

OS Installation and Customization Procedures

a) Steps Involved in Preparing a Computer for OS Installation (3 marks)

1. **Hardware Verification and Compatibility:** You must first verify the computer's hardware (e.g., CPU, RAM, and storage space) meets the minimum system requirements for the new OS. It's also essential to check the vendor's Hardware Compatibility List (HCL) to ensure all internal components, especially the NIC and graphics card, are compatible and have available drivers.
 2. **Data Backup and Licensing:** If the computer has existing data, you must perform a full backup of all critical files to an external or network location to prevent loss. You also need to confirm you have the necessary product key or license for the OS ready for activation during or after installation.
 3. **Create Installation Media and Set Boot Order:** Prepare the installation source, typically by creating a bootable USB drive or DVD from the official OS image (ISO file). Finally, configure the system's BIOS/UEFI settings to ensure it attempts to boot from the prepared media (e.g., setting the USB drive as the primary boot device).
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b) Difference Between Installation Types (4 marks)

There are three primary methods for deploying an operating system:

- **Clean Installation:** This method involves formatting (erasing) the primary hard drive partition where the OS will reside. The new OS is installed on a completely empty volume, ensuring maximum stability, eliminating conflicts from previous software, and boosting overall performance. The trade-off is that all old data, applications, and settings are lost.
- **Upgrade Installation:** This approach installs the new OS directly over an existing, compatible OS. The installation utility is designed to preserve the user's data, applications, and configuration settings. The goal is to minimize disruption and avoid the time-consuming process of reinstalling all software, allowing for a seamless transition to the newer OS version.

- Multi-Boot Installation: This involves installing two or more distinct operating systems on a single computer, with each OS residing on its own separate partition or physical drive. A special boot manager is installed to intercept the startup process and prompt the user to select which OS they wish to load. This setup is useful for testing, development, or ensuring compatibility with software that requires a specific OS.
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c) Common OS Installation Problems and Resolutions (3 marks)

1. "No Bootable Device" Error: This indicates that the computer failed to recognize the installation media or cannot find the newly installed OS on the hard drive. To resolve this, you must verify the BIOS/UEFI boot order is correctly prioritized. Ensure it is set to boot from the installation media first, and after installation, that the internal hard drive is set as the primary boot target.
2. Missing Drivers (Post-Installation): After the OS is installed, essential hardware components like the Network Interface Card (NIC), Wi-Fi adapter, or graphics card may not function. This is often indicated by unknown devices in Device Manager. The resolution involves obtaining the necessary drivers from the component or computer manufacturer's website. You will likely need to use a separate working computer to download these drivers onto a USB stick, focusing on installing the chipset and NIC drivers first to enable full network connectivity.
3. Installation Hangs or Fails: The setup process stops unexpectedly, often during the "copying files" or "getting devices ready" stages, and may be caused by bad installation media or faulty hardware. The first step is to re-create the installation media (USB or DVD) to rule out media corruption. If the failure persists, you should run hardware diagnostic tools (such as MemTest86 for RAM) to check for faulty memory modules or hard drive errors.