

Московский Авиационный Институт  
(Национальный Исследовательский Университет)



Факультет информационных технологий и прикладной  
математикиКафедра вычислительной математики и  
программирования

**Лабораторная работа №1 по курсу**  
**«Операционные системы»**

Группа: М80 – 201Б-19  
Студент: Цыкин И.А.  
Преподаватель: Миронов Е.С  
Оценка:

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Дата:

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## Цель работы

Приобретение практических навыков диагностики работы программного обеспечения.

## Задание

При выполнении последующих лабораторных работ необходимо продемонстрировать ключевые системные вызовы, которые в них используются и то, что их использование соответствует варианту ЛР.

По итогам выполнения всех лабораторных работ отчет по данной должен содержать краткую сводку по исследованию последующих ЛР.

## Лабораторная работа №2

```
execve("./main", ["/main"], 0x7ffcc16bac20 /* 58 vars */) = 0
brk(NULL) = 0x559490d69000
arch_prctl(0x3001 /* ARCH_??? */, 0x7ffdac0175a0) = -1 EINVAL (Invalid
argument)
access("/etc/ld.so.preload", R_OK) = -1 ENOENT (No such file or
directory)
openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3
fstat(3, {st_mode=S_IFREG|0644, st_size=87309, ...}) = 0
mmap(NULL, 87309, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7f530c620000
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\3\0>\0\1\0\0\0\360q\2\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\0\t\233\222%\274\260\320\31\331\326\10\204\276X
>\263"...
, 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) =
0x7f530c61e000
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\0\t\233\222%\274\260\320\31\331\326\10\204\276X
>\263"...
, 68, 880) = 68
mmap(NULL, 2036952, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f530c42c000
mprotect(0x7f530c451000, 1847296, PROT_NONE) = 0
mmap(0x7f530c451000, 1540096, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x250000) = 0x7f530c451000
```

```

mmap(0x7f530c5c9000, 303104, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x19d000) = 0x7f530c5c9000
mmap(0x7f530c614000, 24576, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1e7000) = 0x7f530c614000
mmap(0x7f530c61a000, 13528, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7f530c61a000
close(3) = 0
arch_prctl(ARCH_SET_FS, 0x7f530c61f540) = 0
mprotect(0x7f530c614000, 12288, PROT_READ) = 0
mprotect(0x55948f1ba000, 4096, PROT_READ) = 0
mprotect(0x7f530c663000, 4096, PROT_READ) = 0
munmap(0x7f530c620000, 87309) = 0
fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0
brk(NULL) = 0x559490d69000
brk(0x559490d8a000) = 0x559490d8a000
fstat(0, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0
write(1, "Enter name of file: ", 20Enter name of file: ) = 20
read(0, text
"text\n", 1024) = 5
pipe([3, 4]) = 0
clone(child_stack=NULL,
flags=CLONE_CHILD_CLEARTID|CLONE_CHILD_SETTID|SIGCHLD,
child_tidptr=0x7f530c61f810) = 4164
close(4) = 0
read(3, "", 4) = 0
--- SIGCHLD {si_signo=SIGCHLD, si_code=CLD_EXITED, si_pid=4164, si_uid=1000,
si_status=0, si_utime=0, si_stime=0} ---
close(3) = 0
lseek(0, -1, SEEK_CUR) = -1 ESPIPE (Illegal seek)
exit_group(0) = ?
+++ exited with 0 +++

```

### Лабораторная работа №3

```

execve("./main", ["./main", "1"], 0x7ffcf520abf8 /* 58 vars */) = 0
brk(NULL) = 0x55a32f11b000
arch_prctl(0x3001 /* ARCH_??? */, 0x7ffe6b3b6d80) = -1 EINVAL (Invalid
argument)
access("/etc/ld.so.preload", R_OK) = -1 ENOENT (No such file or
directory)
openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3
fstat(3, {st_mode=S_IFREG|0644, st_size=87309, ...}) = 0
mmap(NULL, 87309, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7f3c7d270000
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"..., 832)
= 832
pread64(3,
"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\345Ga\367\265T\320\374\301V)Yf]\223\337"...,
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) =
0x7f3c7d26e000
pread64(3,
"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\345Ga\367\265T\320\374\301V)Yf]\223\337"...,
68, 824) = 68
mmap(NULL, 140408, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f3c7d24b000
mmap(0x7f3c7d252000, 69632, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x7000) = 0x7f3c7d252000

```

```

mmap(0x7f3c7d263000, 20480, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x18000) = 0x7f3c7d263000
mmap(0x7f3c7d268000, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1c000) = 0x7f3c7d268000
mmap(0x7f3c7d26a000, 13432, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7f3c7d26a000
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\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", 32, 848)
= 32
pread64(3,
"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\t\233\222%\274\260\320\31\331\326\10\204\276X
>\263"..., 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", 32, 848)
= 32
pread64(3,
"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\t\233\222%\274\260\320\31\331\326\10\204\276X
>\263"..., 68, 880) = 68
mmap(NULL, 2036952, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f3c7d059000
mprotect(0x7f3c7d07e000, 1847296, PROT_NONE) = 0
mmap(0x7f3c7d07e000, 1540096, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x25000) = 0x7f3c7d07e000
mmap(0x7f3c7d1f6000, 303104, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x19d000) = 0x7f3c7d1f6000
mmap(0x7f3c7d241000, 24576, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1e7000) = 0x7f3c7d241000
mmap(0x7f3c7d247000, 13528, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7f3c7d247000
close(3) = 0
mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7f3c7d056000
arch_prctl(ARCH_SET_FS, 0x7f3c7d056740) = 0
mprotect(0x7f3c7d241000, 12288, PROT_READ) = 0
mprotect(0x7f3c7d268000, 4096, PROT_READ) = 0
mprotect(0x55a32e1f7000, 4096, PROT_READ) = 0
mprotect(0x7f3c7d2b3000, 4096, PROT_READ) = 0
munmap(0x7f3c7d270000, 87309) = 0
set_tid_address(0x7f3c7d056a10) = 4648
set_robust_list(0x7f3c7d056a20, 24) = 0
rt_sigaction(SIGRTMIN, {sa_handler=0x7f3c7d252bf0, sa_mask=[],
sa_flags=SA_RESTORER|SA_SIGINFO, sa_restorer=0x7f3c7d2603c0}, NULL, 8) = 0
rt_sigaction(SIGRT_1, {sa_handler=0x7f3c7d252c90, sa_mask=[],
sa_flags=SA_RESTORER|SA_RESTART|SA_SIGINFO, sa_restorer=0x7f3c7d2603c0},
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
fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0
brk(NULL) = 0x55a32f11b000
brk(0x55a32f13c000) = 0x55a32f13c000
write(1, "Thread number: 1\n", 17Thread number: 1
) = 17

```

```

fstat(0, {st_mode=S_IFREG|0664, st_size=150, ...}) = 0
read(0, "36 1 1 2 2 3 3 4 4 5 5 6 6 7 7 8"... , 4096) = 150
clock_gettime(CLOCK_PROCESS_CPUTIME_ID, {tv_sec=0, tv_nsec=946754}) = 0
mmap(NULL, 8392704, PROT_NONE, MAP_PRIVATE|MAP_ANONYMOUS|MAP_STACK, -1, 0) =
0x7f3c7c855000
mprotect(0x7f3c7c856000, 8388608, PROT_READ|PROT_WRITE) = 0
clone(child_stack=0x7f3c7d054fb0,
flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSVSEM|
CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID, parent_tid=[4649],
tls=0x7f3c7d055700, child_tidptr=0x7f3c7d0559d0) = 4649
futex(0x7f3c7d0559d0, FUTEX_WAIT, 4649, NULL) = 0
clock_gettime(CLOCK_PROCESS_CPUTIME_ID, {tv_sec=0, tv_nsec=1025534}) = 0
write(1, "Enter the number of degree of 1 "... , 370Enter the number of degree
of 1 polynomial: Enter the number of degree of 2 polynomial: Result: 9 18 35
52 76 100 130 160 195 230 269 308 350 392 436 480 525 570 607 644 666 688 698
708 709 710 705 700 692 684 676 668 663 658 659 660 659 658 663 668 676 684
692 700 705 710 709 708 698 688 666 644 607 570 525 480 436 392 350 308 269
230 195 160 130 100 76 52 35 18 11
) = 370
write(1, "Execution time 0.079000 ms\n", 27Execution time 0.079000 ms
) = 27
lseek(0, -1, SEEK_CUR) = 149
exit_group(0) = ?
+++ exited with 0 +++

```

## Лабораторная работа №4

```

execve("./main", ["/main"], 0x7fffc3677580 /* 58 vars */) = 0
brk(NULL) = 0x55ae4fdcd000
arch_prctl(0x3001 /* ARCH_??? */, 0x7ffef95428c0) = -1 EINVAL (Invalid
argument)
access("/etc/ld.so.preload", R_OK) = -1 ENOENT (No such file or
directory)
openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3
fstat(3, {st_mode=S_IFREG|0644, st_size=87309, ...}) = 0
mmap(NULL, 87309, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7f31b5c59000
close(3) = 0
openat(AT_FDCWD, "/lib/x86_64-linux-gnu/librt.so.1", 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 7\0\0\0\0\0\0"... ,
832) = 832
fstat(3, {st_mode=S_IFREG|0644, st_size=40040, ...}) = 0
mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7f31b5c57000
mmap(NULL, 44000, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f31b5c4c000
mprotect(0x7f31b5c4f000, 24576, PROT_NONE) = 0
mmap(0x7f31b5c4f000, 16384, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x3000) = 0x7f31b5c4f000
mmap(0x7f31b5c53000, 4096, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x7000) = 0x7f31b5c53000
mmap(0x7f31b5c55000, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x8000) = 0x7f31b5c55000
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\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\0\t\233\222%\274\260\320\31\331\326\10\204\276X
>\263"... , 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", 32, 848)
= 32
pread64(3,
"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\t\233\222%\274\260\320\31\331\326\10\204\276X
>\263"... , 68, 880) = 68
mmap(NULL, 2036952, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f31b5a5a000
mprotect(0x7f31b5a7f000, 1847296, PROT_NONE) = 0
mmap(0x7f31b5a7f000, 1540096, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x25000) = 0x7f31b5a7f000
mmap(0x7f31b5bf7000, 303104, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x19d000) = 0x7f31b5bf7000
mmap(0x7f31b5c42000, 24576, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1e7000) = 0x7f31b5c42000
mmap(0x7f31b5c48000, 13528, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7f31b5c48000
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\0\345Ga\367\265T\320\374\301V)Yf]\223\337"... ,
68, 824) = 68
fstat(3, {st_mode=S_IFREG|0755, st_size=157224, ...}) = 0
pread64(3,
"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\345Ga\367\265T\320\374\301V)Yf]\223\337"... ,
68, 824) = 68
mmap(NULL, 140408, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f31b5a37000
mmap(0x7f31b5a3e000, 69632, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x7000) = 0x7f31b5a3e000
mmap(0x7f31b5a4f000, 20480, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x18000) = 0x7f31b5a4f000
mmap(0x7f31b5a54000, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1c000) = 0x7f31b5a54000
mmap(0x7f31b5a56000, 13432, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7f31b5a56000
close(3) = 0
mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7f31b5a34000
arch_prctl(ARCH_SET_FS, 0x7f31b5a34740) = 0
mprotect(0x7f31b5c42000, 12288, PROT_READ) = 0
mprotect(0x7f31b5a54000, 4096, PROT_READ) = 0
mprotect(0x7f31b5c55000, 4096, PROT_READ) = 0
mprotect(0x55ae4ee69000, 4096, PROT_READ) = 0
mprotect(0x7f31b5c9c000, 4096, PROT_READ) = 0
munmap(0x7f31b5c59000, 87309) = 0
set_tid_address(0x7f31b5a34a10) = 4751
set_robust_list(0x7f31b5a34a20, 24) = 0
rt_sigaction(SIGRTMIN, {sa_handler=0x7f31b5a3ebf0, sa_mask=[],
sa_flags=SA_RESTORER|SA_SIGINFO, sa_restorer=0x7f31b5a4c3c0}, NULL, 8) = 0
rt_sigaction(SIGRT_1, {sa_handler=0x7f31b5a3ec90, sa_mask=[],
sa_flags=SA_RESTORER|SA_RESTART|SA_SIGINFO, sa_restorer=0x7f31b5a4c3c0},
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
fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0
brk(NULL) = 0x55ae4fdcd000
brk(0x55ae4fdee000) = 0x55ae4fdee000
fstat(0, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0
write(1, "Enter file name: ", 17Enter file name: ) = 17
read(0, test
"test\n", 1024) = 5
clone(child_stack=NULL,
flags=CLONE_CHILD_CLEARTID|CLONE_CHILD_SETTID|SIGCHLD,
child_tidptr=0x7f31b5a34a10) = 4752
wait4(4752, [{WIFEXITED(s) && WEXITSTATUS(s) == 0}], 0, NULL) = 4752
--- SIGCHLD {si_signo=SIGCHLD, si_code=CLD_EXITED, si_pid=4752, si_uid=1000,
si_status=0, si_utime=0, si_stime=0} ---
statfs("/dev/shm/", {f_type=TMPFS_MAGIC, f_bsize=4096, f_blocks=383011,
f_bfree=376276, f_bavail=376276, f_files=383011, f_ffree=382894,
f_fsid={val=[0, 0]}, f_namelen=255, f_frsize=4096,
f_flags=ST_VALID|ST_NOSUID|ST_NODEV}) = 0
futex(0x7f31b5a59390, FUTEX_WAKE_PRIVATE, 2147483647) = 0
openat(AT_FDCWD, "/dev/shm/fil", O_RDONLY|O_NOFOLLOW|O_CLOEXEC) = 3
mmap(NULL, 4096, PROT_READ, MAP_SHARED, 3, 0) = 0x7f31b5c9b000
write(1, "1 Result from child: 9\n", 231 Result from child: 9
) = 23
write(1, "2 Result from child: 2\n", 232 Result from child: 2
) = 23
write(1, "3 Result from child: -2\n", 243 Result from child: -2
) = 24
munmap(0x7f31b5c9b000, 4096) = 0
unlink("/dev/shm/fil") = 0
close(3) = 0
lseek(0, -1, SEEK_CUR) = -1 ESPIPE (Illegal seek)
exit_group(0) = ?
+++ exited with 0 +++

```

## Лабораторная работа №5

### ./main1

```

execve("./main1", [ "./main1" ], 0x7ffdc56579b0 /* 58 vars */) = 0
brk(NULL) = 0x5619cbd2d000
arch_prctl(0x3001 /* ARCH_??? */, 0x7fff824f52b0) = -1 EINVAL (Invalid
argument)
access("/etc/ld.so.preload", R_OK) = -1 ENOENT (No such file or
directory)
openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3
fstat(3, {st_mode=S_IFREG|0644, st_size=87309, ...}) = 0
mmap(NULL, 87309, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7fbb9a6db000
close(3) = 0
openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libm.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\300\363\0\0\0\0\0"... , 832)
= 832
fstat(3, {st_mode=S_IFREG|0644, st_size=1369352, ...}) = 0
mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7fbb9a6d9000
mmap(NULL, 1368336, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7fbb9a58a000
mmap(0x7fbb9a599000, 684032, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0xf000) = 0x7fbb9a599000
mmap(0x7fbb9a640000, 618496, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0xb6000) = 0x7fbb9a640000

```

```

mmap(0x7fbb9a6d7000, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x14c000) = 0x7fbb9a6d7000
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"... , 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", 32, 848)
= 32
pread64(3,
"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\t\233\222%\274\260\320\31\331\326\10\204\276X
>\263"... , 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"... , 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", 32, 848)
= 32
pread64(3,
"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\t\233\222%\274\260\320\31\331\326\10\204\276X
>\263"... , 68, 880) = 68
mmap(NULL, 2036952, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7fbb9a398000
mprotect(0x7fbb9a3bd000, 1847296, PROT_NONE) = 0
mmap(0x7fbb9a3bd000, 1540096, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x25000) = 0x7fbb9a3bd000
mmap(0x7fbb9a535000, 303104, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x19d000) = 0x7fbb9a535000
mmap(0x7fbb9a580000, 24576, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1e7000) = 0x7fbb9a580000
mmap(0x7fbb9a586000, 13528, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7fbb9a586000
close(3) = 0
mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7fbb9a395000
arch_prctl(ARCH_SET_FS, 0x7fbb9a395740) = 0
mprotect(0x7fbb9a580000, 12288, PROT_READ) = 0
mprotect(0x7fbb9a6d7000, 4096, PROT_READ) = 0
mprotect(0x5619cb290000, 4096, PROT_READ) = 0
mprotect(0x7fbb9a71e000, 4096, PROT_READ) = 0
munmap(0x7fbb9a6db000, 87309) = 0
fstat(0, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0
brk(NULL) = 0x5619cbd2d000
brk(0x5619cbd4e000) = 0x5619cbd4e000
read(0, 1 3 14
"1 3 14\n", 1024) = 7
fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0
write(1, "Result (Usual way): 5\n", 22Result (Usual way): 5
) = 22
read(0, 2 11
"2 11\n", 1024) = 5
write(1, "Result (Binary): 1011\n", 22Result (Binary): 1011
) = 22
read(0, 0
"0\n", 1024) = 2
lseek(0, -1, SEEK_CUR) = -1 ESPIPE (Illegal seek)
exit_group(0) = ?
+++ exited with 0 +++

```



## ./main2

```
execve("./main2", ["../main2"], 0x7ffecda53f50 /* 58 vars */) = 0
brk(NULL) = 0x55675274d000
arch_prctl(0x3001 /* ARCH_??? */, 0x7fffcf37da40) = -1 EINVAL (Invalid
argument)
access("/etc/ld.so.preload", R_OK) = -1 ENOENT (No such file or
directory)
openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3
fstat(3, {st_mode=S_IFREG|0644, st_size=87309, ...}) = 0
mmap(NULL, 87309, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7fa8de36e000
close(3) = 0
openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libdl.so.2", 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 \22\0\0\0\0\0\0"...
, 832) = 832
fstat(3, {st_mode=S_IFREG|0644, st_size=18816, ...}) = 0
mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7fa8de36c000
mmap(NULL, 20752, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7fa8de366000
mmap(0x7fa8de367000, 8192, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1000) = 0x7fa8de367000
mmap(0x7fa8de369000, 4096, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x3000) = 0x7fa8de369000
mmap(0x7fa8de36a000, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x3000) = 0x7fa8de36a000
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\0\t\233\222%\274\260\320\31\331\326\10\204\276X
>\263"...
, 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\0\t\233\222%\274\260\320\31\331\326\10\204\276X
>\263"...
, 68, 880) = 68
mmap(NULL, 2036952, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7fa8de174000
mprotect(0x7fa8de199000, 1847296, PROT_NONE) = 0
mmap(0x7fa8de199000, 1540096, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x25000) = 0x7fa8de199000
mmap(0x7fa8de311000, 303104, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x19d000) = 0x7fa8de311000
mmap(0x7fa8de35c000, 24576, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1e7000) = 0x7fa8de35c000
mmap(0x7fa8de362000, 13528, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7fa8de362000
close(3) = 0
mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7fa8de171000
arch_prctl(ARCH_SET_FS, 0x7fa8de171740) = 0
```

```

mprotect(0x7fa8de35c000, 12288, PROT_READ) = 0
mprotect(0x7fa8de36a000, 4096, PROT_READ) = 0
mprotect(0x5567514e6000, 4096, PROT_READ) = 0
mprotect(0x7fa8de3b1000, 4096, PROT_READ) = 0
munmap(0x7fa8de36e000, 87309) = 0
brk(NULL) = 0x55675274d000
brk(0x55675276e000) = 0x55675276e000
openat(AT_FDCWD, "./library1.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\300\20\0\0\0\0\0"..., 832)
= 832
fstat(3, {st_mode=S_IFREG|0775, st_size=16416, ...}) = 0
getcwd("/home/vaney/OS/lab5", 128) = 20
mmap(NULL, 16456, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7fa8de37f000
mmap(0x7fa8de380000, 4096, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1000) = 0x7fa8de380000
mmap(0x7fa8de381000, 4096, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x2000) = 0x7fa8de381000
mmap(0x7fa8de382000, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x2000) = 0x7fa8de382000
close(3) = 0
openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3
fstat(3, {st_mode=S_IFREG|0644, st_size=87309, ...}) = 0
mmap(NULL, 87309, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7fa8de15b000
close(3) = 0
openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libm.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\300\363\0\0\0\0\0"..., 832)
= 832
fstat(3, {st_mode=S_IFREG|0644, st_size=1369352, ...}) = 0
mmap(NULL, 1368336, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7fa8de00c000
mmap(0x7fa8de01b000, 684032, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0xf000) = 0x7fa8de01b000
mmap(0x7fa8de0c2000, 618496, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0xb6000) = 0x7fa8de0c2000
mmap(0x7fa8de159000, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x14c000) = 0x7fa8de159000
close(3) = 0
mprotect(0x7fa8de159000, 4096, PROT_READ) = 0
mprotect(0x7fa8de382000, 4096, PROT_READ) = 0
munmap(0x7fa8de15b000, 87309) = 0
fstat(0, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0
read(0, 1 3 14
"1 3 14\n", 1024) = 7
fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0
write(1, "Result (Usual way): 5\n", 22Result (Usual way): 5
) = 22
read(0, 0
"0\n", 1024) = 2
munmap(0x7fa8de37f000, 16456) = 0
munmap(0x7fa8de00c000, 1368336) = 0
openat(AT_FDCWD, "./library2.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\240\20\0\0\0\0\0"..., 832)
= 832
fstat(3, {st_mode=S_IFREG|0775, st_size=16384, ...}) = 0
getcwd("/home/vaney/OS/lab5", 128) = 20
mmap(NULL, 16448, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7fa8de37f000
mmap(0x7fa8de380000, 4096, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1000) = 0x7fa8de380000

```

```

mmap(0x7fa8de381000, 4096, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x2000) = 0x7fa8de381000
mmap(0x7fa8de382000, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x2000) = 0x7fa8de382000
close(3) = 0
mprotect(0x7fa8de382000, 4096, PROT_READ) = 0
read(0, 1 3 14
"1 3 14\n", 1024) = 7
write(1, "Result (The sieve of Eratosthene"... , 38Result (The sieve of
Eratosthenes): 5
) = 38
read(0, 2 13
"2 13\n", 1024) = 5
write(1, "Result (Trenary): 111\n", 22Result (Trenary): 111
) = 22
read(0, 7
"7\n", 1024) = 2
munmap(0x7fa8de37f000, 16448) = 0
lseek(0, -1, SEEK_CUR) = -1 ESPIPE (Illegal seek)
exit_group(0) = ?
+++ exited with 0 +++

```

## Лабораторная работа №6

```

vaney@vaney-VirtualBox:~/OS/lab6$ strace ./main
execve("./main", [ "./main" ], 0x7fff2a1baf60 /* 58 vars */) = 0
brk(NULL) = 0x55580782b000
arch_prctl(0x3001 /* ARCH_??? */, 0x7ffcd2ffcd30) = -1 EINVAL (Invalid
argument)
access("/etc/ld.so.preload", R_OK) = -1 ENOENT (No such file or
directory)
openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3
fstat(3, {st_mode=S_IFREG|0644, st_size=87309, ...}) = 0
mmap(NULL, 87309, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7f2550743000
close(3) = 0
openat(AT_FDCWD, "/usr/local/lib/libzmq.so.5", 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\200\210\1\0\0\0\0\0"... , 832)
= 832
fstat(3, {st_mode=S_IFREG|0755, st_size=16810584, ...}) = 0
mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7f2550741000
mmap(NULL, 685720, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f2550699000
mprotect(0x7f25506b0000, 557056, PROT_NONE) = 0
mmap(0x7f25506b0000, 425984, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x17000) = 0x7f25506b0000
mmap(0x7f2550718000, 126976, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x7f000) = 0x7f2550718000
mmap(0x7f2550738000, 36864, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x9e000) = 0x7f2550738000
close(3) = 0
openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libstdc++.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\240\341\t\0\0\0\0\0"... , 832)
= 832

```

```
fstat(3, {st_mode=S_IFREG|0644, st_size=1952928, ...}) = 0
mmap(NULL, 1968128, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f25504b8000
mprotect(0x7f255054e000, 1286144, PROT_NONE) = 0
mmap(0x7f255054e000, 983040, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x96000) = 0x7f255054e000
mmap(0x7f255063e000, 299008, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x186000) = 0x7f255063e000
mmap(0x7f2550688000, 57344, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1cf000) = 0x7f2550688000
mmap(0x7f2550696000, 10240, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7f2550696000
close(3) = 0
openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libgcc_s.so.1", 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\3405\0\0\0\0\0"...
, 832) = 832
fstat(3, {st_mode=S_IFREG|0644, st_size=104984, ...}) = 0
mmap(NULL, 107592, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f255049d000
mmap(0x7f25504a0000, 73728, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x3000) = 0x7f25504a0000
mmap(0x7f25504b2000, 16384, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x15000) = 0x7f25504b2000
mmap(0x7f25504b6000, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x18000) = 0x7f25504b6000
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"...
, 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\0\t\233\222%\274\260\320\31\331\326\10\204\276X
>\263"...
, 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\0\t\233\222%\274\260\320\31\331\326\10\204\276X
>\263"...
, 68, 880) = 68
mmap(NULL, 2036952, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f25502ab000
mprotect(0x7f25502d0000, 1847296, PROT_NONE) = 0
mmap(0x7f25502d0000, 1540096, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x25000) = 0x7f25502d0000
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mmap(0x7f2550448000, 303104, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x19d000) = 0x7f2550448000
mmap(0x7f2550493000, 24576, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1e7000) = 0x7f2550493000
mmap(0x7f2550499000, 13528, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7f2550499000
close(3) = 0
openat(AT_FDCWD, "/usr/local/lib/libsodium.so.23", 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 \314\0\0\0\0\0"...
, 832) = 832
fstat(3, {st_mode=S_IFREG|0755, st_size=3652112, ...}) = 0
mmap(NULL, 365576, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f2550251000
mprotect(0x7f255025d000, 311296, PROT_NONE) = 0
mmap(0x7f255025d000, 233472, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0xc000) = 0x7f255025d000
mmap(0x7f2550296000, 73728, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x45000) = 0x7f2550296000
mmap(0x7f25502a9000, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x57000) = 0x7f25502a9000
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"...
, 832) = 832
pread64(3,
"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\345Ga\367\265T\320\374\301V)Yf]\223\337"...
, 68, 824) = 68
fstat(3, {st_mode=S_IFREG|0755, st_size=157224, ...}) = 0
pread64(3,
"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\345Ga\367\265T\320\374\301V)Yf]\223\337"...
, 68, 824) = 68
mmap(NULL, 140408, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f255022e000
mmap(0x7f2550235000, 69632, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x7000) = 0x7f2550235000
mmap(0x7f2550246000, 20480, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x18000) = 0x7f2550246000
mmap(0x7f255024b000, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1c000) = 0x7f255024b000
mmap(0x7f255024d000, 13432, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7f255024d000
close(3) = 0
openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libm.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\300\363\0\0\0\0\0"...
, 832) = 832
fstat(3, {st_mode=S_IFREG|0644, st_size=1369352, ...}) = 0
mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7f255022c000
mmap(NULL, 1368336, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f25500dd000

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mmap(0x7f25500ec000, 684032, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0xf000) = 0x7f25500ec000
mmap(0x7f2550193000, 618496, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0xb6000) = 0x7f2550193000
mmap(0x7f255022a000, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x14c000) = 0x7f255022a000
close(3) = 0
mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7f25500da000
arch_prctl(ARCH_SET_FS, 0x7f25500da980) = 0
mprotect(0x7f2550493000, 12288, PROT_READ) = 0
mprotect(0x7f255022a000, 4096, PROT_READ) = 0
mprotect(0x7f255024b000, 4096, PROT_READ) = 0
mprotect(0x7f25502a9000, 4096, PROT_READ) = 0
mprotect(0x7f25504b6000, 4096, PROT_READ) = 0
mprotect(0x7f2550688000, 45056, PROT_READ) = 0
mprotect(0x7f2550738000, 32768, PROT_READ) = 0
mprotect(0x555807298000, 4096, PROT_READ) = 0
mprotect(0x7f2550786000, 4096, PROT_READ) = 0
munmap(0x7f2550743000, 87309) = 0
set_tid_address(0x7f25500dac50) = 3186
set_robust_list(0x7f25500dac60, 24) = 0
rt_sigaction(SIGRTMIN, {sa_handler=0x7f2550235bf0, sa_mask=[],
sa_flags=SA_RESTORER|SA_SIGINFO, sa_restorer=0x7f25502433c0}, NULL, 8) = 0
rt_sigaction(SIGRT_1, {sa_handler=0x7f2550235c90, sa_mask=[],
sa_flags=SA_RESTORER|SA_RESTART|SA_SIGINFO, sa_restorer=0x7f25502433c0},
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) = 0x55580782b000
brk(0x55580784c000) = 0x55580784c000
futex(0x7f25506966bc, FUTEX_WAKE_PRIVATE, 2147483647) = 0
futex(0x7f25506966c8, FUTEX_WAKE_PRIVATE, 2147483647) = 0
eventfd2(0, EFD_CLOEXEC) = 3
fcntl(3, F_GETFL) = 0x2 (flags O_RDWR)
fcntl(3, F_SETFL, O_RDWR|O_NONBLOCK) = 0
fcntl(3, F_GETFL) = 0x802 (flags O_RDWR|O_NONBLOCK)
fcntl(3, F_SETFL, O_RDWR|O_NONBLOCK) = 0
getrandom("\xa4\xe6\x4b\xb0\xd0\x75\x0a\xae\xfe\xd5\x33\x93\x56\x87\x4e\x3f",
16, 0) = 16
getrandom("\xb9\x1a\xfd\x57\xc9\xaa\xf5\x89\x9d\xb0\xb2\x72\x07\xc8\x53\x53",
16, 0) = 16
eventfd2(0, EFD_CLOEXEC) = 4
fcntl(4, F_GETFL) = 0x2 (flags O_RDWR)
fcntl(4, F_SETFL, O_RDWR|O_NONBLOCK) = 0
fcntl(4, F_GETFL) = 0x802 (flags O_RDWR|O_NONBLOCK)
fcntl(4, F_SETFL, O_RDWR|O_NONBLOCK) = 0
epoll_create1(E POLL_CLOEXEC) = 5
epoll_ctl(5, EPOLL_CTL_ADD, 4, {0, {u32=126094528, u64=93836571577536}}) = 0
epoll_ctl(5, EPOLL_CTL_MOD, 4, {EPOLLIN, {u32=126094528,
u64=93836571577536}}) = 0

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mmap(NULL, 8392704, PROT_NONE, MAP_PRIVATE|MAP_ANONYMOUS|MAP_STACK, -1, 0) =
0x7f254f8d9000
mprotect(0x7f254f8da000, 8388608, PROT_READ|PROT_WRITE) = 0
clone(child_stack=0x7f25500d8d70,
flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSVSEM|
CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID, parent_tid=[3187],
tls=0x7f25500d9700, child_tidptr=0x7f25500d99d0) = 3187
eventfd2(0, EFD_CLOEXEC) = 6
fcntl(6, F_GETFL) = 0x2 (flags O_RDWR)
fcntl(6, F_SETFL, O_RDWR|O_NONBLOCK) = 0
fcntl(6, F_GETFL) = 0x802 (flags O_RDWR|O_NONBLOCK)
fcntl(6, F_SETFL, O_RDWR|O_NONBLOCK) = 0
epoll_create1(E POLL_CLOEXEC) = 7
epoll_ctl(7, EPOLL_CTL_ADD, 6, {0, {u32=126096560, u64=93836571579568}}) = 0
epoll_ctl(7, EPOLL_CTL_MOD, 6, {EPOLLIN, {u32=126096560,
u64=93836571579568}}) = 0
mmap(NULL, 8392704, PROT_NONE, MAP_PRIVATE|MAP_ANONYMOUS|MAP_STACK, -1, 0) =
0x7f254f0d8000
mprotect(0x7f254f0d9000, 8388608, PROT_READ|PROT_WRITE) = 0
clone(child_stack=0x7f254f8d7d70,
flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSVSEM|
CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID, parent_tid=[3188],
tls=0x7f254f8d8700, child_tidptr=0x7f254f8d89d0) = 3188
eventfd2(0, EFD_CLOEXEC) = 8
fcntl(8, F_GETFL) = 0x2 (flags O_RDWR)
fcntl(8, F_SETFL, O_RDWR|O_NONBLOCK) = 0
fcntl(8, F_GETFL) = 0x802 (flags O_RDWR|O_NONBLOCK)
fcntl(8, F_SETFL, O_RDWR|O_NONBLOCK) = 0
poll([{fd=8, events=POLLIN}], 1, 0) = 0 (Timeout)
socket(AF_NETLINK, SOCK_RAW|SOCK_CLOEXEC, NETLINK_ROUTE) = 9
bind(9, {sa_family=AF_NETLINK, nl_pid=0, nl_groups=00000000}, 12) = 0
getsockname(9, {sa_family=AF_NETLINK, nl_pid=3186, nl_groups=00000000}, [12])
= 0
sendto(9, {{len=20, type=RTM_GETLINK, flags=NLM_F_REQUEST|NLM_F_DUMP,
seq=1619027209, pid=0}, {ifi_family=AF_UNSPEC, ...}}, 20, 0,
{sa_family=AF_NETLINK, nl_pid=0, nl_groups=00000000}, 12) = 20
recvmsg(9, {msg_name={sa_family=AF_NETLINK, nl_pid=0, nl_groups=00000000},
msg_namelen=12, msg_iov=[{iov_base=[{len=1320, type=RTM_NEWLINK,
flags=NLM_F_MULTI, seq=1619027209, pid=3186}, {ifi_family=AF_UNSPEC,
ifi_type=ARPHRD_LOOPBACK, ifi_index=if_nametoindex("lo"),
ifi_flags=IFF_UP|IFF_LOOPBACK|IFF_RUNNING|IFF_LOWER_UP, ifi_change=0},
[{nla_len=7, nla_type=IFLA_IFNAME}, "lo"], [{nla_len=8,
nla_type=IFLA_TXQLEN}, 1000], [{nla_len=5, nla_type=IFLA_OPERSTATE}, 0],
[{nla_len=5, nla_type=IFLA_LINKMODE}, 0], [{nla_len=8, nla_type=IFLA_MTU},
65536], [{nla_len=8, nla_type=IFLA_MIN_MTU}, 0], [{nla_len=8,
nla_type=IFLA_MAX_MTU}, 0], [{nla_len=8, nla_type=IFLA_GROUP}, 0],
[{nla_len=8, nla_type=IFLA_PROMISCUITY}, 0], [{nla_len=8,
nla_type=IFLA_NUM_TX_QUEUES}, 1], [{nla_len=8, nla_type=IFLA_GSO_MAX_SEGS},
65535], [{nla_len=8, nla_type=IFLA_GSO_MAX_SIZE}, 65536], [{nla_len=8,
nla_type=IFLA_NUM_RX_QUEUES}, 1], [{nla_len=5, nla_type=IFLA_CARRIER}, 1],
[{nla_len=12, nla_type=IFLA_QDISC}, "noqueue"], [{nla_len=8,
nla_type=IFLA_CARRIER_CHANGES}, 0], [{nla_len=5, nla_type=IFLA_PROTO_DOWN},
0], [{nla_len=8, nla_type=IFLA_CARRIER_UP_COUNT}, 0], [{nla_len=8,
nla_type=IFLA_CARRIER_DOWN_COUNT}, 0], [{nla_len=36, nla_type=IFLA_MAP},
{mem_start=0, mem_end=0, base_addr=0, irq=0, dma=0, port=0}], [{nla_len=10,

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nla_type=IFLA_ADDRESS}, "\x00\x00\x00\x00\x00\x00"}, {{nla_len=10,
nla_type=IFLA_BROADCAST}, "\x00\x00\x00\x00\x00\x00"}, {{nla_len=196,
nla_type=IFLA_STATS64}, {rx_packets=286, tx_packets=286, rx_bytes=30545,
tx_bytes=30545, rx_errors=0, tx_errors=0, rx_dropped=0, tx_dropped=0,
multicast=0, collisions=0, rx_length_errors=0, rx_over_errors=0,
rx_crc_errors=0, rx_frame_errors=0, rx_fifo_errors=0, rx_missed_errors=0,
tx_aborted_errors=0, tx_carrier_errors=0, tx_fifo_errors=0,
tx_heartbeat_errors=0, tx_window_errors=0, rx_compressed=0, tx_compressed=0,
rx_nohandler=0}}, {{nla_len=100, nla_type=IFLA_STATS}, {rx_packets=286,
tx_packets=286, rx_bytes=30545, tx_bytes=30545, rx_errors=0, tx_errors=0,
rx_dropped=0, tx_dropped=0, multicast=0, collisions=0, rx_length_errors=0,
rx_over_errors=0, rx_crc_errors=0, rx_frame_errors=0, rx_fifo_errors=0,
rx_missed_errors=0, tx_aborted_errors=0, tx_carrier_errors=0,
tx_fifo_errors=0, tx_heartbeat_errors=0, tx_window_errors=0, rx_compressed=0,
tx_compressed=0, rx_nohandler=0}}, {{nla_len=12, nla_type=IFLA_XDP},
{{nla_len=5, nla_type=IFLA_XDP_ATTACHED}, XDP_ATTACHED_NONE}}, {{nla_len=764,
nla_type=IFLA_AF_SPEC}, [{nla_len=136, nla_type=AF_INET}, {{nla_len=132,
nla_type=IFLA_INET_CONF}, [[IPV4_DEVCONF_FORWARDING-1] = 0,
[IPV4_DEVCONF_MC_FORWARDING-1] = 0, [IPV4_DEVCONF_PROXY_ARP-1] = 0,
[IPV4_DEVCONF_ACCEPT_REDIRECTS-1] = 1, [IPV4_DEVCONF_SECURE_REDIRECTS-1] = 1,
[IPV4_DEVCONF_SEND_REDIRECTS-1] = 1, [IPV4_DEVCONF_SHARED_MEDIA-1] = 1,
[IPV4_DEVCONF_RP_FILTER-1] = 0, [IPV4_DEVCONF_ACCEPT_SOURCE_ROUTE-1] = 1,
[IPV4_DEVCONF_BOOTP_RELAY-1] = 0, [IPV4_DEVCONF_LOG_MARTIANS-1] = 0,
[IPV4_DEVCONF_TAG-1] = 0, [IPV4_DEVCONF_ARPFILTER-1] = 0,
[IPV4_DEVCONF_MEDIUM_ID-1] = 0, [IPV4_DEVCONF_NOXFRM-1] = 1,
[IPV4_DEVCONF_NOPOLICY-1] = 1, [IPV4_DEVCONF_FORCE_IGMP_VERSION-1] = 0,
[IPV4_DEVCONF_ARP_ANNOUNCE-1] = 0, [IPV4_DEVCONF_ARP_IGNORE-1] = 0,
[IPV4_DEVCONF_PROMOTE_SECONDARIES-1] = 1, [IPV4_DEVCONF_ARP_ACCEPT-1] = 0,
[IPV4_DEVCONF_ARP_NOTIFY-1] = 0, [IPV4_DEVCONF_ACCEPT_LOCAL-1] = 0,
[IPV4_DEVCONF_SRC_VMARK-1] = 0, [IPV4_DEVCONF_PROXY_ARP_PVLAN-1] = 0,
[IPV4_DEVCONF_ROUTE_LOCALNET-1] = 0,
[IPV4_DEVCONF_IGMPV2_UNSOLICITED_REPORT_INTERVAL-1] = 10000,
[IPV4_DEVCONF_IGMPV3_UNSOLICITED_REPORT_INTERVAL-1] = 1000,
[IPV4_DEVCONF_IGNORE_ROUTES_WITH_LINKDOWN-1] = 0,
[IPV4_DEVCONF_DROP_UNICAST_IN_L2_MULTICAST-1] = 0,
[IPV4_DEVCONF_DROP_GRATUITOUS_ARP-1] = 0, [IPV4_DEVCONF_BC_FORWARDING-1] =
0}}}, {{nla_len=624, nla_type=AF_INET6}, [{nla_len=8,
nla_type=IFLA_INET6_FLAGS}, IF_READY}, {{nla_len=20,
nla_type=IFLA_INET6_CACHEINFO}, {max_reasm_len=65535, tstamp=195,
reachable_time=42272, retrans_time=1000}}, {{nla_len=212,
nla_type=IFLA_INET6_CONF}, [[DEVCONF_FORWARDING] = 0, [DEVCONF_HOPLIMIT] =
64, [DEVCONF_MTU6] = 65536, [DEVCONF_ACCEPT_RA] = 1,
[DEVCONF_ACCEPT_REDIRECTS] = 1, [DEVCONF_AUTOCONF] = 1,
[DEVCONF_DAD_TRANSMITS] = 1, [DEVCONF_RTR_SOLICITS] = -1,
[DEVCONF_RTR_SOLICIT_INTERVAL] = 4000, [DEVCONF_RTR_SOLICIT_DELAY] = 1000,
[DEVCONF_USE_TEMPADDR] = -1, [DEVCONF_TEMP_VALID_LFT] = 604800,
[DEVCONF_TEMP_PREFERRED_LFT] = 86400, [DEVCONF_REGEN_MAX_RETRY] = 3,
[DEVCONF_MAX_DESYNC_FACTOR] = 600, [DEVCONF_MAX_ADDRESSES] = 16,
[DEVCONF_FORCE_MLD_VERSION] = 0, [DEVCONF_ACCEPT_RA_DEFRTR] = 1,
[DEVCONF_ACCEPT_RA_PINFO] = 1, [DEVCONF_ACCEPT_RA_RTR_PREF] = 1,
[DEVCONF_RTR_PROBE_INTERVAL] = 60000, [DEVCONF_ACCEPT_RA_RT_INFO_MAX_PLEN] =
0, [DEVCONF_PROXY_NDP] = 0, [DEVCONF_OPTIMISTIC_DAD] = 0,
[DEVCONF_ACCEPT_SOURCE_ROUTE] = 0, [DEVCONF_MC_FORWARDING] = 0,
[DEVCONF_DISABLE_IPV6] = 0, [DEVCONF_ACCEPT_DAD] = -1, [DEVCONF_FORCE_TLLAO]
= 0, [DEVCONF_NDISC_NOTIFY] = 0, [DEVCONF_MLDV1_UNSOLICITED_REPORT_INTERVAL]
= 10000, [DEVCONF_MLDV2_UNSOLICITED_REPORT_INTERVAL] = 1000, ...}},
{{nla_len=300, nla_type=IFLA_INET6_STATS}, [[IPSTATS_MIB_NUM] = 37,
[IPSTATS_MIB_INPKTS] = 6, [IPSTATS_MIB_INOCTETS] = 432,
[IPSTATS_MIB_INDELIVERS] = 6, [IPSTATS_MIB_OUTFORWDATAGRAMS] = 0,
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[IPSTATS_MIB_OUTPKTS] = 6, [IPSTATS_MIB_OUTOCTETS] = 432,
[IPSTATS_MIB_INHDRERRORS] = 0, [IPSTATS_MIB_INTOOBIGERRORS] = 0,
[IPSTATS_MIB_INNOROUTES] = 0, [IPSTATS_MIB_INADDRERRORS] = 0,
[IPSTATS_MIB_INUNKNOWNPROTOS] = 0, [IPSTATS_MIB_INTRUNCATEDPKTS] = 0,
[IPSTATS_MIB_INDISCARDS] = 0, [IPSTATS_MIB_OUTDISCARDS] = 0,
[IPSTATS_MIB_OUTNOROUTES] = 0, [IPSTATS_MIB_REASMTIMEOUT] = 0,
[IPSTATS_MIB_REASMREQDS] = 0, [IPSTATS_MIB_REASMOKS] = 0,
[IPSTATS_MIB_REASMFAILS] = 0, [IPSTATS_MIB_FRAGOKS] = 0,
[IPSTATS_MIB_FRAGFAILS] = 0, [IPSTATS_MIB_FRAGCREATES] = 0,
[IPSTATS_MIB_INMCASTPKTS] = 0, [IPSTATS_MIB_OUTMCASTPKTS] = 2,
[IPSTATS_MIB_INBCASTPKTS] = 0, [IPSTATS_MIB_OUTBCASTPKTS] = 0,
[IPSTATS_MIB_INMCASTOCTETS] = 0, [IPSTATS_MIB_OUTMCASTOCTETS] = 152,
[IPSTATS_MIB_INBCASTOCTETS] = 0, [IPSTATS_MIB_OUTBCASTOCTETS] = 0,
[IPSTATS_MIB_CSUMERRORS] = 0, ...}}, {{nla_len=52,
nla_type=IFLA_INET6_ICMP6STATS}}, [[ICMP6_MIB_NUM] = 6, [ICMP6_MIB_INMSGs] =
2, [ICMP6_MIB_INERRORS] = 0, [ICMP6_MIB_OUTMSGs] = 2, [ICMP6_MIB_OUTERRORS] =
0, [ICMP6_MIB_CSUMERRORS] = 0}}, {{nla_len=20, nla_type=IFLA_INET6_TOKEN},
inet_pton(AF_INET6, "::")}, {{nla_len=5, nla_type=IFLA_INET6_ADDR_GEN_MODE},
IN6_ADDR_GEN_MODE_EUI64}}}}}}, {{len=1340, type=RTM_NEWLINK,
flags=NLM_F_MULTI, seq=1619027209, pid=3186}, {ifi_family=AF_UNSPEC,
ifi_type=ARPHRD_ETHER, ifi_index=if_nametoindex("enp0s3"),
ifi_flags=IFF_UP|IFF_BROADCAST|IFF_RUNNING|IFF_MULTICAST|IFF_LOWER_UP,
ifi_change=0}, {{nla_len=11, nla_type=IFLA_IFNAME}, "enp0s3"}, {{nla_len=8,
nla_type=IFLA_TXQLEN}, 1000}, {{nla_len=5, nla_type=IFLA_OPERSTATE}, 6},
{{nla_len=5, nla_type=IFLA_LINKMODE}, 0}, {{nla_len=8, nla_type=IFLA_MTU},
1500}, {{nla_len=8, nla_type=IFLA_MIN_MTU}, 46}, {{nla_len=8,
nla_type=IFLA_MAX_MTU}, 16110}, {{nla_len=8, nla_type=IFLA_GROUP}, 0},
{{nla_len=8, nla_type=IFLA_PROMISCUITY}, 0}, {{nla_len=8,
nla_type=IFLA_NUM_TX_QUEUES}, 1}, {{nla_len=8, nla_type=IFLA_GSO_MAX_SEGS},
65535}, {{nla_len=8, nla_type=IFLA_GSO_MAX_SIZE}, 65536}, {{nla_len=8,
nla_type=IFLA_NUM_RX_QUEUES}, 1}, {{nla_len=5, nla_type=IFLA_CARRIER}, 1},
{{nla_len=13, nla_type=IFLA_QDISC}, "fq_codel"}, {{nla_len=8,
nla_type=IFLA_CARRIER_CHANGES}, 2}, {{nla_len=5, nla_type=IFLA_PROTO_DOWN},
0}, {{nla_len=8, nla_type=IFLA_CARRIER_UP_COUNT}, 1}, {{nla_len=8,
nla_type=IFLA_CARRIER_DOWN_COUNT}, 1}, {{nla_len=36, nla_type=IFLA_MAP},
{mem_start=0, mem_end=0, base_addr=0, irq=0, dma=0, port=0}}, {{nla_len=10,
nla_type=IFLA_ADDRESS}, "\x08\x00\x27\xbc\xa3\x0a"}, {{nla_len=10,
nla_type=IFLA_BROADCAST}, "\xff\xff\xff\xff\xff\xff"}, {{nla_len=196,
nla_type=IFLA_STATS64}, {rx_packets=7371, tx_packets=2000, rx_bytes=10317888,
tx_bytes=228168, rx_errors=0, tx_errors=0, rx_dropped=0, tx_dropped=0,
multicast=0, collisions=0, rx_length_errors=0, rx_over_errors=0,
rx_crc_errors=0, rx_frame_errors=0, rx_fifo_errors=0, rx_missed_errors=0,
tx_aborted_errors=0, tx_carrier_errors=0, tx_fifo_errors=0,
tx_heartbeat_errors=0, tx_window_errors=0, rx_compressed=0, tx_compressed=0,
rx_nohandler=0}}, {{nla_len=100, nla_type=IFLA_STATS}, {rx_packets=7371,
tx_packets=2000, rx_bytes=10317888, tx_bytes=228168, rx_errors=0,
tx_errors=0, rx_dropped=0, tx_dropped=0, multicast=0, collisions=0,
rx_length_errors=0, rx_over_errors=0, rx_crc_errors=0, rx_frame_errors=0,
rx_fifo_errors=0, rx_missed_errors=0, tx_aborted_errors=0,
tx_carrier_errors=0, tx_fifo_errors=0, tx_heartbeat_errors=0,
tx_window_errors=0, rx_compressed=0, tx_compressed=0, rx_nohandler=0}},
{{nla_len=12, nla_type=IFLA_XDP}, {{nla_len=5, nla_type=IFLA_XDP_ATTACHED},
XDP_ATTACHED_NONE}}, {{nla_len=10, nla_type=0x36 /* IFLA_??? */},
"\x08\x00\x27\xbc\xa3\x0a"}, {{nla_len=764, nla_type=IFLA_AF_SPEC},
{{nla_len=136, nla_type=AF_INET}, {{nla_len=132, nla_type=IFLA_INET_CONF},
[[IPV4_DEVCONF_FORWARDING-1] = 0, [IPV4_DEVCONF_MC_FORWARDING-1] = 0,
[IPV4_DEVCONF_PROXY_ARP-1] = 0, [IPV4_DEVCONF_ACCEPT_REDIRECTS-1] = 1,
[IPV4_DEVCONF_SECURE_REDIRECTS-1] = 1, [IPV4_DEVCONF_SEND_REDIRECTS-1] = 1,
[IPV4_DEVCONF_SHARED_MEDIA-1] = 1, [IPV4_DEVCONF_RP_FILTER-1] = 2,

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[IPV4_DEVCONF_ACCEPT_SOURCE_ROUTE-1] = 1, [IPV4_DEVCONF_BOOTP_RELAY-1] = 0,
[IPV4_DEVCONF_LOG_MARTIANS-1] = 0, [IPV4_DEVCONF_TAG-1] = 0,
[IPV4_DEVCONF_ARPFILTER-1] = 0, [IPV4_DEVCONF_MEDIUM_ID-1] = 0,
[IPV4_DEVCONF_NOXFRM-1] = 0, [IPV4_DEVCONF_NOPOLICY-1] = 0,
[IPV4_DEVCONF_FORCE_IGMP_VERSION-1] = 0, [IPV4_DEVCONF_ARP_ANNOUNCE-1] = 0,
[IPV4_DEVCONF_ARP_IGNORE-1] = 0, [IPV4_DEVCONF_PROMOTE_SECONDARIES-1] = 1,
[IPV4_DEVCONF_ARP_ACCEPT-1] = 0, [IPV4_DEVCONF_ARP_NOTIFY-1] = 0,
[IPV4_DEVCONF_ACCEPT_LOCAL-1] = 0, [IPV4_DEVCONF_SRC_VMARK-1] = 0,
[IPV4_DEVCONF_PROXY_ARP_PVLAN-1] = 0, [IPV4_DEVCONF_ROUTE_LOCALNET-1] = 0,
[IPV4_DEVCONF_IGMPV2_UNSOLICITED_REPORT_INTERVAL-1]
= 10000, [IPV4_DEVCONF_IGMPV3_UNSOLICITED_REPORT_INTERVAL-1] = 1000,
[IPV4_DEVCONF_IGNORE_ROUTES_WITH_LINKDOWN-1] = 0,
[IPV4_DEVCONF_DROP_UNICAST_IN_L2_MULTICAST-1] = 0,
[IPV4_DEVCONF_DROP_GRATUITOUS_ARP-1] = 0, [IPV4_DEVCONF_BC_FORWARDING-1] =
0}}, {{nla_len=624, nla_type=AF_INET6}}, {{nla_len=8,
nla_type=IFLA_INET6_FLAGS}, IF_READY}, {{nla_len=20,
nla_type=IFLA_INET6_CACHEINFO}, {max_reasm_len=65535, tstamp=1129,
reachable_time=42756, retrans_time=1000}}, {{nla_len=212,
nla_type=IFLA_INET6_CONF}, [[DEVCONF_FORWARDING] = 0, [DEVCONF_HOPLIMIT] =
64, [DEVCONF_MTU6] = 1500, [DEVCONF_ACCEPT_RA] = 0,
[DEVCONF_ACCEPT_REDIRECTS] = 1, [DEVCONF_AUTOCONF] = 1,
[DEVCONF_DAD_TRANSMITS] = 1, [DEVCONF_RTR_SOLICITS] = -1,
[DEVCONF_RTR_SOLICIT_INTERVAL] = 4000, [DEVCONF_RTR_SOLICIT_DELAY] = 1000,
[DEVCONF_USE_TEMPADDR] = 2, [DEVCONF_TEMP_VALID_LFT] = 604800,
[DEVCONF_TEMP_PREFERRED_LFT] = 86400, [DEVCONF_REGEN_MAX_RETRY] = 3,
[DEVCONF_MAX_DESYNC_FACTOR] = 600, [DEVCONF_MAX_ADDRESSES] = 16,
[DEVCONF_FORCE_MLD_VERSION] = 0, [DEVCONF_ACCEPT_RA_DEFRTR] = 1,
[DEVCONF_ACCEPT_RA_PINFO] = 1, [DEVCONF_ACCEPT_RA_RTR_PREF] = 1,
[DEVCONF_RTR_PROBE_INTERVAL] = 60000, [DEVCONF_ACCEPT_RA_RT_INFO_MAX_PLEN] =
0, [DEVCONF_PROXY_NDP] = 0, [DEVCONF_OPTIMISTIC_DAD] = 0,
[DEVCONF_ACCEPT_SOURCE_ROUTE] = 0, [DEVCONF_MC_FORWARDING] = 0,
[DEVCONF_DISABLE_IPV6] = 0, [DEVCONF_ACCEPT_DAD] = 1, [DEVCONF_FORCE_TLLAO] =
0, [DEVCONF_NDISC_NOTIFY] = 0, [DEVCONF_MLDV1_UNSOLICITED_REPORT_INTERVAL] =
10000, [DEVCONF_MLDV2_UNSOLICITED_REPORT_INTERVAL] = 1000, ...}},
{{nla_len=300, nla_type=IFLA_INET6_STATS}, [[IPSTATS_MIB_NUM] = 37,
[IPSTATS_MIB_INPKTS] = 14, [IPSTATS_MIB_INOCTETS] = 1376,
[IPSTATS_MIB_INDELIVERS] = 14, [IPSTATS_MIB_OUTFORWDATAGRAMS] = 0,
[IPSTATS_MIB_OUTPKTS] = 24, [IPSTATS_MIB_OUTOCTETS] = 2168,
[IPSTATS_MIB_INHDRERRORS] = 0, [IPSTATS_MIB_INTOOBIGERRORS] = 0,
[IPSTATS_MIB_INNOROUTES] = 0, [IPSTATS_MIB_INADDRERRORS] = 0,
[IPSTATS_MIB_INUNKNOWNPROTOS] = 0, [IPSTATS_MIB_INTRUNCATEDPKTS] = 0,
[IPSTATS_MIB_INDISCARDS] = 0, [IPSTATS_MIB_OUTDISCARDS] = 0,
[IPSTATS_MIB_OUTNOROUTES] = 0, [IPSTATS_MIB_REASMTIMEOUT] = 0,
[IPSTATS_MIB_REASMREQDS] = 0, [IPSTATS_MIB_REASMOKS] = 0,
[IPSTATS_MIB_REASMFAILS] = 0, [IPSTATS_MIB_FRAGOKS] = 0,
[IPSTATS_MIB_FRAGFAILS] = 0, [IPSTATS_MIB_FRAGCREATES] = 0,
[IPSTATS_MIB_INMCASTPKTS] = 14, [IPSTATS_MIB_OUTMCASTPKTS] = 24,
[IPSTATS_MIB_INBCASTPKTS] = 0, [IPSTATS_MIB_OUTBCASTPKTS] = 0,
[IPSTATS_MIB_INMCASTOCTETS] = 1376, [IPSTATS_MIB_OUTMCASTOCTETS] = 2168,
[IPSTATS_MIB_INBCASTOCTETS] = 0, [IPSTATS_MIB_OUTBCASTOCTETS] = 0,
[IPSTATS_MIB_CSUMERRORS] = 0, ...}}, {{nla_len=52,
nla_type=IFLA_INET6_ICMP6STATS}, [[ICMP6_MIB_NUM] = 6, [ICMP6_MIB_INMSGs] =
0, [ICMP6_MIB_INERRORS] = 0, [ICMP6_MIB_OUTMSGs] = 10, [ICMP6_MIB_OUTERRORS]
= 0, [ICMP6_MIB_CSUMERRORS] = 0]}, {{nla_len=20, nla_type=IFLA_INET6_TOKEN},
inet_pton(AF_INET6, ":::")), {{nla_len=5, nla_type=IFLA_INET6_ADDR_GEN_MODE},
IN6_ADDR_GEN_MODE_NONE}}}}}}, {iov_len=4096}}, msg_iovlen=1,
msg_controllen=0, msg_flags=0}, 0) = 2660

recvmsg(9, {msg_name={sa_family=AF_NETLINK, nl_pid=0, nl_groups=00000000},
msg_namelen=12, msg_iov=[{iov_base={{len=20, type=NLMSG_DONE,

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flags=NLM_F_MULTI, seq=1619027209, pid=3186}, 0}, iov_len=4096]],
msg_iovlen=1, msg_controllen=0, msg_flags=0}, 0) = 20
sendto(9, [{len=20, type=RTM_GETADDR, flags=NLM_F_REQUEST|NLM_F_DUMP,
seq=1619027210, pid=0}, {ifa_family=AF_UNSPEC, ...}], 20, 0,
{sa_family=AF_NETLINK, nl_pid=0, nl_groups=00000000}, 12) = 20
recvmsg(9, {msg_name={sa_family=AF_NETLINK, nl_pid=0, nl_groups=00000000},
msg_namelen=12, msg_iov=[{iov_base=[{len=76, type=RTM_NEWADDR,
flags=NLM_F_MULTI, seq=1619027210, pid=3186}, {ifa_family=AF_INET,
ifa_prefixlen=8, ifa_flags=IFA_F_PERMANENT, ifa_scope=RT_SCOPE_HOST,
ifa_index=if_nametoindex("lo")}, [{nla_len=8, nla_type=IFA_ADDRESS},
inet_addr("127.0.0.1")}, {nla_len=8, nla_type=IFA_LOCAL},
inet_addr("127.0.0.1")}, {nla_len=7, nla_type=IFA_LABEL}, "lo"},
{nla_len=8, nla_type=IFA_FLAGS}, IFA_F_PERMANENT}, {nla_len=20,
nla_type=IFA_CACHEINFO}, {ifa_preferred=4294967295, ifa_valid=4294967295,
cstamp=195, tstamp=195}]]], {len=88, type=RTM_NEWADDR, flags=NLM_F_MULTI,
seq=1619027210, pid=3186}, {ifa_family=AF_INET, ifa_prefixlen=24,
ifa_flags=0, ifa_scope=RT_SCOPE_UNIVERSE,
ifa_index=if_nametoindex("enp0s3")}, [{nla_len=8, nla_type=IFA_ADDRESS},
inet_addr("10.0.2.15")}, {nla_len=8, nla_type=IFA_LOCAL},
inet_addr("10.0.2.15")}, {nla_len=8, nla_type=IFA_BROADCAST},
inet_addr("10.0.2.255")}, {nla_len=11, nla_type=IFA_LABEL}, "enp0s3"},
{nla_len=8, nla_type=IFA_FLAGS}, IFA_F_NOPREFIXROUTE}, {nla_len=20,
nla_type=IFA_CACHEINFO}, {ifa_preferred=86202, ifa_valid=86202, cstamp=1132,
tstamp=1226}]]]], iov_len=4096]], msg_iovlen=1, msg_controllen=0,
msg_flags=0}, 0) = 164
recvmsg(9, {msg_name={sa_family=AF_NETLINK, nl_pid=0, nl_groups=00000000},
msg_namelen=12, msg_iov=[{iov_base=[{len=72, type=RTM_NEWADDR,
flags=NLM_F_MULTI, seq=1619027210, pid=3186}, {ifa_family=AF_INET6,
ifa_prefixlen=128, ifa_flags=IFA_F_PERMANENT, ifa_scope=RT_SCOPE_HOST,
ifa_index=if_nametoindex("lo")}, [{nla_len=20, nla_type=IFA_ADDRESS},
inet_pton(AF_INET6, "::1")}, {nla_len=20, nla_type=IFA_CACHEINFO},
{ifa_preferred=4294967295, ifa_valid=4294967295, cstamp=195, tstamp=195}],
{nla_len=8, nla_type=IFA_FLAGS}, IFA_F_PERMANENT}]]], {len=72,
type=RTM_NEWADDR, flags=NLM_F_MULTI, seq=1619027210, pid=3186},
{ifa_family=AF_INET6, ifa_prefixlen=64, ifa_flags=IFA_F_PERMANENT,
ifa_scope=RT_SCOPE_LINK, ifa_index=if_nametoindex("enp0s3")}, [{nla_len=20,
nla_type=IFA_ADDRESS}, inet_pton(AF_INET6, "fe80::36ad:1a3a:8ee6:f329")},
{nla_len=20, nla_type=IFA_CACHEINFO}, {ifa_preferred=4294967295,
ifa_valid=4294967295, cstamp=1131, tstamp=1345}], {nla_len=8,
nla_type=IFA_FLAGS}, IFA_F_PERMANENT|IFA_F_NOPREFIXROUTE}]]], iov_len=4096]],
msg_iovlen=1, msg_controllen=0, msg_flags=0}, 0) = 144
recvmsg(9, {msg_name={sa_family=AF_NETLINK, nl_pid=0, nl_groups=00000000},
msg_namelen=12, msg_iov=[{iov_base=[{len=20, type=NLMMSG_DONE,
flags=NLM_F_MULTI, seq=1619027210, pid=3186}, 0}, {len=4096}],
msg_iovlen=1, msg_controllen=0, msg_flags=0}, 0) = 20
close(9) = 0
socket(AF_INET, SOCK_STREAM|SOCK_CLOEXEC, IPPROTO_TCP) = 9
setsockopt(9, SOL_SOCKET, SO_REUSEADDR, [1], 4) = 0
bind(9, {sa_family=AF_INET, sin_port=htons(3000),
sin_addr=inet_addr("127.0.0.1")}, 16) = 0
listen(9, 100) = 0
getsockname(9, {sa_family=AF_INET, sin_port=htons(3000),
sin_addr=inet_addr("127.0.0.1")}, [128->16]) = 0
getsockname(9, {sa_family=AF_INET, sin_port=htons(3000),
sin_addr=inet_addr("127.0.0.1")}, [128->16]) = 0
write(6, "\1\0\0\0\0\0\0\0", 8) = 8
write(8, "\1\0\0\0\0\0\0\0", 8) = 8

```

```

fstat(0, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0
read(0, create 10
"create 10\n", 1024)          = 10
clone(child_stack=NULL,
flags=CLONE_CHILD_CLEARTID|CLONE_CHILD_SETTID|SIGCHLD,
child_tidptr=0x7f25500dac50) = 3191
poll([{fd=8, events=POLLIN}], 1, 0)      = 1 ([{fd=8, revents=POLLIN}])
read(8, "\1\0\0\0\0\0\0\0", 8)          = 8
poll([{fd=8, events=POLLIN}], 1, 0)      = 0 (Timeout)
poll([{fd=8, events=POLLIN}], 1, -1)     = 1 ([{fd=8, revents=POLLIN}])
read(8, "\1\0\0\0\0\0\0\0", 8)          = 8
poll([{fd=8, events=POLLIN}], 1, 0)      = 0 (Timeout)
write(6, "\1\0\0\0\0\0\0\0", 8)          = 8
poll([{fd=8, events=POLLIN}], 1, -1)     = 1 ([{fd=8, revents=POLLIN}])
read(8, "\1\0\0\0\0\0\0\0", 8)          = 8
poll([{fd=8, events=POLLIN}], 1, 0)      = 0 (Timeout)
poll([{fd=8, events=POLLIN}], 1, -1)     = 1 ([{fd=8, revents=POLLIN}])
read(8, "\1\0\0\0\0\0\0\0", 8)          = 8
poll([{fd=8, events=POLLIN}], 1, 0)      = 0 (Timeout)
write(6, "\1\0\0\0\0\0\0\0", 8)          = 8
fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0
write(1, "OK: 3191\n", 9OK: 3191
)
= 9
read(0, exec 10 start
"exec 10 start\n", 1024)          = 14
poll([{fd=8, events=POLLIN}], 1, 0)      = 0 (Timeout)
write(6, "\1\0\0\0\0\0\0\0", 8)          = 8
poll([{fd=8, events=POLLIN}], 1, -1)     = 1 ([{fd=8, revents=POLLIN}])
read(8, "\1\0\0\0\0\0\0\0", 8)          = 8
poll([{fd=8, events=POLLIN}], 1, 0)      = 0 (Timeout)
write(1, "OK: start\n", 10OK: start
)
= 10
read(0, exec 10 stop
"exec 10 stop\n", 1024)          = 13
poll([{fd=8, events=POLLIN}], 1, 0)      = 0 (Timeout)
write(6, "\1\0\0\0\0\0\0\0", 8)          = 8
poll([{fd=8, events=POLLIN}], 1, -1)     = 1 ([{fd=8, revents=POLLIN}])
read(8, "\1\0\0\0\0\0\0\0", 8)          = 8
poll([{fd=8, events=POLLIN}], 1, 0)      = 0 (Timeout)
write(1, "OK: stop\n", 9OK: stop
)
= 9
read(0, exec 10 time
"exec 10 time\n", 1024)          = 13
poll([{fd=8, events=POLLIN}], 1, 0)      = 0 (Timeout)
write(6, "\1\0\0\0\0\0\0\0", 8)          = 8
poll([{fd=8, events=POLLIN}], 1, -1)     = 1 ([{fd=8, revents=POLLIN}])
read(8, "\1\0\0\0\0\0\0\0", 8)          = 8
poll([{fd=8, events=POLLIN}], 1, 0)      = 0 (Timeout)
write(1, "OK: 4577 ms\n", 12OK: 4577 ms
)
= 12

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read(0, exit
"exit\n", 1024)                = 5
poll([fd=8, events=POLLIN]], 1, 0) = 0 (Timeout)
write(6, "\1\0\0\0\0\0\0\0", 8) = 8
poll([fd=8, events=POLLIN]], 1, -1) = 1 ([fd=8, revents=POLLIN]])
read(8, "\1\0\0\0\0\0\0\0", 8) = 8
poll([fd=8, events=POLLIN]], 1, 0) = 0 (Timeout)
kill(3191, SIGTERM)             = 0
kill(3191, SIGKILL)             = 0
write(1, "OK\n", 3OK
)                                = 3
write(4, "\1\0\0\0\0\0\0\0", 8) = 8
write(4, "\1\0\0\0\0\0\0\0", 8) = 8
poll([fd=3, events=POLLIN]], 1, -1) = 1 ([fd=3, revents=POLLIN]])
read(3, "\1\0\0\0\0\0\0\0", 8) = 8
write(6, "\1\0\0\0\0\0\0\0", 8) = 8
close(7)                        = 0
close(6)                        = 0
close(5)                        = 0
close(4)                        = 0
close(3)                        = 0
--- SIGCHLD {si_signo=SIGCHLD, si_code=CLD_KILLED, si_pid=3191, si_uid=1000,
si_status=SIGTERM, si_utime=0, si_stime=0} ---
lseek(0, -1, SEEK_CUR)          = -1 ESPIPE (Illegal seek)
exit_group(0)                   = ?
+++ exited with 0 +++

```

## Вывод

Команда `strace` показывает все системные вызовы программы, которые та отправляет к системе во время выполнения, а также их параметры и результат выполнения. Это удобный инструмент, который поможет отследить возникающие проблемы в системе. Опыт ее использования облегчит мою жизнь при отладке более сложных систем.