
Creating Graphics for Different Displays

One important issue to consider when creating graphics images is how the pictures will appear on different video displays. Help can display graphics on machines with many different kinds of video hardware, including the most common display types—monochrome, color, EGA, VGA, and 8514. When you prepare pictures for Help, you should analyze the target audience for the Help file and determine what percentage of that audience has monochrome or color displays, and what percentage has each type of video adapter so that you can create pictures that will look good on the end-user's machine.

This chapter describes how to prepare pictures for displaying on different video

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resolutions.

Because Windows Help is device independent, it stores text and graphics by point size rather than by their width and height in pixels. When displaying bitmaps, Windows Help tries to maintain a bitmap's logical size across all displays (EGA, VGA, or 8514, for example). To do that, Help determines whether a bitmap includes information about its resolution. If it does, Windows Help either displays the bitmap as authored or modifies it (by stretching or shrinking it) if the display resolution is different from the authored resolution. If no resolution is stored with the bitmap, Windows Help uses the default values for VGA.

Because of stretching or "guessing," Help bitmaps sometimes do not appear the same as they were authored—unless the authoring monitor and the display monitor have the same resolution. For example, a bitmap created on a VGA display becomes distorted when displayed on an 8514 display. That is because Help uses the logical size (pixels per inch) of the display driver to determine how to size the picture. VGA displays have 96 pixels per inch, and 8514 displays have 120 pixels per inch. In both cases, Help keeps pictures and text proportionate. So, if you create all your bitmaps in VGA resolution, Help will stretch the bitmaps when displaying them on an 8514 monitor.

Note

Help considers an 8514 display to be any monitor that has 120 pixels per inch. Because some high-resolution monitors deliver 96 pixels per inch to get more inches on the screen, Help uses the VGA bitmap on these devices.

Multi-Resolution Bitmap Compiler

To compensate for differences in the resolutions of authored and displayed bitmaps, you can use the Multi-Resolution Bitmap Compiler (MRBC). MRBC provides a way to prevent Help from stretching bitmaps inappropriately when displaying them on different resolutions.

MRBC is a utility program that lets you create bitmaps or metafiles with different resolutions (CGA, EGA, VGA, or 8514) and combine them into a single graphic that you can compile into a Help file. When Windows Help version 3.1 encounters a multiresolution bitmap or an .MRB file created by MRBC, it cycles through the stored resolutions and selects the bitmap that most closely matches your display.

If you want the pictures in your Help file to display correctly on various monitors, you must create multiple copies of the same bitmap—a different bitmap for each monitor or which the Help file will be displayed. You cannot create just the VGA version, for example, and expect it to convert properly to lower resolution monitors. There may be tools that automate bitmap-stretching, but often the results are visually inferior.

Note

You cannot edit or view the .MRB output file using any existing graphics program, and, therefore, it has no value outside the Windows Help environment.

Including .MRB Files in a Help File

To include .MRB files in a Help file, reference them in the RTF source file. The

syntax for an .MRB bitmap reference is the same as for other bitmaps.

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Syntax in topic file

inline .MRB bitmap {bmc bitmap.mrb}

left-aligned .MRB bitmap {bml bitmap.mrb}

right-aligned .MRB bitmap {bmr bitmap.mrb}

Using MRBC

Because MRBC is a bound application, you can run it with MS-DOS or OS/2®. MRBC supports CGA, EGA, VGA, and 8514 resolutions.

You can run MRBC from the command line in interactive or silent mode. Use interactive mode when you want or require input. Use silent mode for batch processing and automated builds.

MRBC has the following syntax:

MRBC [/s] *name1.bmp* [*name2.bmp*, ...*namen.bmp*]

Parameter	Description
/s	Specifies silent mode. If the /s switch is used, MRBC determines the resolution of each bitmap based on the first character of the bitmap extension. If the /s switch is not used, MRBC prompts the user for the resolution of each bitmap.

name1.bmp,
name2..bmp, ...namen.bmp

Specifies the name(s) of the bitmap(s) to be included in the .MRB file.

Bitmap paths can be relative or absolute. Relative paths are relative to the user's current directory.

The output file MRBC creates has the same filename as the first bitmap on the command line (*name1.bmp*) but with an .MRB extension. All output files are written into the current directory.

MRBC Preprocessing Checks

Before starting the conversion process, MRBC performs two preprocessing checks. First it checks the existence and format of each bitmap listed on the command line. If any bitmap listed is not found or is in an invalid format, MRBC stops processing and displays an error message. Then MRBC checks for the existence of the output file. If a *name1.mrb* file already exists, MRBC will overwrite it.

Starting the Conversion Process

If the command-line entry passes the two preprocessing checks without errors, the conversion process begins. If the /s switch is not used, MRBC prompts you to give the monitor type for each bitmap. In the prompt message, the bitmap names are displayed as typed on the command line, either with no path, with a relative path, or with an absolute path.

For example, if you type:

```
MRBC c:\bitmaps\vga\menu1.bmp \ega\menu2.bmp
```

and the preprocessing checks pass successfully, MRBC displays the following messages:

```
Please enter the monitor type for the bitmap c:\bitmaps\vga\menu1.bmp
```

and

```
Please enter the monitor type for the bitmap ..\ega\menu2.bmp
```

You supply the appropriate response (VGA and EGA in the above examples), and then MRBC creates the output file and writes it to the current directory.

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The valid case-insensitive responses to the request for monitor type are CGA, EGA, VGA, and 8514. If you enter a monitor-type option that is not recognized, MRBC displays a warning message reminding you of valid entries.

The number of bitmaps specified on the command line is not limited; however, MRBC supports only the four monitor types mentioned above. At run time, Windows Help version 3.1 selects the best possible bitmap for your monitor type.

In addition to resolution, Windows Help uses color as a selection criterion. Therefore, it is possible, and recommended, to include a color version and a monochrome version of each bitmap in the same .MRB file to ensure compatibility with both monitor types.

Note

MRBC does not check for valid matches between bitmap resolution and the entered option. For example, if you enter VGA for an EGA graphic, MRBC accepts it and marks it as a VGA bitmap. When the bitmap is displayed on a VGA monitor, however, it will not appear as authored. Check .MRB bitmaps on the target monitors to ensure that they display correctly.

If you use the /s switch, the conversion process occurs without your input. Instead, MRBC uses the first character of the input file extension to determine the bitmap resolution. The following table shows how the extensions are mapped.

First character	Example	MRBC interpretation
C	(bitmap.cbm)	CGA bitmap
E	(bitmap.ebm)	EGA bitmap

V	(bitmap.vbm)	VGA bitmap
8	(bitmap.8bm)	8514 bitmap
other	(bitmap.bmp)	VGA bitmap

For example, if you type:

MRBC /s house.vga house.ega house.cga house.8xx

MRBC creates a HOUSE.MRB file that consists of VGA, EGA, CGA, and 8514 bitmaps.

Note

As in interactive mode, MRBC does not check for valid matches between bitmap resolution and the entered option. You must match the correct extensions with the correct display resolutions.

In both interactive and silent modes, MRBC accepts * and ? as wildcards for the filenames.

In some cases, the drawing tool that creates bitmaps stores the resolution in the bitmap file itself. MRBC checks all bitmap files to determine whether the resolution is specified. If MRBC finds the resolution specified in the bitmap files, it uses the stored ratio instead of the one you type and displays an informative warning message. MRBC gives this warning message whether the conversion is performed in interactive or silent mode.

Compressing MRB Files

If you are not using the extended version of the Help compiler (HCP.EXE), you may run into memory problems when creating Help files with MRBC. For

example, if the compiled Help file seems unusually large compared to the size of the MRB files included in the build, it may mean the compiler did not have enough memory to compress the MRB bitmaps.

For example, the following shows a case in which the total size of the individual bitmaps included in the MRB is larger than the MRB file itself.

```
Bitmaps
EGA 29258
VGA 35210
8514 48166
-----
MRB 33494

Help file
without the MRB 4172
With the MRB 72883
```

The MRB is smaller than each of the bitmaps it contains because the bitmaps in the MRB are compressed. However, when the MRB is built into the Help file, the compiler did not have enough memory to compress it completely, so the size of the Help file grew by more than the size of the MRB. (During the build, the compiler decompresses the MRB file in order to check for SHG hot spots and then recompresses the MRB file).

If the **COMPRESS** option is set to Medium or High, the compiler displays a warning that there is not enough memory to compress the bitmap. When compression is Off, the compiler does not display this message, because it doesn't make sense. Therefore, you should turn compression on when building Help files with MRB file so that you can see the warning message. Then, if the compiler displays the warning that there is not enough memory to compress the bitmaps, you should either compile in OS/2 or use the extended version of the compiler (HCP.EXE).

MRBC Error Messages

MRBC version 1.1 displays the following errors and warnings. All preprocessing and run-time errors cause MRBC to stop the conversion process. Run-time warnings are for information only and do not affect the .MRB file.

Preprocessing Errors

Bitmap or directory '%s' is not found.

PROBLEM: MRBC cannot find the specified bitmap or directory.

RESULT: MRBC aborts the operation and does not create the bitmap

file.

SOLUTION: Check the path and bitmap filename. Make any necessary corrections, and then rerun MRBC.

File '%s' is not a valid bitmap.

PROBLEM: MRBC found the file but does not recognize the bitmap's format.

RESULT: MRBC aborts the operation and does not create the bitmap file.

SOLUTION: Make sure that the bitmap file is saved correctly. Make any necessary corrections, and then rerun MRBC.

Run-time Errors

Out of memory.

PROBLEM: There is not enough memory to run MRBC.

RESULT: MRBC aborts the operation and does not create the bitmap file.

SOLUTION: Try compiling the Help file under OS/2. Or, free some memory or reduce the size of the bitmaps, and then rerun MRBC.

Out of disk space.

PROBLEM: There is not enough free disk space for MRBC to create the bitmap file.

RESULT: MRBC aborts the operation and does not create the bitmap file.

SOLUTION: Free some disk space, and then rerun MRBC.

Run-time Warnings

The supported monitor types are CGA, EGA, VGA, and 8514.

PROBLEM: The command line specifies an invalid monitor type. This message appears only in interactive mode.

RESULT: MRBC prompts you to enter the monitor type for the specified bitmap. If you enter a valid display type, MRBC continues processing. Otherwise, MRBC aborts the operation.

SOLUTION: Enter one of the supported display types when prompted.

