

How processes are created & managed in Linux?

Creation

The first process init process is created and executed by the kernel as the first user-space process during the final stage of the system's boot sequence, with PID=1, always.

While the creation of new processes involves two steps using system calls.

1. fork(), A primary mechanism that allows the parent process to create the exact copy of itself, a child process.

2. exec() A child process created after "forking" the parent process may need to run a different executable, exec() allows to replace current's process's memory space, code and data with new program.

Although the PID remains same but program being executed is different.

3. clone() This system call provides more precise control over process creation with certain specifications of resources (mem, file, signal handlers), shared b/w parent & child.