New Exam Update

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Class	Topics
15	• Firmware
	Impact: • Multipart paper
	Common symptoms: • Unable to install new applications • Stylus does not work • Degraded performance
	Common symptoms: • Tray not recognized • Connectivity issues • Frozen print queue

Summary: What's New

New Objectives	Old Objectives	New Topics	Labs
3.7 Given a scenario, deploy and configure multifunction devices/printers and settings.	3.6 Given a scenario, deploy and configure multifunction devices/printers and settings.	• Firmware	• Setting up a wireless inkjet printer
3.8 Given a scenario, perform appropriate printer maintenance.	3.7 Given a scenario, install and replace printer consumables.	• Impact • Multipart paper	• No Labs

*Note: New objectives are now in effect for the CompTIA A+ 220-1201 exam.

Summary: What's New (cont'd)

New Objectives	Old Objectives	New Topics	Labs
5.4 Given a scenario, troubleshoot common mobile device issues.	5.5 Given a scenario, troubleshoot common issues with mobile devices.	Common symptoms: • Unable to install new applications • Stylus does not work • Degraded performance	• Removing Speakers from the Laptop • Removing a Laptop Keyboard • Removing the Display Assembly of a Laptop • Replacing a CMOS Battery • Replacing a CMOS Battery • Replacing Laptop Memory
5.6 Given a scenario, troubleshoot printer issues.	5.6 Given a scenario, troubleshoot and resolve printer issues.	Common symptoms: • Tray not recognized • Connectivity issues • Frozen print queue	• No Labs

*Note: New objectives are now in effect for the CompTIA A+ 220-1201 exam.

Module 10: Supporting Print Devices

3.7 Given a scenario, deploy and configure multifunction devices/printers and settings

Firmware Management in MFDs and Printers

- Checking and updating firmware
  - Under System Information, access interface by IP address
  - Download/install updates via control panel

- Resetting and Reflashing Firmware
  - Go to settings or maintenance, select Reset
  - Access web interface, go to Firmware Update, upload firmware file

- Best practices

3.8 Given a scenario, perform appropriate printer maintenance

Impact Printer Maintenance

- Impact printers
  - Strike inked ribbon against paper to create marks
  - Can use multipart paper

- Impact printer paper
  - Plain paper
  - Carbon paper
  - Tractor-fed paper

- Impact printer components

5.4 Given a scenario, troubleshoot common mobile device issues

Hardware Failure Issues

Overheating symptoms

- Hot surface from poor ventilation, dust, high screen brightness

Liquid damage symptoms

- Visible water on screen graphics artifacts

Physically damaged port symptoms

- No connection at all or intermittent

5.6 Given a scenario, troubleshoot printer issues

Printer Connectivity Issues

- Steps to troubleshoot
  - Basic checks of printer being online, components installed, inspect USB/Ethernet cables
  - Check for wireless connectivity
  - Ensure firmware and driver updates are done
  - Verify it is correctly registered with cloud service

Print Job Issues

- Print queue and spooler troubleshooting
  - Open queue, right-click document name to restart, or delete print job
- Tray not recognized
  - Caused by driver, connection, printer settings for tray
- Frozen print queue
  - Restart spooler, clear cache, check for corrupt print jobs
- Garbled print issues

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3.7 Given a scenario, deploy and configure multifunction devices/printers and settings.

Firmware Management in MFDs and Printers

Firmware in multifunctional devices (MFDs) and printers controls functions like printing, scanning, and network connectivity. Regular updates improve performance, fix bugs, and address security vulnerabilities, which is crucial for networked printers handling sensitive data.

Firmware ensures compatibility with drivers and operating systems and provides access to advanced settings such as IP addresses, DNS configurations, security features, and network scanning options.

Checking and Updating Firmware

To check the firmware version:

- Use the control panel under System Information.

- Access the device's web interface by entering its IP address in a browser.

To update firmware:

- Download and install updates via the control panel, web interface, or manufacturer tools like HP Web Jetadmin or Canon imageWARE.

Regular updates ensure devices remain secure, compatible, and perform optimally.

Resetting and Reflashing Firmware

Outdated or corrupted firmware can cause malfunctions. Learning to reset or reflash firmware is a key troubleshooting skill:

- Resetting: Use the control panel to navigate to Settings or Maintenance, then select Reset or Restore Factory Defaults.

- Reflashing: Access the web interface, go to the Firmware Update or Maintenance section, upload the latest firmware file from the manufacturer's website, and follow the prompts.

> **!** Note: Reflashing the firmware should only be done when necessary, as it could potentially cause issues if interrupted.

Best Practices

Always back up configurations before performing updates. Additionally, test new firmware on a single device before deploying it across multiple devices to ensure compatibility and stability.

3.8 Given a scenario, perform appropriate printer maintenance

Impact Printer Maintenance

Impact printers strike an inked ribbon against paper to create marks. A common type is the dot matrix printer, which uses a column of pins in the print head to strike the ribbon. While desktop dot matrix printers are less common for general document printing, they are still used for specialized tasks like printing invoices, pay slips, and multipart forms. Multipart paper consists of multiple layers of paper with carbon or carbonless coating between them, allowing the printer to create duplicate or triplicate copies of a document in a single pass. These forms are typically used with continuous, tractor-fed paper.
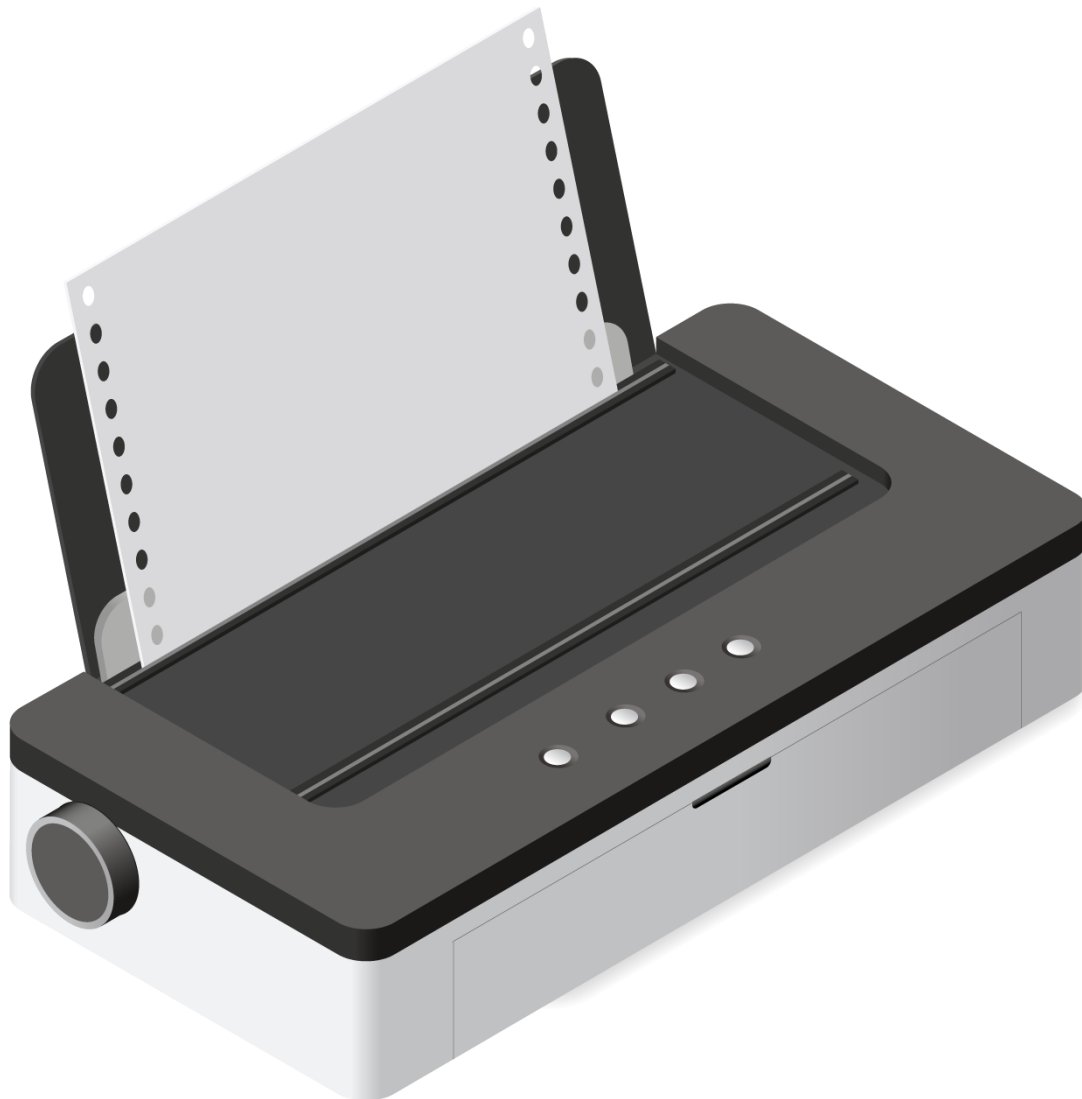
Example of a dot matrix printer

Impact Printer Paper

Impact printers can use plain, carbon, or tractor-fed paper:

- Plain Paper: Held against the moving roller (platen) and pulled through by friction as the platen rotates. Some printers can add a cut sheet feeder to automate page feeding.

- Carbon Paper (or impact paper): Used for making multiple copies in one pass. A sheet of carbon paper is placed between each plain paper sheet, transferring the print head's mark to all sheets.

- Tractor-Fed Paper: Features removable, perforated side strips with holes that fit over studded rollers at each end of the platen. This setup reduces skewing and slippage, making it ideal for multi-part stationary.

When loading a tractor-fed impact printer, ensure the paper holes engage with the sprockets and the paper feeds cleanly. Set the lever to the correct position for friction or tractor feed, depending on the media used.

Impact Printer Components

Impact printers have replaceable ribbons. Modern printers use cartridge ribbons that slot over or around the print head carriage, forming a continuous loop moving in one direction. Older models used two-spool ribbons, requiring a sensor and reversing mechanism.

When print quality deteriorates, replace the ribbon holder and contents as an integrated component. Some printers use reusable cartridges.

Follow the manufacturer's instructions to replace the print head and be cautious as it may become very hot during use.

5.4 Given a scenario, troubleshoot common mobile devices issues.

Digitizer Issues

Symptoms such as the touch screen not responding to input or the stylus not working can indicate a problem with the digitizer. If you can discount shock and liquid damage, try the following tests:

- Verify that the touchscreen and the user's fingers are clean and dry.

- If a screen protector is fitted, check that it is securely adhered to the surface and that there are no bubbles or lifts.

- Check that there is not a transitory software problem by restarting the device.

- Try using the device in a different location in case some source of electromagnetic interference (EMI) is affecting the operation of the digitizer.

- If the device has just been serviced, check that the right wires are still connected in the right places for the digitizer to function. Remember to ask, "What has changed?"

Cursor Drift / Touch Calibration Issues

On a laptop, if touchpad sensitivity is too high, typing can cause vibrations that move the cursor. Examples include the pointer drifting across the screen without any input or a "ghost cursor" jumping about when typing. Install up-to-date drivers and configure input options to suit the user. Many laptops now come with a Fn key to disable the touchpad.

If you can rule out simple hardware causes, unresponsive or inaccurate touch input can be an indication of resources being inadequate (too many open apps) or badly written apps that hog memory or other resources. A soft reset will usually fix the problem in the short term. If the problem is persistent, either try to identify whether the problem is linked to running a particular app or try freeing space by removing data or apps. Windows devices and some versions of Android support re-calibration utilities, but if you cannot identify another cause, then you are likely to have to look at warranty repair.

Malware Issues

Whenever a device does not function as expected, you should assess whether it could be infected with malware. Consider the following scenarios:

- Malware or rogue apps are likely to try to collect data in the background. They can become unresponsive and might not shut down when closed. Such apps might cause excessive power drain and high resource utilization, potentially leading to overheating problems.

- This excessive background usage will also lead to degraded performance. This is a common sign of a malware infection.

- Another tell-tale sign of a hacked device is reaching the data transmission overlimit unexpectedly. Most devices have an option to monitor data usage and have limit triggers to notify the user if the limit has been reached. This protects from large data bills but should also prompt the user to check the amount of data used by each application to monitor their legitimacy.

- Malware may try to use the camera or microphone to record activity. Check that the camera LED is not activated.

- The user also may not be able to install new applications. Malware may block new applications to prevent security software from being installed or the malware may use up so much free space that there is not enough space left to install new applications.

5.6 Given a scenario, troubleshoot printer issues

Printer Connectivity Issues

Printer connectivity issues can occur when the device cannot be located during installation or when the OS reports an installed device as offline or unavailable. Here are steps to troubleshoot and resolve these issues:

1. Basic Checks:

- Ensure the printer is switched on and online. Printers can easily be taken offline accidentally via the control panel.

- Verify all components and cartridges are correctly installed, service panels are closed, and at least one tray is loaded with paper.

- Print a test page using the printer's control panel. If successful, the issue lies with the connection to the computer/network.

- Cycle the power on the printer. If this doesn't resolve the issue, consider performing a factory reset.

- Inspect the USB/Ethernet cable and connectors. Replace with a known good cable to test for cable or connector problems. If possible, try a different connection type (e.g., USB or Ethernet if wireless is not working).

2. Wireless Printer Connectivity:

- Ensure the printer is connected to the correct Wi-Fi network. Wireless printers may attempt to connect to different networks if multiple routers are in range.

- Check for interference from other wireless devices or obstacles like walls.

- Restart the router or access point, as the issue may lie in the network rather than the printer.

3. Firmware and Driver Updates:

- Update printer firmware and drivers, as outdated software can cause connectivity issues, especially after an OS update. Modern printers often offer automatic firmware updates, but this feature may need to be manually enabled.

- Ensure the computer's OS is up-to-date and compatible with the printer's drivers.

4. Cloud Printing:

- If the printer is configured for cloud printing, verify it is correctly registered with the cloud service and that there are no account-related issues preventing access.

  Remember to ask: "What has changed?" Determine whether the issue is with something that never worked (indicating an installation error) or something that stopped working (suggesting a configuration change or maintenance issue).

Tray Not Recognized

An unrecognized paper tray can prevent jobs from printing or cause failures.

- Driver issues: Ensure the driver is configured to recognize all installed trays. Check for driver updates from the printer manufacturer's website.

- Physical connection: Ensure the tray is properly seated in the printer. Reseat the tray or ensure it's loaded with the correct paper.

- Printer settings: Verify the correct tray is selected in both the printer settings and print driver settings. In multi-tray systems, jobs may fail if an unrecognized tray is assigned as the default.

- Restart: Power cycle the printer and computer to refresh settings.

Frozen Print Queue

A frozen print queue can prevent new jobs from processing.

- Stop and Restart the Print Spooler Service as mentioned above.

- Clear the Spooler Cache:

- Stop the Print Spooler service.

- Navigate to the spool folder (%SystemRoot%\System32\Spool\Printers\) and delete all files inside.

- Restart the Print Spooler service.

- Check for Corrupt Print Jobs: Sometimes a particular print job may be corrupt and cause the entire queue to freeze. Deleting the problematic job can restore functionality.