

# Lesson 5: Configuring Print and Document Services

MOAC 70-410: Installing and Configuring  
Windows Server 2012

# Overview

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

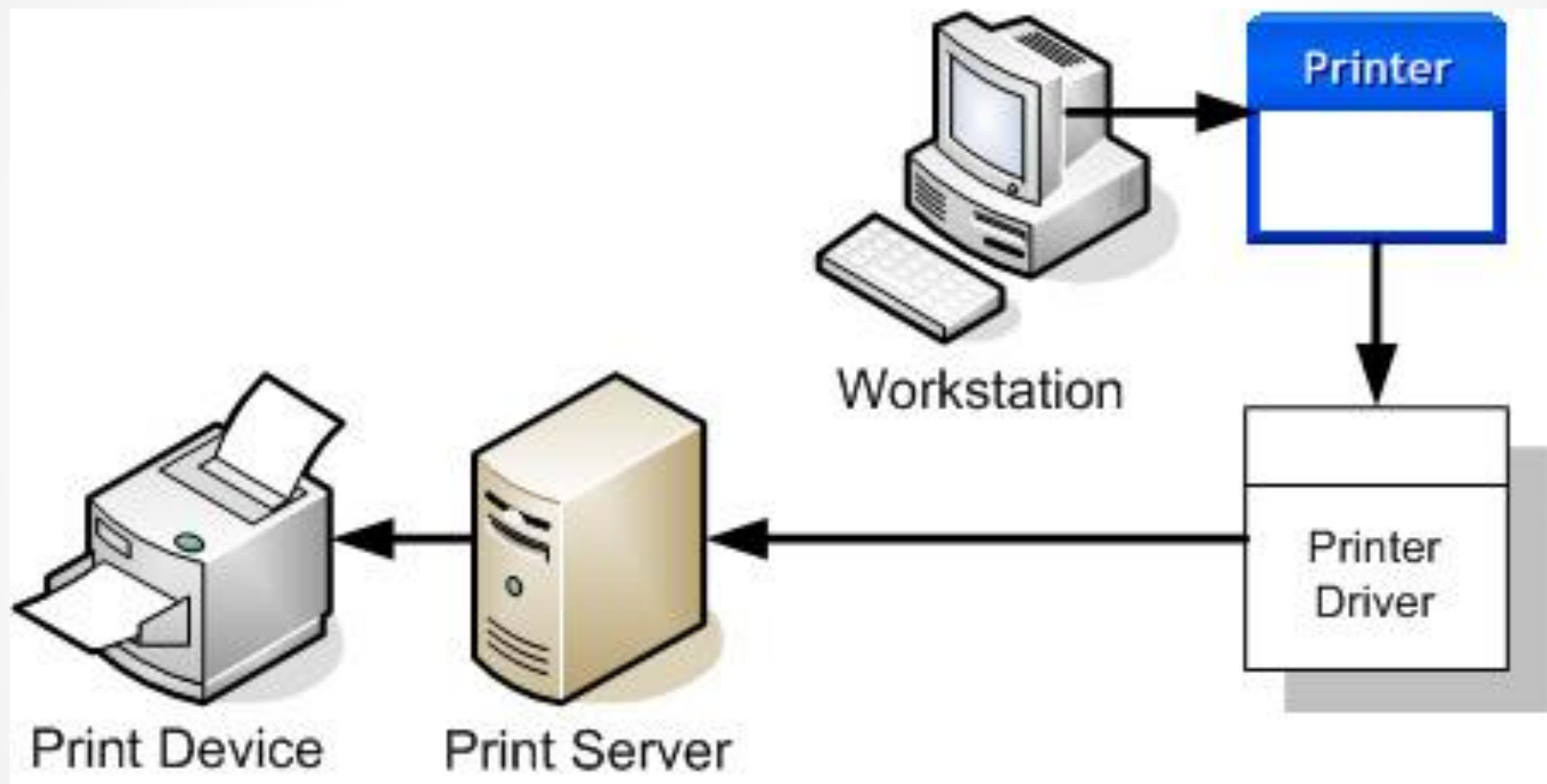
# Deploying a Print Server

## Lesson 5: Configuring Print and Document Services

# 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

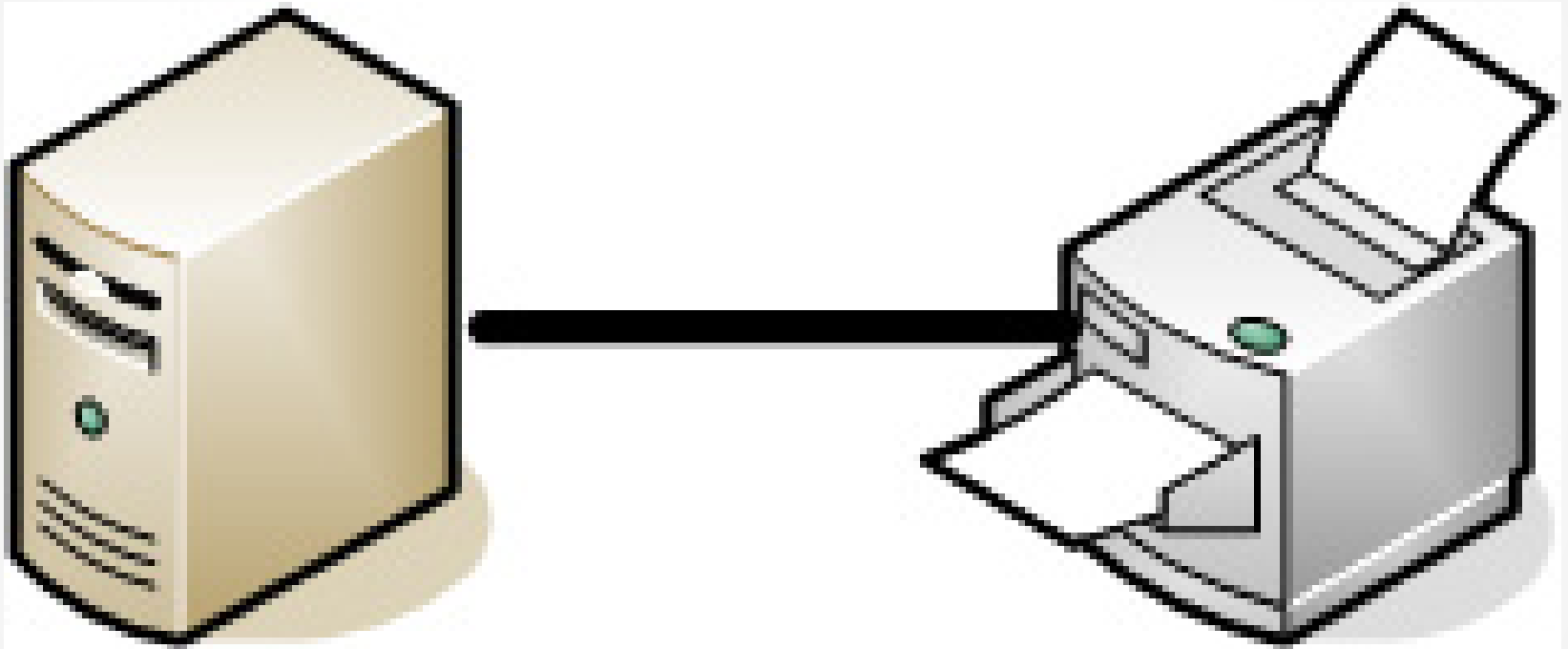
To install a printer in Windows:

- 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

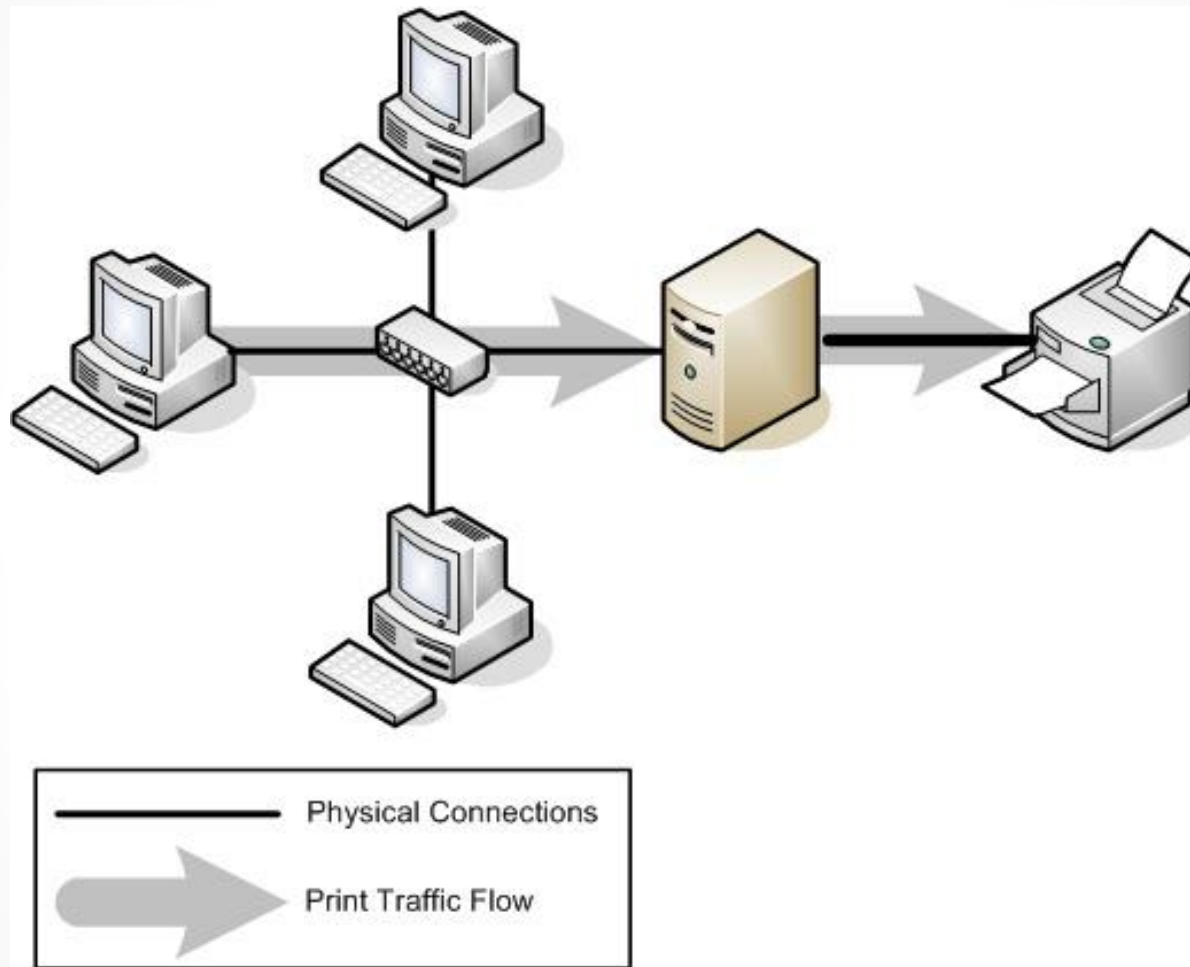
# Direct Printing



A locally attached print device

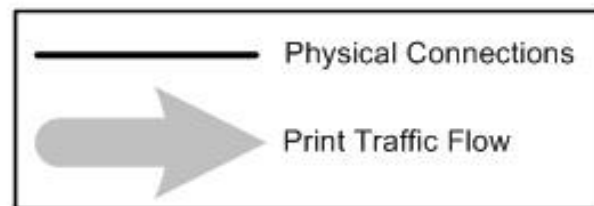
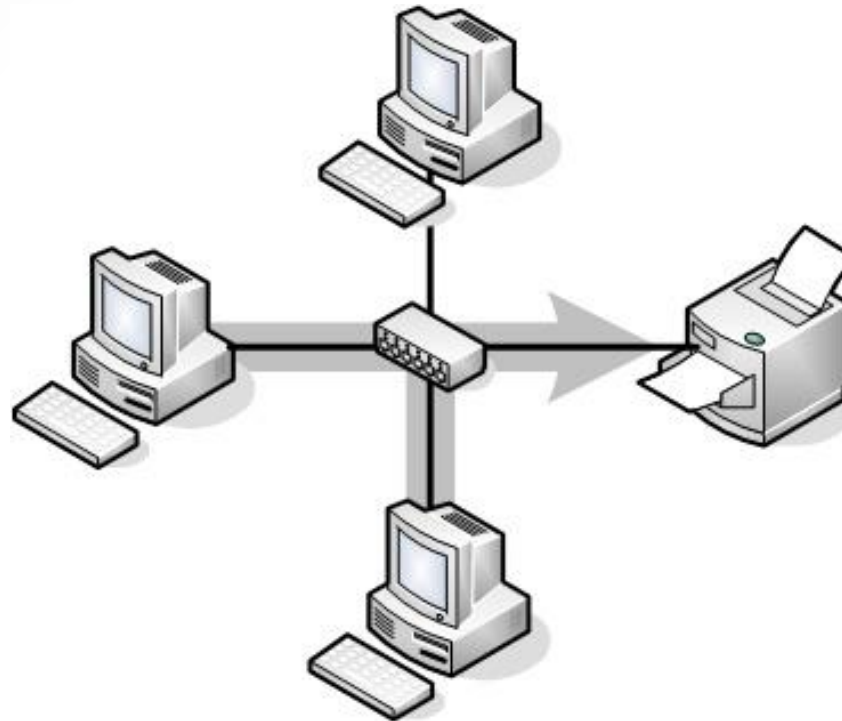


# Locally Attached Printer Sharing



Sharing a locally attached printer

# Network-Attached Printing

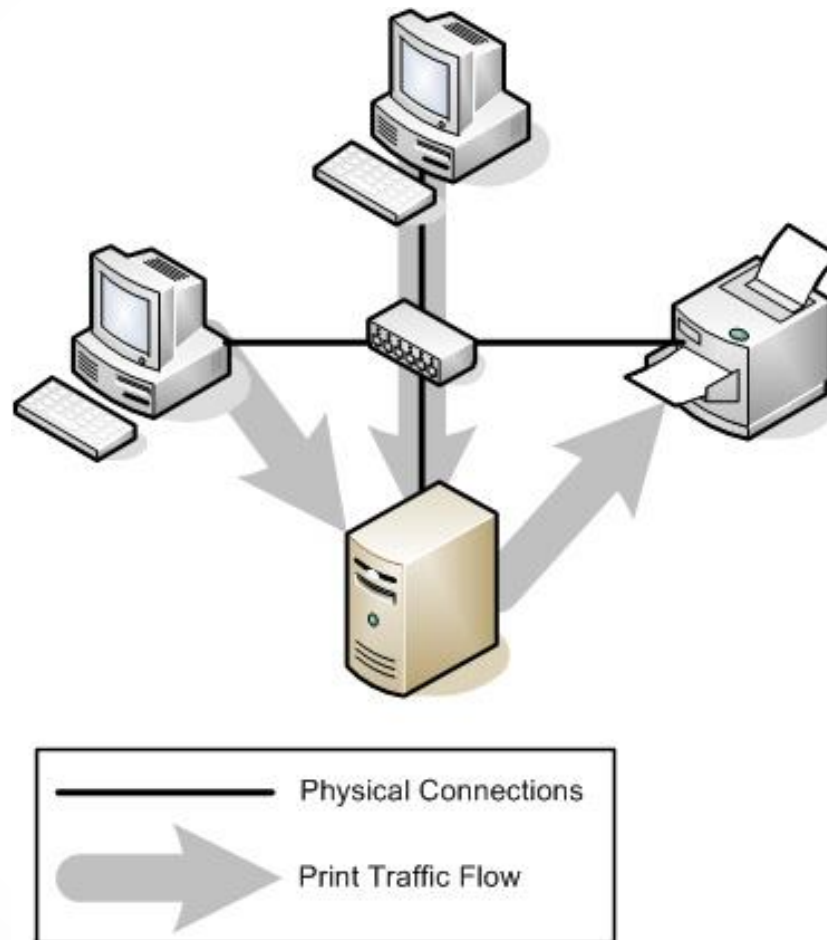


A network-attached print device with multiple print servers

# 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

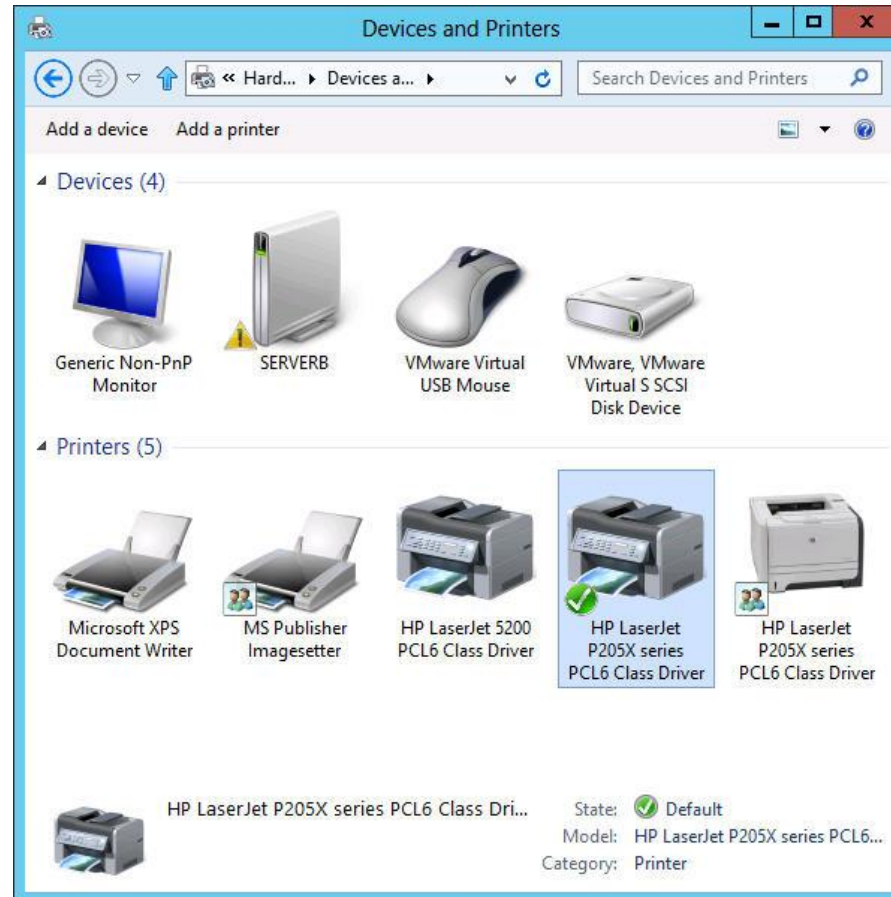
# Sharing a Printer

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.

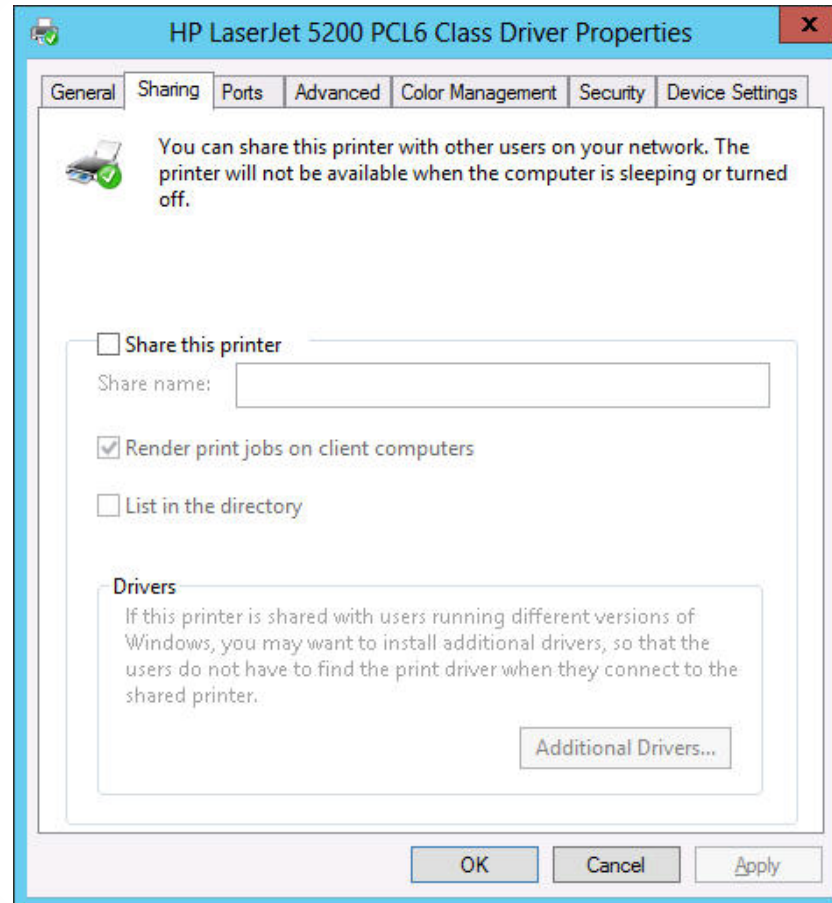
# Share a Printer



The Devices and Printers window



# Share a Printer



The Sharing tab of a printer's Properties sheet

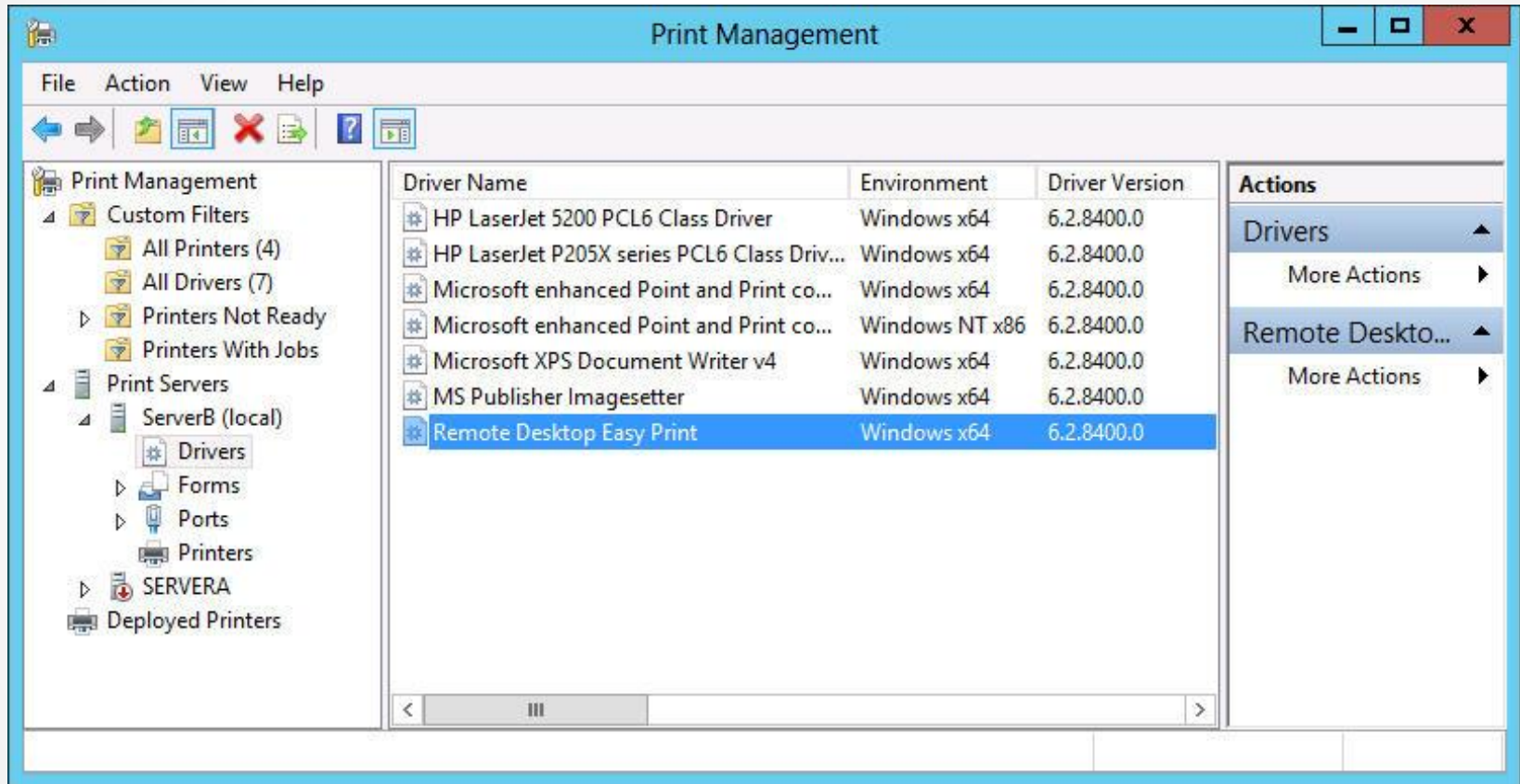
# Managing Printer Drivers

- 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

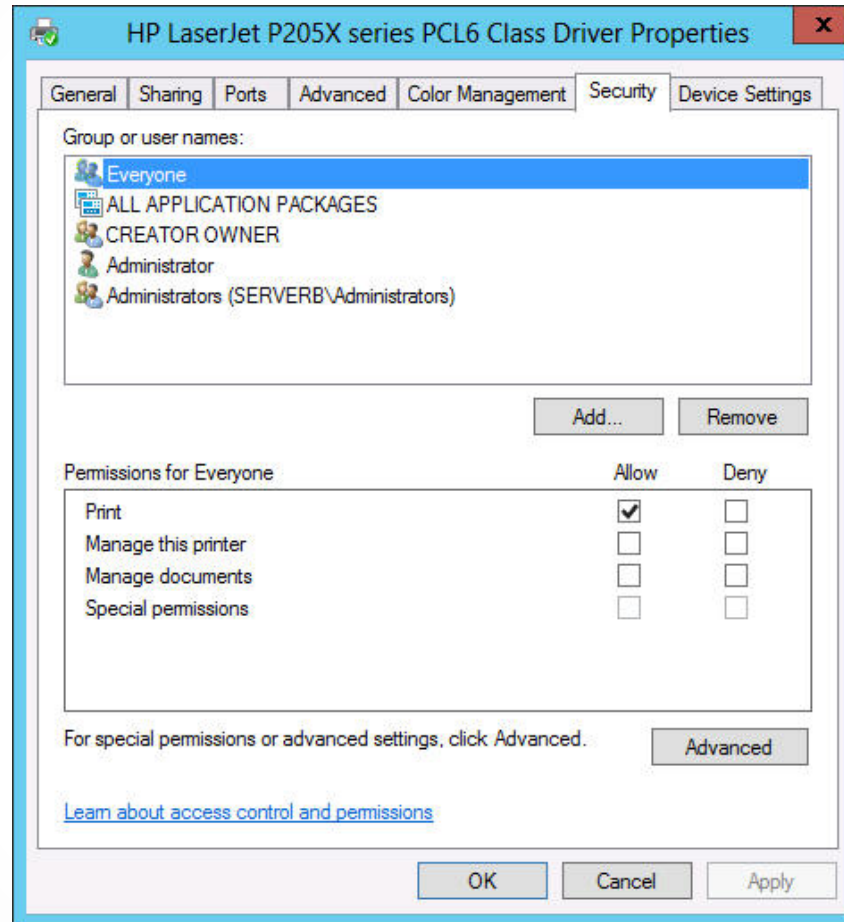


The Remote Desktop Easy Print driver on a Remote Desktop Services server

# 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



The Security tab of a printer's Properties sheet

# Basic Printer Permissions

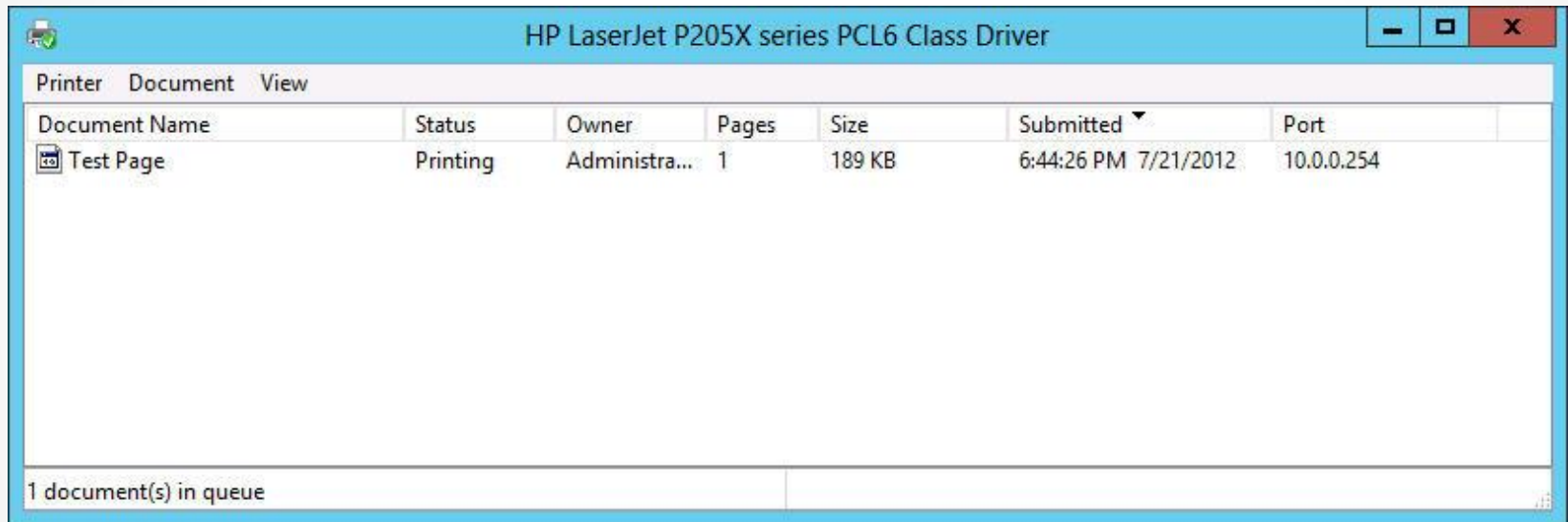
<b><i>Permission</i></b>	<b><i>Capabilities</i></b>	<b><i>Advanced Permissions</i></b>	<b><i>Default Assignments</i></b>
Print	Connect to a printer Print documents Pause, resume, restart, and cancel the user's own documents	Print Read Permissions	Assigned to the Everyone special identity
Manage this 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:
  - Pausing
  - Resuming
  - Restarting
  - Canceling



# Manage Documents



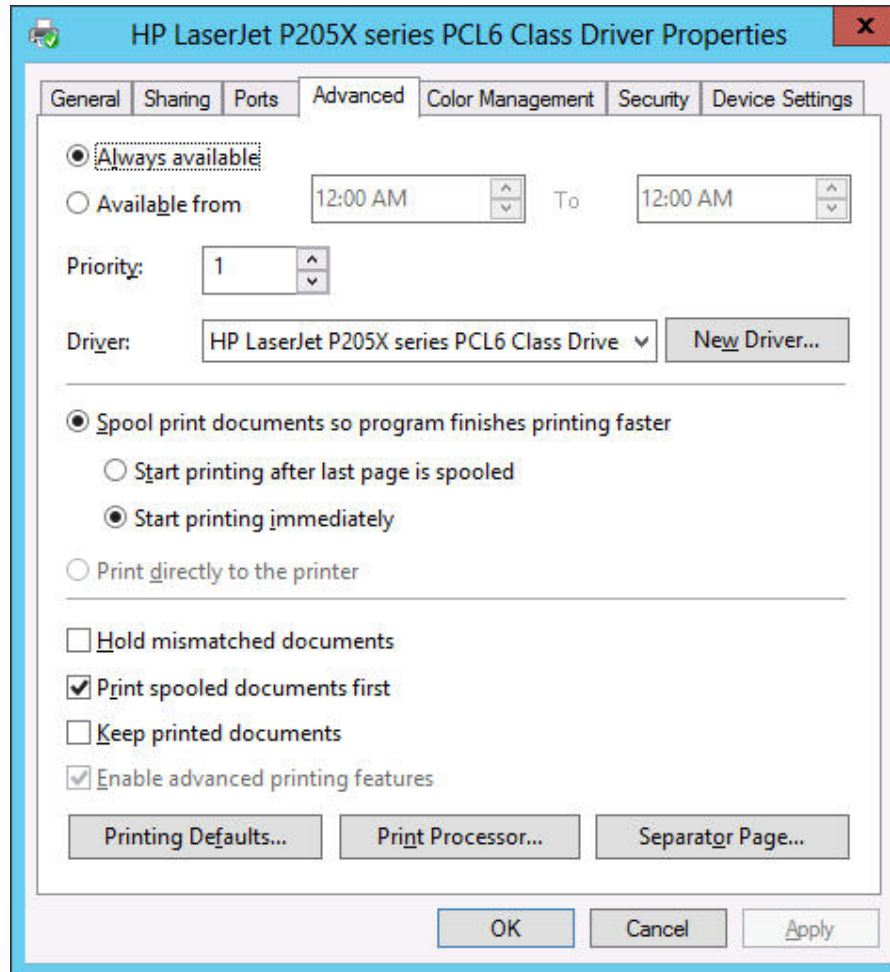
A Windows Server 2012 print queue window

# 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



The Advanced tab of a printer's Properties sheet

# Using the Print and Document Services Role

Lesson 5: Configuring Print and Document Services

# The Print and Document Services Role

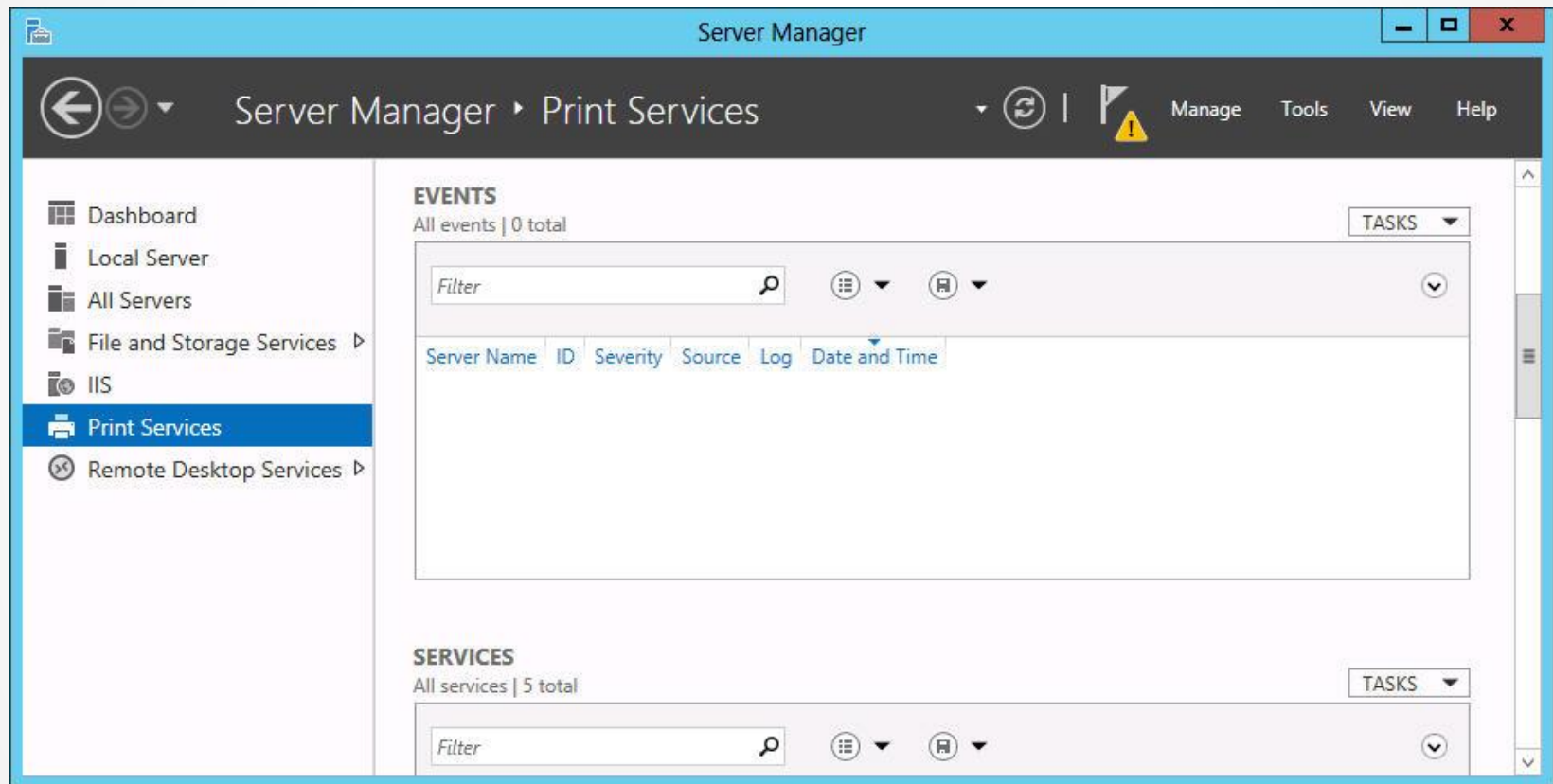
- The Windows Server 2012 default installation configuration makes available all printer sharing and management capabilities discussed in the previous sections.
- For administrators involved with enterprise network printing, installing the Print and Document Services role on the computer provides additional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

# Print Services

## Role Services

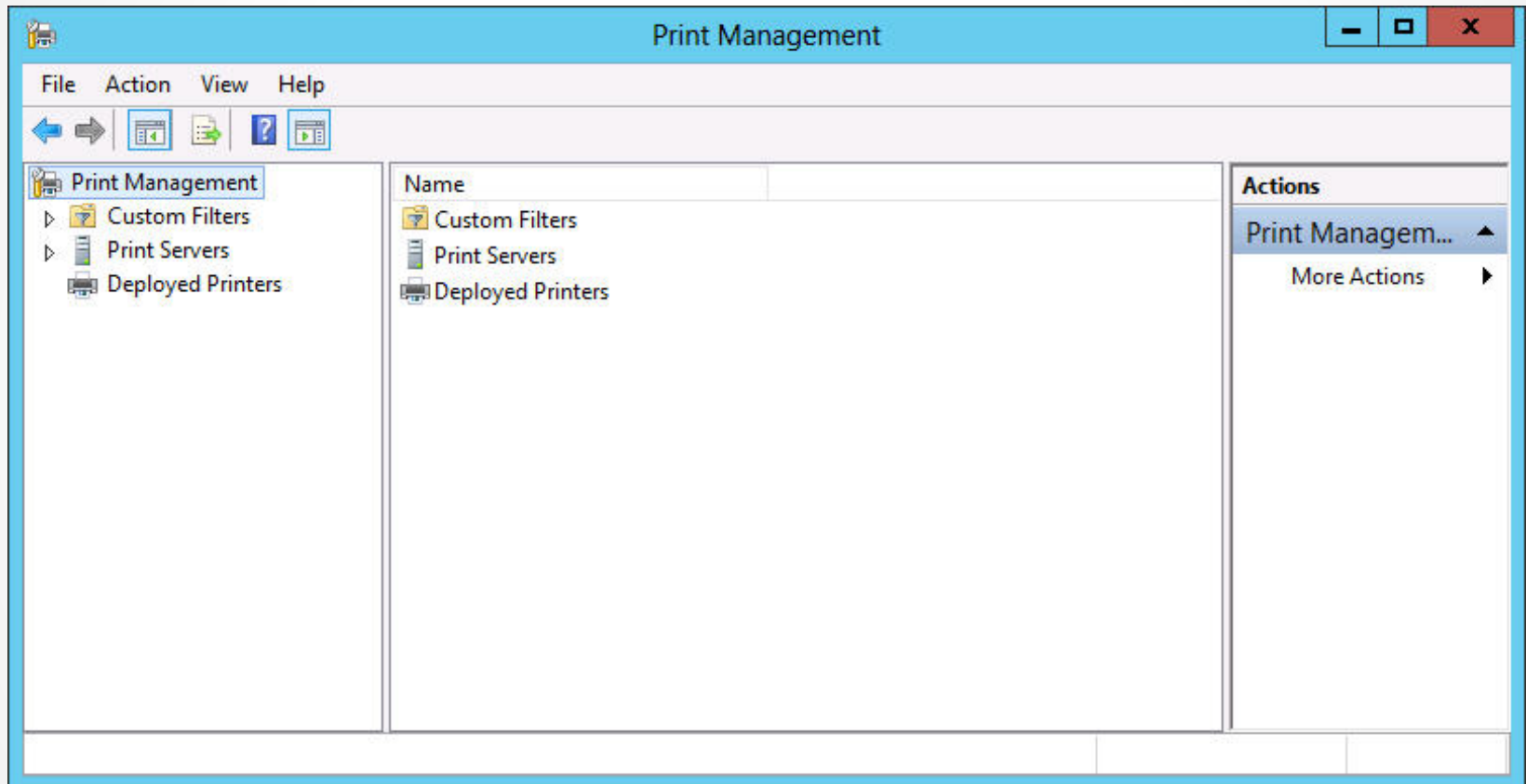
<b><i>Role Service</i></b>	<b><i>Wizard Pages Added</i></b>	<b><i>System Services Installed</i></b>	<b><i>Description</i></b>
Print Server	[None]	Print Spooler (Spooler)	<p>Installs the Print Management console for Microsoft Management Console (MMC), which enables administrators to deploy, monitor, and manage printers throughout the enterprise.</p> <p>This is the only role service that is required when you add the Print Services role.</p>
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) IIS Admin Service (iisadmin)	Creates a website that enables users on the Internet to send print jobs to shared 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



The Print Services node in Server Manager

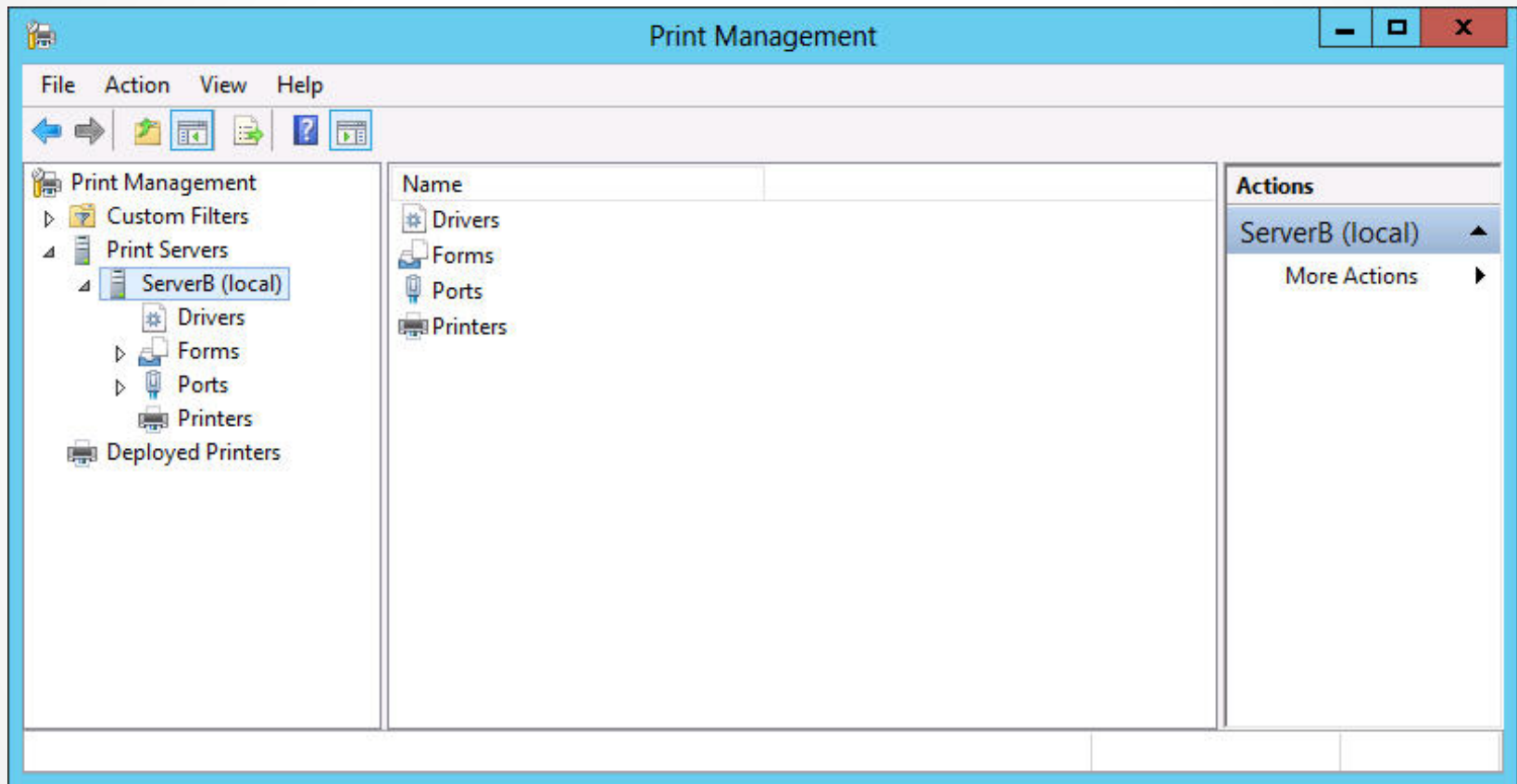
# Using the Print Management Console



The Print Management console



# Adding Print Servers

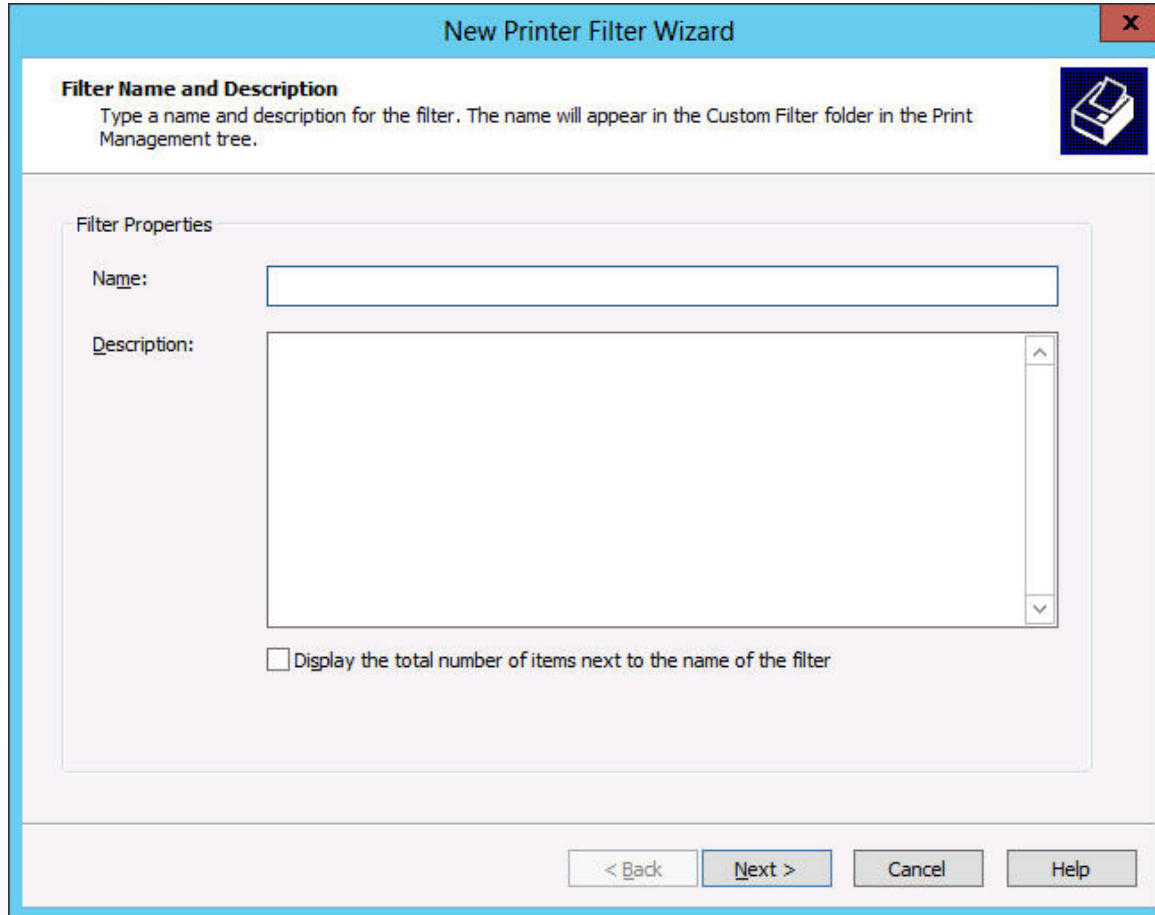


A print server displayed in the Print Management console

# 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**

**Filter Name and Description**  
Type a name and description for the filter. The name will appear in the Custom Filter folder in the Print Management tree.

**Filter Properties**

Name:

Description:

☐ Display the total number of items next to the name of the filter

< Back   Next >   Cancel   Help

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

# Create a Custom Filter

**New Printer Filter Wizard**

**Define a filter**

Specify the criteria for the filter. The following criteria will be added together, and only items matching all of the criteria will show up in the Custom Filter folder in the Print Management tree.

**Filter Criteria**

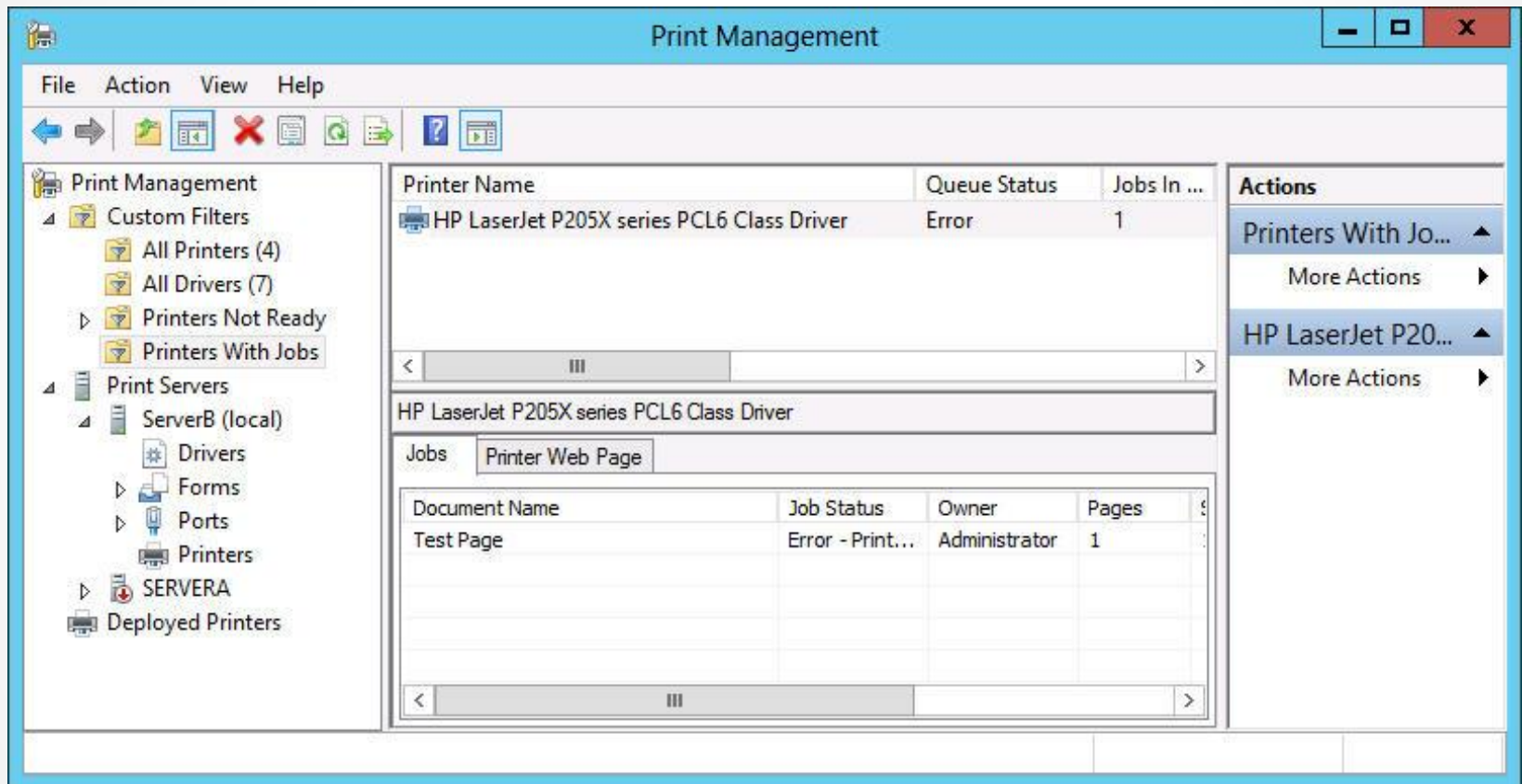
To define the filter, specify the field, condition, and value in the first row. If you want to further narrow the results of your filter, add additional rows.

Field	Condition	Value
Queue Status	is exactly	Ready
None		Paused
None		Error
None		Deleting
None		Paper Jam
None		Out Of Paper
None		Manual Feed Required
None		Paper Problem
None		Offline
None		IO Active
None		Busy
None		Printing
None		Output Bin Full
None		Not Available
None		Waiting
None		Processing
None		Initializing
None		Warming Up
None		Toner/Ink Low
None		No Toner/Ink
None		Page Punt
None		User Intervention Required
None		Out Of Memory

< Back      Help

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

# Managing Printers and Print Servers



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

Printer Name:  
\\ServerB\HP LaserJet P205X series PCL6 Class Driver

Group Policy Object

GPO name:  
 Browse...

Deploy this printer connection to the following:

☐ The users that this GPO applies to (per user)

☐ The computers that this GPO applies to (per machine)

Add

Printer Name	GPO	Connection Type

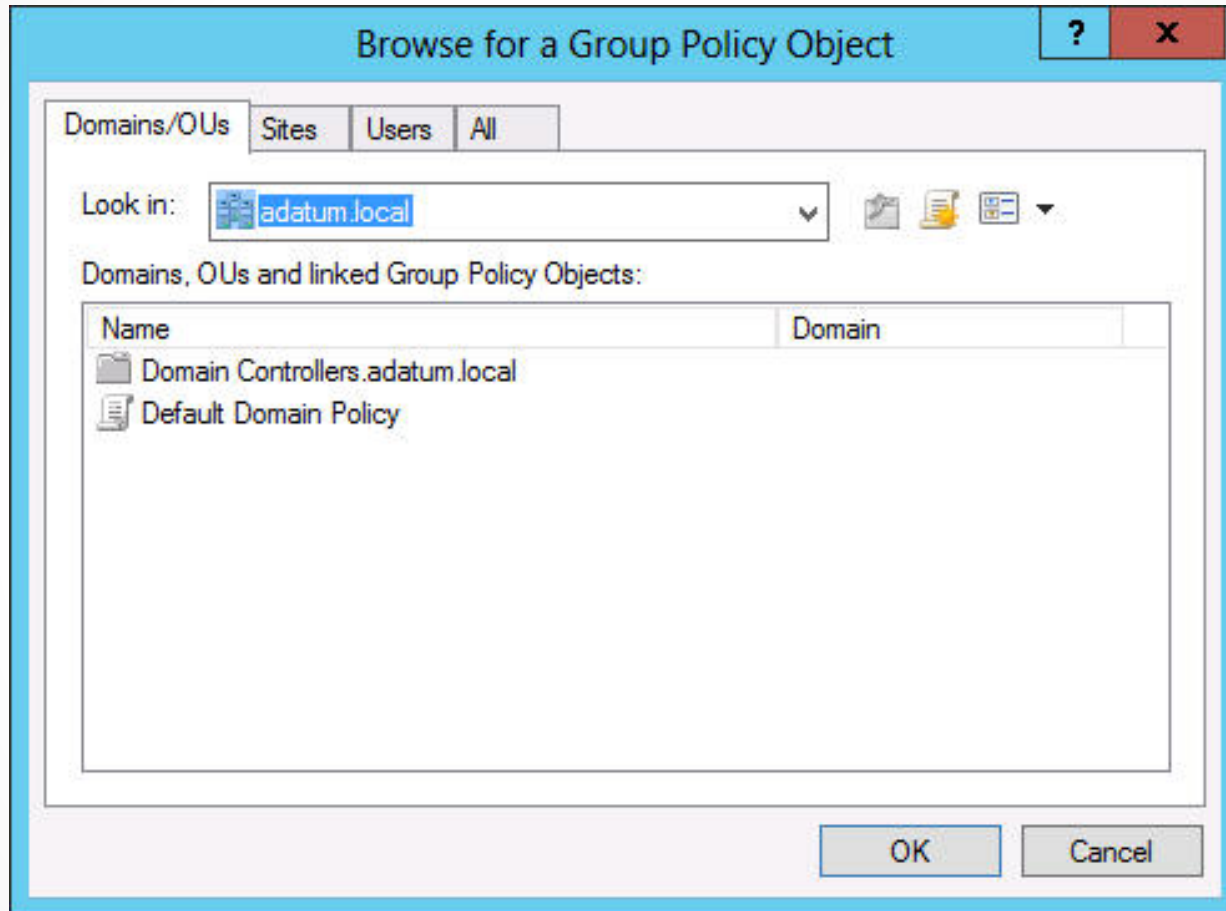
Remove

Remove All

OK Cancel Apply Help

The Deploy with Group Policy dialog box

# Deploy Printers with Group Policy



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).

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