

# System call and why system call in shell

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September 29, 2021

- 1 What are system calls?
- 2 Why do we need system calls for shell?

## Section 1

What are system calls?

# Definition

- Linux manual page:

*“The system call is the fundamental interface between an application and the Linux kernel.”*

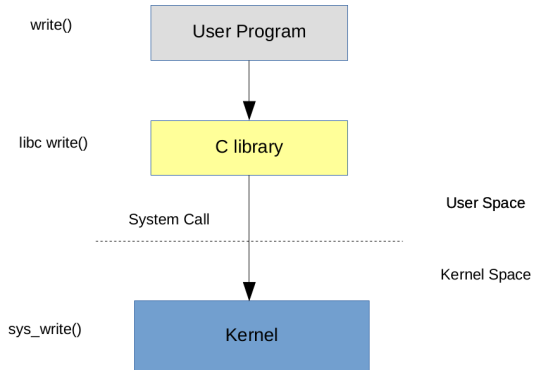
- More general:

The system call is the programmatic way in which a **computer program** requests a service from **the kernel of the operating system**

- Common system calls:
  - `fork()`: create a child process
  - `execvp()`: execute a file

# System Call via Libc

- Most user applications do not call a system call directly. For convenience, most implementations of standard C library provide a wrapper around the system call.



## Section 2

Why do we need system calls for shell?

# Shell

- Definition

Shell is a **user-level program** that exposes an **operating system's services** to a human user or other program.

- Tasks

Typically, launching, suspending, and killing other programs with **system calls**.

- Common shells

sh, bash, csh, tcsh, zsh, ksh. . .

# Why system call in shell

- ① User want to do the job regarding OS services  
i.e. create a child process, call other program
- ② Shell provide user a command-line interface to do the job
- ③ Shell requests a service to kernel of OS by **system call**
- ④ Kernel of OS do the job



**Thanks for your attthention!**