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→ **Comments welcome on the Networks column.**
Email networks@pcw.co.uk
*Please do not send unsolicited file attachments.*

# Trouble with shared files

## Solutions to common file-sharing problems, and how to create an instant network

Once again my inbox has been filled with emails from readers starting out in networking and having difficulty when it comes to sharing files. It's a fairly basic facility, built into the Windows operating system, but one that can be difficult to get working at times, despite all the wizards and other tools provided by Microsoft.

### A common problem

The usual scenario is that you have a couple of Windows PCs and want to connect them to the internet via a shared router and, at the same time, share the odd file or two.

So, you fit suitable network interfaces – either wired or wireless – and attach the PCs to the router. You use DHCP to assign IP addresses and are impressed with your abilities when, lo and behold, both PCs can browse the web. However, no matter what you try you can't share files.

You run the network setup wizard repeatedly, check all the connections, even phone a friend. But nothing works. You may even receive a message such as the one shown in screen 1 when you try to access shares on one PC from the other.

So what might be causing this? The PCs are clearly connected to the same network as they can both connect to the web via a common network router. You may even have tried pinging one PC from the other and confirmed that they can see each other at the packet level.

You have probably then done a Google search and discovered that they need to be in the same Windows workgroup and made the changes required, making sure there are no spaces in the name if using an old version of Windows like 98 or ME. But even when you have redefined your network shares, the errors persist. At



**SCREEN 1**

which point you need to start looking elsewhere for answers – 'elsewhere' being right here, in this case.

### Not so common answers

Now, messages such as that shown above can be displayed for several reasons, including a lack of basic connectivity. However, once you've ruled that out, a little bit of lateral thinking is required, with desktop firewalls a good place to start.

Your firewall could just be blocking the protocols that Windows uses to share files, so try turning it off for a while (on both PCs, of course, and with the internet disconnected) to see if the problem goes away. If it doesn't, then more investigation is required. If it does, you know that the problem

*Windows file sharing often causes problems, but the error messages aren't always helpful*

*The network setup wizard should have done this, but make sure the Windows firewall has an exception to allow file and printer sharing*

is caused by the firewall and you can do something about it.

If you're using the firewall built into Windows XP, there's a specific exception rule for file and printer sharing. In fact, it's usually activated for you when you run the network setup wizard, but can also be set manually.

Go to the Control Panel and double-click the Windows Firewall icon. Click on the tab marked Exceptions (see screen 2). Then make sure there's a tick alongside the entry marked File and Printer Sharing, and do the same on the other PC.

With a third-party firewall, you will need to find something similar or configure rules to allow traffic on the ports involved manually (see screen 2 for the exception rule).
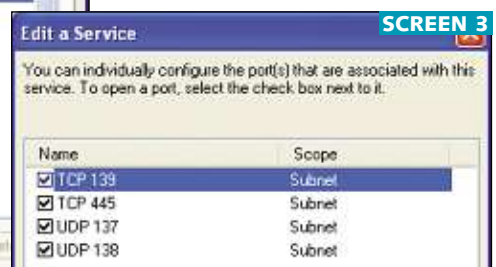
### Access control

Having ruled out the firewall, the next suspect is the file-sharing software. In particular, the way that users are identified and authenticated.

When we all used Windows 95, 98 and ME there was no such thing as a username or password, you just



**SCREEN 2**



**SCREEN 3**

Above: If you're using a third-party firewall these are the ports you need to configure for file and printer sharing

started the PC and were in. Moreover, the only security afforded to file sharing was password protection for individual shared folders.

When Windows NT and 2000 came along, however, you had to start logging on to your PC, and a new NTFS file system was added with access control lists (ACLs) to control access to shared folders and files based on your logon name and/or group membership.

In the absence of a Windows domain, ACLs make peer-to-peer file-sharing more scalable and secure, but they can also cause problems. For example, if I have logged on to my PC as Alan and try to access files on another which has the default Administrator account defined, I won't be allowed.

In which case, I need to either log on as Administrator (Windows will usually prompt for a username and password just for the file access) or I have to make sure there's a matching user account (Alan, in this example) on each PC on the network.

Defining common user accounts on each PC and setting their access rights can solve a lot of file-sharing issues, especially where you're mixing Windows 2000 and XP PCs together. However, there's another complicating factor that can affect networks where you're trying to share files between XP Pro and XP Home PCs – and it's called, paradoxically, Simple File Sharing.

### Far from simple

When Microsoft introduced Windows XP it decided that ACL security might be too complicated for home users, so it modified it to provide Simple File Sharing (SFS).

SCREEN 4

With simple file sharing, remote users are all authenticated as guests and file-sharing controls are very limited

Optional in XP Pro, but not XP Home, SFS automatically assigns rights to the built-in Everyone group when a new share is defined. Moreover, it modifies the file-sharing dialogue so that the only options are to either allow read-only access or let other network users modify the contents of a share (see screen 4). It also changes the way remote users are authenticated. Instead of their login name, remote users are always authenticated using the built-in Guest account.

The upshot of all this is that you don't really have to manage the file-sharing process, and there's no need to configure matching user accounts on every PC. Simply share a folder and anyone on the network can access it. However, folders are either shared or

not, with only very crude controls over what remote users are allowed to do. Plus it can lead to other problems, especially when upgrading older PCs and mixing different versions of Windows together.

Convert from Fat to NTFS (for example, when upgrading to Windows XP from Windows 98), and the Everyone group isn't automatically created. You'll then find that you can't access the shares on the upgraded PC, although the converted PC can still connect to shares on others.

Fortunately there's an easy fix for this. Stop sharing the folders concerned and configure them again under XP. But even on new PCs, simple file-sharing can cause problems. For example, it stops administrative shares (used by some software distribution tools) from working and blocks remote Registry access.

With XP Home there's not much you can do other than live with these limitations. But with XP Pro you can turn SFS on and off, depending on what other versions of Windows you're using.

To do this double-click My Computer and select Folder Options from the Tools menu. Click the View tab and look for the entry marked 'Use simple file sharing (Recommended)' – usually the last entry in the list.

So if you're having problems sharing files between XP Home and XP Pro PCs, try enabling Simple File Sharing on the XP Pro systems. Conversely, if you only have XP Pro or if you want to add Windows 2000 to the mix then disable it, to manage the access control lists and troubleshoot any file-sharing problems yourself. **PCW**

# Power to the network

It's not every day that I come across a networking product you can simply plug in and use, but it does happen. The other day, Netgear sent me a couple of its XE104 Wall-Plugged Ethernet Switches and, despite some initial scepticism, they worked well.

About the size of a mains power adapter, these little boxes contain a four-port Ethernet switch with an integrated three-prong plug on the back to enable them to be inserted directly into a mains wall socket. But that's not all. The XE104 is a Homeplug device that uses the mains wiring to effectively bridge switches. This facility came in handy when my son moved in and wanted to connect to the internet from an upstairs bedroom.

Of course, we could have used wireless, but that would have meant finding and installing a

suitable adapter and the PC involved already had an integrated wired Ethernet interface. So, instead, I plugged one of the Netgear switches into an outlet downstairs, where my router is located, and another into a socket in the upstairs bedroom. They immediately found each other over the household wiring, as indicated by a bright blue LED, giving an 85Mbits/sec connection with no bother.

At about £60 for each of the switches, they're not cheap and you do need at least two. But it does take all the hassle out of setting up a cabled network, and I'll be looking more at this kind of approach in future issues.

**Plug in a couple of Netgear Wall-Plugged Ethernet Switches and you'll get an instant network using your mains wiring as a bridge**