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 3:

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 3:

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