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## Serving Your Home Printers

John R. Joyce, Ph.D.

For some time, Microsoft Windows has supported the concept of printer sharing. Simply put, a printer on one computer could be used by someone working on another computer, as long as they were on the same network and you'd enabled printer sharing. The gotcha to this concept is that, for someone to share their printer, the printer first had to be physically connected to their machine and, secondly, they needed to have their computer turned on and connected to the network. Duh!

Ideally, we'd like to be able to share the printers and other peripherals over our home network without having to rely on any particular computer be switched on. Fortunately, inexpensive print servers are now available to handle this sharing, much as those that have been available for some time in the corporate world.

This column was originally supposed to be written several years ago to accompany another column addressing home networking. However, in the course of researching it, I ran into a snag. My initial focus was to attempt to locate a wireless print server, so you could basically put your printer anywhere you wanted without having to worry about running cables all over the place. As it happens, I was able to locate a number of wireless USB print servers, and I actually tried out some from AXIS (OfficeBasic USB Wireless G Print Server), D-Link (DPR-1260 Wireless Print Server), and Lexmark (N4050e). However, I encountered difficulty with all of them. Basically, after working with them, I was able to get a connection, but was unable to print reliably. While setting them up was not trivial, it usually wasn't that hard if you took your time and carefully went through the process step-by-step.

On further research, I suspect that all of these units were indeed working properly. It turns out that all of the printers with which I'd been attempting to test the print servers were relatively low-cost USB printers. I discovered the reason this made a difference: in order to reduce the cost of the printers, they did not actually include the full printer functionality in the printer, as is typically the case for serial and parallel printers. Instead, various aspects of the printer control functionality was off-loaded to the print driver running on the host PC. While this worked fine for a directly connected printer, these units were not designed to handle all of the bidirectional traffic that the print servers generated. I would not be surprised to discover that a lot of the communication was time-sensitive as well, which was likely highly distorted by the wireless network and any buffering going on within the print servers.



Off-center front view of D-Link Fast Ethernet Print Server DP-301P+ showing its Centronics style parallel interface connector.

Once I made this discovery, I was eventually able to locate lists of printers with which each of the vendors print servers had been certified to operate (none of which I had, of course). Unfortunately, none of the print server packaging happened to mention any of these issues, let alone list the certified printers (don't want to give any negative impressions and upset marketing). So, for the time being, I opted to put that project on a back burner. While, at the time, the options for non-USB printers were somewhat limited, you needn't write off the whole project right there. For example, the D-Link DP-301P+ Pocket Size Print Server, which is designed to support a printer with a Centronics-style parallel interface and to be connected to the network with an Ethernet cable worked fine with a Hewlett-Packard LaserJet 6L printer.

A few years have gone by, and there are a number of new wireless print servers on the market designed for home use. However, I suspect that the same situation applies, at least for most of the low-cost printers. Some of the multifunction printers currently available may be exceptions to that, as they are designed to be more self-contained, what with the embedded FAX, scanning and print from chip functionality. Still, before buying one, I'd strongly suggest cross checking them against the manufacturers specs, though that may still not be a guarantee. I definitely wouldn't take the word of a store clerk on it, unless they have actually used the same model printer that you have. I say this only because I worked with several of the vendors technical support personnel for several days on this printing issue, and most of them never indicated any awareness of this particular problem.

In the course of my renewed research, I've discovered another little gotcha, which might tend to bite more if you are ordering a server over the Web instead of holding it in your hands in a brick-and-mortar store. There is apparently a tendency for the marketing departments these days to market these print servers for wireless printing. What they frequently actually mean is that the computer you are attempting to print from may be connected to the network wirelessly, but the print server itself is likely connected to the network by an Ethernet cable! You can find some true Wi-Fi print servers out there, but I can't guarantee that they've resolved this control issue. I've actually seen one that supports both USB and Centronics printers, which is nice.


Allowing for Ethernet connectivity to the network, I have encountered one unit with which I am particularly pleased. This is the Belkin F5L009 Network USB Hub. It takes a somewhat different approach than most print



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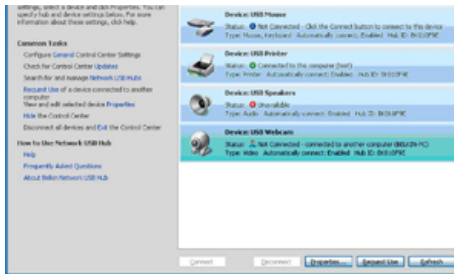
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servers and, in some ways, it might be inappropriate to call it a print server at all. What it actually does is create a virtual private network (VPN) connection between your computer and the printer that is plugged into the F5L009. The print drivers loaded onto your computer then print to a 'Virtual printer port for USB' and, as far as it's concerned, the VPN is simply a USB cable connecting it to the printer. While I can't guarantee that it will work with all USB printers, I have had very good luck using it with a Canon Pixma MP150. Best of all, as long as you are using DHCP to set the IP address of the F5L009, setup is as close to trivial as anything I've ever seen.



Screen shot of Belkin Network USB Hub Control Center and various device connection statuses.

What is particularly exciting about this unit is that it is not limited to just allowing you to print to a remote printer. The Canon MP150 is a multifunction printer and also can serve as a scanner. Using the F5L009, I have been able to acquire excellent quality color scans from this unit, both using its own software package and using HyperSnap 6 over its TWAIN interface. In addition, I have been able to plug a Rocstor Rocbit FXKT USB hard drive into one of the F5L009's USB ports and access it remotely over my network as well.

Because it does use VPN technology, there is the possibility of conflicts if you are using other VPN software. However, I think this unit will work very well for most people. While there are five USB ports built into this unit, it can support up to 15 USB port connections. Keep in mind that this is 15 connections, not devices, as some devices may require three or four ports, if not more, to function. If you have a need to share USB devices over a network, this is definitely a device worth further investigation.

If you've found a wireless print server with which you've had good luck, particularly if it supports more than one interface type, we'd love to hear more about your experiences with it and the specific printers with which you've successfully used it.

**Related Resources**

- AXIS [www.axis.com](http://www.axis.com)
- Belkin [www.belkin.com](http://www.belkin.com)
- D-Link [www.d-link.com](http://www.d-link.com)
- Lexmark [www.lexmark.com](http://www.lexmark.com)
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