Московский Авиационный Институт

(Национальный исследовательский Университет)

Факультет: «Информационные технологии и прикладная математика»

Кафедра: 806 «Вычислительная математика и программирование»

**Лабораторная работа №1**

**по курсу «Операционные системы»**

|  |  |
| --- | --- |
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**Задание**

При выполнение лабораторных работ 2-6 необходимо продемонстрировать ключевые системные вызовы, которые в них используются и то, что их использование соответствует варианту лабораторной работы.

**Описание**

Strace показывает все системные вызовы программы, которые та отправляет к системе во время выполнения, а также их параметры и результат выполнения. С помощью данной утилиты ниже будут продемонстрированы системные вызовы, которые использовались в лабораторных работах.

**Лабораторная работа №2**

Основные системные вызовы:

execve — выполнить исполняемый файл.

pipe — предназначен для создания pip`a. Возвращает ноль при нормальном завершении и значение -1 при возникновении ошибок.

clone — предназначен для создания процесса-потомка. Возвращает PID процесса-потомка в случае успешного завершения. В случае ошибки, в контекст вызывающего процесса возвращается -1.

read — считывает данные файлового дескриптора. При успешном завершении возвращается количество байтов, которые были считаны. В случае ошибки возвращаемое значение равно -1.

write — производит запись в файловый дескриптор. В случае успешного завершения возвращается количество байтов, которые были записаны. В случае ошибки возвращается -1.

close — закрыть файловый дескриптор. Возвращает ноль при успешном завершении или -1, если произошла ошибка.

execve("./src", ["./src"], 0x7fffd37fabf0 /\* 52 vars \*/) = 0

brk(NULL) = 0x5651520a0000

arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7ffef6c4fa40) = -1 EINVAL (Недопустимый аргумент)

access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (Нет такого файла или каталога)

openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3

fstat(3, {st\_mode=S\_IFREG|0644, st\_size=97232, ...}) = 0

mmap(NULL, 97232, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7f58e61e0000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\360q\2\0\0\0\0\0"..., 832) = 832

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0cBR\340\305\370\2609W\242\345)q\235A\1"..., 68, 880) = 68

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=2029224, ...}) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f58e61de000

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0cBR\340\305\370\2609W\242\345)q\235A\1"..., 68, 880) = 68

mmap(NULL, 2036952, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f58e5fec000

mprotect(0x7f58e6011000, 1847296, PROT\_NONE) = 0

mmap(0x7f58e6011000, 1540096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x25000) = 0x7f58e6011000

mmap(0x7f58e6189000, 303104, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x19d000) = 0x7f58e6189000

mmap(0x7f58e61d4000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1e7000) = 0x7f58e61d4000

mmap(0x7f58e61da000, 13528, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f58e61da000

close(3) = 0

arch\_prctl(ARCH\_SET\_FS, 0x7f58e61df540) = 0

mprotect(0x7f58e61d4000, 12288, PROT\_READ) = 0

mprotect(0x565150da9000, 4096, PROT\_READ) = 0

mprotect(0x7f58e6225000, 4096, PROT\_READ) = 0

munmap(0x7f58e61e0000, 97232) = 0

pipe([3, 4]) = 0

pipe([5, 6]) = 0

clone(child\_stack=NULL, flags=CLONE\_CHILD\_CLEARTID|CLONE\_CHILD\_SETTID|SIGCHLD, child\_tidptr=0x7f58e61df810) = 7060

close(3) = 0

read(2, kol kolokol

"k", 1) = 1

write(4, "k", 1) = 1

read(2, "o", 1) = 1

write(4, "o", 1) = 1

read(2, "l", 1) = 1

write(4, "l", 1) = 1

read(2, " ", 1) = 1

write(4, " ", 1) = 1

read(2, "k", 1) = 1

write(4, "k", 1) = 1

read(2, "o", 1) = 1

write(4, "o", 1) = 1

read(2, "l", 1) = 1

write(4, "l", 1) = 1

read(2, "o", 1) = 1

write(4, "o", 1) = 1

read(2, "k", 1) = 1

write(4, "k", 1) = 1

read(2, "o", 1) = 1

write(4, "o", 1) = 1

read(2, "l", 1) = 1

write(4, "l", 1) = 1

read(2, "\n", 1) = 1

write(4, "\n", 1) = 1

read(2, "", 1) = 0

write(6, "\f\0\0\0", 4) = 4

read(2, kolok

"k", 1) = 1

write(4, "k", 1) = 1

read(2, "o", 1) = 1

write(4, "o", 1) = 1

read(2, "l", 1) = 1

write(4, "l", 1) = 1

read(2, "o", 1) = 1

write(4, "o", 1) = 1

read(2, "k", 1) = 1

write(4, "k", 1) = 1

read(2, "\n", 1) = 1

write(4, "\n", 1) = 1

read(2, "", 1) = 0

write(6, "\6\0\0\0", 4) = 4

wait4(-1, NULL, 0, NULL) = 7060

--- SIGCHLD {si\_signo=SIGCHLD, si\_code=CLD\_EXITED, si\_pid=7060, si\_uid=1000, si\_status=0, si\_utime=0, si\_stime=0} ---

read(5, "\4\0\0\0", 4) = 4

fstat(1, {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}) = 0

brk(NULL) = 0x5651520a0000

brk(0x5651520c1000) = 0x5651520c1000

write(1, "4\n", 24

) = 2

close(4) = 0

close(5) = 0

close(6) = 0

exit\_group(0) = ?

+++ exited with 0 +++

**Лабораторная работа №3**

Основные системные вызовы:

clone — используется для создания потока.

execve("./main", ["./main", "6"], 0x7ffe3ca9ffc8 /\* 52 vars \*/) = 0

brk(NULL) = 0x5629bbe2c000

arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7ffdd797e8d0) = -1 EINVAL (Недопустимый аргумент)

access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (Нет такого файла или каталога)

openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3

fstat(3, {st\_mode=S\_IFREG|0644, st\_size=97232, ...}) = 0

mmap(NULL, 97232, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7fa465d3b000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libpthread.so.0", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\201\0\0\0\0\0\0"..., 832) = 832

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0w\\\273\377\370\24Ef`xg\200\260\263\264\0"..., 68, 824) = 68

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=157224, ...}) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fa465d39000

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0w\\\273\377\370\24Ef`xg\200\260\263\264\0"..., 68, 824) = 68

mmap(NULL, 140408, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fa465d16000

mmap(0x7fa465d1d000, 69632, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x7000) = 0x7fa465d1d000

mmap(0x7fa465d2e000, 20480, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x18000) = 0x7fa465d2e000

mmap(0x7fa465d33000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1c000) = 0x7fa465d33000

mmap(0x7fa465d35000, 13432, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fa465d35000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\360q\2\0\0\0\0\0"..., 832) = 832

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0cBR\340\305\370\2609W\242\345)q\235A\1"..., 68, 880) = 68

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=2029224, ...}) = 0

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0cBR\340\305\370\2609W\242\345)q\235A\1"..., 68, 880) = 68

mmap(NULL, 2036952, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fa465b24000

mprotect(0x7fa465b49000, 1847296, PROT\_NONE) = 0

mmap(0x7fa465b49000, 1540096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x25000) = 0x7fa465b49000

mmap(0x7fa465cc1000, 303104, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x19d000) = 0x7fa465cc1000

mmap(0x7fa465d0c000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1e7000) = 0x7fa465d0c000

mmap(0x7fa465d12000, 13528, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fa465d12000

close(3) = 0

mmap(NULL, 12288, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fa465b21000

arch\_prctl(ARCH\_SET\_FS, 0x7fa465b21740) = 0

mprotect(0x7fa465d0c000, 12288, PROT\_READ) = 0

mprotect(0x7fa465d33000, 4096, PROT\_READ) = 0

mprotect(0x5629ba7f9000, 4096, PROT\_READ) = 0

mprotect(0x7fa465d80000, 4096, PROT\_READ) = 0

munmap(0x7fa465d3b000, 97232) = 0

set\_tid\_address(0x7fa465b21a10) = 9037

set\_robust\_list(0x7fa465b21a20, 24) = 0

rt\_sigaction(SIGRTMIN, {sa\_handler=0x7fa465d1dbf0, sa\_mask=[], sa\_flags=SA\_RESTORER|SA\_SIGINFO, sa\_restorer=0x7fa465d2b3c0}, NULL, 8) = 0

rt\_sigaction(SIGRT\_1, {sa\_handler=0x7fa465d1dc90, sa\_mask=[], sa\_flags=SA\_RESTORER|SA\_RESTART|SA\_SIGINFO, sa\_restorer=0x7fa465d2b3c0}, NULL, 8) = 0

rt\_sigprocmask(SIG\_UNBLOCK, [RTMIN RT\_1], NULL, 8) = 0

prlimit64(0, RLIMIT\_STACK, NULL, {rlim\_cur=8192\*1024, rlim\_max=RLIM64\_INFINITY}) = 0

brk(NULL) = 0x5629bbe2c000

brk(0x5629bbe4d000) = 0x5629bbe4d000

fstat(1, {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}) = 0

fstat(0, {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}) = 0

write(1, "Input size of matrix. Num\_row Nu"..., 42Input size of matrix. Num\_row Num\_column: ) = 42

read(0, 3

"3\n", 1024) = 2

read(0, 3

"3\n", 1024) = 2

read(0, 1

"1\n", 1024) = 2

read(0, 2

"2\n", 1024) = 2

read(0, 3

"3\n", 1024) = 2

read(0, 4

"4\n", 1024) = 2

read(0, 5

"5\n", 1024) = 2

read(0, 6

"6\n", 1024) = 2

read(0, 7

"7\n", 1024) = 2

read(0, 8

"8\n", 1024) = 2

read(0, 9

"9\n", 1024) = 2

write(1, "Input the amount of filtering: ", 31Input the amount of filtering: ) = 31

read(0, 1

"1\n", 1024) = 2

mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0) = 0x7fa465320000

mprotect(0x7fa465321000, 8388608, PROT\_READ|PROT\_WRITE) = 0

clone(child\_stack=0x7fa465b1ffb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa465b209d0, tls=0x7fa465b20700, child\_tidptr=0x7fa465b209d0) = 9082

mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0) = 0x7fa464b1f000

mprotect(0x7fa464b20000, 8388608, PROT\_READ|PROT\_WRITE) = 0

clone(child\_stack=0x7fa46531efb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa46531f9d0, tls=0x7fa46531f700, child\_tidptr=0x7fa46531f9d0) = 9083

mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0) = 0x7fa46431e000

mprotect(0x7fa46431f000, 8388608, PROT\_READ|PROT\_WRITE) = 0

clone(child\_stack=0x7fa464b1dfb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa464b1e9d0, tls=0x7fa464b1e700, child\_tidptr=0x7fa464b1e9d0) = 9084

mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0) = 0x7fa463b1d000

mprotect(0x7fa463b1e000, 8388608, PROT\_READ|PROT\_WRITE) = 0

clone(child\_stack=0x7fa46431cfb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa46431d9d0, tls=0x7fa46431d700, child\_tidptr=0x7fa46431d9d0) = 9085

mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0) = 0x7fa46331c000

mprotect(0x7fa46331d000, 8388608, PROT\_READ|PROT\_WRITE) = 0

clone(child\_stack=0x7fa463b1bfb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa463b1c9d0, tls=0x7fa463b1c700, child\_tidptr=0x7fa463b1c9d0) = 9086

mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0) = 0x7fa462b1b000

mprotect(0x7fa462b1c000, 8388608, PROT\_READ|PROT\_WRITE) = 0

clone(child\_stack=0x7fa46331afb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa46331b9d0, tls=0x7fa46331b700, child\_tidptr=0x7fa46331b9d0) = 9087

munmap(0x7fa465320000, 8392704) = 0

munmap(0x7fa464b1f000, 8392704) = 0

clone(child\_stack=0x7fa46331afb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa46331b9d0, tls=0x7fa46331b700, child\_tidptr=0x7fa46331b9d0) = 9088

clone(child\_stack=0x7fa463b1bfb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa463b1c9d0, tls=0x7fa463b1c700, child\_tidptr=0x7fa463b1c9d0) = 9089

clone(child\_stack=0x7fa46431cfb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa46431d9d0, tls=0x7fa46431d700, child\_tidptr=0x7fa46431d9d0) = 9090

write(1, "Dilate:\n", 8Dilate:

) = 8

write(1, "1.000000 1.000000 2.000000 \n", 281.000000 1.000000 2.000000

) = 28

write(1, "1.000000 1.000000 2.000000 \n", 281.000000 1.000000 2.000000

) = 28

write(1, "4.000000 4.000000 5.000000 \n", 284.000000 4.000000 5.000000

) = 28

clone(child\_stack=0x7fa46431cfb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa46431d9d0, tls=0x7fa46431d700, child\_tidptr=0x7fa46431d9d0) = 9091

clone(child\_stack=0x7fa463b1bfb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa463b1c9d0, tls=0x7fa463b1c700, child\_tidptr=0x7fa463b1c9d0) = 9092

clone(child\_stack=0x7fa46331afb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa46331b9d0, tls=0x7fa46331b700, child\_tidptr=0x7fa46331b9d0) = 9093

clone(child\_stack=0x7fa464b1dfb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa464b1e9d0, tls=0x7fa464b1e700, child\_tidptr=0x7fa464b1e9d0) = 9094

mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0) = 0x7fa465320000

mprotect(0x7fa465321000, 8388608, PROT\_READ|PROT\_WRITE) = 0

clone(child\_stack=0x7fa465b1ffb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa465b209d0, tls=0x7fa465b20700, child\_tidptr=0x7fa465b209d0) = 9095

mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0) = 0x7fa464b1f000

mprotect(0x7fa464b20000, 8388608, PROT\_READ|PROT\_WRITE) = 0

clone(child\_stack=0x7fa46531efb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa46531f9d0, tls=0x7fa46531f700, child\_tidptr=0x7fa46531f9d0) = 9096

munmap(0x7fa463b1d000, 8392704) = 0

munmap(0x7fa46331c000, 8392704) = 0

clone(child\_stack=0x7fa46531efb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa46531f9d0, tls=0x7fa46531f700, child\_tidptr=0x7fa46531f9d0) = 9097

clone(child\_stack=0x7fa465b1ffb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa465b209d0, tls=0x7fa465b20700, child\_tidptr=0x7fa465b209d0) = 9098

clone(child\_stack=0x7fa464b1dfb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa464b1e9d0, tls=0x7fa464b1e700, child\_tidptr=0x7fa464b1e9d0) = 9099

write(1, "Erode:\n", 7Erode:

) = 7

write(1, "5.000000 6.000000 6.000000 \n", 285.000000 6.000000 6.000000

) = 28

write(1, "8.000000 9.000000 9.000000 \n", 288.000000 9.000000 9.000000

) = 28

write(1, "8.000000 9.000000 9.000000 \n", 288.000000 9.000000 9.000000

) = 28

lseek(0, -1, SEEK\_CUR) = -1 ESPIPE (Недопустимая операция смещения)

exit\_group(0) = ?

+++ exited with 0 +++

**Лабораторная работа №4**

Основные системные вызовы:

mmap — позволяет отобразить файл на память. При удачном выполнении mmap возвращает указатель на область с отраженными данными. При ошибке возвращается -1.

execve("./main", ["./main"], 0x7ffc4bcc1030 /\* 52 vars \*/) = 0

brk(NULL) = 0x557e8ed0a000

arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7ffef4519b00) = -1 EINVAL (Недопустимый аргумент)

access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (Нет такого файла или каталога)

openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3

fstat(3, {st\_mode=S\_IFREG|0644, st\_size=97232, ...}) = 0

mmap(NULL, 97232, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7fb81ad92000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libpthread.so.0", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\201\0\0\0\0\0\0"..., 832) = 832

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0w\\\273\377\370\24Ef`xg\200\260\263\264\0"..., 68, 824) = 68

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=157224, ...}) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fb81ad90000

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0w\\\273\377\370\24Ef`xg\200\260\263\264\0"..., 68, 824) = 68

mmap(NULL, 140408, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fb81ad6d000

mmap(0x7fb81ad74000, 69632, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x7000) = 0x7fb81ad74000

mmap(0x7fb81ad85000, 20480, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x18000) = 0x7fb81ad85000

mmap(0x7fb81ad8a000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1c000) = 0x7fb81ad8a000

mmap(0x7fb81ad8c000, 13432, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fb81ad8c000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\360q\2\0\0\0\0\0"..., 832) = 832

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0cBR\340\305\370\2609W\242\345)q\235A\1"..., 68, 880) = 68

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=2029224, ...}) = 0

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0cBR\340\305\370\2609W\242\345)q\235A\1"..., 68, 880) = 68

mmap(NULL, 2036952, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fb81ab7b000

mprotect(0x7fb81aba0000, 1847296, PROT\_NONE) = 0

mmap(0x7fb81aba0000, 1540096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x25000) = 0x7fb81aba0000

mmap(0x7fb81ad18000, 303104, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x19d000) = 0x7fb81ad18000

mmap(0x7fb81ad63000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1e7000) = 0x7fb81ad63000

mmap(0x7fb81ad69000, 13528, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fb81ad69000

close(3) = 0

mmap(NULL, 12288, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fb81ab78000

arch\_prctl(ARCH\_SET\_FS, 0x7fb81ab78740) = 0

mprotect(0x7fb81ad63000, 12288, PROT\_READ) = 0

mprotect(0x7fb81ad8a000, 4096, PROT\_READ) = 0

mprotect(0x557e8df88000, 4096, PROT\_READ) = 0

mprotect(0x7fb81add7000, 4096, PROT\_READ) = 0

munmap(0x7fb81ad92000, 97232) = 0

set\_tid\_address(0x7fb81ab78a10) = 9666

set\_robust\_list(0x7fb81ab78a20, 24) = 0

rt\_sigaction(SIGRTMIN, {sa\_handler=0x7fb81ad74bf0, sa\_mask=[], sa\_flags=SA\_RESTORER|SA\_SIGINFO, sa\_restorer=0x7fb81ad823c0}, NULL, 8) = 0

rt\_sigaction(SIGRT\_1, {sa\_handler=0x7fb81ad74c90, sa\_mask=[], sa\_flags=SA\_RESTORER|SA\_RESTART|SA\_SIGINFO, sa\_restorer=0x7fb81ad823c0}, NULL, 8) = 0

rt\_sigprocmask(SIG\_UNBLOCK, [RTMIN RT\_1], NULL, 8) = 0

prlimit64(0, RLIMIT\_STACK, NULL, {rlim\_cur=8192\*1024, rlim\_max=RLIM64\_INFINITY}) = 0

statfs("/dev/shm/", {f\_type=TMPFS\_MAGIC, f\_bsize=4096, f\_blocks=1002968, f\_bfree=957439, f\_bavail=957439, f\_files=1002968, f\_ffree=1002801, f\_fsid={val=[0, 0]}, f\_namelen=255, f\_frsize=4096, f\_flags=ST\_VALID|ST\_NOSUID|ST\_NODEV}) = 0

futex(0x7fb81ad8f390, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0

openat(AT\_FDCWD, "/dev/shm/sem.sem1", O\_RDWR|O\_NOFOLLOW) = 3

fstat(3, {st\_mode=S\_IFREG|0664, st\_size=32, ...}) = 0

brk(NULL) = 0x557e8ed0a000

brk(0x557e8ed2b000) = 0x557e8ed2b000

mmap(NULL, 32, PROT\_READ|PROT\_WRITE, MAP\_SHARED, 3, 0) = 0x7fb81add6000

close(3) = 0

openat(AT\_FDCWD, "/dev/shm/sem.sem2", O\_RDWR|O\_NOFOLLOW) = 3

fstat(3, {st\_mode=S\_IFREG|0664, st\_size=32, ...}) = 0

mmap(NULL, 32, PROT\_READ|PROT\_WRITE, MAP\_SHARED, 3, 0) = 0x7fb81ada9000

close(3) = 0

unlink("/dev/shm/sem.s1") = -1 ENOENT (Нет такого файла или каталога)

unlink("/dev/shm/sem.s2") = -1 ENOENT (Нет такого файла или каталога)

fstat(0, {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}) = 0

read(0, kol

"kol\n", 1024) = 4

read(0, lo kool kolokol

"lo kool kolokol\n", 1024) = 16

openat(AT\_FDCWD, "mapped", O\_RDWR|O\_CREAT, 0666) = 3

ftruncate(3, 20) = 0

mmap(NULL, 20, PROT\_READ|PROT\_WRITE, MAP\_SHARED, 3, 0) = 0x7fb81ada8000

clone(child\_stack=NULL, flags=CLONE\_CHILD\_CLEARTID|CLONE\_CHILD\_SETTID|SIGCHLD, child\_tidptr=0x7fb81ab78a10) = 9683

futex(0x7fb81ada9000, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 0, NULL, FUTEX\_BITSET\_MATCH\_ANY) = 0

fstat(1, {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}) = 0

write(1, "8\n", 28

) = 2

--- SIGCHLD {si\_signo=SIGCHLD, si\_code=CLD\_EXITED, si\_pid=9683, si\_uid=1000, si\_status=0, si\_utime=0, si\_stime=0} ---

munmap(0x7fb81add6000, 32) = 0

munmap(0x7fb81ada9000, 32) = 0

munmap(0x7fb81ada8000, 20) = 0

close(3) = 0

exit\_group(0) = ?

+++ exited with 0 +++

**Лабораторная работа №5**

execve("./dyn1", ["./dyn1"], 0x7fff955bb490 /\* 53 vars \*/) = 0

brk(NULL) = 0x556ce2374000

arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7ffe2e641fd0) = -1 EINVAL (Недопустимый аргумент)

access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (Нет такого файла или каталога)

openat(AT\_FDCWD, "/home/alex/Documents/OS/lab05/src/tls/haswell/x86\_64/libdeque\_dyn.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (Нет такого файла или каталога)

stat("/home/alex/Documents/OS/lab05/src/tls/haswell/x86\_64", 0x7ffe2e641220) = -1 ENOENT (Нет такого файла или каталога)

openat(AT\_FDCWD, "/home/alex/Documents/OS/lab05/src/tls/haswell/libdeque\_dyn.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (Нет такого файла или каталога)

stat("/home/alex/Documents/OS/lab05/src/tls/haswell", 0x7ffe2e641220) = -1 ENOENT (Нет такого файла или каталога)

openat(AT\_FDCWD, "/home/alex/Documents/OS/lab05/src/tls/x86\_64/libdeque\_dyn.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (Нет такого файла или каталога)

stat("/home/alex/Documents/OS/lab05/src/tls/x86\_64", 0x7ffe2e641220) = -1 ENOENT (Нет такого файла или каталога)

openat(AT\_FDCWD, "/home/alex/Documents/OS/lab05/src/tls/libdeque\_dyn.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (Нет такого файла или каталога)

stat("/home/alex/Documents/OS/lab05/src/tls", 0x7ffe2e641220) = -1 ENOENT (Нет такого файла или каталога)

openat(AT\_FDCWD, "/home/alex/Documents/OS/lab05/src/haswell/x86\_64/libdeque\_dyn.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (Нет такого файла или каталога)

stat("/home/alex/Documents/OS/lab05/src/haswell/x86\_64", 0x7ffe2e641220) = -1 ENOENT (Нет такого файла или каталога)

openat(AT\_FDCWD, "/home/alex/Documents/OS/lab05/src/haswell/libdeque\_dyn.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (Нет такого файла или каталога)

stat("/home/alex/Documents/OS/lab05/src/haswell", 0x7ffe2e641220) = -1 ENOENT (Нет такого файла или каталога)

openat(AT\_FDCWD, "/home/alex/Documents/OS/lab05/src/x86\_64/libdeque\_dyn.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (Нет такого файла или каталога)

stat("/home/alex/Documents/OS/lab05/src/x86\_64", 0x7ffe2e641220) = -1 ENOENT (Нет такого файла или каталога)

openat(AT\_FDCWD, "/home/alex/Documents/OS/lab05/src/libdeque\_dyn.so", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\21\0\0\0\0\0\0"..., 832) = 832

fstat(3, {st\_mode=S\_IFREG|0775, st\_size=16816, ...}) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f958ad98000

mmap(NULL, 16472, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f958ad93000

mmap(0x7f958ad94000, 4096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1000) = 0x7f958ad94000

mmap(0x7f958ad95000, 4096, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7f958ad95000

mmap(0x7f958ad96000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7f958ad96000

close(3) = 0

openat(AT\_FDCWD, "/home/alex/Documents/OS/lab05/src/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (Нет такого файла или каталога)

openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3

fstat(3, {st\_mode=S\_IFREG|0644, st\_size=97232, ...}) = 0

mmap(NULL, 97232, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7f958ad7b000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\360q\2\0\0\0\0\0"..., 832) = 832

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0cBR\340\305\370\2609W\242\345)q\235A\1"..., 68, 880) = 68

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=2029224, ...}) = 0

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0cBR\340\305\370\2609W\242\345)q\235A\1"..., 68, 880) = 68

mmap(NULL, 2036952, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f958ab89000

mprotect(0x7f958abae000, 1847296, PROT\_NONE) = 0

mmap(0x7f958abae000, 1540096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x25000) = 0x7f958abae000

mmap(0x7f958ad26000, 303104, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x19d000) = 0x7f958ad26000

mmap(0x7f958ad71000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1e7000) = 0x7f958ad71000

mmap(0x7f958ad77000, 13528, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f958ad77000

close(3) = 0

mmap(NULL, 12288, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f958ab86000

arch\_prctl(ARCH\_SET\_FS, 0x7f958ab86740) = 0

mprotect(0x7f958ad71000, 12288, PROT\_READ) = 0

mprotect(0x7f958ad96000, 4096, PROT\_READ) = 0

mprotect(0x556ce0da6000, 4096, PROT\_READ) = 0

mprotect(0x7f958adc7000, 4096, PROT\_READ) = 0

munmap(0x7f958ad7b000, 97232) = 0

brk(NULL) = 0x556ce2374000

brk(0x556ce2395000) = 0x556ce2395000

fstat(1, {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}) = 0

write(1, "select\n", 7select

) = 7

write(1, "1-print\n", 81-print

) = 8

write(1, "2-insert\n", 92-insert

) = 9

write(1, "3-delete\n", 93-delete

) = 9

write(1, "4-clear\n", 84-clear

) = 8

write(1, "5-push front\n", 135-push front

) = 13

write(1, "6-push back\n", 126-push back

) = 12

write(1, "7-pop front\n", 127-pop front

) = 12

write(1, "8-pop back\n", 118-pop back

) = 11

write(1, "9-size\n", 79-size

) = 7

write(1, "10-front\n", 910-front

) = 9

write(1, "11-back\n", 811-back

) = 8

write(1, "12-end\n", 712-end

) = 7

fstat(0, {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}) = 0

read(0, 2

"2\n", 1024) = 2

write(1, "Enter index new value: ", 23Enter index new value: ) = 23

read(0, 0

"0\n", 1024) = 2

write(1, "Enter value: ", 13Enter value: ) = 13

read(0, 10

"10\n", 1024) = 3

write(1, "select\n1-print\n2-insert\n3-delete"..., 113select

1-print

2-insert

3-delete

4-clear

5-push front

6-push back

7-pop front

8-pop back

9-size

10-front

11-back

) = 113

write(1, "12-end\n", 712-end

) = 7

read(0, 1

"1\n", 1024) = 2

write(1, "10 \n", 410

) = 4

write(1, "select\n1-print\n2-insert\n3-delete"..., 113select

1-print

2-insert

3-delete

4-clear

5-push front

6-push back

7-pop front

8-pop back

9-size

10-front

11-back

) = 113

write(1, "12-end\n", 712-end

) = 7

read(0, 12

"12\n", 1024) = 3

lseek(0, -1, SEEK\_CUR) = -1 ESPIPE (Недопустимая операция смещения)

exit\_group(0) = ?

+++ exited with 0 +++

**Лабораторная работа №6**

alex@pc:~/Documents/OS/lab06/src/temp$ strace -e trace=clone ./manager

c 1 -1

clone(child\_stack=0x7fa3f31b4d30, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa3f31b59d0, tls=0x7fa3f31b5700, child\_tidptr=0x7fa3f31b59d0) = 10456

clone(child\_stack=0x7fa3f29b3d30, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fa3f29b49d0, tls=0x7fa3f29b4700, child\_tidptr=0x7fa3f29b49d0) = 10457

clone(child\_stack=NULL, flags=CLONE\_CHILD\_CLEARTID|CLONE\_CHILD\_SETTID|SIGCHLD, child\_tidptr=0x7fa3f31cd8d0) = 10458

Ok:10458

c 2 -1

clone(child\_stack=NULL, flags=CLONE\_CHILD\_CLEARTID|CLONE\_CHILD\_SETTID|SIGCHLD, child\_tidptr=0x7fa3f31cd8d0) = 10465

Ok:10465

c 3 -1

clone(child\_stack=NULL, flags=CLONE\_CHILD\_CLEARTID|CLONE\_CHILD\_SETTID|SIGCHLD, child\_tidptr=0x7fa3f31cd8d0) = 10472

Ok:10472

c 4 2

Ok:10477

c 5 2

Ok:10484

pingall

Ok: -1

e

--- SIGCHLD {si\_signo=SIGCHLD, si\_code=CLD\_KILLED, si\_pid=0, si\_uid=1000, si\_status=SIGTERM, si\_utime=1, si\_stime=0} ---

--- SIGCHLD {si\_signo=SIGCHLD, si\_code=CLD\_KILLED, si\_pid=0, si\_uid=1000, si\_status=SIGTERM, si\_utime=0, si\_stime=2} ---

--- SIGCHLD {si\_signo=SIGCHLD, si\_code=CLD\_KILLED, si\_pid=0, si\_uid=1000, si\_status=SIGTERM, si\_utime=0, si\_stime=0} ---

+++ exited with 0 +++