

What is an operating system?

## Introduction

### What is an Operating System?



Watch the video (1:46). [Need help?](#)

An **operating system** is the **most important software** that runs on a computer. You might be thinking, "OK, but what is software?" **Software** is any set of instructions that performs some task on a computer. The **operating system** performs **many** essential tasks for your computer.

It controls the memory needed for computer processes, manages disk space, controls peripheral devices, and allows you to communicate with the computer without knowing exactly how a computer works. **Without an operating system, a computer is useless.**

## The Operating System's Job



*Windows Operating System Loading*

You've probably heard the phrase **boot your computer**, but do you know what that means? **Booting** is the process that occurs when you press the power button to turn your computer on. At the end of that process, the **operating system** loads.

From this point, the operating system begins to do its job of **controlling** the way in which the **computer functions**. The operating system is responsible for **managing the computer's hardware and software resources**.

Basically, the operating system serves as the boss, or manager, and makes sure all the various parts of the computer get what they need.



*Mac OS Loading*

When you use your personal computer, you may work on a Word document, print an email, and have your Internet browser open for web surfing, **all at the same time**. These three programs need attention from the central processing unit (CPU) to do whatever task that you, the user, are telling it to do.

These programs need **memory** and **storage**, and need to be able to send messages to **devices** such as the mouse and the printer to accomplish these tasks.

The operating system is responsible for handling these areas, as well as **processor** and **network management**.

### **What Makes This Job So Difficult?**

Let's say you went to your local electronics store and bought language software to learn Spanish. How did the computer programmer who developed the software know that it would work on your computer?

The operating system provides a **consistent way** for software applications to work on various computers without needing to know specific details about each computer's hardware. It doesn't matter that each computer may have a different amount of memory or processor speed.

## Types of Operating Systems



*Microsoft Windows, Mac OS X, and Linux Logos*

Operating systems usually come **preloaded** on the desktop and laptop computers that you can buy today. Most people use the operating system that comes with their computer, but it is possible to upgrade or even change operating systems.

The **three most common** operating systems for personal computers are **Microsoft Windows, Apple Mac OS X, and Linux.**



*Start Menu on Windows GUI*

Each of these operating systems uses a **graphical user interface (GUI)**, which allows the user to interact with the computer. Instead typing a command that tell the computer what to do, you can use graphical icons and text on the GUI to instruct the computer to perform a task.

For example, if you want your computer to open the browser, Internet Explorer, simply double-click the Internet Explorer icon on the desktop, or select it from the Start menu.

Many users **associate the operating system with the GUI** because this is the part of the operating system that the user interacts with on a daily basis.

Let's take a look at the graphical user interfaces of three popular operating systems.

## Microsoft Windows

Microsoft created the operating system, **Windows**, in the mid-1980s. They have a version of the operating system that is designed for the home user, and a professional version, which is intended for businesses. The versions differ in the depth of networking, security, and multimedia support.

Windows is a **proprietary software**, which means that Microsoft has placed restrictions on how people can use or copy the software. Windows comes **preloaded** on most of the PCs sold today, and can also be purchased separately. Various versions of the software are priced from \$79 to \$399 for home users.



*Windows Vista Desktop*

Microsoft has a big share of the operating system market. According to web analyst Net Solutions, **over 90%** of computer users have one of the Windows operating systems, such as Windows 98, Windows 2000, Windows XP, or the most recent Windows Vista, as of March 2008.

Windows Vista and Windows XP are often referred to as Vista and XP, respectively.

Visit the Windows section of the [Microsoft website](#) to learn more about this operating system.

## Apple Mac OS

**Mac OS** is a line of operating systems created by Apple Inc. The Mac operating system is proprietary software that comes preloaded on all new Macintosh computers, or Macs. The most recent version of the operating system is called **Mac OS X** (pronounced Mac O-S Ten). Like Microsoft, Apple offers a professional version of the operating system that is intended for use on servers and a version of the operating system that is developed for home users.



*Mac OS X Desktop*

According to web analyst Net Solutions, Mac OS users account for almost **7.5%** percent of the operating systems market as of March 2008. Although the percentage of users is low, especially in comparison to Windows users, Mac operating systems have seen a dramatic jump in growth in 2007. Mac computers are **sleek** and **modern** looking, which has started to appeal to many home users.

Two of the common version names of Mac OS X are **Leopard** and **Tiger**. To learn more about the Macintosh computers visit the [Apple Inc. website](#), and explore the Mac computers available, as well as the Support center for information about the Mac OS.

## Linux

**Linux** is an **open source**, or **free**, operating system. Unlike Windows and Mac OS, Linux is **not proprietary software** and all the computer code that is part of the operating system can be used and modified by any user. Linux was started in the 1990s when Linus Torvalds, a person interested in creating a free operating system, developed the Linux (pronounce lynn-ux) kernel, which is computer code that is a central part of an operating system.

As an open source software, any individual or company can take the Linux kernel and modify and add to it. Hundreds of companies and individuals have taken the Linux kernel and added additional computer programs to create **various versions of the Linux operating system**. These versions are known as distributions and are available to download for free.



*Ubuntu Desktop: A Version of Linux*

Linux is extremely **popular in businesses**, especially for servers, because it is adaptable. According to Net Application statistics, Linux represents under 1% of the market share for home users, but it does offer an alternative to commercial operating systems.

Despite being used in many businesses for servers, you do not have need to have special programming skills to download and use Linux. In fact, if you want to try Linux, you don't have to actually install it on your computer. Several versions of the operating system can be downloaded and burned to a CD.

Two popular distributions of the software are [Ubuntu](#) and [Red Hat](#). **Ubuntu is completely free** and is available in a version geared specifically for home users. Red Hat is a company that offers technical and training support for businesses that use its version of the operating system, Red Hat Linux.

To learn more about Linux and how this open source software works, visit [Linux Online](#).