

# System Calls in Linux, Unix and Windows Kernels

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## 1 Introduction

Both Windows and Linux/Unix support a number of system calls to allow a range of interactions with the kernel.

## 2 System calls in Linux/Unix

Linux kernel supports 200 system calls, these system calls are similar among different Unix based kernels. Common system calls for Unix/Linux are listed in Table 1.

## 3 System calls in Windows

Windows kernel supports 250 system calls, these system calls' functions range from memory management to process control including inter-process communication, security and I/O handling. Common system calls for Windows kernel are listed in Table 2.

Table 1: List of common Linux/Unix system calls along with short description of their functions.

| System Call | Function   |
|-------------|--|
| exit        | Exit syscall is used to terminate the current process  |
| fork        | Creates a copy of the current process as the child of the process that called fork   |
| write       | Write content from a buffer to either a file or a device   |
| open        | Open system call allows either to open a file, create one if it doesn't exist or truncate to an existing file                                    |
| close       | Closes a file descriptor   |
| chdir       | Changes the current working directory of the process   |
| execve      | Executes a program by overwriting the caller program, this system call in combination with fork allows execution of a program as a child process |

Table 2: List of common Windows system calls along with short description of their functions.

| System Call   | Function  |
|---------------|---|
| CreateProcess | Creates a new process and starts a specified program                    |
| ExitProcess   | Terminates current process  |
| CreateFile    | Creates a new file at the specified path                                |
| ReadFile      | Reads specified number of bytes from a file handler to a buffer         |
| WriteFile     | Writes specified number of bytes from a buffer to a file handler        |
| CloseHandle   | Closes an already opened file handler                                   |
| SetTimer      | Calls a specified function after certain number of milliseconds         |
| ReadConsole   | Reads characters from the console input buffer and removes them from it |
| WriteConsole  | Writes at the cursor location a character string                        |