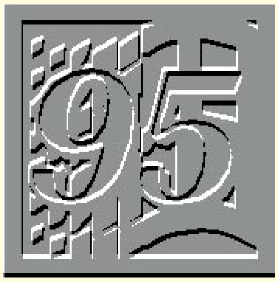


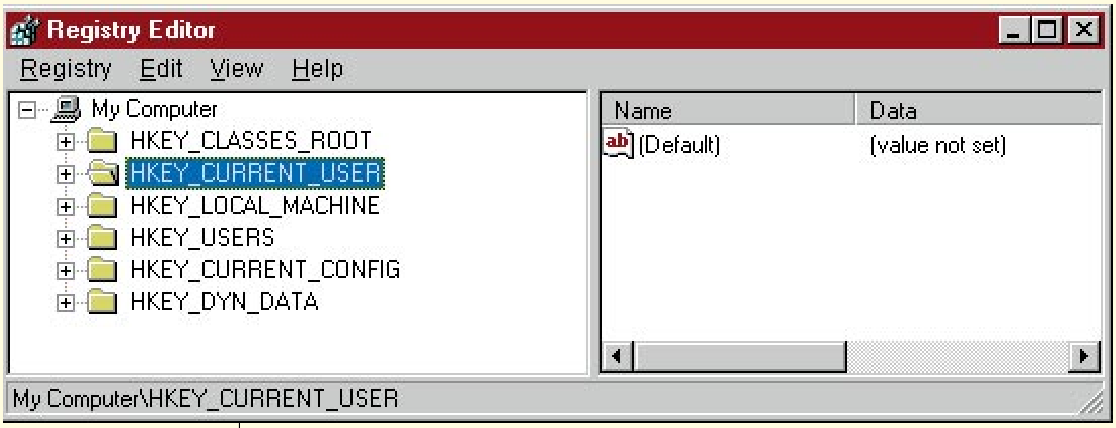
Regarding **Reggie**

"Get to know the enemy" says Tim Nott, so taking a pace back he provides you with an overview of the Registry, looks at local machinery, and tells a cautionary tale which could help you to clean up in the redundancy stakes.

During the past few months, we've looked at various ways in which you can tweak Windows by editing the Registry. Last month, we looked at various ways of backing up the Registry files, so perhaps it's time we took a step back for an overview of this magnificent thing and what it does.

The Registry isn't a completely new development. Windows 3.1 has a Registry which is used to store details of "associations" of file types with programs, as well as information to support Object Linking and Embedding (OLE) and drag and drop operations. With Windows 95, though, its role has been much expanded. All the information that was previously contained in your PC's configuration files (CONFIG.SYS, AUTOEXEC.BAT and both Windows and third-party .INI files) can now be stored in a single database; the Registry. In theory, this means you don't need any of the former files, but in practice it's not quite that idyllic, because "old" 16-bit Windows applications, DOS applications, and some hardware will still need them.

For example, older CD-ROM drives unsupported by Windows 95 will need drivers loaded in CONFIG.SYS and AUTOEXEC.BAT, as will DOS games. Windows 3.1 applications will still be wanting to list fonts via WIN.INI, or store settings in a private .INI file. Some of these things will be corrected by Windows: if an application installs TrueType fonts the old way, with .TTF and .FOT files in Windows\System and a listing in WIN.INI, then the actual font (.TTF) files will be moved to the Fonts folder; the information held in WIN.INI and the font description (.FOT) files will be moved to the Registry.



My Computer
HKEY_CLASSES_ROOT
HKEY_CURRENT_USER
HKEY_LOCAL_MACHINE
HKEY_USERS
HKEY_CURRENT_CONFIG
HKEY_DYN_DATA

(Default) (value not set)

My Computer\HKEY_CURRENT_USER

The six sections of the Registry

The Registry itself consists of two files: USER.DAT and SYSTEM.DAT. As you might expect, the former stores information (such as desktop settings), chosen by (or for) the user, while the latter holds the hardware-specific settings. The point of this physical separation is that user settings can be portable; you can log in from any PC on a network and be greeted by your familiar desktop.

Unlike the .INI files, the data isn't in text format, and there's more of it as well — on my dual-boot system the .DAT files are over seven times as large as the combined mass of the Windows 3.1/DOS 6 configuration files and private .INIs. To view and edit the Registry, you need to use its own editor; Regedit.exe. This isn't added to any start menus in a normal installation, but it can be found in the main Windows folder, so you can either dig it out of there or, more simply, use the "Run…" command.

Branching out

Start Regedit and you'll find that unlike .INI files, which can only have two levels (sections and entries), the Registry branches into multiple levels. The arrangement is rather like Explorer; on the left is an expandable tree of keys and subkeys.

These are analogous to the INI file

Ten top tips

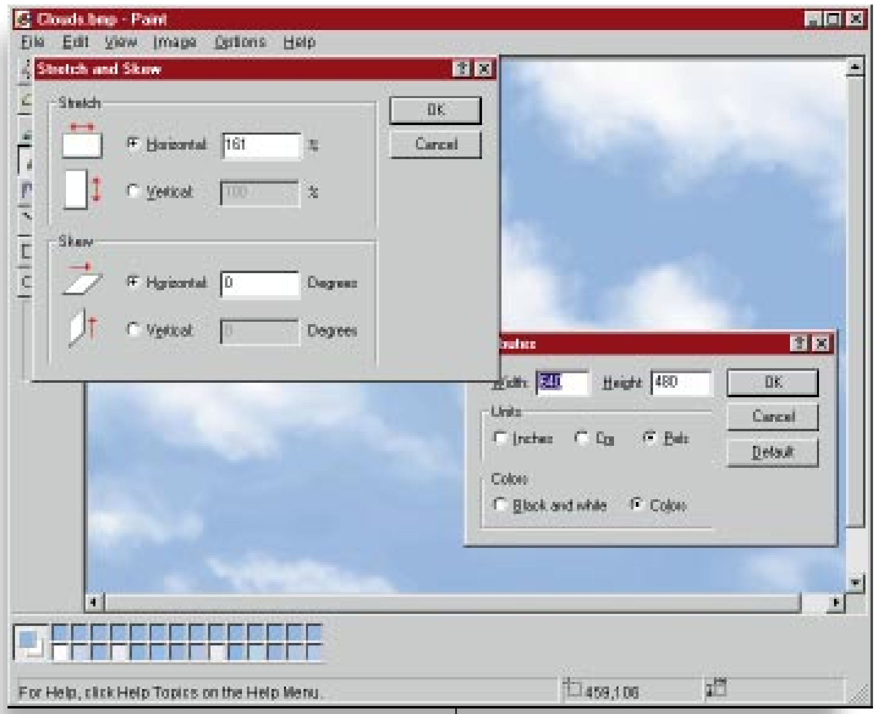
1 Disk space If you’re tight on disk space, take a look in the Windows\Help folder where you’ll find a number of .AVI (video clip) files.

Have a look, for instance, at SCROLL.AVI and decide whether you really need a 1.5Mb demonstration on using scroll bars. If not, you can delete all these files — you’ll get an “unable to display graphic” in the Help file, but you’ll regain possession of 7.5Mb of disk space.

2 A little more disk space While you’re at it, you might also like to cast a jaundiced ear over the contents of the “Media” folder — there’s another megabyte here and you may well decide you can do without a MIDI version of the Dance of the Sugar Plum Fairy.

3. Wallpaper The Plus! pack has a neat trick to stretch your wallpaper to fit the screen, but you can DIY with Paint.

Load the image, and then go to “Image/Attributes…” to find out the height and width — make sure the “Pels” option is checked. Divide the figures into your actual screen resolution and express the result as a percentage. Go to “Image/Stretch/Skew” and stretch by the appropriate amount — you’ll need to make two journeys, as Paint apparently lets you stretch in only one direction at a time. Save the file, and you’ll notice that on the File menu there’s an option to “Set as wallpaper” so you don’t have to bother with Control Panel or Display Properties.


Clouds.bmp - Paint

Stretch and Skew

Stretch
◉ Horizontal: 161 %
○ Vertical: 100 %

Skew
◉ Horizontal: 0 Degrees
○ Vertical: 0 Degrees

Width: [illegible] Height: 480

Units: ○ Inches ○ Cm ◉ Pels

Colors: ○ Black and white ◉ Colors

For Help, click Help Topics on the Help Menu.

459,106

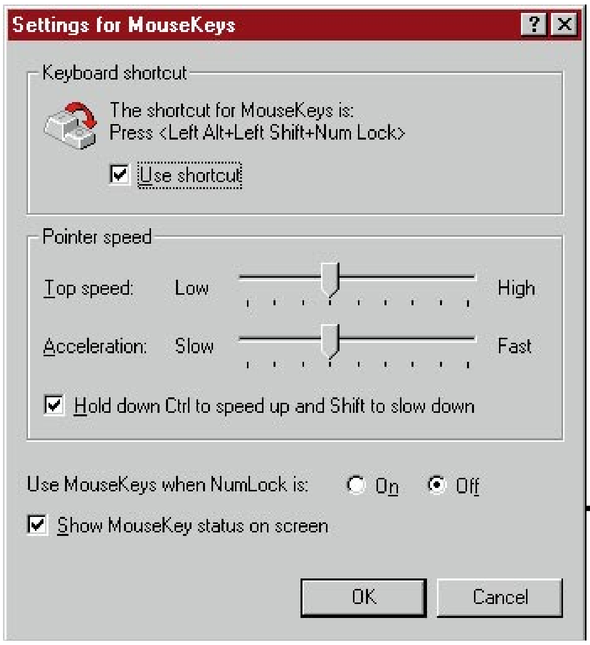
You don’t need the Plus Pack to stretch your wallpaper (see tip number three)

4. Restarting From the “Shut down Windows” dialogue, select “Restart the computer” and hold down the shift key when you click “Yes”.

This saves time by merely restarting Windows, rather than rebooting the PC from scratch.

5. No mouse? You can operate the cursor from the numeric keypad by going to “Control Panel/ Accessibility Options”.

Select the Mouse tab and activate the “MouseKeys” box.


Settings for MouseKeys

Keyboard shortcut

The shortcut for MouseKeys is:
Press <Left Alt+Left Shift+Num Lock>

☑ Use shortcut

Pointer speed

Top speed: Low — High

Acceleration: Slow — Fast

☑ Hold down Ctrl to speed up and Shift to slow down

Use MouseKeys when NumLock is: ○ On ◉ Off

☑ Show MouseKey status on screen

Mouseless Windows (see tip number five)

6. Run… The “Run…” command on the start menu maintains a list of recently-run commands. Click on the button to the right of the entry box to see a list of the last ten — scroll down for more.

7. Send to… You can send a file to an often-used folder by placing a shortcut in the “Windows\SendTo” folder.

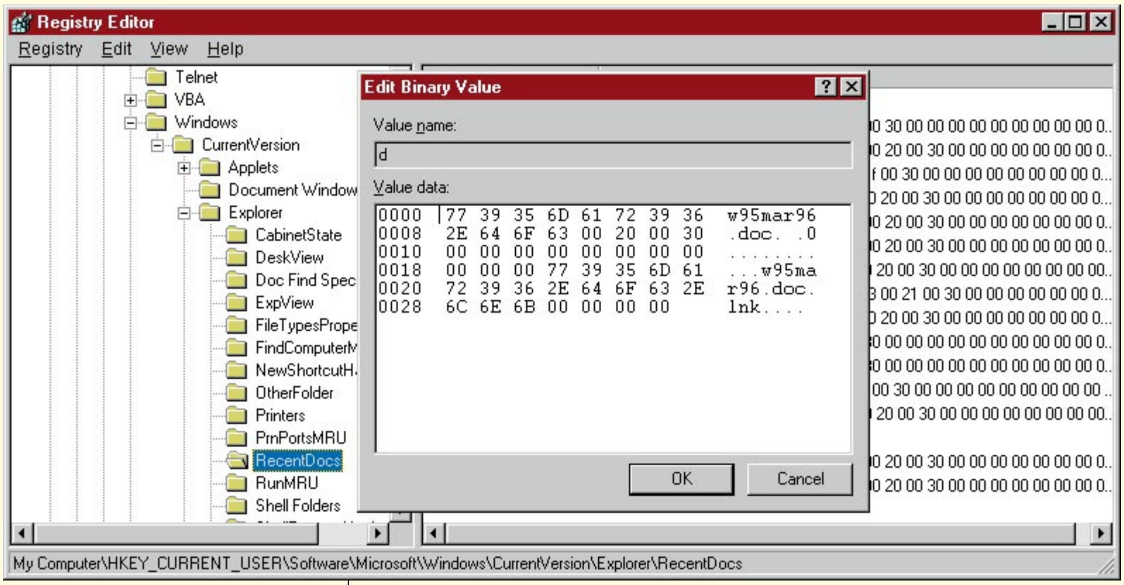
8. More send to… Note that the usual keyboard modifiers work with the above tip. No modifier; copies to another drive or moves within the same drive. COntrol COpies rather than moves on the same drive — Shift SHIFTS (i.e. moves, rather than copies) between drives.

9. Formatting floppies If Windows refuses to format a floppy disk, it’s probably because you have a folder open on that disk. Make sure there are no A:\… folders open, right click on the drive icon from “My Computer” and select “Format”.

10. Taskbar Hold the pointer over a button and wait a little to see a pop-up giving the full text of a truncated description.

square-bracketed section headings. The right-hand pane contains the entries for the selected key; as with .INI files, each one consists of a name and a value. Values can either be in plain text, as with .INI files, or in binary format expressed in hexadecimal notation. The two physical files are combined into a single database which is then split into six logical sections, all with rather user-hostile names such as HKEY_CLASSES_ROOT.

This, the first section listed in Regedit



Value name: d

Value data:

```
0000  77 39 35 6D 61 72 39 36   w95mar96
0008  2E 64 6F 63 00 20 00 30   .doc. .0
0010  00 00 00 00 00 00 00 00   ........
0018  00 00 00 77 39 35 6D 61   ...w95ma
0020  72 39 36 2E 64 6F 63 2E   r96.doc.
0028  6C 6E 6B 00 00 00 00      lnk....
```

```
0 30 00 00 00 00 00 00 00 00 00 0..
0 20 00 30 00 00 00 00 00 00 00 0..
f 00 30 00 00 00 00 00 00 00 00 0...
0 20 00 30 00 00 00 00 00 00 00 0...
0 20 00 30 00 00 00 00 00 00 00 0..
0 20 00 30 00 00 00 00 00 00 00 0..
 20 00 30 00 00 00 00 00 00 00 00..
3 00 21 00 30 00 00 00 00 00 00 0...
0 20 00 30 00 00 00 00 00 00 00 0...
0 00 00 00 00 00 00 00 00 00 00 0..
0 00 00 00 00 00 00 00 00 00 00 0..
00 30 00 00 00 00 00 00 00 00 00 ..
 20 00 30 00 00 00 00 00 00 00 00..

0 20 00 30 00 00 00 00 00 00 00 0..
0 20 00 30 00 00 00 00 00 00 00 0..
```

My Computer\HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\RecentDocs

From the Registry — your recently used files

contains similar information to the Windows 3.1 Registry on file types and OLE information.

Browse through it, and you'll see a long list of extensions and file types. Click on the ".WAV" extension and you'll see, in the right-hand pane, that the default type is "SoundRec". Scroll down to "SoundRec" and expand its tree; you'll see an entry marked "Shell".

Expand this, and you'll find "Open", expand that and you'll find "Command". Click on the latter and you'll see, in the right-hand pane, the command for opening a .WAV file `‘C:\WINDOWS\sndrec32.exe %1’`.

The next section, HKEY_CURRENT_USER, is a little more self-evident, and contains the current configuration of items such as sounds, colour schemes, keyboard settings, wallpaper and so on. But there is actually much more: dig down through "Software\Microsoft\Windows\CurrentVersion\Explorer\RecentDocs" for instance, and you'll find the list of recently-used documents that appear on the Start button "Documents" menu. Unless you're a fluent hex reader, this won't make a lot of sense, but double click on one and an editing box will appear showing the hex code of the shortcut, and a translation into text, so you can read the filename.

You'll find entries for third-party applications too; these are the equivalent of the private .INI files of Windows 3.1. The drawback of this is that while the old .INI files were fairly conspicuous by their presence in the Windows directory, these aren't. Unless they uninstall themselves in the prescribed manner, you may find that items you installed from a cover disk, for example, and deleted after a day or so, leave lasting memorials that cumulatively bloat the Registry.

Some keys may be obvious: if you've removed all "Wizzo" products from your system you can safely delete the key of that name, just as you could the .INI file. What you can't do, though, is the old .INI file trick of moving it to a temporary directory before deleting it, to see if anything complains.

Although it's not laid out as such, HKEY_CURRENT_USER is actually a sub-section of HKEY_USERS. If you're on a single-user machine, then the former is a copy of the "Default" branch of the latter. With multiple user profiles enabled, each will have their own section (e.g. Bill, Ann, Mike) in the latter, with the logged-on user's settings appearing in the former.

The "Default" section will still be there for use by anyone who logs on but doesn't have their own "User Profile". For instance, any changes that Bill makes to his settings, such as personal Wallpaper, will be saved to his profile.

Local machinery

HKEY_LOCAL_MACHINE (the HKEY bit, by the way, denotes a "handle" that software developers can use to access a resource) contains, as you might expect, all the computer-specific rather than user-specific information. This includes things such as hard disks, printers, multimedia and display drivers, modem and port settings.

The sub-tree titles are somewhat misleading: "Hardware", for example, contains only minimal information about communication ports; whereas disks, printers and display settings are spread between "Config" and "Enum". "System" includes multimedia, network, time zone and yet more printer settings. Just as you can have more than one user (each with their own settings), you can also have multiple hardware configurations.

For example, you may have a notebook PC with a VGA display that you can plug in to a docking station which has an SVGA display and printer attached. Each time you start Windows, you'll be prompted to choose the appropriate profile. The relevant settings will then appear under the HKEY_CURRENT_CONFIG section.

The implementation of Plug and Play means that Windows can detect "aware" devices without having to manually specify a configuration. Hence HKEY_DYN_DATA contains settings that don't relate to the Registry files themselves, but to current settings held in memory.

There's a very large "Software" section, too, which contains system-wide information; for example a list of installed fonts, or a record of the last time the hard disk was optimised. Third-party software can also have settings stored here; if there's a conflict between these, and those listed under HKEY_CURRENT_USER, the latter take precedence. You'll also find a subkey under "Software" entitled "Classes". Click on this and you should get a strong feeling of *déja-vu,* as the information here is exactly the same as in HKEY_CLASSES_ROOT. According to the Microsoft Windows 95 Resource Kit "The Hkey_Local_Machine\Software\

A cautionary tale…

“Idiot of the Month” award goes to myself. As we all know, to get the coveted “Designed for Microsoft Windows 95” on the box, software must adhere to certain standards, one of which is to come with an uninstallation routine. So you should be able to remove an application easily — no stray .DLLs or other files left behind, no redundant information in the registry, and so on. This doesn’t happen with Windows 3.1 applications, nor apparently, with several beta versions of Win95 software. Anyway, possessed by a sudden fit of tidiness I decided to clean out a few redundant file types.

I really, really, tried on this one. First I removed the file types from the “View/Options/File Type” dialogue. Great. They went. The next day some of them were back again. “Funny,” I thought, “I could have sworn I’d removed those.” So I did it again, and this time wrote down the filetypes I’d removed, restarted Windows and there they were.

This was obviously a Registry problem, so I started Regedit and removed all the relevant entries there. It’s amazing just how well a determined application can entwine itself here: there are all those straightforward entries that are considerate enough to list the file type or application as a main key, but then there are all sorts of others, too, lurking in the shrubbery of the entries consisting of two squiggly brackets surrounding some fearsome looking hex code. With judicious use of the “Search” tool, it took only an hour or so to purge it of every reference to the accursedly persistent software.

With a smug sense of a job well done, I closed down the PC and restarted. Opened a folder, View/Options/File Types/… AAAAAAARGH! Yes, my old friends were back. Either my PC was haunted, or there was a more rational explanation.

Suspicion number one was that I’d damaged the Registry files and Windows had restored them from the back-ups (see last month’s column). A spot more detective work showed that this wasn’t the case. The answer was so obvious — especially if you read about Dejan Stojnic’s problem in this month’s *Hands On Windows 3.1* (page 269) — that I couldn’t spot it. By a happy coincidence, reader Tom Smith was having a similar problem and it was he, not I, who fingered the culprit.

Remember WIN.INI? Yes, as I mentioned at the beginning of this column, it’s still lurking around for the benefit of older applications that can’t install their associations into the Registry. And each time Windows starts, it politely trawls the WIN.INI to see if there’s anything in the [Extensions] or [Embedding] sections that needs adding to the Registry. And this was what had been happening.

Moral: if you really want to get rid of something, check WIN.INI as well.

You must be joking

It’s an old joke, but at times particularly appropriate to the Windows 95 online help which seems to list everything except what you want to know: a pilot is lost in low cloud, somewhere around Seattle, looking for the airport. A building looms before him, and he sees someone sitting at a desk by an open window.

“Where am I?” he yells.

“You’re in a plane!” comes the reply.

He instantly sets course for a perfect landing. “How did you do that?” asks one of his amazed passengers.

“Easy,” says the pilot. “The answer was completely accurate but completely irrelevant to my predicament. So I knew the building was Microsoft Technical Support.”

Classes subkey defines types of documents and provides information about OLE and filename-extension associations that can be used by applications. Hkey_Classes_Root is an alias for this subkey. Hkey_Classes_Root merely points to Hkey_Local_Machine\Software\Classes.

The sole purpose for Hkey_Classes_Root is to provide compatibility with the Windows 3.x registration database.” And that’s pretty much where we came in.

PCW Contacts

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