

The Boot Process

In this lesson, we're going to learn how our operating system starts up. As an IT support specialist, you'll probably work on lots of computers that won't start. It's important to know the steps and operating system takes, so you can help diagnose the issue. Booting a computer or starting a computer comes from the phrase to pull oneself up by one's bootstraps. Basically, it means to start from nothing and follow a series of steps to arrive at a fully operational system. When we start up with computer, will use the term boot. For most operating systems, the boot process follows a general pattern, much like how we have different cars startup in the same way. Put in the key, turn on the ignition, etc. Here's a rundown of the boot process. First, the computer is powered on. The BIOS/UEFI is a low-level software that initializes our computer's hardware to make sure everything is good to go. Next, the bios UEFI runs a process called the power-on self-test, or post. The post performs a series of diagnostic tests to make sure that the computer is in proper working order. Next, depending on the bios or UEFI configuration of boot device will be selected. Devices that are attached to our system, like hard drives, USB drives, CD drives, etc, are configured in a certain boot order. The devices will be checked in this order and the computer will search for what's known as a bootloader. The bootloader is a small program that loads the operating system. Once our computer finds a bootloader on a device in the listed order, it will start to execute this program. This will then start to load a larger and more complex program and eventually loads our operating system. Once the bootloader loads up our operating system, our kernel gets loaded. The kernel controls access to our computer's resources. It also loads up drivers and more so that our hardware can talk to our software. Next, essential system processes and user space items are launched. These include processes like user login, spinning up a desktop environment, and more which basically allows us to interact with our system. And that's it. After these simple steps, you'll be able to get to work.

English

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