

Linux

WORLD



Your complete guide to Linux

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How to share files within Windows



Getting started with Linux – Part three *Getting at your Windows files from Linux isn't difficult, but what about working in the other direction? Frank Charlton shows you how*

One of the perennial problems with running either a different operating system from your colleagues and friends or using more than one OS on the same computer has always been file system compatibility. Linux and Windows don't use the same physical disk format or file system.

Thankfully, modern Linux distributions recognise the fact that we all need to read from, and write to, alien disk formats on a regular basis. Modern distros like Mandrake 7, Caldera eDesktop and S.u.S.E 6.4 make the difference between file systems almost transparent. After using them for a bit, you'll wonder why Windows has so much trouble with other file systems – the specifications

for Linux's file system (ext2) are, after all, freely available.

Many distributions automatically spot your Windows partitions during installation and add the necessary entries to the `/etc/fstab` file which Linux needs to mount the disks. Fire up KDE, and you'll find that Mandrake has helpfully created Desktop icons to lead directly to your Windows partitions, mounting them with a single click of the mouse. These icons will be named something like `dos_hda1`, referring to the way Linux labels drives and partitions.

If you've added a new drive since installing Linux, or your distro didn't autodetect your Windows drives, it isn't difficult to manually add them. See *A fstab in the dark*.



SEE OUR **SUPERDISC**

PATH: `\handsons\files\linux`

The /dev to pay

Windows refers to disks and partitions in much the same way, regardless of whether they're a physical disk or an individual partition. We all know that C is the first hard drive or partition, and that other drives use subsequent letters for simple access.

The letters tell you nothing about which physical drive the partition is located on. C could be on your first hard drive, D on second and E back on the first again. There's only one bit of logic: A and B are still reserved for floppy drives.

EASY ACCESS

Access your Linux partitions with Explore2fs

Explore2fs provides the Explorer-like access to your Linux partitions we've all been waiting for

By far the easiest Windows tool to access Linux drives is Explore2fs. Simply unzip the file in the `/linux/wintools` folder on the SuperDisc to a folder on your hard drive, right-click on `explore2fs.exe` and choose Send to Desktop, then click on the penguin.

Explore2fs uses the Linux naming conventions for all your partitions. In the left pane you'll see each displayed. Navigating them is a question of opening up various branches on the tree. Copying files to Windows is as simple as dragging them across to your desktop or wherever else you need to file them.

A word of caution

Explore2fs isn't finished software, and PC Plus cannot offer any support for it. It shouldn't do your Linux partitions any harm so long as you only use it for reading from them, but we still recommend making a back-up of your vital files on a separate partition before using it. We do not recommend using the program for copying files to your Linux partitions – careful with that drag-and-drop.





WALKTHROUGH

A fstab in the dark

Adding and managing your hard drives and CD-ROMs is easy using LinuxConf



1 LinuxConf must be run as root. In a terminal window, type 'su root' and enter your password when prompted. Then type 'linuxconf'. Look for File Systems heading in the left-hand panel and click the '+' sign to open its branch. Then click on Access Local Drive to view the current drives. Click the add button to add a new drive.



2 Under the Volume Specification tab, type the partition's location in /dev – in our case it's /dev/hdd1. Click the drop-down list to choose the file system. For Windows partitions (FAT and FAT32), choose 'vfat'. Finally specify the directory you want this drive to be available under. It can be anywhere, but something like /mnt/windows keeps things orderly.



3 Click the Accept button to save your changes. If your mount directory doesn't exist, you'll be prompted to create it. Then click the Quit button on the lower left of the LinuxConf screen. Another tab will open with three choices. Click the top button, 'Activate the changes', then click Quit again. Your new drive should now be available on its mount point!

Linux doesn't work like that. All floppies, hard drives, CD-ROMs and other devices live in the /dev folder. There's an entry for every possible device, whether it's present or not, making /dev a rather intimidating place. But don't worry – there's a method in the madness.

IDE hard drives are labelled hdxN, where the X is a letter (a, b, c and so on) referring to the physical disk, and N the number of the partition on that disk. So, the first partition on the first disk will be hda1, while the third on the second mechanism will be hdb3 and so on. Unless you're running a Linux-only system, hda1 will probably be your primary Windows boot partition.

SCSI drives are labelled differently. Whereas IDE drives are labelled hdxN, SCSI devices use the sdXN naming convention, following the same rules for drives and partitions. Similarly, fdN are your floppy drives. CD-ROMs are a little less intuitive. If they're IDE devices, they're named like hard drives, but without the partition number. If you've got one hard drive and one CD-ROM, the chances are it's on hdb.

Open the /etc/fstab file in any text editor and you'll see various partitions already added to the filesystem table for easy mounting. You'll also find configuration information telling Linux which filesystem this device uses, and various other options.

Linux gives you read and write access to your usual FAT and FAT32 Windows partitions, but if you're dual-booting with NT you'll find you can only read NTFS partitions. There is write support for NTFS partitions, but it's at an 'experimental' stage (read: it could wipe your drive) and so isn't compiled into the kernel by default.

Linux drives from Windows

When you've used Linux and Windows in a dual-boot situation for a while, sooner or later you'll save a file under Linux, then reboot to Windows without copying it across to your FAT drive first.

Reading from, and writing to, standard Windows FAT and FAT32 partitions under Linux

TERMINAL TRICKS

Handy commands

Turn to the trusty command line when you need info about your system

● If a drive isn't listed in /etc/fstab, you can still mount it manually if you know the filesystem and where it is in /dev. Say you had a Windows partition on hdb1. Switch to the following root:

```
mount -t vfat /dev/hdb1
/mnt/windows
```

The '-t' tells Linux the type – vfat for Windows FAT and FAT32 partitions. /mnt/windows is where you'll find the files once they're mounted. Type 'man mount' for more details.

● Another handy command is 'df'. This shows you which drives are mounted where and how much free space is available on each. If you can't figure out what the partition numbers on your drive are, log on as root and type:

```
/sbin/fdisk /dev/hda
```

This opens fdisk on your first hard drive. Type 'p' at the prompt and you'll see a list of partitions, then type 'q' to quit. Fdisk, like it's DOS equivalent, can repartition your drive, but quitting with 'q' ensures no changes are actually made.

is no problem at all. Doing it the other way around is a bit more work.

Thankfully, there are ways to read files from your Linux ext2 partitions while Win9x is running. Try as we might, we can't find any news of a Windows file system driver which would allow access to ext2 partitions. One was in development back in 1998, although it seems to have vanished.

But there are a few solutions that work. The first two are neither as intuitive or particularly productive – but can be useful for little but those "I need that file now!" situations. The third is excellent, but the fact that it's not a final release may make some shy away. They're all on the SuperDisc, so you can take your pick.

First, there's ext2tools by Claus Tondering. This is a package containing separate DOS executables for common file manipulation tasks on ext2 partitions. Ext2tools is a pig to configure, and best left alone unless you're knowledgeable about the geometry of your hard drives.

Slightly less functional but considerably easier to set up and use is the ext2lib package

by Chris Bryden. It provides a simple command-line application to access your drives. Again, the program is hardly intuitive to use – the command syntax is fiddly, and you can't copy batches of files or entire directories at once.

Finally there's our favourite, Explore2fs. It boasts a Windows Explorer-style interface, with full drag-and-drop of files to and from your Linux partitions. But, as we mentioned earlier, the latest version, 1.0pre2, isn't quite finished. We haven't experienced any problems reading Linux partitions under Win9x or NT, (though Win2000 was a little dodgy) but don't recommend using it for writing to them. **PCP**

NEXT MONTH

Feedback has been excellent so far – keep it up! Send your requests, recommendations and comments to handson@futurenet.co.uk. Frank Charlton will be taking a break next month, but this column will be back with more tips on making your system functional and fast.