



## CHANGING WINDOWS' LOGO SCREENS

It's hard to forget that you're using Windows 95 or Windows 98 - chances are you don't need to be reminded of it every time your computer comes on line and again when it shuts down. The Windows startup and shut down screens look a lot like shareware beg notices - and none too attractive ones at that. The important distinction is that shareware beg notices go away when you pay for the shareware in question. Even having paid for Windows, you'll be confronted daily by its logo screens.

While the documentation for Windows doesn't make any mention of it, you can change the images used for the startup and shut down screens to graphics of your own choosing. This mechanism is included in Windows to allow computer manufacturers that bundle Windows with their computers to add their own logos to the startup screen. Because doing so actually involves creating wholly new logo images, you can in fact have any graphics you like for these screens.

Be warned - some of the hoops Windows requires that you jump through to make this happen are a bit oddly shaped. You'll require some familiarity with Graphic Workshop and Windows Paint at the very least to use the information in this document. Read the instructions carefully - while nothing in this section should be able to damage Windows, you could wind up with it looking pretty strange.

As an aside, you can also disable the display of the startup screen entirely - we'll get to that in a moment.

When Windows boots up, it looks in the root directory of your hard drive - typically your C drive for a standard Windows installation - for a file called LOGO.SYS. If it doesn't find LOGO.SYS, it displays its own startup logo, the clouds and Microsoft graphic. When it shuts down, it looks in the same place for LOGOW.SYS for its shut down banner, followed by LOGOS.SYS, for the graphic that says "You may now shut down your computer without your computer self-destructing," or words to this effect. Again, if it doesn't find them, it uses its own internal graphics. Its internal graphics for the shutdown screens are stored in your \WINDOWS directory as LOGOW.SYS and LOGOS.SYS respectively.

The three screens involved are a bit deceptive - they have the extension SYS, but they are in fact just BMP files which have been renamed. This is a special case of the SYS extension - in other instances, it can indicate a text file, as in CONFIG.SYS, or an executable driver.

You can substitute your own graphics for Windows' canned startup and shut down screens by creating LOGO.SYS, LOGOW.SYS and LOGOS.SYS and placing them in the root directory of your C drive. There are a few catches to this process, however - read on.

To begin with, all LOGO bitmaps must have the dimensions 320 by 400 pixels. When Window displays a LOGO bitmap, it expands it horizontally by a factor of two, so it appears as 640 by 400. Your LOGO graphics should appear squashed horizontally when you create them.

As an aside, the process of expanding LOGO graphics also makes them look a bit coarse when they're displayed. This is part of the LOGO display system built into Windows, and there's not much that can be done about it.

The graphics you use for LOGO screens must have 256 colours.

Here's how to create a LOGO.SYS screen for Windows 95 or Windows 98. The same procedure will work for LOGOS.SYS and LOGOW.SYS.

1. Find a suitable graphic for your new LOGO.SYS screen. Keep in mind that naughty images may get you six weeks of remedial sensitivity retraining if they turn up on your computer at work. Pictures with a lot of detail probably won't look too good as LOGO screens. Because you'll be remapping and possibly resizing your graphic, it's preferable to start with a 24-bit image, such as a JPEG file.
2. Use the crop or scale functions of Graphic Workshop to arrive at a graphic with the pixel dimensions 640 by 400. The Graphic Workshop Get Info function can be used to check this. If your graphic is initially smaller than this and you don't want to scale it up, use the Windows Paint application to inset it into a black bitmap of these dimensions.
3. Open your graphic in the View mode of Graphic Workshop and select Filters from the Picture menu. Select the Scale filter and turn off Maintain Constant Aspect Ratio. Set the Horizontal scale factor to 50 and leave the Vertical scale factor at 100. Click on OK. This procedure will in effect "pre-squash" your graphic, so Windows can later expand it back to 640 by 400 when it's displayed.
4. Select Save As from the Picture menu and save your file to LOGOTEMP.BMP.
5. Unless your graphic was initially a 256-colour image, use the Effects function of Graphic Workshop to reduce it to 256 colours. If your source graphic is photorealistic, select one of the dither options. If it's line art, you'll probably want to use the remap option. Select the 256-Colour Quantized palette option. Select BMP as the destination format. This will create a file called X\_LOGOTEMP.BMP
6. If there's presently a LOGO.SYS file in the root directory of your C drive, rename it to LOGO.BAK. Copy X\_LOGOTEMP.BMP to C:\LOGO.SYS. You'll need Windows Explorer or a DOS prompt to handle this, as Graphic Workshop can't change the extensions of file names.

If you restart Windows, your new startup screen should appear. Note that the moving bar across the bottom of the standard Windows startup graphic won't be visible - worry not. We'll get to this next.

## Animated Startup Logos - Not for the Faint of Heart

The animated bar which appears at the bottom of the default Windows startup logo is available to the creators of replacement logos. In fact, once you understand the remarkable exercise in sneakiness by which it works, you'll be able to create all sorts of animations if you're sufficiently motivated. However, it's fair to note that animated startup logos are not without their price. The price might be your sanity.

Inasmuch as the authors of Windows clearly did not foresee individual users wishing to implement the replacement logo screen facility, they went to no trouble to make it easy to deal with. In fact, you might come to suspect that they made it overtly hostile.

The animated elements in a startup logo are handled through a technique called "palette cycling." In order to understand it, you'll need a bit of understanding of how 256-colour graphics really work. You have to wonder at the minds that think this stuff up.

A 256-colour graphic is based on palette colour - you'll know this if you've been through the Introduction to Graphics document also installed with Graphic Workshop. This means that the graphic in question consists of a list of 256 colours, the "palette," and a matrix of numbers from zero through 255 which represent the image, with one number per pixel. Every number references an entry in the palette. As such, if the very first pixel in the image in question has the number zero, and the zero'th entry in the palette is green, the very first pixel will be green.

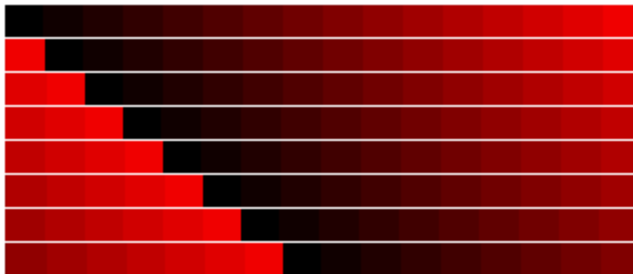
If you were to change the zero'th colour in the palette to blue, the first pixel would become blue. All the other pixels in the image which used palette colour zero would also become blue.

When Graphic Workshop displays a 256-colour image, it displays each pixel in the colour it's defined as by the palette and waits for you to right-click your mouse to close the View mode. Imagine, however, viewing software which gradually changed the colours stored in the palette of such an image. Because the colours in the palette would change, the colours displayed by the pixels in the image would also change. The image would appear to animate, albeit in a really ugly way.

This is called "palette cycling." For the most part it's useless as an animation technique because of the degree of stealth required to devise images which will appear to animate in predictable ways when their colours change.

The grey bar in a Windows startup logo is a rudimentary example of palette animation. It's actually a static portion of the LOGO.SYS graphic drawn in palette colours which are not used elsewhere in the image. Knowing where in the palette these special colours reside, Windows "cycles" them when the LOGO.SYS startup graphic is displayed - that is, it gradually rotates the range of colours through the selected palette entries.

Here's an illustration of palette colours being rotated. In this case, the colours rotate eight times. A graphic or a line of boxes drawn in these colours would appear to animate just like this palette diagram does. Note that this illustration may not look right if you're viewing this document on a system with a 256-colour Windows screen driver.



To create a startup logo with an animated bar, you must:

- Remap your image to use fewer than 256 colours, such that the unused palette entries can be cycled. Windows insists that the cycled entries reside at the end of the palette.
- Draw the elements to be cycled using only the colours in the cycled portion of the palette.
- Change the actual colours defined by the cycled portion of the palette so your animated elements appear to move.

This is similar to the observation that all that's involved in brain surgery is a bit of cutting, the repair of whatever turns out to be wrong with the brain in question and a dignified bearing upon presenting your bill.

The following example assumes that there will be sixteen colours in the cycled palette. You could use more, but the tools to be described herein don't allow an easy way to arrive at this. This example will create an animated bar similar to the one in the default Windows startup screen - you might want to try something more adventurous once you have this one by the throat.

In addition to the tools discussed thus far, you'll also need GIF Construction Set to create an animated startup logo. This must be the stand-alone version of GIF Construction Set, not the GIF Construction Set UltraLight which is included with Graphic Workshop. It's available at the Alchemy Mindworks web page, <http://www.mindworkshop.com/alchemy/gifcon.html>.

1. Begin with a 640 by 400 pixel, 24-bit source image, as discussed earlier in this document. Use the Effects function of Graphic Workshop to reduce it to a 256-colour image. However, rather than selecting 256-colour Quantized as the palette option, choose 240 Colour Quantized plus 16. This will reduce your image to use no more than the first 240 colours in its palette, and then add the sixteen-colour Windows default palette in the remaining sixteen palette slots. Conveniently, these will always appear at the end of the palette, right where they're needed.

2. Convert your BMP file to GIF. Open the GIF file in GIF Construction Set. Double-click on the Header block and click on Edit. The palette editor dialog will appear. Click on the colour button. Note that the last sixteen entries are the Windows default colour palette.
3. Open your BMP file in Windows Paint and draw the animated bar using the colours in the Windows default palette in the same order as they appear in the GIF Construction Set palette editor.

You can draw a sequence of boxes quickly and accurately as follows:

- a. Select the eight-times zoom in Windows Paint.
- b. Draw one pixel in each colour of the palette.
- c. Select the line of pixels.
- d. Use the Stretch/Skew function of Windows Paint to expand them to the dimensions you require. Because Stretch/Skew is limited to expansion factors of 500 or less, you'll probably have to invoke it multiple times. To arrive at a bar sixteen pixels high, expand the original line of pixels by 400 percent, and then by another 400 percent.
- e. Duplicate the row of coloured boxes and flip them horizontally. Place the new row to the right of the original row, such that it appears as a mirror image. Select the complete row of boxes and use Stretch/Skew to expand it by 125 percent. The resulting row of boxes should now cover the entire width of your graphic, 640 pixels.

As they're drawn at the moment, the row of boxes will probably look like a test pattern for a TV station in Nebraska. We're about to change the colours.

5. Save your graphic from Windows Paint and use Graphic Workshop to convert it to GIF again. Open the new version of your GIF file in GIF Construction Set. Double click on the Header block and click on Edit to access the palette editor.
6. In this example we'll create a cycle palette of graduated shades of red. You can, of course, use graduated shades of any colour you like. To set the colours in the cycle palette:
  - a. Click on the colour button in the GIF Construction Set palette editor and click on the second colour in the bottom row of colour tiles - we'll ignore the first colour in the cycle palette, as it should be black and in fact actually is.
  - b. Set the Red slider to 32 and the other two sliders to zero.
7. The first two colours in the cycle palette are now correctly set. Repeat the foregoing procedure for the third colour - set the Red slider to 64 and the other two sliders to zero. Do this for each of the sixteen colours in the last row of tiles in the palette editor's

colour selector. Increment the red value by 32 for each successive tile. When the red value reaches 255, begin decrementing it by 32.

8. When you're done editing the palette, close the palette editor and the Header block editor. Click on View to see your graphic. You should see two gradual transitions from black to red and back to black along the bottom of your picture.
9. Save the graphic from GIF Construction Set.
10. View your graphic in Graphic Workshop. Use the Filter function in the View mode picture menu to resize it to 320 by 400, as discussed earlier in this document. Save it and copy it to C:\LOGO.SYS.

This is where things get a bit tricky - everything's ready to go, save that Windows won't know that it's supposed to cycle your palette. LOGO.SYS still looks like a conventional bitmap. You have to change two bytes in the LOGO.SYS file, a procedure which will require the use of the DOS DEBUG command. Hold your hand up before your monitor - if it's not trembling, you have the stuff of warriors. The DOS DEBUG command can bring all but the most valiant to their knees.

11. Get to a DOS prompt and type CD \ to change directories to the root. You should be on drive C.
12. Type DEBUG LOGO.SYS and hit Enter. A dash prompt will appear.
13. The first change to LOGO.SYS will be to tell Windows which entry in the palette of LOGO.SYS constitutes the beginning of the cycle palette. In this case, it's 256 minus the 16 colours in the cycle palette, or 240. However, DEBUG only understands hexadecimal numbers - 240 in hexadecimal is F0. Note that the second character is a zero, not the letter O.

At the dash prompt, type E132 and hit Enter. DEBUG will say something like:

```
1085:0132    00.
```

Type F0 and hit Enter. Don't be concerned if the first four characters in your DEBUG prompt differ from the ones shown here.

14. The other change to LOGO.SYS involves telling Windows which palette cycling mode to use. Type E133 and hit Enter. DEBUG will say something like:

```
1085:0133    01.
```

Type 00 and hit Enter.

As an aside, setting the second value to 00 produces the type of palette cycling used in the default Windows startup logo. Setting it to 01 causes the palette to cycle alternately forward and backward - you might want to experiment with this later.

15. You must now save the changed LOGO.SYS file. Type W at the dash prompt and hit Enter.
16. Finally to exit DEBUG, type Q at the dash prompt and hit Enter. You should now be back at a DOS prompt.

You're now ready to see what your new LOGO.SYS looks like. Type EXIT and hit Enter to close your DOS session. Restart Windows.

There is, of course, a lot more you can do with the palette animation facilities of the Windows startup logo facilities if you're really serious about all this. For most users of Windows, just banishing the default Microsoft graphic will be sufficient.

## Disabling the Startup Logo Entirely

As a final note, you can prevent Windows from displaying any startup logo if you like. Note that unlike the foregoing manipulations of Windows' logo screens, this procedure does have the potential for crippling Windows if it's done incorrectly.

Here's how to turn off the startup logo.

1. Get to a DOS prompt in the root directory of your C drive. Type:

```
ATTRIB -R MSDOS.SYS
```

and hit Enter. Return to Windows. The MSDOS.SYS file is hidden, and will not appear in a normal directory listing.

2. Open the Windows Notepad application and select Open from the File menu. Enter C:\MSDOS.SYS in the File Name field and click on OK. Something like the following file will appear:

```
[Paths]WinDir=c:\windowsWinBootDir=c:\windowsHostWinBootDrv=c

[Options]
BootMulti=0
BootGUI=1
;
;The following lines are required for compatibility with other programs.
;Do not remove them (MSDOS.SYS needs to be >1024 bytes).
;xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxa
;xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxb
;xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxc
```

Add a line after

```
BootGUI=1
```

which says

```
Logo=0
```

Do not make any other changes to this file or the fabric of time and space as we know it may be destroyed.

3. Save the file.
4. Return to your DOS prompt and type

```
ATTRIB +R MSDOS.SYS
```

and hit Enter. Next, type

```
ATTRIB +H MSDOS.SYS
```

and hit Enter.

When you restart Windows, the startup logo should not be seen.