## Lesson 5: Configuring Print and Document Services

MOAC 70-410: Installing and Configuring Windows Server 2012



WILEY

## Overview

- Exam Objective 2.2: Configure Print and Document Services
- Deploying a Print Server
- Using the Print and Document Services Role

## Deploying a Print Server

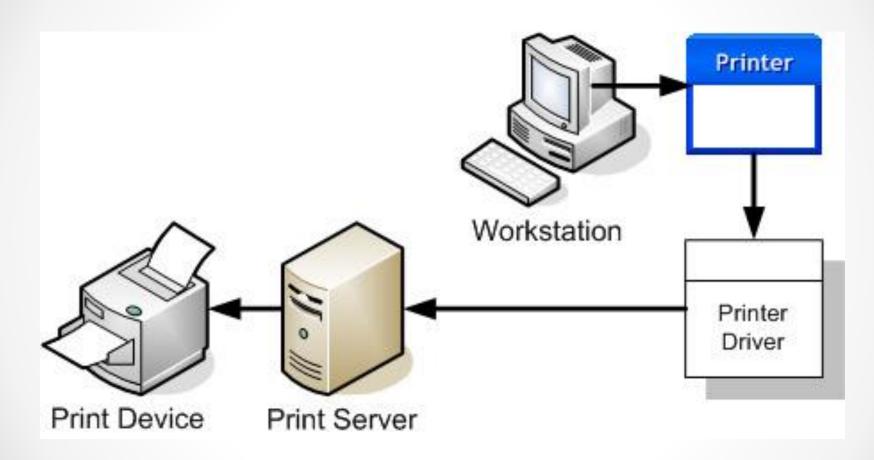
Lesson 5: Configuring Print and Document Services

© 2013 John Wiley & Sons, Inc.

## Windows Print Architecture

- **Print device**: The actual hardware that produces hard-copy documents on paper or other print media.
- **Printer**: The software interface through which a computer communicates with a print device.
- **Print server**: A computer (or standalone device) that receives print jobs from clients and sends them to print devices that are either locally attached or connected to the network.
- **Printer driver**: A device driver that converts the print jobs generated by applications into an appropriate string of commands for a specific print device.

### Windows Printing



The Windows Print Architecture

## Windows Printing

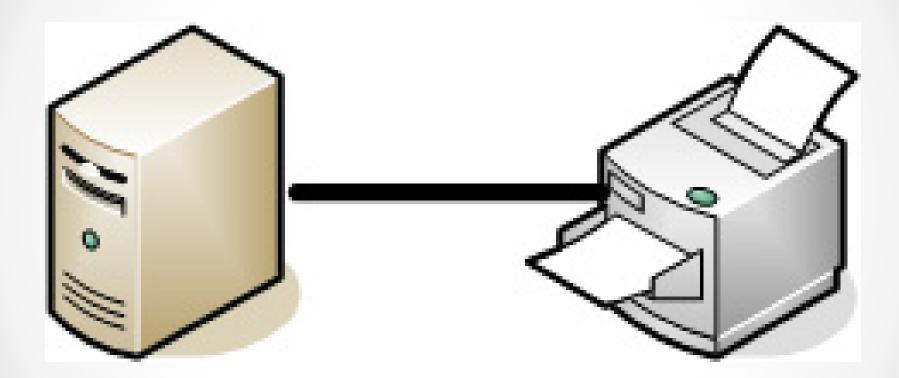
To install a printer in Windows:

- Select the print device's specific manufacturer and model.
- Specify the port (or other interface) the computer will use to access the print device.
- Supply a printer driver specifically created for that print device.

## Windows Printing Flexibility

- A single computer can perform the roles of all printing components (except the print device), or they can be distributed across the network.
- There are four fundamental configurations:
  - 1. Direct printing
  - 2. Locally attached printer sharing
  - 3. Network-attached printing
  - 4. Network-attached printer sharing

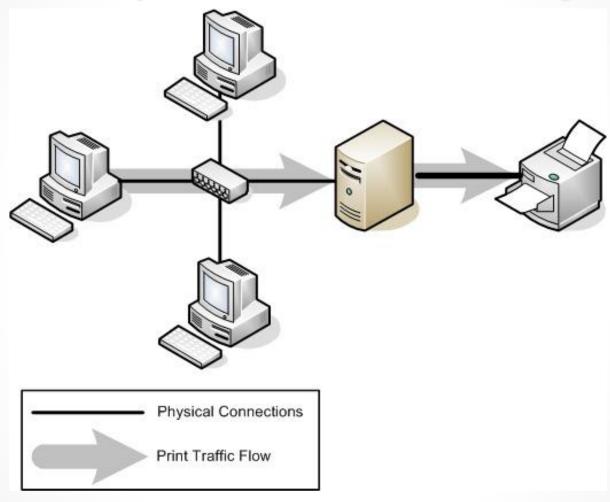
### **Direct Printing**



A locally attached print device

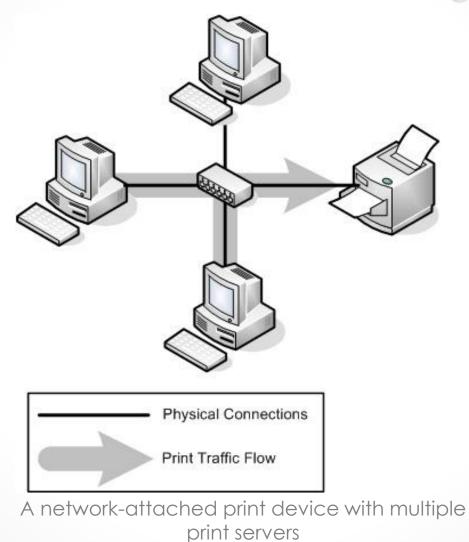
© 2013 John Wiley & Sons, Inc.

### Locally Attached Printer Sharing



Sharing a locally attached printer

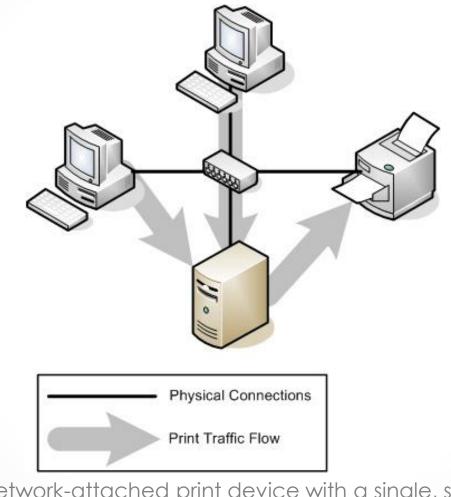
### Network-Attached Printing



## Disadvantages to Network-Attached Printing

- Users examining the print queue see only their own jobs, not the jobs of other users.
- Users have no way of knowing what other jobs have been sent to the print device, or how long it will be until the print device completes their jobs.
- Administrators have no way of centrally managing the print queue, because each client has its own print queue.
- Administrators cannot implement advanced printing features, such as printer pools or remote administration.
- Error messages appear only on the computer that originated the job the print device is currently processing.
- All print job processing is performed by the client computer, rather than being partially offloaded to an external print server.

### Network-Attached Printer Sharing



A network-attached print device with a single, shared print server

## Advantages to Network-Attached Printer Sharing

- All of the client jobs are stored in a single print queue, so that users and administrators can see a complete list of the jobs waiting to be printed.
- Part of the job rendering burden is shifted to the print server, returning control of the client computer to the user more quickly.
- Administrators can manage all queued jobs from a remote location.
- Print error messages appear on all client computers.
- Administrators can implement printer pools and other advanced printing features.
- Administrators can manage security, auditing, monitoring, and logging functions from a central location.

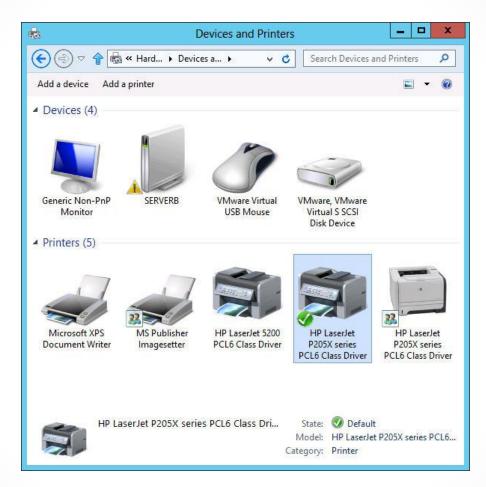
## Sharing a Printer

- If a computer is to support heavy printer use, the following hardware upgrades might be needed:
- Additional system memory
- Additional disk space (for queued print jobs)
- Make the computer a dedicated print server

## Sharing a Printer

- A printer can be shared during the installation or any time after.
- To install a printer:
- **USB**: Upon connection and power up, a driver will automatically be installed, unless Windows does not have a driver.
- Network-attached printers: An installation program supplied with the device will locate, install, and configure.

### Share a Printer



The Devices and Printers window

### Share a Printer

4	HP	LaserJ	et 5200 P	CL6 Class Drive	er Proper	ties 🏼 🎴
General	Sharing	Ports	Advanced	Color Managemen	t Security	Device Settings
~				r with other users Ile when the comp		
	Share this	printer				
Sh	are name:					
	Render pr		on client co ory	omputers		
-6	Drivers					
	Windows	, you m not hav	ay want to i	isers running diffe nstall additional d print driver when	rivers, so tl	nat the
				A	dditional D	rivers
				ОК	Cancel	Apply

The Sharing tab of a printer's Properties sheet

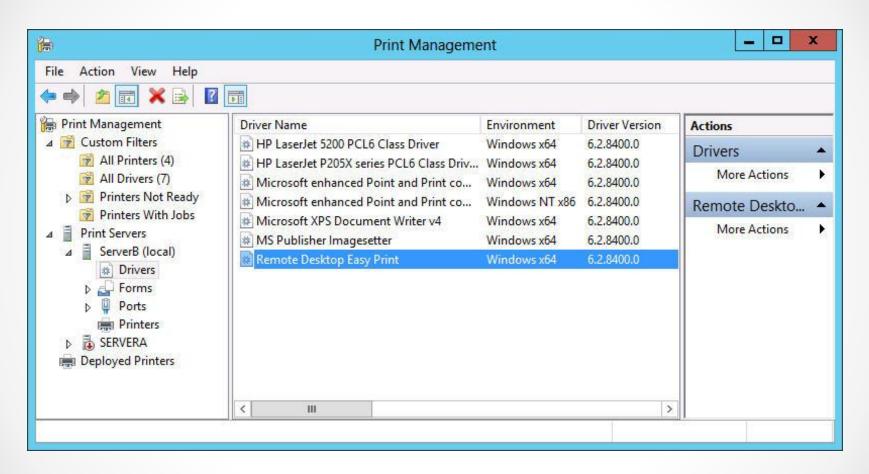
## Managing Printer Drivers

- Point and Print allows a client on a workstation to select a printer from the server, and Windows will automatically install the driver for the client.
- The drivers installed on Windows Server 2012 are generally the same drivers used on the client workstations.
- Using the Additional Drivers dialog box, you can install drivers for client workstations that require different drivers, such as 32-bit versus 64-bit drivers, or drivers for older operating systems.

## **Remote Access Easy Print**

- Enables Remote Desktop clients to print to their local print devices.
- It is a printer driver that is installed on the server, along with the Remote Desktop Session Host role service.
- The driver functions as a redirector.

### **Remote Access Easy Print**



The Remote Desktop Easy Print driver on a Remote Desktop Services server

## Configuring Printer Security

- Like folder shares, clients must have the proper permissions to access a shared printer.
- Much simpler than NTFS permissions:
   Use the printer.
  - Manage documents submitted to printer.
  - Manage the properties of the printer.

### **Assign Printer Permissions**

	HP Lase	erJet P	205X serie	es PCL6 Class Dr	river Pro	operties ×	
General	Sharing	Ports	Advanced	Color Management	Security	Device Settings	
Group o	or user nam	nes:					
AL Reference	REATOR C	WNER	PACKAGES	trators)			
Permiss	ions for Ev	renyone			Add Allow	Remove	
Print					~		
22.026	age this pri						
000000	age docum						
Spec	ial permiss	IONS					
	For special permissions or advanced settings, click Advanced.           Advanced           Learn about access control and permissions						
Leam a	DOUT ACCE	ss contro	oi and permiss	OK	Cancel	Apply	

The Security tab of a printer's Properties sheet

## **Basic Printer Permissions**

Permission	Capabilities	Advanced Permissions	Default Assignments
Print	Connect to a printer Print documents Pause, resume, restart, and cancel the user's own documents	Print Read Permissions	Assigned to the Everyone special identity
Manage this printer	Cancel all documents Share a printer Change printer properties Delete a printer Change printer permissions	Print Manage Printers Read Permissions Change Permissions Take Ownership	Assigned to the Administrators group
Manage documents	Pause, resume, restart, and cancel all users' documents Control job settings for all documents	Manage Documents Read Permissions Change Permissions Take Ownership	Assigned to the Creator Owner special identity

## Managing Documents

- By default everyone can print and manage their own documents
- Allow Manage Documents permission allows users to manager other user's documents
- Managing refers to:
  - o Pausing
  - o Resuming
  - Restarting
  - Canceling

### Manage Documents

Document Name	Status	Owner	Pages	Size	Submitted <b>T</b>	Port
💼 Test Page	Printing	Administra	1	189 <mark>K</mark> B	6:44:26 PM 7/21/2012	10. <mark>0.0</mark> .254

#### A Windows Server 2012 print queue window

## **Managing Printers**

Typical configuration tasks include:

- Setting printer priorities: Multiple printers connected to the same print device to allow certain users' print jobs to print before others.
- Scheduling printer access: Multiple printers connected to the same print device with different time schedules for availability.
- **Creating a printer pool:** One printer connected to multiple print devices to increase throughput and provide fault tolerance.

### **Managing Printers**

General Sha	ing Ports	Advanced	Color Manage	ement	Security	Device Setting
<ul> <li>Always a</li> <li>Available</li> </ul>		12:00 AM	× •	То	12:00	AM AM
Priorit <u>y</u> :	1	* *				
Driver:	HP Laser	Jet P205X se	ries PCL6 Cla	ss Drive	• •	Ne <u>w</u> Driver
	printing aft printing <u>i</u> m	er last page mediately	is spooled			
● Start ○ Print <u>d</u> ire		mediately printer	is spooled			
● Start ○ Print <u>d</u> ire	printing im actly to the p smatched d	mediately printer ocuments	is spooled			
<ul> <li>● Start</li> <li>● Print dire</li> <li>□ Hold mi</li> <li>☑ Print spo</li> </ul>	printing im actly to the p smatched d	mediately printer ocuments nents first	is spooled			
<ul> <li>● Start</li> <li>● Print dire</li> <li>□ Hold mit</li> <li>□ Print spo</li> <li>□ Keep pri</li> </ul>	printing im actly to the smatched d coled docum	mediately printer ocuments nents first				

The Advanced tab of a printer's Properties sheet

# Using the Print and Document Services Role

Lesson 5: Configuring Print and Document Services

© 2013 John Wiley & Sons, Inc.

## The Print and Document Services Role

- The Windows Server 2012 default installation configuration makes available all printer sharing and management capabilities discussed in the previous sections.
- For administrators involved with enterprise network printing, installing the Print and Document Services role on the computer provides additional tools that are particularly useful.

## Print Services Role Services

Role Service	Wizard Pages Added	System Services Installed	Description
Print Server	[None]	Print Spooler (Spooler)	Installs the Print Management console for Microsoft Management Console (MMC), which enables administrators to deploy, monitor, and manage printers throughout the enterprise.
			This is the only role service that is required when you add the Print Services role.
Distributed Scan Server	[None]	Distributed Scan Server (ScanServer)	Enables the computer to receive documents from network-based scanners and forward them to the appropriate users.
Internet Printing	[None]	World Wide Web Publishing Service (w3svc)	Creates a website that enables users on the Internet to send print jobs to shared
		IIS Admin Service (iisadmin)	Windows printers.
LPD Service	[None]	TCP/IP Print Server (LPDSVC)	Enables UNIX clients running the LPR (line printer remote) program to send their print jobs to Windows printers.

### The Print and Document Services Role

à		Server Manager			_ □	x
Server Ma	anager • Print Se	rvices	• ©   🍢	Manage Tools	View He	lp
<ul> <li>Dashboard</li> <li>Local Server</li> <li>All Servers</li> <li>File and Storage Services </li> <li>IIS</li> <li>Print Services</li> <li>Remote Desktop Services </li> </ul>	EVENTS All events   0 total <i>Filter</i> Server Name ID Severity	Source Log Date and Tir	(€) ▼ me		TASKS V	-
	SERVICES All services   5 total	• (ii) م	(€) ▼			<

The Print Services node in Server Manager

### Using the Print Management Console

<b>(</b>	Print Management	_ <b>_</b> X
File Action View Help		
🗢 🏟 📰 🗟 🖬		
🕞 Print Management	Name	Actions
<ul> <li>Custom Filters</li> <li>Print Servers</li> </ul>	Custom Filters	Print Managem 🔺
Print Servers Deployed Printers	Print Servers	More Actions >

#### The Print Management console

### **Adding Print Servers**

<b>(</b>	Print Management	_ <b>D</b> X						
File Action View Help								
🗢 🏟 🙇 🔜 🗟 🖬								
朣 Print Management	Name	Actions						
<ul> <li>Custom Filters</li> <li>Print Servers</li> </ul>	Drivers	ServerB (local)						
ServerB (local)     Drivers     P Ports     Printers     Deployed Printers	Ports	More Actions						

A print server displayed in the Print Management console

## **Viewing Printers**

- On large enterprise networks, administrators must keep track of dozens or hundreds of print devices.
- The Print Management console provides a multitude of ways to view the printing components by applying filters to the complete list of printers.
- There are four default filters (All Printers, All Drivers, Printers Not Ready, and Printers With Jobs) and you can also create custom filters.

### Create a Custom Filter

	New Printer Filter Wizard	x
Filter Name and Description Type a name and description f Management tree.	for the filter. The name will appear in the Custom Filter folder in the Print	Ŷ
Filter Properties		
Name:		
Description:	the total number of items next to the name of the filter	×
	< Back Next > Cancel	Help
	Show Revers Councer	пар

The Filter Name and Description page in the New Printer Filter Wizard

### Create a Custom Filter

		New Print	er Filter Wiz	zard	
		r. The following criteria Custom Filter folder in t		ogether, and only items matching all of ement tree.	6
			ue in the first ro	w. If you want to further narrow the	
results of your filter, a Field	dd additior	Condition		Value	
Queue Status	~	is exactly	~	¥	
None	~		~	Ready Paused Error	
None	~		Ŷ	Deleting Paper Jam	
None	~		V	Out Of Paper Manual Feed Required Paper Problem	
None	~		Ý	Offline IO Active Busy	
None	~		Ý	Printing Output Bin Full	
				Not Available Waiting	
				Processing Initializing Warming Up	
				Toner/Ink Low	
			< <u>B</u> ack	Page Punt User Intervention Required	Help
				Out Of Memory	

The Define a Printer Filter page in the New Printer Filter Wizard

### Managing Printers and Print Servers

<b>(a)</b>	Print Mar	agement			_ 🗆 X
File Action View Help					
🗢 🔿 🙍 🖬 🗶 🗐 🧔					
🔚 Print Management	Printer Name		Queue Status	Jobs In	Actions
⊿ 2 Custom Filters 2 All Printers (4)	HP LaserJet P205X series PCL6 Class Driver Error 1			Printers With Jo 🔺	
📝 All Drivers (7)				More Actions	
Printers Not Ready Printers With Jobs				>	HP LaserJet P20 🔺
⊿ 📋 Print Servers	<	More Actions			
⊿ 📋 ServerB (local)	HP LaserJet P205X series PCL6 Class Dri				
Drivers	Jobs Printer Web Page				
Forms Ports	Document Name	Job Status	Owner	Pages 5	
Printers	Test Page	Error - Print	Administrator	1	
B SERVERA					
📻 Deployed Printers					
				118.051	
	K III			>	
					87

The Print Management console's extended view

## Deploying Printers with Group Policy

- AD DS helps simplify the process of deploying printers to large numbers of clients.
- Administrators can search for printers in the AD DS database by name, location, or model.
- You can configure a Group Policy Object (GPO) to deploy a printer and link it to a domain, site, or OU.

### **Deploy Printers with Group Policy**

	Deploy with	Group Policy	
nter Name:			
ServerB\HP LaserJet P205X	series PCL6 Class Driver		
roup Policy Object			
GPO name:			
			Browse
Deploy this printer connect	ion to the following:		Add
The users that this GPO			
The computers that this	GPO applies to (per machine)		
Printer Name	GPO	Connection Type	Remove
			Remove All
		OK Cancel Appl	y Help

#### The Deploy with Group Policy dialog box

### **Deploy Printers with Group Policy**

Browse for a Grou	ip Policy Object ? 🗙
Domains/OUs Sites Users All	
Look in: adatum local	✓ 2 3 3 5 ×
Domains, OUs and linked Group Policy Objects:	
Name	Domain
	OK Cancel

The Browse for a Group Policy Object dialog box

## Lesson Summary

- Printing in Microsoft Windows typically involves the following four components: print device, printer, print server, and print driver.
- The printer driver enables you to configure the print job to use the various capabilities of the print device.
- The simplest form of print architecture consists of one print device connected to one computer, known as a locally attached print device. You can share this printer (and the print device) with other users on the same network.
- With network-attached print devices, the administrator's primary deployment decision is which computer will function as the print server.

## Lesson Summary

- Remote Desktop Easy Print is a driver that enables Remote Desktop clients running applications on a server to redirect their print jobs back to their local print devices.
- Printer permissions are much simpler than NTFS permissions; they basically dictate whether users are allowed to merely use the printer, manage documents submitted to the printer, or manage the properties of the printer itself.
- The Print Management snap-in for MMC is an administrative tool that consolidates the controls for the printing components throughout the enterprise into a single console.
- To use Active Directory to deploy printers to clients, you must configure the appropriate policies in a Group Policy Object (GPO).

#### Copyright 2013 John Wiley & Sons, Inc.

All rights reserved. Reproduction or translation of this work beyond that named in Section 117 of the 1976 United States Copyright Act without the express written consent of the copyright owner is unlawful. Requests for further information should be addressed to the Permissions Department, John Wiley & Sons, Inc. The purchaser may make back-up copies for his/her own use only and not for distribution or resale. The Publisher assumes no responsibility for errors, omissions, or damages, caused by the use of these programs or from the use of the information contained herein.



