



Bmp Wizard

Use:

[Introduction](#)
[Script language](#)
[Examples](#)
[Versions](#)

Menu commands:

[File menu](#)
[Edit menu](#)
[View menu](#)
[Help menu](#)

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Introduction:

As a graphic programs user, I often need to modify/filter bitmap accessing pixel data at low level. BmpWiz accomplish this need, using a Basic like language to modify raster images in BMP format. To obtain better performance, script program is semicompiled before execution.

There are some base filter ready to run (see Examples chapter for a list), but it is easy to create or derive new one.

This is a shareware software, after a tryal you must register to use it , with registration you obtain new releases notification and bug-fixing, the registration cost is **40\$**, if you are on **Compuserve** you can use (go) **SWREG** and use Id **8910** for payment.

This is the 32 bit version of BmpWiz that could be used in Windows NT or Windows '95 and Windows 3.1x or Windows for Workgroup with Win32s extensions.

Script language:

BmpWiz script (BWL) is a basic like language.

There are two main difference from basic, BWL accept only one instruction each row (except expression) and variables must be declared.

Remark:

Allows explanatory remarks to be inserted in a program preceding them with a single quotation mark ['].

Variables & constants:

Variables must be defined before their use with the syntax:

```
var_type var_name[,var_name]
```

es:

```
float x,y
```

Characters allowed in a variable name are only letters, the parser is case sensitive so **var** and **Var** is not the same variable.

There are two family of variables type:

Simple:

float	floating point number
string	character string

Structured:

DevCon	image
Width	image width (read only)
Height	image height (read only)
BitCount	bit number per pixel (read only)
Res	resolution
CiImp	colors importants (for image rendering)
RGB	color info in RedGreenBlue format
Lum	luminosity (0-255) or (Red+Green+Blue)/3
Red	red component (0-255)
Green	green component (0-255)
Blue	blue component (0-255)
HBS	color info in HueBrightSaturation format
Hue	color (0-240)
Bri	bright (0-240)
Sat	saturation (0-240)

Structured variables could receive data using assignment.

To access single components you must specify component name after variable name separated by a dot.

es:

define a color variable

```
RGB pix
```

set pix red component to max:

```
pix.Red=255
```

HBS struct cannot be used with graphical instructions, the color information must be assigned to a RGB variable before its use.

You can define arrays of float using [**n**] int the definition line, **n** is the elements number.

To use arrays in the program you must specify the index (0 based), es:

```
float ar[10]
ar[0]=1
ar[1]=ar[0]+1
```

Constants could be numbers or string, numbers must be in the n.n form, strings must be enclosed in double quotation marks.

Predefined constants:

float	CINum	Number of arguments on command line
string	CIArg[n]	Argument received on command line
float	PI	Return the π (3,14159)

Statement & functions:

Graphics commands:

DevCon=LoadImage(string Name):

Reads a bitmap from disk returning a DevCon value.

Name could be a variable or a constant that point to a file in the Windows BMP format, 1/4/8/24 bits.

Memory bitmap pointed by DevCon have the same width length and color limits of the BMP file.

To get a bitmap from clipboard you must specify its name as file to read (es:

lbmp=LoadImage("CLIPBOARD")), then program flow stop waiting a bitmap in the clipboard.

Reading/writing to clipboard allow to build macro like script that operate inside other graphic programs, ClpBrd.Bas demotrate this use.

DevCon=CreatelImage(float Xdim,float Ydim,float bit)

Creates a bitmap in memory with the specified limits.

Return a DevCon value that must be used as reference.

In the 1/4/8 bit format a gray palette will be associated to the image.

SavelImage(DevCon img,string Name)

Saves the img memory bitmap in a file.

If file name is "CLIPBOARD" destination will be the clipboard.

RGB=GetPalette(DevCon img,float enum)

Obtains the RGB value of the **enum** element from palette associated to the img bitmap.

SetPalette(DevCon img,float enum,RGB pix)

Sets the RGB value of the **enum** element in the palette associated to the img bitmap.

Pixel access:

RGB=GetPixel(DevCon img,float x,float y)

Reads the RGB value of the x,y pixel inside img bitmap.

val=GetPixelVal(DevCon img,float x,float y)

Reads the numeric value of the x,y pixel inside img bitmap, usefull to get pixel numeric values (palette index) of 4/8 bit images.

SetPixel(DevCon img,float x,float y, RGB pix)

Sets the RGB value of the x,y pixel inside img bitmap.

SetPixelVal(DevCon img,float x,float y, float val)

Sets the numeric value of the x,y pixel inside img bitmap, faster than SetPixel bypassing palette.

Flow:**If (cond)**

...

[else

...]

endif

If **cond** is TRUE (TRUE <> 0) execute following commands until **else**, if **cond** is FALSE program flow skip to the command following **else**.

Cond could be any sequence of operator evaluated from left to right, operator inside bracket are evaluated first.

For var=(exp1) To (exp2) [Step (exp3)]**Next var**

Executes a loop from **exp1** to **exp2** counting in **var**, increment is **exp3** or 1 if not specified.

Return

Terminates the program execution.

Exit

Exit from BmpWiz, it is used for batch called image filters that needs automatic program exit (see the External batch operation chapter for more information).

Display & I/O:**string=GetFileName(string Title)**

Asks a file name using the Windows common dialog, return a string value.

string=FileFind(string Mask)

Return a file name, command could be iterate to return all files names.

DspMes(...)

Displays a sequence of variable and constants in any order.

Debug()

Suspend program execution and shows variables contents in a window.

[if]/[val=] DspWhile(string text,float perc)

Displays a dialog with a message and a cursor with a percentage value. Value returned is TRUE if stop button has been pressed.

Preview(DevCon img,string title,float x, float y [, float xdim,float ydim])

Displays the img bitmap in a window with the specified characteristics.

Operators:

Operators are evaluated in expression from the left to the right, operator inside bracket are evaluated first.

Arithmetic operators:

+	sum
-	subtract
*	multiply
/	divide
%	module
Sin(exp)	sines
ASin(exp)	arcsine
HSin(exp)	hyperbolic sine
Cos(exp)	cosine
ACos(exp)	arcsine
HCos(exp)	hyperbolic cosine
Tan(exp)	tangent
ATan(exp)	arctangent
HTan(exp)	hyperbolic tangent
Sqr(exp)	square root
Abs(exp)	absolute
Exp(exp)	exponential
Log(exp)	logarithm
LogT(exp)	logarithm base 10
Pow(x,y)	x raised to the power of y
Rand(exp)	random number in 0-exp range
Min(a,b)	minimum between a e b
Max(a,b)	maximum between a e b
Int(a)	integral part of a

Logical:

>	greater
<	less
=	equal
>=	greater or equal
<=	less or equal
<>	not equal
&	and
 	or
^	xor
!	not

External batch operation:

Using command line is possible to load and execute a script, es. BmpWiz caos.bas.

It as also possible to concatenate multiple file filtering using the new START comand present on WIN95 batch language:

```
multif.bat
    START /w BmpWiz caos.bas inp1.bmp out1.bmp
    START /w BmpWiz caos.bas inp2.bmp out2.bmp
    ...
caos.bas
inpFile=CIArg[2]
outFile=CIArg[3]
...
```

Exit()

File menu

<u>N</u> ew	Create a new script.
<u>O</u> pen	Load a script from disk.
<u>S</u> ave	Save current script.
<u>S</u> ave <u>A</u> s	Save current script with a different name.
<u>P</u> rint	Print current script.
<u>P</u> rint <u>P</u> review	Print preview.
<u>P</u> rint <u>S</u> etup	Select printer.
<u>E</u> xit	Exit.

Edit menu

<u>U</u> ndo	Undo last editing.
<u>C</u> ut	Cut current selection.
<u>C</u> opy	Copy current selection.
<u>P</u> aste	Paste data in clipboard.

View menu

<u>T</u> oolbar	Display the Toolbar.
<u>S</u> tatus <u>B</u> ar	Hide the Status Bar.

Help menu

<u>I</u> ndex	Help index.
<u>U</u> sing <u>H</u> elp	Help on help.
<u>A</u> bout	About program.

Run/Stop

Pressing this buttons execute current script language or stop the running one.

Shortcuts

Toolbar: 
Keys: CTRL+R

New (File menu)

Clear editing window and display a base script.

Shortcuts

Toolbar: 
Keys: CTRL+N

Open (File menu)

Load a script (*.bas) file from disk.

Shortcuts

Toolbar: 
Keys: CTRL+O

File Open dialog box

Permit to specify input file.

Save (File menu)

Save current script.

Shortcuts

Toolbar: 

Keys: CTRL+S

Save As (File menu)

Save current script with a different name, display the Save As Dialog.

File Save As dialog box

Permit to specify output file.

Exit (File menu)

Exit from the program.

Shortcuts

Mouse: Double-click the application's Control menu button.
Keys: ALT+F4

Undo/Can't Undo command (Edit menu)

Undo last editing.

Shortcuts

Keys: CTRL+Z or
ALT-BACKSPACE

Redo (Edit menu)

Replay editing.

Cut (Edit menu)

Shortcuts

Toolbar:



Keys: CTRL+X

Copy (Edit menu)

Shortcuts

Toolbar: 

Keys: CTRL+C

Paste (Edit menu)

Shortcuts

Toolbar: 

Keys: CTRL+V

Toolbar



New create a new script.



Open load a script from disk.



Save memorize a script on disk.



Print the active document.



Run/Stop current script.



Cut.



Copy.



Paste.

Status Bar



Codice Significato

CAP Caps lock.

NUM Num lock.

SCRL Scroll lock.

Index (Help menu)

Help index.

Using Help (Help menu)

Help on help.

About (Help menu)

Program information.

Context Help command



Shortcut

Keys: SHIFT+F1

Examples:

3D	3d effect on B/N images
BRI_SAT	Demonstrate how to modify pixel brightness and saturation
LOGO	Substitute Win95 startup logo with a fern and a moving background
LOGO1	An other startup logo substitute
MOSAIC	Mosaic effect with black line separator
MOSAIC1	Mosaic effect with black line separator with variable size tessera.
LAKE	Simulate water reflection
CATODE	Decompose RGB components in separate pixel like CRT
FLAG	Flag distortion
LUMINOSI	Modify brightness
ANTILIAS	Antialias on B/W images
RAND	Modify randomly pixel brightness
RAND1	Random BW image
TAP	Distortion
SPHERE	Distortion
SPHERE1	Distortion
SPHERE2	Colored spheres
SPHERE3	Distortion
SEPARATE	Separate RGB colors components.
BRICK	Pattern blend
PEAKS	Pattern blend
EROSION	Eliminate noise from BW images
CAOS	Random mix pixel
CAOS1	Random mix pixel
SEPPIA	Modify to purple tone
FADE	Brightness fade
FADE1	Color fade
BNSCALE	Gray scale
GRANITE	Granite pattern blend
PATTERN	Repeats image as a pattern
CLPBRD	Demonstrate Clipboard interaction
CUBE	Construct a cube
TO16GRY	Reduce with antialiasing
EXT	Chroma key with background change
EXT1	Modify color image
TRIANGOL	Pattern blend
SIZE2-	Resize image
SIZE4-	Resize image
SIZE2X	Double size
SIZE2XT	Double with interpolation
ITALICO	Image distortion
SHADE	Shade on BW image
CNV16GRY	Convert to 4 bit gray scale
SWITCH	Switch color components
CNV24BIT	Convert to 24 bit images
NEG	Invert brightness
SPECULA	Mirror
SCAL8RGB	RGB scale
RIS_DEF	Demonstration of resolution vs. definition
SCALA8CO	Color scale
SCALABN	Gray scale
SCALACO	24 bit color scale
SCALAHBS	24 bit color scale

SCALRGB	24 bit color scale
SCOMPONE	Color separation
STATS	Calculate single palette element use
STATSBN	Count black pixel
FERN	Calculate a fern (fractal)

Versions:

1.3

- 32 bit version
- Clipboard support

1.50

- New filters

1.51

- Minor bug fix
 - Error editing scripts of different len.

1.6

- New feature
 - Arrays
 - Negative numeric constant
- New instructions
 - Debug
 - GetPixelVal
 - SetPixelVal
- New filter
 - Pattern
 - Fern
 - Stats
 - StatsBN
 - Logo

1.7

- New feature
 - Pentium optimisation
 - An interface more Win95 compliant
 - Automatic execution of the script specified on the command line.
- New instructions
 - New function
 - Exit**
 - New constants
 - PI, CIArg[], CNum**
 - New arithmetic functions
 - Sqr, ASin, HSin, ACos, HCos, Tan**
 - ATan, HTan, Abs, Exp, Log, LogT, Pow**
- New filter
 - logo1
 - 3D

No Help Available

Print command (File menu)

Use this command to print a document. This command presents a Print dialog box, where you may specify the range of pages to be printed, the number of copies, the destination printer, and other printer setup options.

Shortcuts

Toolbar: 
Keys: CTRL+P

Print dialog box

The following options allow you to specify how the document should be printed:

Printer

This is the active printer and printer connection. Choose the Setup option to change the printer and printer connection.

Setup

Displays a Print Setup dialog box, so you can select a printer and printer connection.

Print Range

Specify the pages you want to print:

All Prints the entire document.

Selection Prints the currently selected text.

Pages Prints the range of pages you specify in the From and To boxes.

Copies

Specify the number of copies you want to print for the above page range.

Collate Copies

Prints copies in page number order, instead of separated multiple copies of each page.

Print Quality

Select the quality of the printing. Generally, lower quality printing takes less time to produce.

Print Progress Dialog

The Printing dialog box is shown during the time that <<YourApp>> is sending output to the printer. The page number indicates the progress of the printing.

To abort printing, choose Cancel.

Print Preview command (File menu)

Use this command to display the active document as it would appear when printed. When you choose this command, the main window will be replaced with a print preview window in which one or two pages will be displayed in their printed format. The print preview toolbar offers you options to view either one or two pages at a time; move back and forth through the document; zoom in and out of pages; and initiate a print job.

Print Preview toolbar

The print preview toolbar offers you the following options:

Print

Bring up the print dialog box, to start a print job.

Next Page

Preview the next printed page.

Prev Page

Preview the previous printed page.

One Page / Two Page

Preview one or two printed pages at a time.

Zoom In

Take a closer look at the printed page.

Zoom Out

Take a larger look at the printed page.

Close

Return from print preview to the editing window.

Print Setup command (File menu)

Use this command to select a printer and a printer connection. This command presents a Print Setup dialog box, where you specify the printer and its connection.

Print Setup dialog box

The following options allow you to select the destination printer and its connection.

Printer

Select the printer you want to use. Choose the Default Printer; or choose the Specific Printer option and select one of the current installed printers shown in the box. You install printers and configure ports using the Windows Control Panel.

Orientation

Choose Portrait or Landscape.

Paper Size

Select the size of paper that the document is to be printed on.

Paper Source

Some printers offer multiple trays for different paper sources. Specify the tray here.

Options

Displays a dialog box where you can make additional choices about printing, specific to the type of printer you have selected.

Network...

Choose this button to connect to a network location, assigning it a new drive letter.

Page Setup command (File menu)

<< Write application-specific help here. >>

