

Is Linux the operating system or the kernel?

One of the questions you will probably find on most tech forums is whether Linux is the operating system or the kernel. Even for some proficient Linux users, this question can be relatively difficult to answer.

In this article, **TipsMake** to answer your questions and show you the differences between the operating system and the kernel.

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Linux is, in essence, not an operating system. It's a kernel. And most importantly, the kernel is part of the operating system. To be an operating system, Linux was provided with GNU software and other additional elements, hence the name GNU / Linux.

Linus Torvalds made Linux open source in 1992, a year after it was created. After that, Linux is installed on the computer as a distribution, such as Ubuntu, elementary OS, Fedora, OpenSUSE, etc. However, since there are Linux distributions combined with many other software outside of GNU, some people find it impossible to generalize all operating systems with a linux kernel as GNU / Linux.

The Linux kernel was developed by Linus Torvalds in 1991 and has since been migrated to a wide range of computing architectures. Linux is used as the main kernel for the free and open source GNU operating system. Since then, Linux has gained popularity and is deployed in various computing systems such as mobile devices (Android), PCs, servers, embedded devices, supercomputers, and mainframes.

Now, let's find out the difference between kernel and operating system.

Difference between kernel and operating system

Kernel

The kernel is the main part of the operating system. When you start your computer, this is the first part of the operating system that is loaded into RAM for the system to start working.

Picture 1 of Is Linux the operating system or the kernel?

The kernel is the main part of the operating system

The kernel sits between the application software and the underlying hardware system. It communicates directly with the hardware and passes any required application software.

A simple example to illustrate this is when recording a video on a phone. When you tap the Camera app, the software will communicate with the kernel, indicating that it wants to use the camera and microphone. After that, the kernel will ask for the available camera and microphone hardware. Ultimately, both the software and the hardware will work together to record a video.

The kernel is also responsible for managing various system components like memory, processes, tasks, and storage. It ensures the correct execution of programs by checking memory space.

Operating system

The main purpose of an operating system is to manage system resources and processes. It contains the kernel and thus performs all the tasks that the kernel can do. In addition, the operating system also ensures system protection and security.

Picture 2 of Is Linux the operating system or the kernel?

The operating system manages the processes and system resources

The operating system acts as an interface between the user and the underlying hardware system. All application programs run in a closed environment created by the operating system. Therefore, it is not possible to use the system without the operating system.

Hope this article helped you understand the clear differences between the kernel and the operating system. Linux itself is a kernel, and then the developers build upon it so that the kernel ships with the various Linux distributions available.

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