

System calls

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10:41 AM

* System calls is the way user programs request services from the OS.

* System calls use software interrupts.

- `open(filename, mode)`
- `read(file, buffer, size)`
- `write(file, buffer, size)`
- `fork()`
- `execve(cmd, args)`

Old one

* Difference between software interrupts and function calls?

System calls / software interrupts switch from user mode to kernel mode. OS needs privileged instructions that can be only executed in kernel mode.

* Operations that need to be executed by the OS in kernel mode are included in system calls. `str(n)`, `ws(n)` are not system calls. `malloc(size)` is not system calls but it might call another functions that might be a system calls.

* Example of system calls

`write(fd, buff, n)`

↓ ↓
file buffer
descriptors size
 (memory range)

⇒ System call to write to disk.

⇒ Memory range → `[buff, buff + n - 1]`

⇒ OS checks whether `fd` is a valid file with write permission.

⇒ OS checks if memory range is valid.

⇒ if any check fails then it returns `-1` and set errors.