

Advanced OS report

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process.c source code

```
/* process.c */

#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <sys/types.h>
#include <sys/wait.h>

int main(void)
{
    pid_t pid = -42;
    int wstatus = -42;
    int ret = -1;

    pid = fork();

    printf("PID:%d\n", pid);
    switch(pid)
    {
        case -1:
            perror("fork");
            return EXIT_FAILURE;

        case 0:
            sleep(30);
            printf("Nooo!\n");
            exit(0);

        default:
            printf("Iamyourfather!\n");
            int childPID = pid-1;
            char buf[80];
            sprintf(
                buf,
                "echo This is the VMA;
                cat /proc/%d/maps;
                echo This was the VMA",
                childPID
            );
            system(buf);
            break;
    }

    ret = waitpid(pid, &wstatus, 0);
    if(ret == -1)
    {
        perror("waitpid");
        return EXIT_FAILURE;
    }
    printf("Childexitstatus:%d\n",
        WEXITSTATUS(wstatus));

    return EXIT_SUCCESS;
}
```

We can see here that I access to the VMA by user space.

The PID of the child is found beeing the PID of the father minus 1 in user space

Terminal log

```
nicolas@nicolas-Lemur:~/Documents/COURS/A3-TODAI/Advanced-OS/forkCode$ ./process

PID:5365
Iamyourfather!

PID:0
This is the VMA
55d6cbe4e000-55d6cbe4f000 r-xp 00000000 08:12 4360398 /home/nicolas/Documents/COURS/
55d6cc04e000-55d6cc04f000 r--p 00000000 08:12 4360398 /home/nicolas/Documents/COURS/
55d6cc04f000-55d6cc050000 rw-p 00001000 08:12 4360398 /home/nicolas/Documents/COURS/
55d6ccb98000-55d6ccbb9000 rw-p 00000000 00:00 0 [heap]
7f1dc718a000-7f1dc7348000 r-xp 00000000 08:12 290834 /lib/x86_64-linux-gnu/libc-2.2
7f1dc7348000-7f1dc7547000 ---p 001be000 08:12 290834 /lib/x86_64-linux-gnu/libc-2.2
7f1dc7547000-7f1dc754b000 r--p 001bd000 08:12 290834 /lib/x86_64-linux-gnu/libc-2.2
7f1dc754b000-7f1dc754d000 rw-p 001c1000 08:12 290834 /lib/x86_64-linux-gnu/libc-2.2
7f1dc754d000-7f1dc7551000 rw-p 00000000 00:00 0
7f1dc7551000-7f1dc7577000 r-xp 00000000 08:12 290830 /lib/x86_64-linux-gnu/ld-2.24.
7f1dc774d000-7f1dc774f000 rw-p 00000000 00:00 0
7f1dc7773000-7f1dc7776000 rw-p 00000000 00:00 0
7f1dc7776000-7f1dc7777000 r--p 00025000 08:12 290830 /lib/x86_64-linux-gnu/ld-2.24.
7f1dc7777000-7f1dc7778000 rw-p 00026000 08:12 290830 /lib/x86_64-linux-gnu/ld-2.24.
7f1dc7778000-7f1dc7779000 rw-p 00000000 00:00 0
7ffcbbb8a000-7ffcbbbab000 rw-p 00000000 00:00 0 [stack]
7ffcbbbc7000-7ffcbbbc9000 r--p 00000000 00:00 0 [vvar]
7ffcbbbc9000-7ffcbbbc0000 r-xp 00000000 00:00 0 [vdso]
fffffffff600000-fffffffff601000 r-xp 00000000 00:00 0 [vsyscall]
This was the VMA
Nooo!
Childexitstatus:0
```