

2.2.2.2.1 Operating System (OS)

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An [Operating System \(OS\)](#), in its most general sense, is software that allows a user to run other [applications](#) in a computing device, as well as [Virtual Machine](#) applications, which emulate another computer. While it is possible for a software application to [interface](#) directly with hardware, it is not advisable from a [portability](#) or lifecycle perspective. Software applications that access hardware resources or other computer components directly pose a security risk.

Operating systems provide a common, well documented, and tested set of libraries, which abstract the idiosyncrasies of the host computer away from its applications.

An OS primarily manages a computer's hardware resources, including:

- Input devices such as a keyboard, mouse, track pad, touch screens, camera, microphone, scanners, or sensors
- Output devices such as display monitors, speakers, printers, or faxes
- [Network devices](#) such as modems, router, wired and wireless [Internet Protocol](#) network connections, and [Bluetooth](#)
- [Storage devices](#) such as internal and external disks
- Memory devices

The OS also manages a computer's:

- CPU
- Processes
- Privileges
- Cache
- Energy, i.e., power management

Standards

Technical Standards

- [IEEE 1003.1-2017 - IEEE Standard for Information Technology--Portable Operating System Interface \(POSIX\(R\)\) Base Specifications \(NOTE: See UNIX\)](#)
- [ISO/IEC 23360-1:2006 Linux Standard Base \(LSB\) core specification 3.1 -- Part 1: Generic specification](#)
- [ISO/IEC The Linux Standard Base 5 Specification Series \(LSB 5\)](#)

de facto Standards

- [Apple: Darwin](#)

- [Apple: iOS](#)
- [Apple: MacOS](#)
- [Google: Android](#)
- [Microsoft: Windows API](#)

Tools

- None at this time

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