

# NETWORK TROUBLESHOOTING - WORKSTATIONS

## Logging in

If a user reports they cannot log on to the *network* and you have checked the *hardware* and network infrastructure is all OK, make sure they are using the correct combination of username and password. Check that caps lock isn't on if they insist the password is correct. If you have a policy of changing passwords regularly (and you should!) then ensure the user has not just forgotten changing it yesterday. Make sure the domain setting is correct in the log on and that they are attempting to log onto the network and not just their own PC.

## IP addresses

Most modern networks use the TCP/IP protocol to transport data - check out the guide to TCP/IP at the PC Support Advisor website. However, as a brief introduction, each computer on a network is given a numerical address in the format xxx.xxx.xxx.xxx (known as an IP address). For example 192.168.0.2. This ensures that network traffic ends up the correct place. On server based networks it is common to find that the server automatically allocates each computer with an IP address via a service called DHCP. On peer-to-peer networks the *router* may act as

a DHCP service, but in some cases fixed (static) IP addresses are allocated to the machines when they are first configured by whoever set up the network.

To check the *IP address* of a Windows 9x PC go to Start, then Run and enter winipcfg. In Windows 2000 or XP open a command prompt (Start, Run, then type cmd) and at the prompt type ipconfig/all.

In both cases this returns the address of the machine and some other network information. These commands are not diagnostic utilities, but if they do not show any IP information this could indicate that something is amiss! Problems will occur when using static IP addresses and two PCs are given the same one. Just as having houses on a street with same number would cause the postal staff to have serious delivery problems, IP address conflicts cause your network problems.

Windows will warn you if you assign the same IP address as one used by another computer on the network if that computer is switched on. If you are setting up a new PC check that you carefully enter the IP information - make sure that the first three sets of numbers you use are identical and the last one unique. If you can use DHCP do so - it is much easier to manage!

## **Checking IP settings**

If you have a PC which cannot see the *Internet* check out the *TCP/IP* properties (right click on Network Neighbourhood or My Network Places on the desktop and select Properties).

In Windows 98 the list of services and protocols will be displayed - in Windows 2000 or XP right click on local area network and select Properties, then TCP/IP which is linked to the network adaptor and click Properties.

If your server is handling DHCP then you may find that all the settings are blank - essentially the server is handling all the configuration for you.

If you have a static IP then the details for this will be shown, probably along with a gateway address (that of your Internet router) and perhaps the address of a *DNS* server.

Check that the gateway address is correct and that the DNS entries match those given to you by your Internet Service Provider.

If you are using a proxy server (where your local server acts as a web server by retrieving and caching pages from the Internet) then you'll need to set this up in the browser options (Tools > Options > General > Connections in Firefox; Tools > Internet Options > Connections > *LAN* settings in Internet Explorer.) Whoever set up the proxy server will need to give you the address (IP or computer name) and the port, probably 80 or 8080.

## **Network cards**

In Device Manager (Start > Control Panel > System > Hardware > Device Manager), check all network cards are installed properly - there may be a yellow exclamation mark next to any that aren't. This can be caused by several things - the card installed is not the one which Windows thinks it is or the *driver* may be wrong or out of date. Note carefully the network card's make and model number - these are listed in Device Manager - and then visit the manufacturer's website (if you can get on the web!) where they may have recorded known issues.

If a new driver fails to sort the problem try using Belarc Advisor to run an audit on the PC to check the card. If that fails you may need to open the box and check what is actually written on the card.

## **Ping**

A really useful tool for tracking down network errors is *ping*. Open up a command prompt and type ping followed by the IP address of a computer you know is on your network, the server for example e.g. ping 192.168.1.1 . If your PC is on the network and can see the server you should get a response from it in the form of a number of replies and some statistics. If this works, try pinging an address outside your network - 64.233.161.99 for example, which is Google's address. Note that some networks will not allow ping commands to reach the outside world for

security reasons. If you ping a web address (e.g. ping www.google.com) you will see if DNS is working properly.

## **Peer-to-peer networks**

If you cannot access files or printers on a shared machine, first check that it is turned on. If it is, and other PCs can access its resources then you need to look more closely at the PC which cannot connect. For printer issues see the Knowledgebase article Printer not working?.

If you cannot see shared resources on a peer-to-peer network, ensure the workgroup name is the same on all the PCs in the workgroup - in Windows 2000 or XP right click on My Computer and bring up Properties - click on Network Identification and then on Properties.

Source: <http://www.ictknowledgebase.org.uk/networktroubleshooting2>