Operating Systems

CompTIA A+ certification, Core 1 (220-1201) and Core 2 (220-1202)

28% of the exam · 11 exam objectives · 220-1202

Domain 1 covers the operating systems a technician supports. For Windows: the OS types and filesystems, installs and upgrades (boot methods, GPT and MBR, clean install or upgrade), the editions and what each can do, the management tools and command-line tools, the Settings and Control Panel areas, and client networking (domain or workgroup, firewall, IP, DNS, gateway, proxy, network profiles, metered connections). For macOS: installing apps, system folders, System Preferences, Disk Utility, FileVault, Time Machine and the everyday features. For Linux: the core file, filesystem, admin, package, network and information commands and the main configuration files. Then installing applications against their requirements, and setting up cloud email, storage, collaboration, identity synchronization and licences.

You should be able to: A user on Windows 11 Home must join the company domain, and the same user's Linux workstation reports a full disk. Which edition change does the Windows computer need, and which two Linux commands tell you which filesystem is full and what filled it?

Every exam objective: the key point and the trap

1.1 Explain common operating system (OS) types and their purposes.

Workstation operating systems are Windows, Linux, macOS and ChromeOS. ChromeOS is built around the Chrome browser and web apps; Linux comes in many distributions and is common on servers.

Trap: Choosing NTFS for a drive shared with a Mac because it removes the 4 GB limit, forgetting that macOS cannot write to NTFS without extra software.

1.2 Given a scenario, perform OS installations and upgrades in a diverse environment.

Boot methods for installation: a USB or other flash drive, the network (PXE), an internet-based install, an external or hot-swappable drive, or a partition on the internal drive. Multiboot puts more than one OS on a computer with a menu at start.

Trap: Thinking a clean install is the only fix for a damaged Windows, or confusing GPT and MBR limits: the 2 TB and four-partition limits belong to MBR.

1.3 Compare and contrast basic features of Microsoft Windows editions.

Editions in scope: Windows 10 Home, Pro, Pro for Workstations and Enterprise; Windows 11 Home, Pro and Enterprise. Home is for consumers; Pro and higher add business features.

Trap: Saying Home cannot use Remote Desktop at all: Home has the client and can connect out; it only cannot accept incoming sessions.

1.4 Given a scenario, use Microsoft Windows operating system features and tools.

Task Manager: Processes (live CPU, memory, disk and network per app), Performance (graphs), Startup apps (what runs at sign-in and its impact), Users (who is signed in) and Services (start or stop).

Trap: Mixing up the two monitors: Resource Monitor (resmon.exe) shows live activity in detail, while Performance Monitor (perfmon.msc) records counters over time for a baseline.

1.5 Given a scenario, use the appropriate Microsoft command-line tools.

Navigation: cd changes directory (cd .. goes up one level) and dir lists contents (dir /a includes hidden files). Any command explains itself with [command name] /?.

Trap: Using chkdsk for damaged Windows system files or sfc for file system errors: chkdsk repairs the file system, sfc repairs the protected Windows files.

1.6 Given a scenario, configure Microsoft Windows settings.

Control Panel items: Internet Options (web, security and proxy settings), Devices and Printers, Programs and Features, Network and Sharing Center, System, Windows Defender Firewall, Mail, Sound, User Accounts, Device Manager, Indexing Options and Administrative Tools.

Trap: Treating sleep and hibernate as the same: sleep keeps memory powered, hibernate writes memory to disk and uses no power while off.

1.7 Given a scenario, configure Microsoft Windows networking features on a client/desktop.

In a workgroup each Windows computer keeps its own accounts; in a domain, accounts and policy come from domain controllers. Joining a domain needs Pro or a higher edition and DNS that can find the domain controllers.

Trap: Fixing a blocked program by turning off Windows Defender Firewall, or choosing the private profile on a public hotspot. Allow the one application, and use public on any untrusted network.

1.8 Explain common features and tools of the macOS/desktop operating system.

Apps install from the App Store, a .dmg disk image (mount it, drag the .app to /Applications) or a .pkg installer package. Uninstall most apps by dragging the .app to the Trash.

Trap: Confusing FileVault (encryption) with Time Machine (backup), or treating a .dmg as an installer that runs by itself, when it is a disk image to mount.

1.9 Identify common features and tools of the Linux client/desktop operating system.

File management: ls lists, pwd shows where you are, mv moves or renames, cp copies, rm removes, chmod changes permissions, chown changes the owner, grep searches text, find searches for files.

Trap: Mixing up pairs that look alike: df and du, su and sudo, chmod and chown, grep (text in files) and find (files themselves), /etc/passwd and /etc/shadow.

1.10 Given a scenario, install applications according to requirements.

A 64-bit OS runs most 32-bit applications, but a 32-bit OS cannot run 64-bit applications. Windows 11 is 64-bit only.

Trap: Assuming more system RAM fixes a VRAM requirement, or that a 32-bit OS can run a 64-bit application.

1.11 Given a scenario, install and configure cloud-based productivity tools.

Cloud email systems keep mail, calendars and contacts on the provider's servers, so a new device needs only a sign-in.

Trap: Blaming identity synchronization or the sync client when the real cause is a missing licence assignment.

Key terms

NTFS: New Technology File System

APFS: Apple File System

GPT: GUID [Globally Unique Identifier] Partition Table

UEFI: Unified Extensible Firmware Interface

TPM: Trusted Platform Module

DNS: Domain Name System

DHCP: Dynamic Host Configuration Protocol

VPN: Virtual Private Network

WWAN: Wireless Wide Area Network

VRAM: Video Random-access Memory

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