



1.0 Operating Systems

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

- Workstation systems (OSs)
 - Windows
 - Linux
 - macOS
 - Chrome OS
- Mobile OSs
 - iPadOS
 - iOS
 - Android
- Various filesystem types
 - New Technology File System (NTFS)
 - Resilient File System (ReFS)
 - File Allocation Table 32 (FAT32)
 - Fourth extended filesystem (ext4)
 - Extended filesystem (XFS)
 - Apple File System (APFS)
 - Extensible File Allocation Table (exFAT)
- Vendor life-cycle limitations
 - End-of-life (EOL)
 - Update limitations
- Compatibility concerns between operating systems

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

- Boot methods
 - Universal Serial Bus (USB)
 - Network
 - Solid-state/flash drives
 - Internet-based
 - External/hot-swappable drive
 - Internal hard drive (partition)
 - Multiboot
- Types of installations
 - Clean install
 - Upgrade
- Image deployment
- Remote network installation
- Zero-touch deployment
- Recovery partition
- Repair installation
- Other considerations
 - Third-party drivers
- Partitioning
 - GUID [globally unique identifier] Partition Table (GPT)
 - Master boot record (MBR)
- Drive format
- Upgrade considerations
 - Backup files and user preferences
 - Application and driver support/backward compatibility
 - Hardware compatibility
- Feature updates
 - Product life cycle

1.3 Compare and contrast basic features of Microsoft Windows editions.

- Windows 10 editions
 - Home
 - Pro
 - Pro for Workstations
 - Enterprise
- Windows 11 editions
 - Home
 - Pro
 - Enterprise
- N versions
- Feature differences
 - Domain vs. workgroup
 - Desktop styles/user interface
 - Availability of Remote Desktop Protocol (RDP)
 - Random-access memory (RAM) support limitations
 - BitLocker
 - gpedit.msc
- Upgrade paths
 - In-place upgrade
 - Clean install
- Hardware requirements
 - Trusted Platform Module (TPM)
 - Unified Extensible Firmware Interface (UEFI)



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

- Task Manager
 - Services
 - Startup
 - Performance
 - Processes
 - Users
- Microsoft Management Console (MMC) snap-in
 - Event Viewer (eventvwr.msc)
 - Disk Management (diskmgmt.msc)
 - Task Scheduler (taskschd.msc)
- Device Manager (devmgmt.msc)
- Certificate Manager (certmgr.msc)
- Local User and Groups (lusrmgr.msc)
- Performance Monitor (perfmon.msc)
- Group Policy Editor (gpedit.msc)
- Disk Cleanup (cleanmgr.exe)
- Disk Defragment (dfrgui.exe)
- Registry Editor (regedit.exe)
- Additional tools
 - System Information (msinfo32.exe)
 - Resource Monitor (resmon.exe)
 - System Configuration (msconfig.exe)

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

- Navigation
 - cd
 - dir
- Network
 - ipconfig
 - ping
 - netstat
 - nslookup
 - net use
 - tracert
 - pathping
- Disk management
 - chkdsk
 - format
 - diskpart
- File management
 - md
 - rmdir
 - robocopy
- Informational
 - hostname
 - net user
- winver
- whoami
- [command name] /?
- OS management
 - gpupdate
 - gpresult
 - sfc

1.6 Given a scenario, configure Microsoft Windows settings.

- Internet Options
- Devices and Printers
- Program and Features
- Network and Sharing Center
- System
- Windows Defender Firewall
- Mail
- Sound
- User Accounts
- Device Manager
- Indexing Options
- Administrative Tools
- File Explorer Options
 - View hidden files
 - Hide extensions
 - General options
 - View options
- Power Options
 - Hibernate
 - Power plans
 - Sleep/suspend
 - Standby
 - Choose what closing the lid does
 - Turn on fast startup
- USB selective suspend
- Ease of Access
- Time and Language
- Update and Security
- Personalization
- Apps
- Privacy
- System
- Devices
- Network and Internet
- Gaming
- Accounts



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

- Domain joined vs. workgroup
 - Shared resources
 - Printers
 - File servers
 - Mapped drives
- Local OS firewall settings
 - Application restrictions and exceptions
 - Configuration
- Client network configuration
 - Internet Protocol (IP) addressing scheme
 - Domain Name System (DNS) settings
 - Subnet mask
 - Gateway
 - Static vs. dynamic
- Establish network connections
 - Virtual private network (VPN)
 - Wireless
 - Wired
 - Wireless wide area network (WWAN)/cellular network
- Proxy settings
- Public network vs. private network
- File Explorer navigation–network paths
- Metered connections and limitations

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

- Installation and uninstallation of applications
 - File types
 - .dmg
 - .pkg
 - .app
 - App Store
 - Uninstallation process
- System folders
 - /Applications
 - /Users
 - /Library
 - /System
 - /Users/Library
- Apple ID and corporate restrictions
- Best practices
 - Backups
 - Antivirus
 - Updates/patches
 - Rapid Security Response (RSR)
- System Preferences
 - Displays
 - Networks
 - Printers
 - Scanners
 - Privacy
 - Accessibility
 - Time Machine
- Features
 - Multiple desktops
 - Mission Control
 - Keychain
 - Spotlight
 - iCloud
 - iMessage
 - FaceTime
 - Drive
 - Gestures
 - Finder
 - Dock
 - Continuity
- Disk Utility
- FileVault
- Terminal
- Force Quit



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

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| <ul style="list-style-type: none"> • File management <ul style="list-style-type: none"> – ls – pwd – mv – cp – rm – chmod – chown – grep – find • Filesystem management <ul style="list-style-type: none"> – fsck – mount • Administrative <ul style="list-style-type: none"> – su – sudo | <ul style="list-style-type: none"> • Package management <ul style="list-style-type: none"> – apt – dnf • Network <ul style="list-style-type: none"> – ip – ping – curl – dig – traceroute • Informational <ul style="list-style-type: none"> – man – cat – top – ps – du – df | <ul style="list-style-type: none"> • Text editors <ul style="list-style-type: none"> – nano • Common configuration files <ul style="list-style-type: none"> – /etc/passwd – /etc/shadow – /etc/hosts – /etc/fstab – /etc/resolv.conf • OS components <ul style="list-style-type: none"> – systemd – kernel – bootloader • Root account |
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1.10 Given a scenario, install applications according to requirements.

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| <ul style="list-style-type: none"> • System requirements for applications <ul style="list-style-type: none"> – 32-bit vs. 64-bit dependent application requirements – Dedicated vs. integrated graphics card – Video random-access memory (VRAM) requirements – RAM requirements – Central processing unit | <ul style="list-style-type: none"> (CPU) requirements <ul style="list-style-type: none"> – External hardware tokens – Storage requirements – Application to OS compatibility • Distribution methods <ul style="list-style-type: none"> – Physical media vs. mountable ISO file – Downloadable package – Image deployment | <ul style="list-style-type: none"> • Impact considerations for new applications <ul style="list-style-type: none"> – Device – Network – Operation – Business |
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1.11 Given a scenario, install and configure cloud-based productivity tools.

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| <ul style="list-style-type: none"> • Email systems • Storage <ul style="list-style-type: none"> – Sync/folder settings • Collaboration tools <ul style="list-style-type: none"> – Spreadsheets – Videoconferencing – Presentation tools – Word processing tools – Instant messaging | <ul style="list-style-type: none"> • Identity synchronization • Licensing assignment |
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