INTEGRATION   **SOFTWARE**

Explore2fs
A PEEK OVER THE FENCE

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When you're trying out Linux it's common to install it alongside Windows on the same hard disk. When you do that you often want to access one operating system's files from the other. Accessing Windows files from Linux is easy, but Windows provides no way to access your Linux partitions. It's still easy, though, if you use a free utility called explore2fs.

Most newcomers to Linux experience some configuration problem or other early on, and need to seek help. When this happens, often you don't yet have Internet access set up under Linux so you need to use your Windows mail, news and web browser programs to look for help. In the process, you need to refer to various Linux configuration files, and it can be very frustrating that you can't read them while you're running Windows.

The reason you can't access Linux drives from Windows is that Linux stores its data on disk using a **filesystem** that Windows doesn't recognise. Windows 95 and 98 can only read and write their own native *FAT* and *FAT32* filesystems. In addition, Windows NT can use disks formatted to use a system called "NT filesystem" (*NTFS*). In order to read and write Linux *ext2* partitions transparently – in other words, to have them accessible through Windows Explorer – Windows would need a special *ext2fs* driver to be installed, just as it needs drivers to read CD-ROMs, DVDs and other disk formats. But no such driver exists. However, there are tools that let you read (and even write to) Linux drives from Windows. Of those, undoubtedly the easiest to install and use is John Newbigin's *Explore2fs*.

Explore2fs, in common with other tools that have been developed to enable access to Linux files from Windows and DOS, doesn't use a special driver. Instead, the Linux partitions are accessed "raw" using functions provided by the PC's **BIOS**, and all the knowledge of how to interpret this raw data as directories and files is built into the program itself. This means that *explore2fs* doesn't make Linux files accessible from other programs such as Windows Explorer. Instead, as the name suggests, it is a complete "Explorer" for *ext2* filesystems in its own right.

Explore2fs is very easy to install. Just download the Zip archive containing the software from the address shown in the Info box – at the time of

Filesystem: The format used by an operating system to store the information contained in directories (folders) and files on a disk. The standard format used by Linux is called ext2, whilst Windows systems mostly use a much less sophisticated system called FAT or FAT32. Windows NT systems may use NTFS.

BIOS: "Basic Input/Output System". It is a primitive interface to the basic devices in the system – disks, keyboard and screen – that is built into the computer. It is a 16-bit programming interface, so 32-bit operating systems like Linux (and Windows) normally bypass it using their own 32-bit drivers instead. The BIOS functions are normally only used during boot-up (before the operating system is loaded) and under MS-DOS.

writing the latest version was called *explore2fs-1.00-pre4.zip* – and extract the files contained in it to the directory from which you intend to run the program. Besides the program itself there is just a simple *Readme.txt*, a license agreement – *explore2fs* is released under the GNU GPL and its source code (written using Borland's Delphi, as a matter of interest) is free for you to examine and modify if you wish – and a list of changes. The easiest way to find out how to use the program is to try it.

After you start *explore2fs* you will see – assuming, of course, that you have Linux partitions on your hard disk – a window that looks similar to Figure 1. In the left-hand pane are icons representing your Linux partitions which you can expand to show the directories and sub-directories, just as in Windows Explorer. If you select a directory, its contents are shown in the pane on the right. Using the toolbar you can switch between icon, list and details views. Right-clicking a file brings up a context menu from which you can inspect its properties (view all its attributes), view its contents using whatever Windows program is associated with files of that type and export the file (i.e. copy it) to Windows. *Explore2fs* isn't quite like Windows Explorer: double-clicking a file doesn't open it by default. But you can drag Linux files and drop them into Explorer folders, which is very convenient.

Fig. 1: Explore2fs lets you explore your Linux drives whilst you are running Windows

Explore2fs understands users and groups under Linux too. A good thing to do right from the start is to locate your */etc* directory and then drag copies of the files *passwd* and *group* to the directory where *explore2fs* is kept. Then, using the *Users* tab of the *Options* dialog box (selected from the *View* menu) select these two files (Figure 2). This will enable *explore2fs* to show the user and group names in directory lists in place of ID numbers.

The other options of the program are also worth exploring. On the *View* tab (Figure 3) you can choose what files are listed and whether the toolbar and status bar are displayed. You can also specify how partitions are described. *Explore2fs* doesn't seem to be able to tell what drive, and of which type, a partition is on, so partitions are labelled by default "hd*x*". You can change this so that the same designation is used as Linux uses, so for example if you have a SCSI drive you could change the partition prefix to "sda".

The *General* tab (Figure 4) lets you choose whether to scan floppy drives. This is useful if you have any floppy disks or other removable disks (Zip cartridges, for example) formatted as *ext2*. The "Use Extended Int 13" option is needed to allow access to partitions on large hard drives. You can also specify a viewer program to be used for files of unknown type.

This is still pre-release software, and may contain bugs. The *Debug* tab contains various
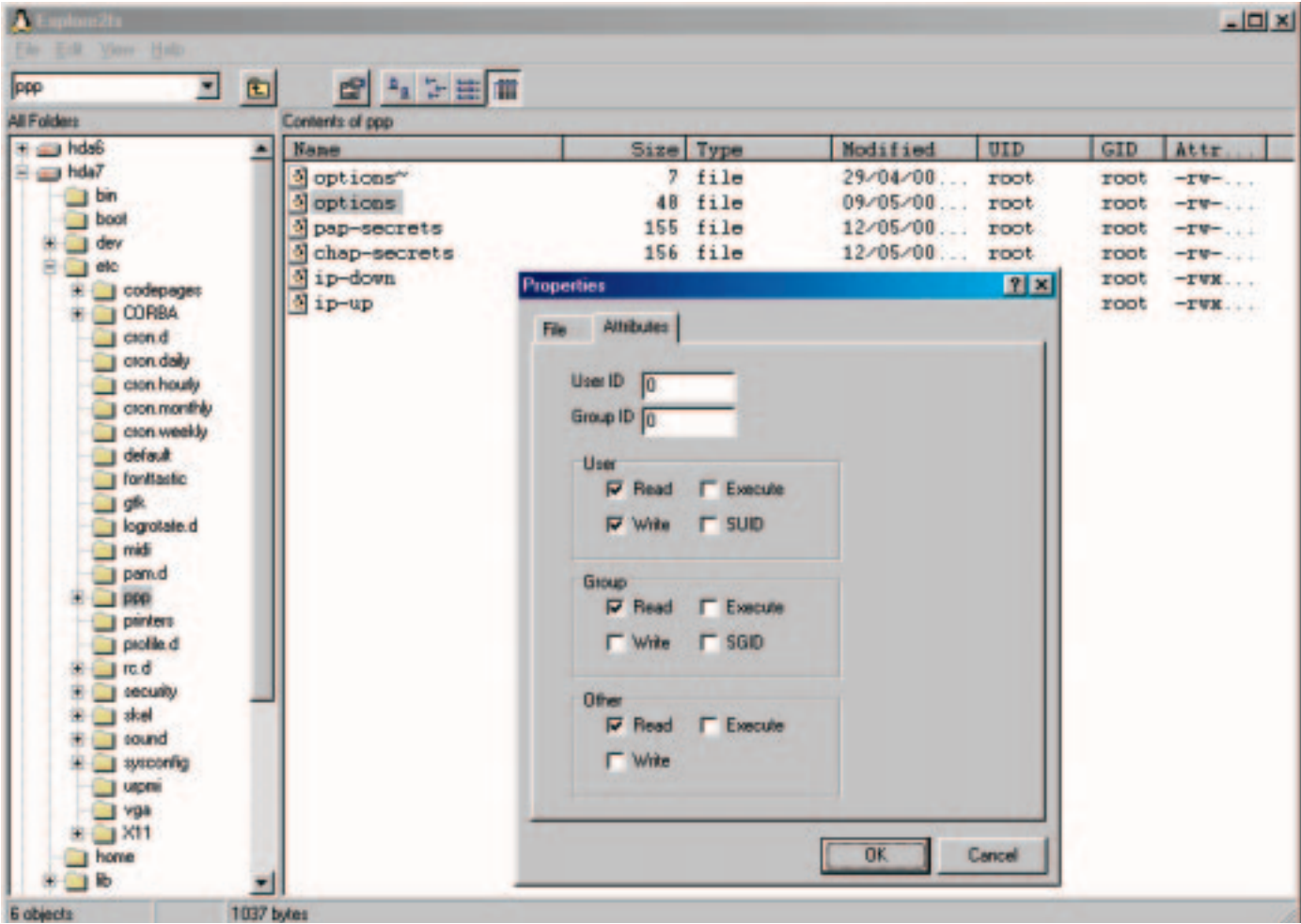
Fig. 2: By showing *explore2fs* copies of your *passwd* and *group* files, the program can display user and group names instead of IDs
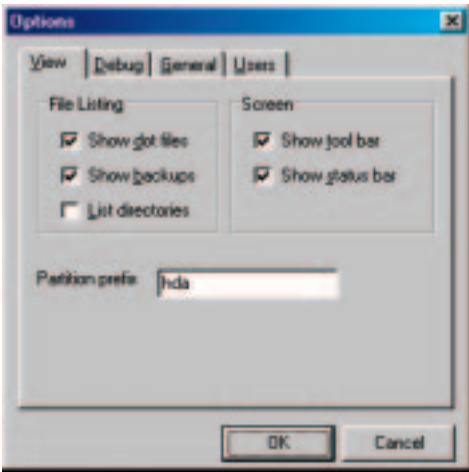

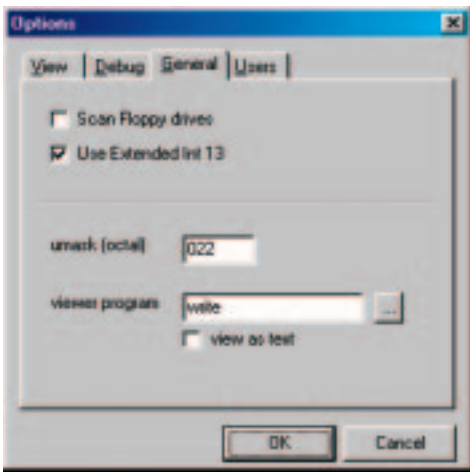Fig. 3: The *View* options let you choose how various things are displayed.

Fig. 4: "Use Extended Int 13" option is needed to allow access to partitions on large hard drives.

options for obtaining debugging information which may be useful if you need to send the author a bug report. Also on this page is the option "Enable write support." The author stresses that the support for writing to your Linux partitions is experimental. It doesn't use the real Linux *ext2fs* code that has been tried and tested on millions of systems over many years. A bug that causes something to be written incorrectly could trash the filesystem, so use this option at your own risk!

Most Linux users won't find it much of an inconvenience to leave write support turned off and keep your Linux partitions safe. The ability to read files on your Linux system easily from Windows is, however, very useful if you habitually use both operating systems. If you do, you'll quickly find *explore2fs* becoming indispensable. ∎

Info

Explore2fs
http://uranus.it.swin.edu.au/~jn/linux/explore2fs.htm