



# Cycling to work

Tim Nott explains the technique known as colour cycling, which you can use to "animate" your startup screen. And the History folder: web skeletons in your cupboard... revealed.

We've dealt before with changing the Windows start-up screen, but just to recap, the trick is to create a 256-colour .BMP file, 320 (w) x 400 pixels (h), and save it as "LOGO.SYS" in the root directory of the disk from which you boot (normally C:\). This doesn't change anything permanently; if you delete it, the default screen, embedded somewhere in the innards of Windows, will return. But what has hitherto eluded us, is how to achieve the animation: those jolly blue flashing bars at the bottom of the screen that keep us amused while Windows is loading. Now, thanks to the efforts of Jason Ozin, who wins a book or record token for his pains, all can be told.

What you see isn't, strictly speaking, animation. It's a technique known as colour cycling. In a 256-colour bitmap, also known as an "indexed" image, each pixel is stored as a one-byte number that refers to a place in a palette of 256 colours. The palette, stored in the same file, is optimised for the image: a clouds-and-sky scene would have lots of shades of blue and white; an autumn-trees scene lots of shades of red and brown. This, incidentally, is why you sometimes see bizarre colour changes when viewing multiple images on a 256-colour display: the altered image is being displayed in the palette of another image.

Each colour in the palette is stored in three bits corresponding to 256 values each of red, blue and green. Colour cycling scrolls some or all of the values in the palette, so each pixel cycles through the range available. If the graduations are subtle, this gives the illusion of a flowing "plasma" effect, as seen in the Chromazone screensaver (*Hands On Win3.1, Sept 1996*).

To create a cycling image you'll need a

bitmap editor. You can use something like Corel Photopaint or Adobe Photoshop if you want to be posh, but I used Paintshop Pro (Fig 2); there was a trial version on February's CD-ROM. It has the advantage

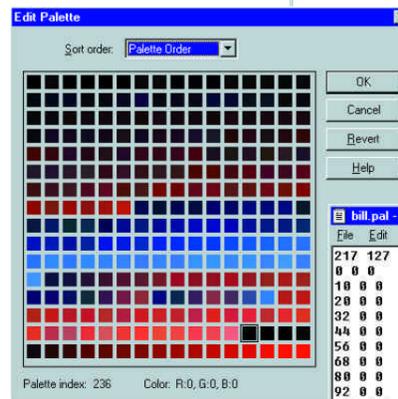
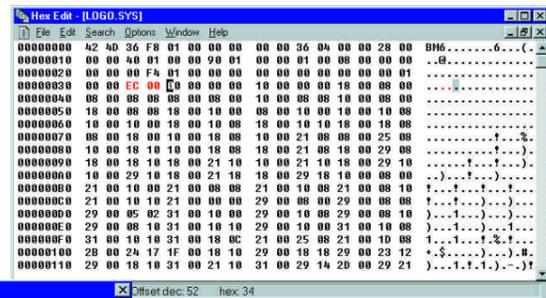


Fig 1 (above) Enabling animation with a hex editor  
 Fig 2 (left) Editing the palette in Paintshop...  
 Fig 3 (below) ...but it's easier to export it to Notepad

of being cheaper, easier to use and (a killer feature in this case) being able to import or export a palette as a plain text file.

You can use Windows Paint, but you won't have much control over what's animated as you won't be able to edit the palette. You'll need a hex editor and a sturdy anorak. For the former, I used Hedit (Fig 1): it's old but simple to use and there's a copy on our CD-ROM in Hedit.ZIP.

Catch your bitmap (preferably in 16 million colours) and resize or crop it to 640 x 400. Although the final image will be half as wide, it's actually stretched to this size when displayed, so you'll be working in WYSIWYG mode. Do everything you want (like adding anti-aliased text that won't



show the "staircase" effect) while in this mode. Reduce the colours to 236. In Paintshop, you can do this by going to Colours/Decrease Colour Depth/X Colours. Select Nearest Colour and deselect Include Windows Colours. This will leave 20 spare colours for your animation.

If you then go to Colours/Edit Palette you should see that the last 20 colours are all black and have values of 0,0,0. Double-click on one of these and you'll be able to edit it, either by dragging the sliders or entering red, green and blue values in the boxes. This is the tedious bit, as you must make sure that none of the new colours have already been used. There is an easier way: save the palette, from the Colours menu, and you'll find you can load this file into Notepad (Fig 3): you'll see a three-line header, followed by a line for each of the 256 colours in the form (for example, 256 0 0 is bright red). The last 20 should all be 0 0 0. I wanted some shades

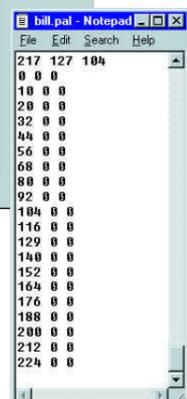


Fig 4 Thank you, Peter McGarvey

- developed strange properties:
1. "Double-clicking the desktop icon reveals nothing: 0 objects, 0 bytes.
  2. "DOS says there are 313 files in c:\recycled.
  3. "Choosing File, Empty Recycle Bin elicits 'Are you sure you want to delete these 1041 items?'
  4. "With the Recycle Bin window open, a newly deleted item will appear in the Bin, but not after it's closed and re-opened. The number of files in 2 and 3 above are both increased by 1."

of red going to black, so I edited these to read 0 0 0, 10 0 0, 20 0 0 going up in steps to 228 0 0. Make sure none of the colours are already in the file. If it's a photo this will be unlikely, but if so, skip around them with a slightly different value. Save the file and with the original image open in Paintshop, load the altered palette. Using only the 20 new colours, create the bits you want to animate (double-click on the foreground and background swatches to choose).

I wanted to create a shaded circle effect but you can't use shaded fills in 256-colour mode. The workaround is to create a new file in 16 million colours, create the shaded fill using the same start and finish colours (by double-clicking the swatches and typing in the RGB values), then use the elliptical selection tool to copy and paste into the original file. When you're happy with everything, resize the image to 320 x 400 (Image/Resize), making sure that Maintain Aspect Ratio is unticked. Save the file as a .BMP (Windows RGB encoded).

Copy the file to C:\ and rename it to LOGO.SYS. Load it into the hex editor and go to byte 00000032. Change the value to EC (the hex equivalent of 236) which will mark the start of the cycling part of the palette. Change the following byte to 00 or 01: the former cycles through the colours and jumps back to the beginning, the latter cycles up and back down again, smoothly.

Save, exit and restart the computer: your new animated start-up screen should greet you. To give you some idea of what can be done, I've included two I made earlier on our CD-ROM (in Logos.ZIP). Bill.sys uses the red shaded circle effect mentioned earlier, as well as some static text that changes colour. Psyched.sys is a slightly doctored screen grab from Chromazone; in this case the cycling starts at hex 85. Copy either to C:\ and rename it LOGO.SYS.

### Loony Bin

Following the exposé of the Recycle Bin (*November 1996*), Matthew Connor wrote to tell me that his Bin had recently

to delete these 1041 items?'  
 4. "With the Recycle Bin window open, a newly deleted item will appear in the Bin, but not after it's closed and re-opened. The number of files in 2 and 3 above are both increased by 1."  
 The most likely causes are that one or both of two hidden files in c:\recycled has been damaged, or that someone has moved files to C:\recycled using File Manager or DOS. Although the Bin

### Sod's law

It's tip of the day time again. For those of you who haven't been following the saga, the communal goal is to create a set of suitably amusing replacements for the Windows "Tips of the Day".

Stephen Oman offered a generous selection including "Programming is an art form that fights back". Dave Ives came up with three including the oldie-but-goodie: "It doesn't matter who you vote for, the government always gets in". But star of the month is Peter McGarvey, whose example graces our screenshot (Fig 4, above).

His covering letter was even better: "Once upon a time I wrote a program, in C, to display a short piece of amusement, at random, from a large text file of amusements every time my computer started. This program was written for MS-DOS, the greatest operating system in the universe. All my friends saw this program and asked for a copy.

"However, the next greatest operating system in the universe, Windows 3, soon appeared. I wrote a program, in C++, to display a short piece of amusement at random from a large text file of amusements every time Windows started. All my friends saw this program and asked for a copy.

"However, the next greatest operating system in the universe, Windows 95, soon appeared. Alas, the program written in C++ started to misbehave and all my friends started to complain. To placate them I hacked the Windows registry using a subset (180 out of 2,000+) of the large text file of amusements to rewrite the built-in 'Microsoft Tips of the Day'.

"The next greatest operating system in the universe, Windows NT 4.0, has just appeared. However, all my friends, and Bill Gates, can sod off."

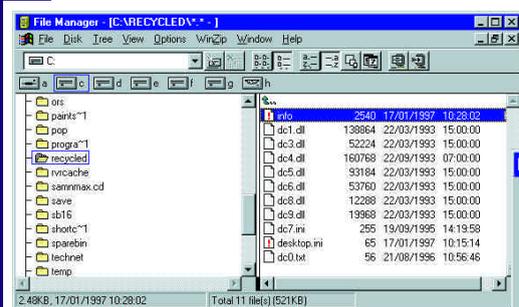


Fig 5 (left) What's in the bin? File Manager gives a drive-by-drive view

Fig 6 (below) Connect to a web site from the "Run" command



appears as a single entity, you get a Recycled folder on each hard drive or partition (Fig 5).

If you look at C:\recycled in File Manager (Run `winfile.exe` with `View/All Files` ticked and `View/By File Type...` everything ticked) you'll see a number of files named `Dcn.*` where "c" is the drive letter, "n" is a number and "\*" the extension of the original file.

There should be two other files with the "hidden" flag set (i.e. an "h" in the right-hand column) named "Info" and "Desktop.ini". (There may also be `Dcn.*` files with the "h" attribute set, but this isn't important.) The Info file maps the `Dcn` numbers to the original file name. If it's damaged, nothing may show in the bin. Try deleting it. According to Microsoft it should be recreated when you start Windows, although this didn't work for me.

Alternatively, it may mean one or more of the recycled files themselves are damaged. If this is the case, Microsoft recommends you create a copy of the `Recycled\Desktop.ini` file in another folder, then delete the entire contents of the Recycled folder. Next, restore the `Desktop.ini` file to the Recycled folder and repeat the process for each drive or partition.

Note that doing this permanently deletes all files in the Recycle Bin.

## Grovel

■ Stephan Freeman asks, re February's Hands On: "Does audio data really take up 10Mb/sec? So a one-minute long recording is 600Mb, and 72 minutes is 43.2Gb? Sorry, I had to point it out — I couldn't resist it." Thank you, Stephan. That should, of course, have been 10Mb/minute.

■ Concerning my comparison of Poledit with a well-known all-British motor vehicle, Jack Dobson complained: "Having just spent £9,000 on a new Reliant Robin, I am less than pleased at your sneering remarks. For me, it spoils an otherwise good article." Sorry, Jack. I'll add the Reliant Robin to my list of politically incorrect subjects for humour.

## History lesson

Those of you using Internet Explorer 3 will have noticed that Windows maintains a History folder, listing the URLs of recently-visited sites. This is in addition to the Temporary Internet Files folder that caches the web pages and graphics themselves. Like the Recycle Bin, Fonts and others, these are special folders: if you open them in File Manager, you'll again see a file called `Desktop.ini`. You'll notice, too, that things are not as they seem: under DOS or File Manager, the Temporary folder contains four sub-directories and the History folder contains, apart from `Desktop.ini`, just two files; `MM256.DAT` and `MM2048.DAT`. The former makes sense as it's more efficient to store and retrieve lots of small files in this way, rather than all in one directory. The latter makes sense as it saves disk space: if several hundred links were stored as individual files, each would take a "cluster" of hard disk space (on a 1Gb partition, that's 16Kb each).

Dig into the `View/Options` of Internet Explorer and you'll find you can empty both these folders. Or can you? Having cleared the History folder, you'll still find the two `DAT` files in File Manager. Load these into a text editor and you'll discover details of all the URLs and searches you thought you'd deleted. I'm not sure whether this is a gross breach of personal privacy or a heaven-sent tool for supervisors to crack down on unauthorised web browsing. But I think we should have been told.

## Quick tips and clever tricks

■ Following January's tip for shutting down the computer without the confirmation dialog, Nick Mortimer and Tariq Atchia wanted to know if this shortcut could be modified to restart Windows. I have to confess that I haven't been able to find out, although it would seem likely. However, there is a quick way to log on as a different user. Press the Window key + L. If you

haven't got a Windows 95 enhanced keyboard, then you can use the Key Remap utility in Kernel Toys (on February's CD-ROM) to make the right-hand Ctrl and Alt keys behave as if they were the Window and Menu keys. Thank you, Ed Scrase.

■ Martin Short wrote: "In Win3.1 programs running under Win95, the drive letter heads the directory tree in Save As... This can be frustrating if I want to save some work on the desktop. Is there a way to modernise these trees?" In a word, no. Windows 3.1 applications use the old, common Open/Save dialog which maps folders directly to the DOS directory structure. This can't cope with the peculiarities of Win95, such as having `C:\Windows\Desktop` as a container for other drives.

■ Kev Baldry asks: "When opening Explorer, drive C: is always shown expanded. If I wish to browse, say, my CD-ROM on D: I have to scroll up drive C's listing until I can contract it. Is there a way to display all the drives just as their icons and not expanded when starting Explorer?" Yes, there is. Open the Start Menu folder, find the Explorer shortcut and right-click on it. Select Properties, go to the Shortcut tab and change the Target to read

```
C:\WINDOWS\EXPLORER.EXE /n, /e, /select, C:\
```

■ Steve Luby writes: "When 32-bit programs lock up in Win95, I usually press Ctrl-Alt-Del which brings up the Close Program dialog box. Instead of proceeding to press the End Task button to terminate the program, just wait three or four seconds and press Cancel. For some reason this seems to purge the affected memory area and in a couple of seconds you are returned to your application, complete with all the data input up to the moment of lockup. I have tried this with several applications (most often with Word 95) and it seems to work very well most of the time." Word 95 locking up, Steve? Surely not! I've yet to try this, but it sounds like it's worth a go.

■ A quickie, from Peter Smith — I thought we'd had this before, but it seems not: "I have just realised that with Internet Explorer installed you can connect to web sites via the Run command on the Start menu. This led me also to find that you can put internet shortcuts onto the start menu as well."

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