



OSW / appiChar Technical Guide for IT Staff

Section 7: Printing

Nobody works in a paperless office.

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Printer Types

There are two main types of printer in current use - laser and inkjet. Other types which are less common include wax, dye sublimation, thermal (as is sometimes still found in fax machines and receipt printers) and various kinds of impact printer such as dot matrix. Impact printers, where a hammer or set of pins hit the paper through an inked ribbon, are still sometimes used where multi part stationary is required.

Laser printers use static electricity (and a laser) to make particles of a powder (the toner) stick to a drum in the right pattern. This image is then transferred to the paper. That's obviously a somewhat extremem summary - a more detailed explanation can be found at <http://computer.howstuffworks.com/laser-printer.htm>

Inkjet printers squirt tiny droplets of ink at the paper to leave an image. Again, How Stuff works has an excellent and more detailed description of the process: <http://computer.howstuffworks.com/inkjet-printer.htm>

Paper feeding problems are not uncommon with most types of sheet fed printer. The cause can either be due to the printer (which is the first thing people usually look at irrespective) or poor paper/storage. Some printers are very sensitive to damp paper. It won't necessarily appear to be damp to the touch but storage in cold or humid areas could cause a problem. Try to keep paper in its original wrapper until required and if you do experience problems find somewhere warmer and dryer to keep the paper before use.

The other common type of problem is to do with the (usually rubber) rollers which feed the paper through the printer. These can sometimes become out of alignment or lose their grip. Alignment problems may only be solveable by having someone experienced take the printer apart. It may be possible to solve problems with the rollers by careful cleaning. I have had good results by using a small amount of methalyted spirit on a cotton bud but you may wish to satisfy yourself that this won't cause any damage to the mechanism. Use at your own risk!

Connections

The very simplest printing arrangement is to have the printer connected directly to the computer which uses it. This will typically be done by a parallel or USB cable but infra-red and Bluetooth wireless connections are also possible.

Local printers may also be made available as a resource to the rest of the network by *sharing* them. To share a printer, open the Printers folder (Start -> Settings -> Printers), right click on the printer to be shared and change the radio button from Not Shared to Shared As and enter a more appropriate name if required.

Rather than connecting a shared printer to a PC, it is possible to get stand alone print servers. These are typically a small box with connections for power, the network and one or more printers. They may also have a few little lights to give you a bit of an idea of what's going on. Some printers have something like this built in to the printer itself.

Using a print server, rather than connecting directly to a computer, to make printers available on the network means that it isn't necessary to ensure that a particular computer is on and working for people to be able to print. It may also give you a greater range of options for where to location the printer - as long as there are power and network points it doesn't matter if a computer couldn't fit there as well, or if the printer is in an area where you might not want to put a computer for security reasons perhaps.

Troubleshooting Shared Printers

The printing process requires a number of layers. When an application prints, it calls upon a printer *driver*. The driver takes the output from the application and turns it in to a language the printer can understand. Printer languages include PCL, Postscript and a wide range of proprietry systems.

The output from the driver is placed in a *queue*, possibly with print jobs (documents) from other users if this is on a network. The queue does not have to be on the same computer as the driver – it can just as easily be on a server or held in the printer itself in some cases. From the queue, jobs are sent to the printer by the *spooler*.



There is a useful article on the Intel website which explains direct and shared network printing
<http://www.intel.com/support/netport/24470.htm>

Microsoft also have a related page at
http://www.microsoft.com/hardware/broadbandnetworking/articles/learn_more/networking_articles/printer_share.aspx which deals with printer sharing and includes links to pages describing sharing other resources.

When dealing with printer problems, it's always worth checking that the printer is on, online and has the appropriate paper in! A very common problem is people trying to print a Letter sized document (since that's often the default size) to a printer containing A4 paper. The printer will often then stop and wait for someone to either put in the correct size paper or tell it to carry on regardless (otherwise referred to as “User Intervention”).

Depending on how printing is setup, work out which queue jobs are supposed to be going in to and make sure they are. It may be helpful to pause the printer so you can see jobs as they appear. If nothing appears in the queue, make sure the printer is mapped correctly at each point. So if workstations print to a shared printer, make sure that the share still exists and the workstation is mapped to it then check that the server itself is printing to the correct port. Trying to do test prints from machines at various points is a useful test but it's almost never worth telling it that the test didn't print successfully – the troubleshooting wizard which is presented runs out of possible solutions very quickly and almost certainly won't fix things.