



System software

A computer cannot run without system software which includes the computer's operating system and device drivers. It runs in the background to manage hardware and applications.

- **Operating systems (OS):** The interface between the user and the machine. An OS manages computer resources (for example CPU, memory and peripherals), executes application software, provides security (user accounts and passwords) and organises files. Multi-tasking allows several processes to run simultaneously.
- › **Graphical user interface (GUI):** Uses graphics, like icons, for user interaction (for example Microsoft Windows).
- › **Command line interface (CLI):** Requires users to type instructions (for example MS-DOS).
- **Device drivers:** Software files that enable communication between hardware devices and the operating system. They translate generic software instructions into specific commands for a particular device. Regular updates are important.

Applications software

Applications software is designed to perform specific tasks for an end user, often available in related 'suites'.

- **Word processing:** Creates text-based documents (letters/ reports). Features include page layout, text styles, formatting, spell/grammar check and track changes.
- **Desktop publishing (DTP):** Used for creating documents like posters, calendars, brochures and newsletters using templates, frames and colour schemes.
- **Presentation:** Creates slide shows – for informing or engaging audiences – with features such as animations, transitions, sound and video.
- **Spreadsheet:** Organises data in cells (rows and columns) for financial analysis. Uses formulae for calculations, allows 'what if' investigations and presents data visually with charts and data validation.
- **Database:** A collection of organised data (fields, records, tables). Tables can be linked and specific information can be searched/sorted quickly using queries. Reports can be produced and forms simplify data entry.

Graphics packages

Graphics software gives the user the ability to create and manipulate graphics for artwork.

- **Photo editing:** Enhances and manipulates digital images using features like airbrushing, cropping and red-eye removal.
- **Video editing:** Cuts, rearranges and adds effects (subtitles, slow motion, fading) to video footage for better flow.
- **Webpage editor:** Provides a visual interface for creating and maintaining web pages, with features such as HTML/CSS autocomplete and split-screen views.
- **Computer-aided design (CAD):** Used for design work (for example in manufacturing and architecture). Allows viewing designs from any angle, with powerful scaling, rotation and reflection options.
- **Computer-aided manufacturing (CAM):** Implements designs created in CAD packages. The process is controlled by the computer to produce items quickly and efficiently.

Utility software

Utility software enables the user to analyse, configure, optimise or maintain a computer. A basic set is often included with the operating system.

- **Anti-virus:** Detects, blocks, deletes or quarantines computer viruses. Requires regular updates to protect against new viruses.
- **Firewall:** Monitors incoming and outgoing network traffic, allowing or blocking it according to security rules and acting as a digital barrier.
- **System cleaner:** Frees up disk space by removing unnecessary files (for example temporary files and system logs) and managing background processes.
- **Package installer:** Installs software – such as applications and drivers – onto the computer.
- **File explorer:** A graphical user interface (GUI) for accessing and managing file systems.
- **Encryption:** Scrambles sensitive data using complex algorithms, making it unreadable without a decryption key. Can be applied to emails, files, folders or entire drives.
- **Disk defragmentation:** Rearranges file fragments on hard disks for faster access by grouping them together. (Not beneficial for solid-state drives (SSDs)).
- **Data compression:** Reduces the number of bits needed to represent data, allowing quicker transfer.
 - › **Lossy compression:** Reduces a file's size, but data is lost from the file and cannot be recovered.
 - › **Lossless compression:** Reduces a file's size, but the data in the file can be restored entirely to its original form.
- **Backup:** Copies data from a hard drive to another location (for example flash drive or cloud storage) to prevent data loss. Features include scheduling and incremental backups.

Specialist software

Specialist software is designed for one specific task, for example payroll packages and stock control.

Information handling software

Includes standard application software and specific tools like customer relationship management (CRM) for managing customer interactions across departments.

Open source software

Software that is free and available for anyone to use, modify and distribute its source code. Mozilla Firefox and Open Office are both examples of open source software.

Communication software

Transfers information from one system to another. Examples are file transfer protocol (FTP), voice over Internet protocol (VoIP), messaging software and email.