Московский Авиационный Институт

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Факультет информационных технологий и прикладной математики

Кафедра вычислительной математики и программирования

**Лабораторная работа №8 по курсу**

**«Операционные системы»**

**ДИАГНОСТИКА ПРОГРАММНОГО ОБЕСПЕЧЕНИЯ**

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Дата: \_\_\_\_\_\_\_\_\_\_

Подпись: \_\_\_\_\_\_\_\_\_\_

Москва, 2023.

**Постановка задачи**

## Цель работы

* Приобретение практических навыков диагностики работы программного обеспечения.

## Задание

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

По итогам выполнения всех лабораторных работа отчет по данной ЛР должен содержать краткую сводку по исследованию написанных программ.

**Пример работы**

petrkozyrev@LAPTOP-F4OC0VPH:~/osi/os\_lab\_2/scr/build$ strace ./app

execve("./app", ["./app"], 0x7ffcc4343330 /\* 27 vars \*/) = 0

brk(NULL) = 0x564fa4912000

arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7ffcfcdfde10) = -1 EINVAL (Invalid argument)

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f5ceca2c000

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

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=19351, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 19351, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7f5ceca27000

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\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=2260296, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 2275520, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f5cec7fb000

mprotect(0x7f5cec895000, 1576960, PROT\_NONE) = 0

mmap(0x7f5cec895000, 1118208, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x9a000) = 0x7f5cec895000

mmap(0x7f5cec9a6000, 454656, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ab000) = 0x7f5cec9a6000

mmap(0x7f5ceca16000, 57344, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x21a000) = 0x7f5ceca16000

mmap(0x7f5ceca24000, 10432, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f5ceca24000

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\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=125488, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 127720, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f5cec7db000

mmap(0x7f5cec7de000, 94208, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x3000) = 0x7f5cec7de000

mmap(0x7f5cec7f5000, 16384, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1a000) = 0x7f5cec7f5000

mmap(0x7f5cec7f9000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1d000) = 0x7f5cec7f9000

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\0P\237\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 \0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0"..., 48, 848) = 48

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\244;\374\204(\337f#\315I\214\234\f\256\271\32"..., 68, 896) = 68

newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=2216304, ...}, AT\_EMPTY\_PATH) = 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

mmap(NULL, 2260560, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f5cec5b3000

mmap(0x7f5cec5db000, 1658880, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x28000) = 0x7f5cec5db000

mmap(0x7f5cec770000, 360448, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1bd000) = 0x7f5cec770000

mmap(0x7f5cec7c8000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x214000) = 0x7f5cec7c8000

mmap(0x7f5cec7ce000, 52816, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f5cec7ce000

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\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=940560, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 942344, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f5cec4cc000

mmap(0x7f5cec4da000, 507904, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xe000) = 0x7f5cec4da000

mmap(0x7f5cec556000, 372736, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x8a000) = 0x7f5cec556000

mmap(0x7f5cec5b1000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xe4000) = 0x7f5cec5b1000

close(3) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f5cec4ca000

arch\_prctl(ARCH\_SET\_FS, 0x7f5cec4cb3c0) = 0

set\_tid\_address(0x7f5cec4cb690) = 52

set\_robust\_list(0x7f5cec4cb6a0, 24) = 0

rseq(0x7f5cec4cbd60, 0x20, 0, 0x53053053) = 0

mprotect(0x7f5cec7c8000, 16384, PROT\_READ) = 0

mprotect(0x7f5cec5b1000, 4096, PROT\_READ) = 0

mprotect(0x7f5cec7f9000, 4096, PROT\_READ) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f5cec4c8000

mprotect(0x7f5ceca16000, 45056, PROT\_READ) = 0

mprotect(0x564fa2f76000, 4096, PROT\_READ) = 0

mprotect(0x7f5ceca66000, 8192, PROT\_READ) = 0

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

munmap(0x7f5ceca27000, 19351) = 0

getrandom("\x52\xd9\x4f\xdf\x55\xd0\x68\xaa", 8, GRND\_NONBLOCK) = 8

brk(NULL) = 0x564fa4912000

brk(0x564fa4933000) = 0x564fa4933000

futex(0x7f5ceca2477c, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0

write(2, "Key error\n", 10Key error

) = 10

exit\_group(1) = ?

+++ exited with 1 +++