

CompTIA A+ Core 1 Exam 220-1101

Lesson 9



Supporting Print Devices

Objectives

- Deploy printer and multifunction devices
- Replace print device consumables
- Troubleshoot print device issues

Lesson 9

Topic 9A

Deploy Printer and Multifunction Devices

Printer Setup

- Evaluating print technologies (speed, resolution, paper handling, finishing options)
- Setup location
 - Cable and power considerations
 - Environment and noise considerations
 - Access and security considerations
- Unboxing
 - Proper lifting techniques
 - Packing strips
 - Acclimation

Print Device Connectivity (Slide 1 of 2)

- USB
- Ethernet
 - Static versus dynamic IP configuration
 - Register printer name in DNS
 - Local control panel configuration
 - Network management suites

Epson Stylus S22

Manage your device

Printer status: Idle

[Open print queue](#)

[Set as default](#)

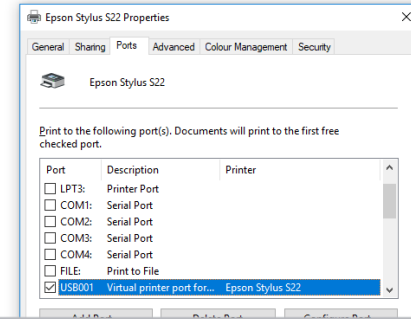
[Print a test page](#)

[Run the troubleshooter](#)

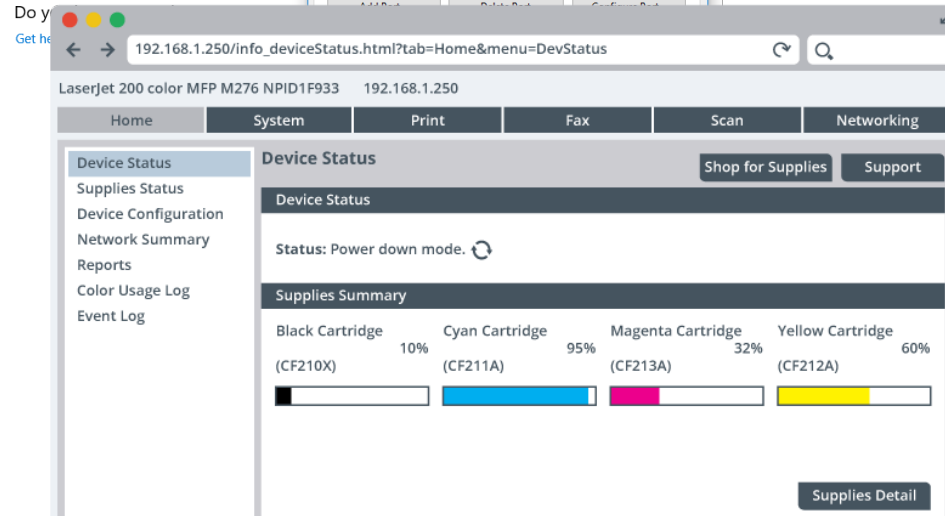
[Printer properties](#)

[Printing preferences](#)

[Hardware properties](#)



Screenshot courtesy of Microsoft



Print Device Connectivity (Slide 2 of 2)

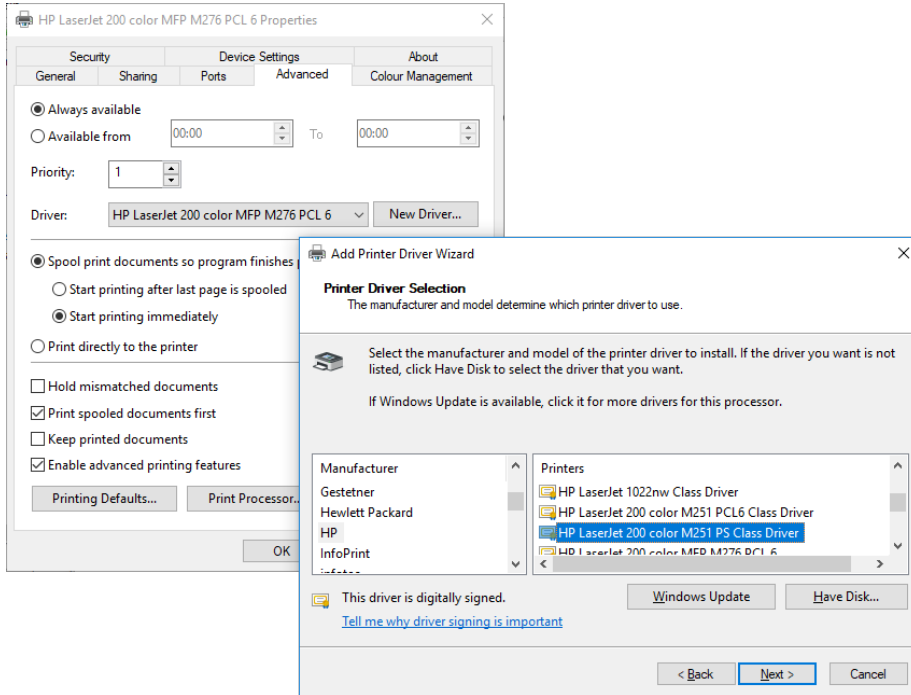
- Wireless

- Join printer to WLAN via access point and SSID
- Wi-Fi direct connections from clients to print device



Image courtesy of CompTIA

Printer Drivers and Page Description Languages

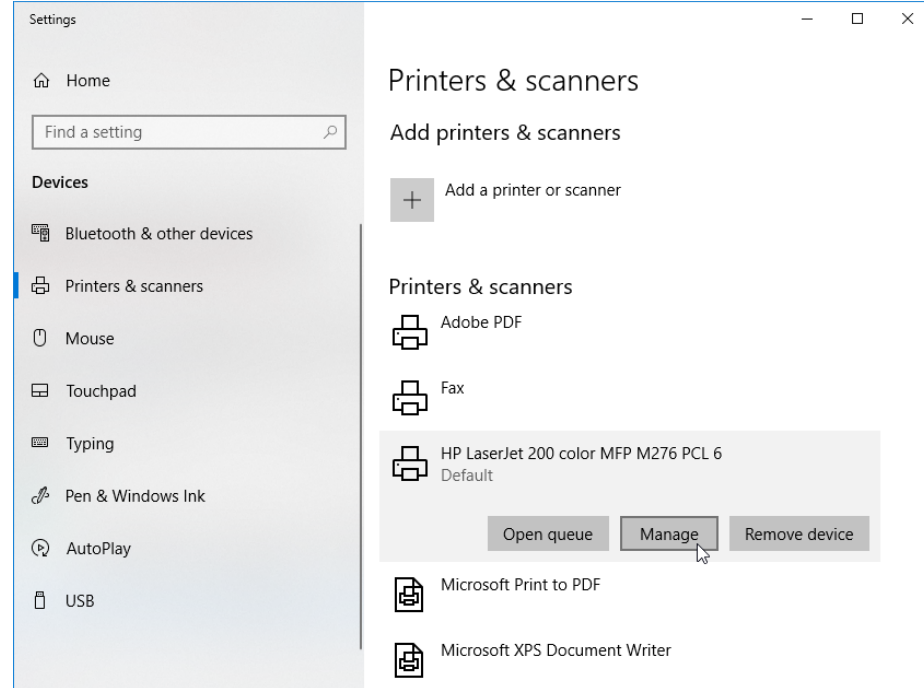


Screenshot courtesy of Microsoft

- Print driver
 - 32-bit versus 64-bit
- Page description language (PDL)
 - Create a dot-by-dot raster from application print instructions
 - Scalable fonts
 - Cyan, Magenta, Yellow, Black (CMYK) color models
 - Vector graphics
- Adobe PostScript (PS) versus HP Printer Control Language (PCL)

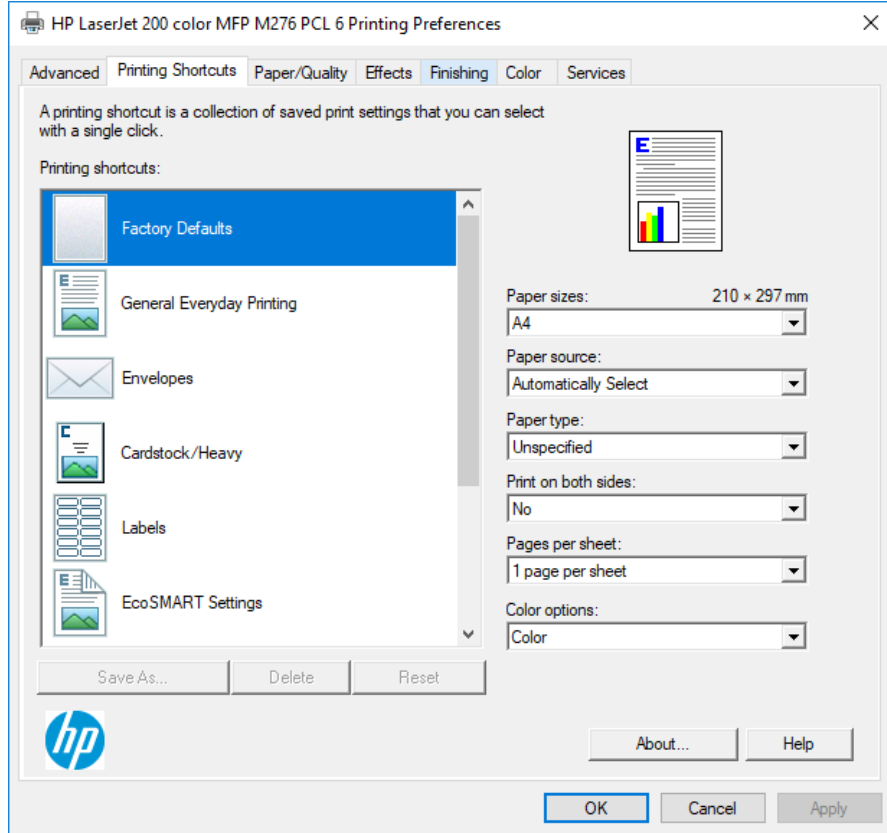
Printer Properties

- Configuration settings
 - Default versus per-job
 - Printer Properties versus Printing Preferences
- Printer properties
 - Update driver
 - Change port
 - Sharing and permissions
 - Device options (feed and output trays and duplexers/finishers)



Screenshot courtesy of Microsoft

Printing Preferences

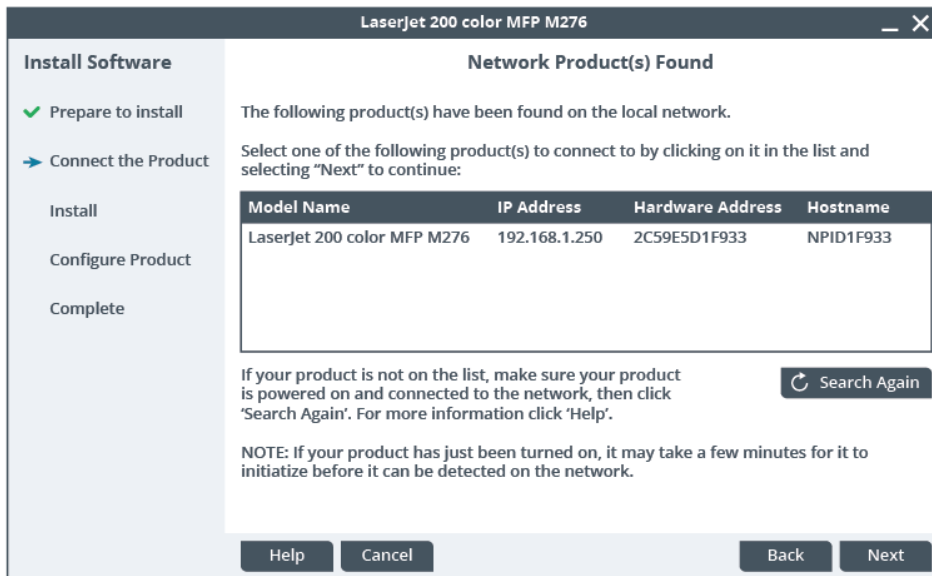


Screenshot courtesy of Microsoft

- Paper/quality
 - Size
 - Source (feed tray)
 - Type
 - Draft/economy mode
- Finishing
 - Duplexing and bookfold
 - Orientation

Printer Sharing

- Print server
 - Printer is attached to network and clients connect directly
 - Each client manages its own print queue
- Printer share
 - Printer is attached to/managed by PC server host
 - Printer object is shared via Properties dialog
 - Clients connect to printer object
 - Print queue is managed on PC server



Screenshot courtesy of Microsoft

Printer Security

- User authentication
 - Print server versus shared printer
- Secured print and badging
 - Hold print jobs until user releases at the print device
 - Release by entering PIN or swipe/contactless smart badge reader on printer
- Audit log
 - History of print jobs
 - Centralized logging

Scanner Configuration

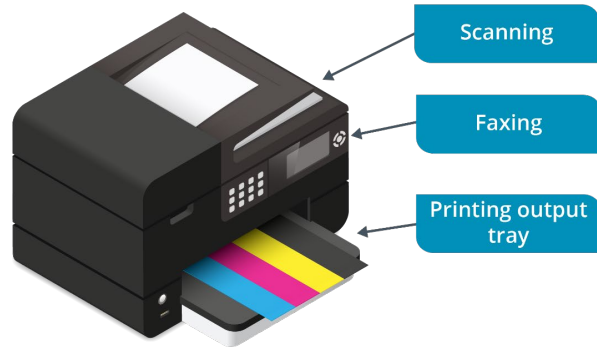


Image © 123RF.com

- Multifunction device (MFD)
- Copying and optical character recognition (OCR)
- Scanner types
 - Flatbed
 - Automatic document feeder (ADF)
- Network scan services
 - Email
 - Server Message Block (SMB)
 - Cloud

Review Activity: Printer and Multifunction Devices

- Printer Unboxing and Setup Location
- Printer Device Connectivity
- Printer Drivers and Page Description Languages
- Printer Properties and Printing Preferences
- Printer Sharing
- Printer Security
- Scanner Configuration

Lab Activity

- Assisted Lab: Deploy a Printer
 - Install and configure local and network printers to Windows workstations

Lesson 9

Topic 9B

Replace Print Device Consumables

Laser Printer Imaging Process (Slide 1 of 2)

- Processing
 - Bitmap/raster file dot-by-dot specification for output
- Charging
 - Imaging drum conditioned with negative charge by primary charge roller (PCR)
- Exposing
 - Laser selectively removes charge dot-by-dot
- Developing
 - Toner fed onto a developer roller
 - Electrostatic charge attracts toner to no-charge dots on drum

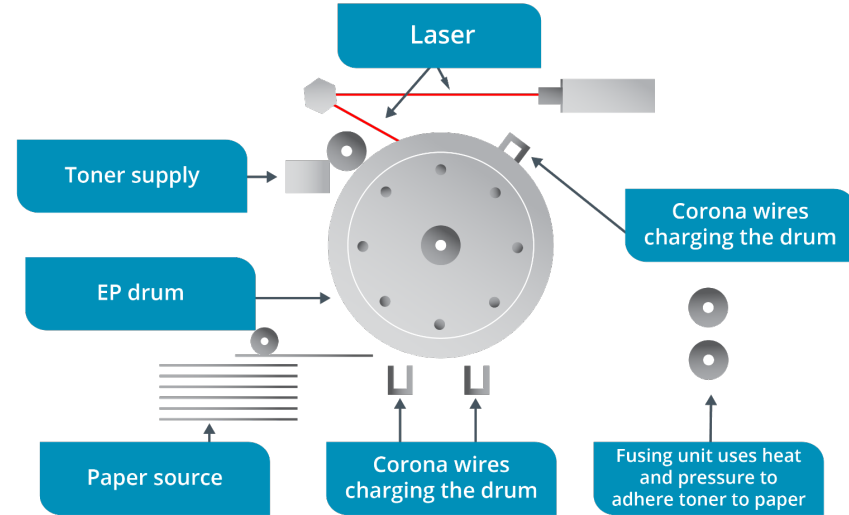


Image © 123RF.com

Laser Printer Imaging Process (Slide 2 of 2)



Image courtesy of CompTIA

- Transferring
 - Pickup and feed/separation rollers in paper path
 - Transfer roller applies a positive charge to paper
 - Electrostatic charge pulls toner from drum to paper
- Fusing
 - Heat and pressure rollers melt toner to paper
- Cleaning
- Duplex printing and output path
- Color printing and transfer belts

Laser Printer Maintenance (Slide 1 of 2)

- Loading paper
 - Media type selection
 - Media guides
 - Proper storage
- Replacing the toner cartridge
 - Packing strips
 - Recycling



Image by Andriy Popov © 123RF.com

Laser Printer Maintenance (Slide 2 of 2)

- Cleaning the printer
 - Toner-safe cleaning
 - Replace filters
- Replacing the maintenance kit
 - Feed and transfer rollers and fuser unit
- Calibrating the printer

Inkjet Printer Imaging Process

- Print head
 - Thermal/Bubblejet
 - Piezoelectric
- Carriage system
 - Line printing
 - Stepper motor (unidirectional versus bidirectional)
 - Platen gap

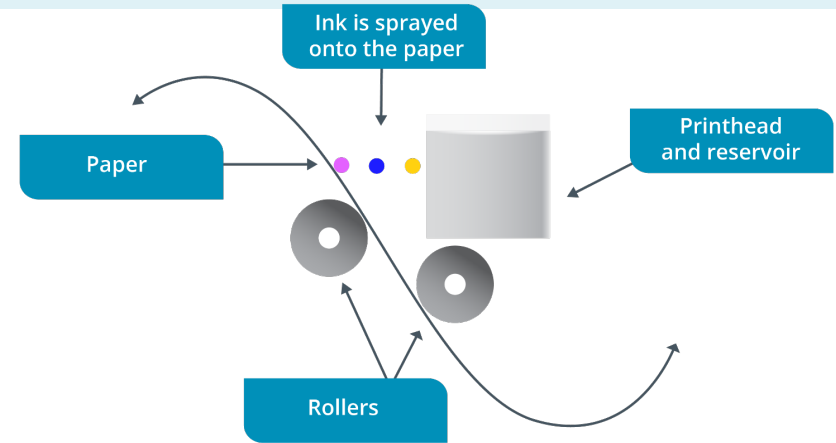
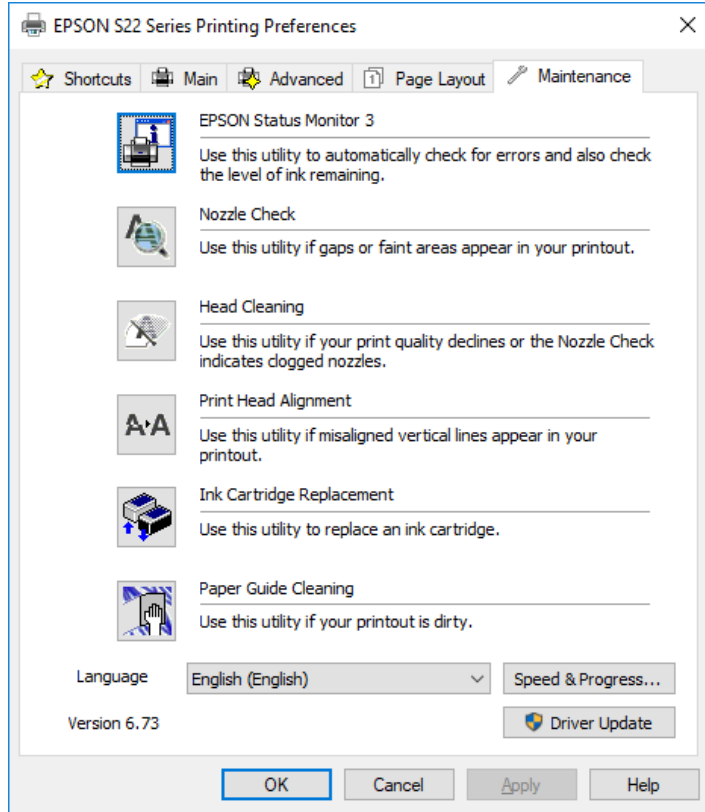


Image © 123RF.com



Image by Erik Bobeldijk © 123RF.com

Inkjet Printer Maintenance



Screenshot courtesy of Microsoft

- Paper handling and duplexing
 - AutoSheet Feeder
 - Load and separation rollers
 - Inkjet paper types
- Replacing inkjet cartridges
- Print head alignment
- Print head cleaning

Thermal Printer Maintenance



Image © 123RF.com

- Direct thermal process and components
 - Feed assembly and heating element
 - Heat sensitivity of special thermal paper
- Paper selection and loading
- Cleaning and clearing debris

Impact Printer Maintenance

- Impact process and components
 - Dot matrix print head
 - Ribbon
- Paper selection and loading
 - Tractor fed paper
 - Carbon/impact paper
- Ribbon and print head replacement

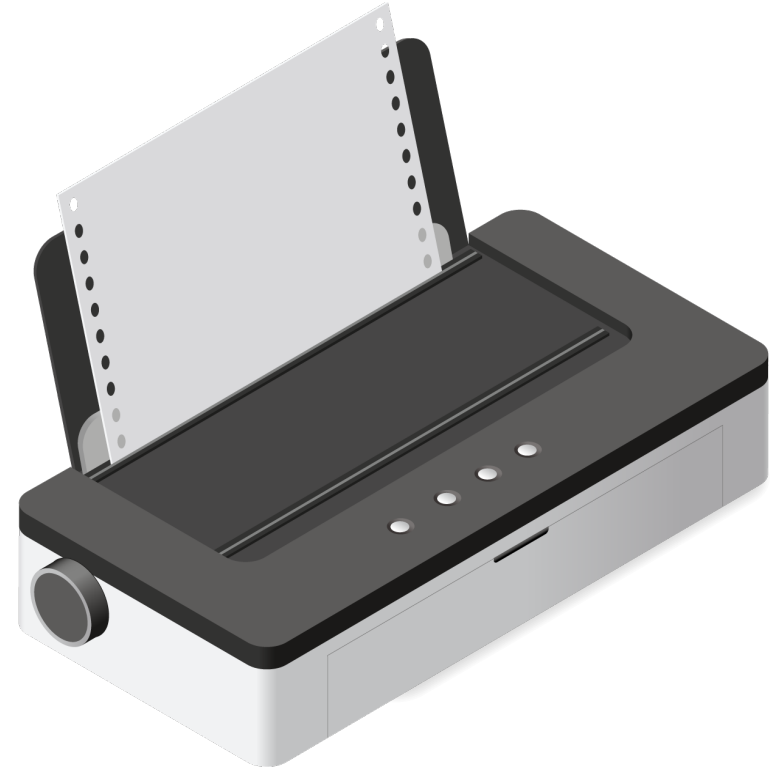


Image © 123RF.com

3D Printer Maintenance

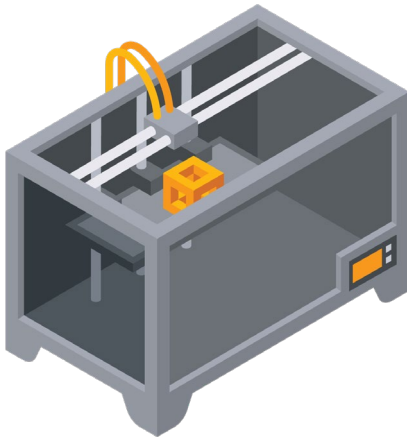


Image © 123RF.com

- 3D print job rendering
- 3D printer components
 - Print bed and surface
 - Filament extruder
 - Gears, motors, and fans
- Media selection and loading
 - Filament types
 - Stereolithography (SLA) resin printers
 - Selective laser sintering (SLS) printers
- Maintenance tasks

Review Activity: Print Device Consumables

- Replace Print Device Consumables
- Laser Printer Imaging Process and Maintenance
- Inkjet Printer Imaging Process and Maintenance
- Thermal Printer Maintenance
- Impact Printer Maintenance
- 3-D Printer Maintenance

Lesson 9

Topic 9C

Troubleshoot Print Device Issues

Printer Connectivity Issues

- Can't detect printer to install it or printer reported offline by OS
 - Verify power and status via print device control panel
 - Check removable components/cartridges and service panels
 - Print test page from print device control panel
 - Cycle power on print device or consider factory reset
 - Inspect cables and connectors or test different connection methods

Print Feed Issues

- Paper jam
 - Identify location
 - Proper release
- Paper not feeding or multipage misfeed
 - Improper paper type, size, or loading
 - Pickup and separation pads/rollers
- Grinding noise
 - Reseat cartridges and rollers
 - Clean debris
 - Replace maintenance kit on laser
 - Check carriage system/clutch on inkjet



Image courtesy of CompTIA

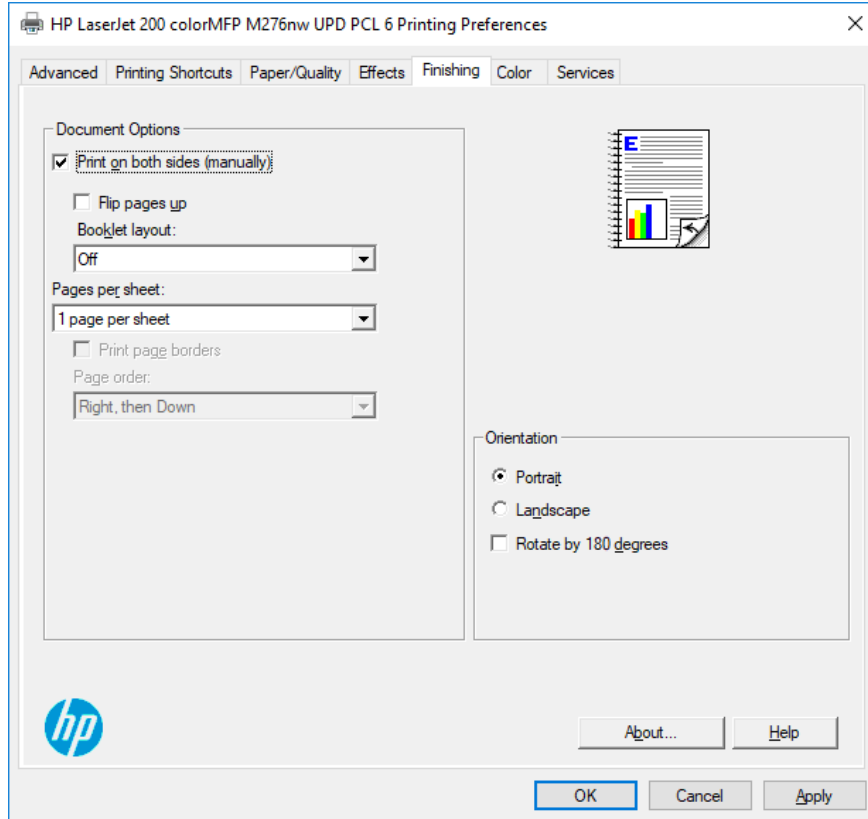
Print Quality Issues (Slide 1 of 2)

- Faded print
 - Replace toner cartridge
- Blank pages
 - Application/driver issue or packing seals left on toner cartridge
- White stripes
 - Toner distribution or replace transfer roller
- Black stripes or whole page black
 - Replace charge roller (toner cartridge) or power supply fault
- Speckling on printed pages
 - Clean inside of printer

Print Quality Issues (slide 2 of 2)

- Vertical or horizontal lines (repetitive defects)
 - Clean or replace feed rollers or issue with imaging drum
- Toner not fused to paper
 - Replace fuser unit (maintenance kit)
- Double/echo images
 - Issue with imaging drum
- Incorrect chroma display
 - Check configuration of color cartridges and run calibration routine
- Color missing
 - Missing cartridge or cartridge not registering (clean contacts)
- Inkjet and dot matrix defects

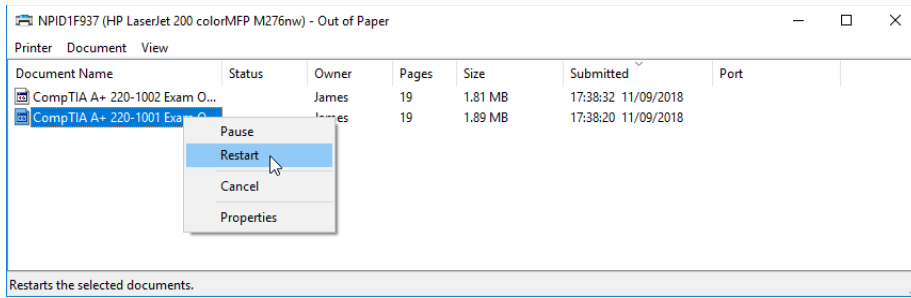
Finishing Issues



Screenshot courtesy of Microsoft

- Finisher unit
 - Add-on to automate stapling or hole punching
 - Set printer properties to enable finisher unit
- Incorrect page orientation
 - Check default preferences/job-specific settings
- Hole punch issues
 - Check maximum paper depth
- Staple jam issues
 - Check maximum paper depth
 - Remove stuck staples

Print Job Issues



Screenshot courtesy of Microsoft

- Print monitors
 - Print job spooling and queue
- Multiple jobs pending in queue
 - Check paper supply, jams, feed issues
 - Restart jobs
 - Clear print queue
- Garbled print
 - Verify driver
 - Cycle power on print device
 - Check fonts are available

Review Activity: Print Device Issues

- Printer Connectivity Issues
- Print Feed Issues
- Print Quality Issues
- Finishing Issues
- Print Job Issues

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Summary