8.2.4 Printer Configuration Facts

There are some basic printing concepts and configuration steps you should know. Let's take a look at them below.

This lesson covers the following topics:

- Printing terms
- Printer configuration
- Printing process
- Printer languages
- Virtual printing

Printing Terms

The following table lists some key definitions with which you should be familiar:

Term	Definition
Print Device	The physical device connected to the print server where print output occurs.
Print Driver	The software that allows the printer to communicate with the print device. Printer drivers provide the following support functions: - Translate data into a recognizable form for the given printer - Manage graphics via graphics drivers, converting graphics into the appropriate printer commands - Allow management of the print job by displaying print and printer properties in the operating system
Printer	A virtual device (logical software entity) inside the print server that can be configured to send output to a print device. The printer is made up of the print driver, the printing device, and the spooler.
Print Queue	The portion of the hard drive where print jobs are stored before going to the print device.
Printer Port	The means by which a print device connects to a print server (the printer's NIC). Many printers can be configured in the same way that most plug-and-play devices are.

Printer Configuration

To configure a printer, you:

1. Connect the print device to an available port.
2. Create a printer object. For plug-and-play printers connected to a USB port, the printer might be configured automatically.
3. Edit the printer object to configure device-specific settings such as color profiles and paper trays, or features such as stapling or double-sided printing.
4. Verify that the printer works by sending a test print.
5. Ensure that the customer or user knows how to use the printer and any additional features.

If you have more than one printer configured on your computer, the default printer is the printer that will be automatically selected.

Printing Process

When an application sends a print job, the following process takes place:

1. An output file is created that contains commands that the printer understands. The output file is sent to a virtual printer where the print job may be configured.
2. A Device Driver Interface (DDI), which allows the document to interface with a printer driver, is created.
3. A local spooler sends the file (print job) to the print driver.
4. The spooler tracks the printer ports and printer configuration, and assigns print queue priority to the print job.
5. The print job is concurrently stored on a disk file.
6. The printer driver creates the correct print document format.
7. The print job is then sent to the printer and is physically printed.

Printer Languages

The following table contains three printer languages that printers commonly understand:

Language	Description
Escape Codes	Used to control dot matrix printers. Escape codes are primitive compared to today's standards.
Printer Command Language (PCL)	Hewlett-Packard has created several versions of a printer command language called PCL. Many modern printers understand PCL.
PostScript	Adobe created a printer language called PostScript that easily handles scaling of certain fonts and images. Printers that understand PostScript are usually more expensive than other printers.
PDF	Adobe created PDF as a successor to PostScript. PDF allows you to distribute documents on the web and have them displayed consistently in a wide variety of environments. Adobe has also provided Acrobat Reader free for multiple platforms and promoted PDF extensively, so it has become the de facto standard for page description languages.

Virtual Printing

Windows 10 provides additional features that allow you to send a file to a virtual printer. The following table identifies the different virtual printing options available:

Virtual Printing Option	Description
Print to File	If you use Print to File, Windows saves the formatting and layout information of your file so a printer can create the document without the program or computer that created it. This allows

you to:

- Archive a document and print it later
- Send a document or photo to a commercial printer
- Send a document to someone who has the same printer, but doesn't have the program you used to create the document

Print to file has some limitations. It's generally designed for parallel printers and it doesn't work well with newer USB printers. In addition, both the computer used to print the saved file and the computer used to create the file must have the same printer driver.

Print to PDF	Microsoft Print to PDF allows you to print your document to PDF format.
Print to XPS	Print to XPS allows you to create .xps files using any program that you can print from in Windows. Use the Microsoft XPS Document Writer when you want to view, save, share, digitally sign, and protect your document's content.
Print to Image	Print to Image allows you to print any document into an image file that is independent of the application you use to view them. For example, you can convert a Word document into a .jpg file. The resulting images are print-ready and optimized for websites, smart phones, and tablets. You can also print them on a physical printer for excellent printouts.