULLSCREEN? Y/N :";:GET FS$
110 IF FS$<>"Y" AND FS$<>"y" AND FS$<>"N" AND FS$<>"n" GOTO 100
120 &GR
130 GOSUB 63100
135 IF FS$="N" OR FS$="N" THEN &M:VTAB 22:?"PRESS ANY KEY"
140 REM PRESS A KEY TO END
150 POKE-16368,0
160 X=PEEK(-16384): IF X<128 THEN 160
170 &TEXT:VTAB 22:END
```

```
63100 REM ######## MAGIC-PIXELS DOUBLE-LO-RES BITMAP LOADER ########
63110 REM ########  ROBY SHERMAN / ICRYPTO623@GMAIL.COM   ########
REM COPY $4000 TO 400
63130 POKE 60,0:POKE 61,64: POKE 62,255:POKE 63,67:POKE 66,00:POKE 67,04:POKE
992,160:POKE 993,0:POKE 994,76:POKE 995,44:POKE 996,254:CALL 992
REM COPY $4400 TO AUX 400
63140 POKE 49152,0:POKE 60,0:POKE 61,68: POKE 62,255:POKE 63,71:POKE 66,00:POKE
67,04:POKE 992,56: POKE 993,76: POKE 994,17: POKE 995,195:CALL 992
63150 RETURN
```
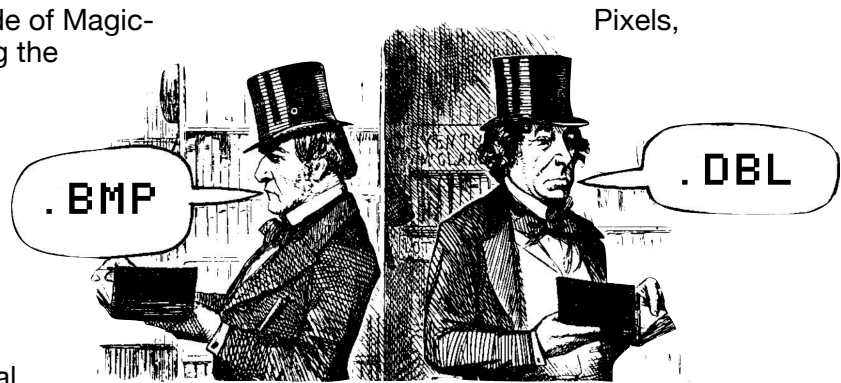
CONVERTING IMAGE FORMATS

CONVERTING .BMP FILES TO .DBL FORMAT

If you have 80x48 .BMP files created outside of Magic- Pixels, they can be converted to .DBL format using the **BMP.IMPORT** utility.

Once converted to *.DBL format, these images can be used within the paint program or displayed in your own programs using the subroutines demonstrated in the above **BITMAP.LOADER** program.

Thanks Tom Porter for supplying this special utility to the MP program suite!
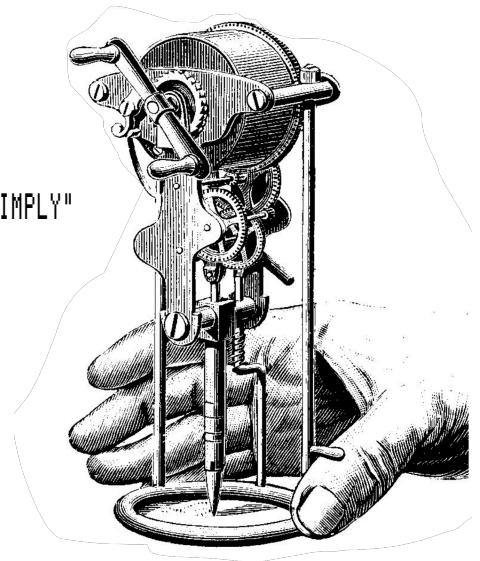
SCALING DOWN *.DBL BITMAPS FOR STANDARD LO-RES

Just because a *.DBL file was intended for double lo-res doesn't mean that it can't be displayed in traditional lo-res as well. **LO.BITMAP.LOADER**, included on the Magic-Pixels disk, demonstrates how to make it happen!

```
10 ?CHR$(4);"PR#3":HOME
20 ?"PUT LINES 63100-63150 IN YOUR PROGRAM TO LOAD/DRAW *.DBL BITMAP
FILES LOADED "
30 ?"INTO $4000 AS TRADITIONAL LO-RES. DBL FILES ARE CREATED USING
MAGIC-PIXEL'S"
32 ?"EXPORT FEATURE.":?
33 ?"IF YOU WANT TO PERMANENTLY CONVERT YOUR .DBL FILES TO LO-RES, SIMPLY"
34 ?"BLOAD THEFILE,A$4000 THEN BSAVE THEFILE,A$4000,L$3FF":?
35 ?:INPUT "PRESS RETURN TO CONTINUE ";A$:?
75 ?CHR$(4);"CATALOG":?
80 INPUT "ENTER DBL FILENAME: ";F$:IF F$="" THEN END
90 ? CHR$(4);"BLOAD ";F$;",A$4000"
100 ?:?"FULLSCREEN? Y/N :";:GET FS$
110 IF FS$<>"Y" AND FS$<>"y" AND FS$<>"N" AND FS$<>"n" GOTO 100
115 ?CHR$(4);"PR#0":HOME
120 GR:VTAB 21
130 GOSUB 63100
135 IF FS$="Y" OR FS$="y" THEN POKE 49234,0
137 IF FS$="N" OR FS$="N" THEN VTAB 22:?"PRESS ANY KEY"

140 REM PRESS A KEY TO END
150 POKE-16368,0
160 X=PEEK(-16384): IF X<128 THEN 160
170 TEXT:HOME:VTAB 22:END


63100 REM ######## MAGIC-PIXELS DOUBLE-LO-RES BITMAP LOADER ########
63110 REM ########  ROBY SHERMAN / ICRYPTO623@GMAIL.COM   ########
REM COPY $4000 TO 400
63130 POKE 60,0:POKE 61,64: POKE 62,255:POKE 63,67:POKE 66,00:POKE 67,04:POKE 992,160:POKE
993,0:POKE 994,76:POKE 995,44:POKE 996,254:CALL 992
63150 RETURN
SAVE LO.BITMAP.LOADER
```
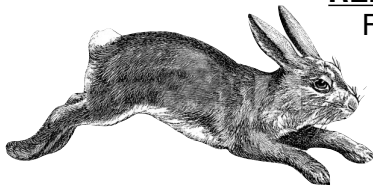
MAGIC-PIXEL TIPS AND TRICKS

AVOIDING THE TEXT WINDOW
If you want to create a picture that doesn't get lost in the area reserved for text in mixed mode, IMPORT the bitmap called MIXED MODE TEMPLATE.DBL. Anything you draw in the white painted area will be safely displayed above the text region when displayed in mixed mode.

FLOOD FILL FOR SMALL JOBS
Due to speed limitations, the flood fill should be used for small fills, avoiding large screens when possible. For full-screen coloring, consider using the COLOR WIPE tool instead!

REDUCING DRAWING SIZE, INCREASING SPEED
Freehand drawing and big brush tools are very expensive in terms of memory consumption and will quickly inflate the size of your drawing. Use them sparingly when you want to maximize your space savings in MP.* files (or export your image as a *.DBL file instead)

MOVING .BMP FILES WITH CIDERPRESS
Looking for a quick and easy way to move *.BMP files onto a disk for use with Magic-Pixels? The CiderPress utility for Windows can create and copy to/from Windows and Apple II disk images. If you haven't tried this utility, we highly recommend it! https://a2ciderpress.com

SPECIAL THANKS

Magic-Pixels would not have been possible without the existence of Marc Golombeck's awesome Dolores drawing library for double lo-res. THANK YOU Marc for all of your patience and hard work on such a wonderful library! If you know how to write programs and BASIC (and assembler, of course), you too can have quick and easy access to Double Lo-Res graphics. Be sure to check it out at http://www.golombeck.eu

Special thanks also goes out:

* Daniel Henderson for his never-ending patience in creating the Magic-Pixels logo and several of the sample images provided, plus helping to beta test the software.

* Tom Porter for supplying the *.BMP to *.DBL conversion utility for use in Magic-Pixels!

NEED HELP?

Have a question about Magic-Pixels? Reach out to the Crow Cousins at https://crowcousins.com

We're always happy to help!