Московский Авиационный Институт

(Национальный Исследовательский Университет)

Институт №8 “Компьютерные науки и прикладная математика”

Кафедра №806 “Вычислительная математика и программирование”

Лабораторная работа №3 по курсу

«Операционные системы»

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Постановка задачи

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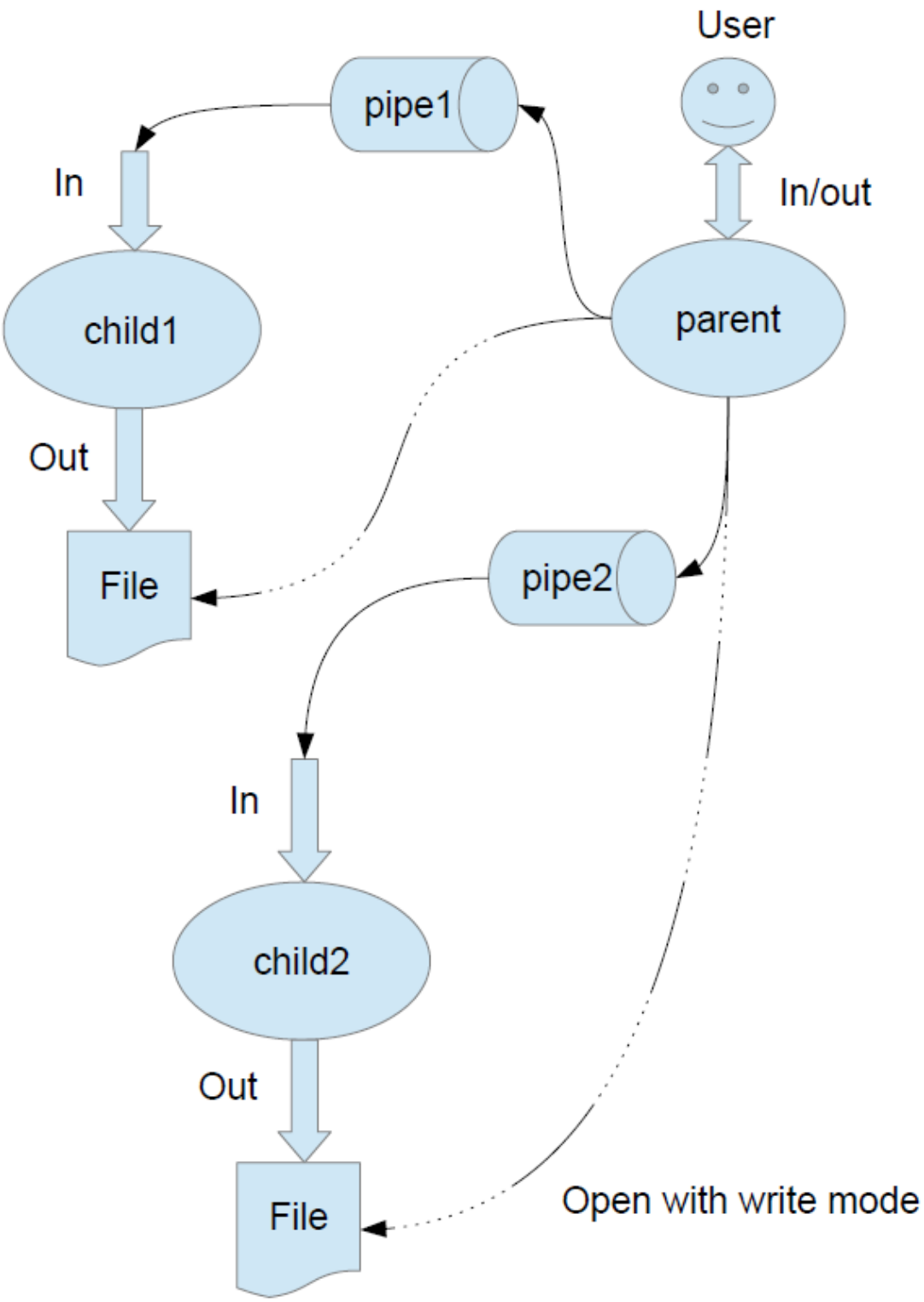
Вариант 20.

Группа вариантов 5



Пользователь вводит строки. Далее эти строки передаются от родительского процесса в дочерний. Дочерний процесс инвертирование эти строки, а полученный результат выводит в файл.

Общий метод и алгоритм решения

Использованные системные вызовы:

- mmap – отображение файла в память
- fork – создание дочернего процесса
- execl – замена исполняемого кода
- sem_open – создание/подключение к семафору
- sem_post – поднятие семафора
- sem_wait – опускание семафора
- wait – ожидание завершения процесса
- kill – завершение процесса
- sem_unlink - уничтожает именованный семафор
- shm_open – открывает объект разделяемой памяти
- ftruncate - укорачивает файл до указанной длины
- sem_close – закрывает именованый семафор
- munmap – снимает отражение файла

Код программы

parent.cpp

```cpp
#include "parent.h"
#include <iostream>
#include <string>
#include <unistd.h>
#include <sys/wait.h>
#include <sys/mman.h>
#include <fcntl.h>
#include <cstring>
#include <semaphore.h>

sem_t *s_parent, *s_child1, *s_child2;
const size_t SHARED_MEMORY_SIZE = 1024;
const char* SHM_NAME1 = "/shm_child1";
const char* SHM_NAME2 = "/shm_child2";
const char* SEM_PARENT_NAME = "/s_parent";
const char* SEM_CHILD1_NAME = "/s_child1";
const char* SEM_CHILD2_NAME = "/s_child2";

int main(int argc, char* argv[]) {
    return Parent(argc, argv, std::cin);
}

int Parent(int argc, char* argv[], std::istream& in) {
    if (argc < 3) {
        std::cerr << "Enter the file names correctly" << std::endl;
        return 1;
    }

    // Создаем семафоры
    s_parent = sem_open(SEM_PARENT_NAME, O_CREAT, 0666, 0);
```

```
    s_child1 = sem_open(SEM_CHILD1_NAME, O_CREAT, 0666, 0);
    s_child2 = sem_open(SEM_CHILD2_NAME, O_CREAT, 0666, 0);
    if (s_parent == SEM_FAILED || s_child1 == SEM_FAILED || s_child2 == SEM_FAILED) {
        perror("sem_open");
        return 1;
    }

    std::string filename1 = argv[1];
    std::string filename2 = argv[2];

    int shm_fd1 = shm_open(SHM_NAME1, O_CREAT | O_RDWR, 0666);
    int shm_fd2 = shm_open(SHM_NAME2, O_CREAT | O_RDWR, 0666);
    if (shm_fd1 == -1 || shm_fd2 == -1) {
        perror("shm_open");
        return 1;
    }

    ftruncate(shm_fd1, SHARED_MEMORY_SIZE);
    ftruncate(shm_fd2, SHARED_MEMORY_SIZE);

    void* shared_memory1 = mmap(nullptr, SHARED_MEMORY_SIZE, PROT_WRITE | PROT_READ,
MAP_SHARED, shm_fd1, 0);
    void* shared_memory2 = mmap(nullptr, SHARED_MEMORY_SIZE, PROT_WRITE | PROT_READ,
MAP_SHARED, shm_fd2, 0);

    if (shared_memory1 == MAP_FAILED || shared_memory2 == MAP_FAILED) {
        perror("mmap");
        return 1;
    }

    pid_t pid1 = fork();
    if (pid1 == -1) {
        perror("fork");
        return 1;
    }

    if (pid1 == 0) {
        execl("./child1", "child1", filename1.c_str(), SHM_NAME1, SEM_PARENT_NAME,
SEM_CHILD1_NAME, nullptr);
        perror("execl");
        return 1;
    }

    pid_t pid2 = fork();
    if (pid2 == -1) {
        perror("fork");
        return 1;
    }

    if (pid2 == 0) {
        execl("./child2", "child2", filename2.c_str(), SHM_NAME2, SEM_PARENT_NAME,
SEM_CHILD2_NAME, nullptr);
        perror("execl");
        return 1;
```

```
    }

    memset(shared_memory1, 0, SHARED_MEMORY_SIZE);
    memset(shared_memory2, 0, SHARED_MEMORY_SIZE);

    std::string input;
    while (true) {
        std::getline(in, input);
        if (input == "quit") break;

        if (input.length() > 10) {
            // Отправляем данные в shared_memory2 и сигнализируем child2
            strncpy(static_cast<char*>(shared_memory2), input.c_str(), SHARED_MEMORY_SIZE
- 1);
            sem_post(s_child2); // Пробуждаем child2
            std::cout << "Parent: Sent data to child2: " << input << std::endl;

            sem_wait(s_parent); // Родитель засыпает, ждет сигнала от child2
            std::cout << "Parent: Woke up after child2 processed data." << std::endl;
        } else {
            // Отправляем данные в shared_memory1 и сигнализируем child1
            strncpy(static_cast<char*>(shared_memory1), input.c_str(), SHARED_MEMORY_SIZE
- 1);
            sem_post(s_child1); // Пробуждаем child1
            std::cout << "Parent: Sent data to child1: " << input << std::endl;

            sem_wait(s_parent);
            std::cout << "Parent: Woke up after child1 processed data." << std::endl;
        }
    }

    strncpy(static_cast<char*>(shared_memory1), "", SHARED_MEMORY_SIZE - 1);
    strncpy(static_cast<char*>(shared_memory2), "", SHARED_MEMORY_SIZE - 1);
    sem_post(s_child1);
    sem_post(s_child2);

    int status;
    waitpid(pid1, &status, 0);
    waitpid(pid2, &status, 0);

    // Освобождаем ресурсы
    munmap(shared_memory1, SHARED_MEMORY_SIZE);
    munmap(shared_memory2, SHARED_MEMORY_SIZE);
    shm_unlink(SHM_NAME1);
    shm_unlink(SHM_NAME2);

    sem_close(s_parent);
    sem_close(s_child1);
    sem_close(s_child2);
    sem_unlink(SEM_PARENT_NAME);
    sem_unlink(SEM_CHILD1_NAME);
    sem_unlink(SEM_CHILD2_NAME);

    return 0;
```

```
}
```

Child1.cpp

```
#include <iostream>
#include <string>
#include <fstream>
#include <fcntl.h>
#include <sys/mman.h>
#include <unistd.h>
#include <cstring>
#include <algorithm>
#include <semaphore.h>

const size_t SHARED_MEMORY_SIZE = 1024;

int main(int argc, char* argv[]) {
    if (argc < 5) {
        std::cerr << "Not enough arguments" << std::endl;
        return 1;
    }

    std::string filename = argv[1];
    const char* shm_name = argv[2];
    const char* sem_parent_name = argv[3];
    const char* sem_child_name = argv[4];

    sem_t* s_parent = sem_open(sem_parent_name, 0);
    sem_t* s_child1 = sem_open(sem_child_name, 0);

    if (s_parent == SEM_FAILED || s_child1 == SEM_FAILED) {
        perror("sem_open");
        return 1;
    }

    int shm_fd = shm_open(shm_name, O_RDWR, 0666);
    if (shm_fd == -1) {
        perror("shm_open");
        return 1;
    }

    void* shared_memory = mmap(nullptr, SHARED_MEMORY_SIZE, PROT_READ, MAP_SHARED, shm_fd,
0);
    if (shared_memory == MAP_FAILED) {
        perror("mmap");
        return 1;
    }

    std::ofstream file(filename);
    if (!file) {
        std::cerr << "Failed to open file" << std::endl;
        return 1;
    }
```

```
    while (true) {
        sem_wait(s_child1);

        std::string data(static_cast<char*>(shared_memory));
        if (data.empty()) {
            break;
        }

        std::cout << "Child1: Received data: " << data << std::endl;

        std::reverse(data.begin(), data.end());
        file << data << std::endl;

        sem_post(s_parent);
        std::cout << "Child1: Processed data: " << data << std::endl;
    }

    file.close();
    munmap(shared_memory, SHARED_MEMORY_SIZE);

    sem_close(s_parent);
    sem_close(s_child1);

    return 0;
}
```

Child2.cpp

```
#include <iostream>
#include <string>
#include <fstream>
#include <fcntl.h>
#include <sys/mman.h>
#include <unistd.h>
#include <cstring>
#include <algorithm>
#include <semaphore.h>

const size_t SHARED_MEMORY_SIZE = 1024;

int main(int argc, char* argv[]) {
    if (argc < 5) {
        std::cerr << "Not enough arguments" << std::endl;
        return 1;
    }

    std::string filename = argv[1];
    const char* shm_name = argv[2];
    const char* sem_parent_name = argv[3];
    const char* sem_child_name = argv[4];
```

```
    sem_t* s_parent = sem_open(sem_parent_name, 0);
    sem_t* s_child2 = sem_open(sem_child_name, 0);

    if (s_parent == SEM_FAILED || s_child2 == SEM_FAILED) {
        perror("sem_open");
        return 1;
    }

    int shm_fd = shm_open(shm_name, O_RDWR, 0666);
    if (shm_fd == -1) {
        perror("shm_open");
        return 1;
    }

    void* shared_memory = mmap(nullptr, SHARED_MEMORY_SIZE, PROT_READ, MAP_SHARED, shm_fd,
0);
    if (shared_memory == MAP_FAILED) {
        perror("mmap");
        return 1;
    }

    std::ofstream file(filename);
    if (!file) {
        std::cerr << "Failed to open file" << std::endl;
        return 1;
    }

    while (true) {
        sem_wait(s_child2);

        std::string data(static_cast<char*>(shared_memory));
        if (data.empty()) {
            break;
        }

        std::cout << "Child2: Received data: " << data << std::endl;

        std::reverse(data.begin(), data.end());
        file << data << std::endl;

        std::cout << "Child2: Processed data: " << data << std::endl;

        sem_post(s_parent);
    }

    file.close();
    munmap(shared_memory, SHARED_MEMORY_SIZE);

    sem_close(s_parent);
    sem_close(s_child2);

    return 0;
}
```

Протокол работы программы

Тестирование:

```
Enter the first file name: file1.txt
Enter the second file name: file2.txt
string
Parent: Sent data to child1: string
Child1: Received data: string
Child1: Processed data: gnirts
Parent: Woke up after child1 processed data.
sssssssstring
Parent: Sent data to child2: sssssssstring
Child2: Received data: sssssssstring
Child2: Processed data: gnirtsssssss
Parent: Woke up after child2 processed data.
quit
miron@DESKTOP-GD72A05:~/LABS/lab 3$ cat file1.txt
gnirts
miron@DESKTOP-GD72A05:~/LABS/lab 3$ cat file2.txt
gnirtsssssss
```

Strace:

execve("./parent", ["./parent"], 0x7fffc04e2408 /* 27 vars */) = 0

brk(NULL) = 0x563e9fb22000

arch_prctl(0x3001 /* ARCH_??? */, 0x7fff9c727810) = -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=33773, ...}) = 0

mmap(NULL, 33773, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7f812eb79000

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

fstat(3, {st_mode=S_IFREG|0644, st_size=35960, ...}) = 0

mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7f812eb77000

mmap(NULL, 39904, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7f812eb6d000

mmap(0x7f812eb6f000, 16384, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x2000) = 0x7f812eb6f000

mmap(0x7f812eb73000, 8192, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x6000) = 0x7f812eb73000

mmap(0x7f812eb75000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x7000) = 0x7f812eb75000

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\3\0>\0\1\0\0\0 \341\t\0\0\0\0\0"..., 832) = 832

fstat(3, {st_mode=S_IFREG|0644, st_size=1956992, ...}) = 0

mmap(NULL, 1972224, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7f812e98b000

mprotect(0x7f812ea21000, 1290240, PROT_NONE) = 0

mmap(0x7f812ea21000, 987136, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x96000) = 0x7f812ea21000

mmap(0x7f812eb12000, 299008, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x187000) = 0x7f812eb12000

mmap(0x7f812eb5c000, 57344, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1d0000) = 0x7f812eb5c000

mmap(0x7f812eb6a000, 10240, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7f812eb6a000

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\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) = 0x7f812e970000

mmap(0x7f812e973000, 73728, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x3000) = 0x7f812e973000

mmap(0x7f812e985000, 16384, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x15000) = 0x7f812e985000

mmap(0x7f812e989000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x18000) = 0x7f812e989000

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\220q\0\0\0\0\0\0"..., 832) = 832

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\232e\273F\236E\241\306\373\317\372\345\270*/\327"..., 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\232e\273F\236E\241\306\373\317\372\345\270*/\327"..., 68, 824) = 68

mmap(NULL, 140408, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7f812e94d000

mmap(0x7f812e953000, 69632, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x6000) = 0x7f812e953000

mmap(0x7f812e964000, 24576, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x17000) = 0x7f812e964000

mmap(0x7f812e96a000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1c000) = 0x7f812e96a000

mmap(0x7f812e96c000, 13432, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7f812e96c000

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\300A\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\7\2C\n\357_\243\335\2449\206V>\237\374\304"..., 68, 880) = 68

fstat(3, {st_mode=S_IFREG|0755, st_size=2029592, ...}) = 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\7\2C\n\357_\243\335\2449\206V>\237\374\304"..., 68, 880) = 68

mmap(NULL, 2037344, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7f812e75b000

mmap(0x7f812e77d000, 1540096, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x22000) = 0x7f812e77d000

mmap(0x7f812e8f5000, 319488, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x19a000) = 0x7f812e8f5000

mmap(0x7f812e943000, 24576, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1e7000) = 0x7f812e943000

mmap(0x7f812e949000, 13920, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7f812e949000

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\323\0\0\0\0\0\0"..., 832) = 832

fstat(3, {st_mode=S_IFREG|0644, st_size=1369384, ...}) = 0

mmap(NULL, 1368336, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7f812e60c000

mmap(0x7f812e619000, 684032, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0xd000) = 0x7f812e619000

mmap(0x7f812e6c0000, 626688, PROT_READ,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0xb4000) = 0x7f812e6c0000

mmap(0x7f812e759000, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x14c000) =
0x7f812e759000

close(3) = 0

mmap(NULL, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7f812e60a000

mmap(NULL, 12288, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7f812e607000

arch_prctl(ARCH_SET_FS, 0x7f812e607740) = 0

mprotect(0x7f812e943000, 16384, PROT_READ) = 0

mprotect(0x7f812e759000, 4096, PROT_READ) = 0

mprotect(0x7f812e96a000, 4096, PROT_READ) = 0

mprotect(0x7f812e989000, 4096, PROT_READ) = 0

mprotect(0x7f812eb5c000, 45056, PROT_READ) = 0

mprotect(0x7f812eb75000, 4096, PROT_READ) = 0

mprotect(0x563e9f2a1000, 4096, PROT_READ) = 0

mprotect(0x7f812ebaf000, 4096, PROT_READ) = 0

munmap(0x7f812eb79000, 33773) = 0

set_tid_address(0x7f812e607a10) = 956

set_robust_list(0x7f812e607a20, 24) = 0

rt_sigaction(SIGRTMIN, {sa_handler=0x7f812e953bf0, sa_mask=[],
sa_flags=SA_RESTORER|SA_SIGINFO, sa_restorer=0x7f812e961420}, NULL, 8) =
0

rt_sigaction(SIGRT_1, {sa_handler=0x7f812e953c90, sa_mask=[],
sa_flags=SA_RESTORER|SA_RESTART|SA_SIGINFO,
sa_restorer=0x7f812e961420}, 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) = 0x563e9fb22000

brk(0x563e9fb43000) = 0x563e9fb43000

futex(0x7f812eb6a6bc, FUTEX_WAKE_PRIVATE, 2147483647) = 0

futex(0x7f812eb6a6c8, FUTEX_WAKE_PRIVATE, 2147483647) = 0

fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0

write(1, "Enter the first file name: ", 27Enter the first file name:) = 27

fstat(0, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0

read(0, file1.txt

"file1.txt\n", 1024) = 10

write(1, "Enter the second file name: ", 28Enter the second file name:) = 28

read(0, file2.txt

"file2.txt\n", 1024) = 10

statfs("/dev/shm/", {f_type=TMPFS_MAGIC, f_bsize=4096, f_blocks=492036, f_bfree=492036, f_bavail=492036, f_files=492036, f_ffree=492035, f_fsid={val=[2396858144, 2263180149]}, f_namelen=255, f_frsize=4096, f_flags=ST_VALID|ST_NOSUID|ST_NODEV|ST_NOATIME}) = 0

futex(0x7f812e96f390, FUTEX_WAKE_PRIVATE, 2147483647) = 0

openat(AT_FDCWD, "/dev/shm/sem.s_parent", O_RDWR|O_NOFOLLOW) = -1 ENOENT (No such file or directory)

getpid() = 956

lstat("/dev/shm/2Mrt5s", 0x7fff9c7274e0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/dev/shm/2Mrt5s", O_RDWR|O_CREAT|O_EXCL, 0666) = 3

write(3, "\0\0\0\0\0\0\0\0\200\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0", 32) = 32

mmap(NULL, 32, PROT_READ|PROT_WRITE, MAP_SHARED, 3, 0) = 0x7f812ebae000

link("/dev/shm/2Mrt5s", "/dev/shm/sem.s_parent") = 0

fstat(3, {st_mode=S_IFREG|0644, st_size=32, ...}) = 0

unlink("/dev/shm/2Mrt5s") = 0

close(3) = 0

openat(AT_FDCWD, "/dev/shm/sem.s_child1", O_RDWR|O_NOFOLLOW) = -1 ENOENT (No such file or directory)

getpid() = 956

lstat("/dev/shm/qwJSqs", 0x7fff9c7274e0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/dev/shm/qwJSqs", O_RDWR|O_CREAT|O_EXCL, 0666) = 3

write(3, "\0\0\0\0\0\0\0\0\200\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0", 32) = 32

mmap(NULL, 32, PROT_READ|PROT_WRITE, MAP_SHARED, 3, 0) = 0x7f812eb81000

link("/dev/shm/qwJSqs", "/dev/shm/sem.s_child1") = 0

fstat(3, {st_mode=S_IFREG|0644, st_size=32, ...}) = 0

unlink("/dev/shm/qwJSqs") = 0

close(3) = 0

openat(AT_FDCWD, "/dev/shm/sem.s_child2", O_RDWR|O_NOFOLLOW) = -1 ENOENT (No such file or directory)

getpid() = 956

lstat("/dev/shm/sWTcvw", 0x7fff9c7274e0) = -1 ENOENT (No such file or directory)

openat(AT_FDCWD, "/dev/shm/sWTcvw", O_RDWR|O_CREAT|O_EXCL, 0666) = 3

write(3, "\0\0\0\0\0\0\0\200\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0", 32) = 32

mmap(NULL, 32, PROT_READ|PROT_WRITE, MAP_SHARED, 3, 0) = 0x7f812eb80000

link("/dev/shm/sWTcvw", "/dev/shm/sem.s_child2") = 0

fstat(3, {st_mode=S_IFREG|0644, st_size=32, ...}) = 0

unlink("/dev/shm/sWTcvw") = 0

close(3) = 0

openat(AT_FDCWD, "/dev/shm/shm_child1", O_RDWR|O_CREAT|O_NOFOLLOW|O_CLOEXEC, 0666) = 3

openat(AT_FDCWD, "/dev/shm/shm_child2", O_RDWR|O_CREAT|O_NOFOLLOW|O_CLOEXEC, 0666) = 4

ftruncate(3, 1024) = 0

ftruncate(4, 1024) = 0

mmap(NULL, 1024, PROT_READ|PROT_WRITE, MAP_SHARED, 3, 0) = 0x7f812eb7f000

mmap(NULL, 1024, PROT_READ|PROT_WRITE, MAP_SHARED, 4, 0) = 0x7f812eb7e000

clone(child_stack=NULL, flags=CLONE_CHILD_CLEARTID|CLONE_CHILD_SETTID|SIGCHLDstrace: Process 959 attached

, child_tidptr=0x7f812e607a10) = 959

[pid 959] set_robust_list(0x7f812e607a20, 24 <unfinished ...>

[pid 956] clone(child_stack=NULL, flags=CLONE_CHILD_CLEARTID|CLONE_CHILD_SETTID|SIGCHLD <unfinished ...>

[pid 959] <... set_robust_list resumed>) = 0

[pid 959] execve("./child1", ["child1", "file1.txt", "/shm_child1", "/s_parent", "/s_child1"], 0x7fff9c7278f8 /* 27 vars */strace: Process 960 attached

<unfinished ...>

[pid 956] <... clone resumed>, child_tidptr=0x7f812e607a10) = 960

[pid 960] set_robust_list(0x7f812e607a20, 24 <unfinished ...>

[pid 956] read(0, <unfinished ...>

[pid 960] <... set_robust_list resumed>) = 0

[pid 960] execve("./child2", ["child2", "file2.txt", "/shm_child2", "/s_parent", "/s_child2"], 0x7fff9c7278f8 /* 27 vars */ <unfinished ...>

[pid 959] <... execve resumed>) = 0

[pid 959] brk(NULL) = 0x55ebc57dd000

[pid 960] <... execve resumed>) = 0

[pid 959] arch_prctl(0x3001 /* ARCH_??? */, 0x7ffd9b8e28e0 <unfinished ...>

[pid 960] brk(NULL <unfinished ...>

[pid 959] <... arch_prctl resumed>) = -1 EINVAL (Invalid argument)

[pid 960] <... brk resumed>) = 0x5567b4e99000

[pid 959] access("/etc/ld.so.preload", R_OK <unfinished ...>

[pid 960] arch_prctl(0x3001 /* ARCH_??? */, 0x7ffe91850860 <unfinished ...>

[pid 959] <... access resumed>) = -1 ENOENT (No such file or directory)

[pid 960] <... arch_prctl resumed>) = -1 EINVAL (Invalid argument)

[pid 959] openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC <unfinished ...>

[pid 960] access("/etc/ld.so.preload", R_OK <unfinished ...>

[pid 959] <... openat resumed>) = 3

[pid 960] <... access resumed>) = -1 ENOENT (No such file or directory)

[pid 959] fstat(3, <unfinished ...>

[pid 960] openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC <unfinished ...>

[pid 959] <... fstat resumed>{st_mode=S_IFREG|0644, st_size=33773, ...}) = 0

[pid 960] <... openat resumed>) = 3

[pid 959] mmap(NULL, 33773, PROT_READ, MAP_PRIVATE, 3, 0 <unfinished ...>

[pid 960] fstat(3, <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f146369f000

[pid 960] <... fstat resumed>{st_mode=S_IFREG|0644, st_size=33773, ...}) = 0

[pid 959] close(3 <unfinished ...>

[pid 960] mmap(NULL, 33773, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7fb0d12af000

[pid 959] <... close resumed>) = 0

[pid 960] close(3 <unfinished ...>

[pid 959] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/librt.so.1", O_RDONLY|O_CLOEXEC <unfinished ...>

[pid 960] <... close resumed>) = 0

[pid 959] <... openat resumed>) = 3

[pid 960] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/librt.so.1", O_RDONLY|O_CLOEXEC <unfinished ...>

[pid 959] read(3, <unfinished ...>

[pid 960] <... openat resumed>) = 3

[pid 959] <... read resumed>"\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"..., 832) = 832

[pid 960] read(3, <unfinished ...>

[pid 959] fstat(3, <unfinished ...>

[pid 960] <... read resumed>"\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"..., 832) = 832

[pid 959] <... fstat resumed>{st_mode=S_IFREG|0644, st_size=35960, ...}) = 0

[pid 960] fstat(3, <unfinished ...>

[pid 959] mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0 <unfinished ...>

[pid 960] <... fstat resumed>{st_mode=S_IFREG|0644, st_size=35960, ...}) = 0

[pid 959] <... mmap resumed>) = 0x7f146369d000

[pid 960] mmap(NULL, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_ANONYMOUS, -1, 0 <unfinished ...>

[pid 959] mmap(NULL, 39904, PROT_READ,
MAP_PRIVATE|MAP_DENYWRITE, 3, 0 <unfinished ...>

[pid 960] <... mmap resumed>) = 0x7fb0d12ad000

[pid 959] <... mmap resumed>) = 0x7f1463693000

[pid 960] mmap(NULL, 39904, PROT_READ,
MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7fb0d12a3000

[pid 959] mmap(0x7f1463695000, 16384, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x2000 <unfinished ...>

[pid 960] mmap(0x7fb0d12a5000, 16384, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x2000 <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f1463695000

[pid 960] <... mmap resumed>) = 0x7fb0d12a5000

[pid 959] mmap(0x7f1463699000, 8192, PROT_READ,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x6000 <unfinished ...>

[pid 960] mmap(0x7fb0d12a9000, 8192, PROT_READ,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x6000 <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f1463699000

[pid 960] <... mmap resumed>) = 0x7fb0d12a9000

[pid 959] mmap(0x7f146369b000, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x7000 <unfinished ...>

[pid 960] mmap(0x7fb0d12ab000, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x7000 <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f146369b000

[pid 960] <... mmap resumed>) = 0x7fb0d12ab000

[pid 960] close(3 <unfinished ...>

[pid 959] close(3 <unfinished ...>

[pid 960] <... close resumed>) = 0

[pid 959] <... close resumed>) = 0

[pid 960] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libstdc++.so.6",
O_RDONLY|O_CLOEXEC <unfinished ...>

[pid 959] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libstdc++.so.6",
O_RDONLY|O_CLOEXEC <unfinished ...>

[pid 960] <... openat resumed>) = 3

[pid 959] <... openat resumed>) = 3

[pid 960] read(3, <unfinished ...>

[pid 959] read(3, <unfinished ...>

[pid 960] <... read resumed>"\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0 \341\t\0\0\0\0\0"..., 832) = 832

[pid 959] <... read resumed>"\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0 \341\t\0\0\0\0\0"..., 832) = 832

[pid 960] fstat(3, <unfinished ...>

[pid 959] fstat(3, <unfinished ...>

[pid 960] <... fstat resumed>{st_mode=S_IFREG|0644, st_size=1956992, ...}) = 0

[pid 959] <... fstat resumed>{st_mode=S_IFREG|0644, st_size=1956992, ...}) = 0

[pid 960] mmap(NULL, 1972224, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0 <unfinished ...>

[pid 959] mmap(NULL, 1972224, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0 <unfinished ...>

[pid 960] <... mmap resumed>) = 0x7fb0d10c1000

[pid 959] <... mmap resumed>) = 0x7f14634b1000

[pid 960] mprotect(0x7fb0d1157000, 1290240, PROT_NONE <unfinished ...>

[pid 959] mprotect(0x7f1463547000, 1290240, PROT_NONE <unfinished ...>

[pid 960] <... mprotect resumed>) = 0

[pid 959] <... mprotect resumed>) = 0

[pid 960] mmap(0x7fb0d1157000, 987136, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x96000 <unfinished ...>

[pid 959] mmap(0x7f1463547000, 987136, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x96000 <unfinished ...>

[pid 960] <... mmap resumed>) = 0x7fb0d1157000

[pid 959] <... mmap resumed>) = 0x7f1463547000

[pid 960] mmap(0x7fb0d1248000, 299008, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x187000 <unfinished ...>

[pid 959] mmap(0x7f1463638000, 299008, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x187000 <unfinished ...>

[pid 960] <... mmap resumed>) = 0x7fb0d1248000

[pid 959] <... mmap resumed>) = 0x7f1463638000

[pid 960] mmap(0x7fb0d1292000, 57344, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1d0000) = 0x7fb0d1292000

[pid 959] mmap(0x7f1463682000, 57344, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1d0000 <unfinished ...>

[pid 960] mmap(0x7fb0d12a0000, 10240, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7fb0d12a0000

[pid 959] <... mmap resumed>) = 0x7f1463682000

[pid 960] close(3 <unfinished ...>

[pid 959] mmap(0x7f1463690000, 10240, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0 <unfinished ...>

[pid 960] <... close resumed>) = 0

[pid 959] <... mmap resumed>) = 0x7f1463690000

[pid 960] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libgcc_s.so.1", O_RDONLY|O_CLOEXEC <unfinished ...>

[pid 959] close(3 <unfinished ...>

[pid 960] <... openat resumed>) = 3

[pid 959] <... close resumed>) = 0

[pid 960] 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\0"..., 832) = 832

[pid 959] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libgcc_s.so.1", O_RDONLY|O_CLOEXEC <unfinished ...>

[pid 960] fstat(3, <unfinished ...>

[pid 959] <... openat resumed>) = 3

[pid 960] <... fstat resumed>{st_mode=S_IFREG|0644, st_size=104984, ...}) = 0

[pid 959] read(3, <unfinished ...>

[pid 960] mmap(NULL, 107592, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0 <unfinished ...>

[pid 959] <... read resumed>"\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\0"..., 832) = 832

[pid 960] <... mmap resumed>) = 0x7fb0d10a6000

[pid 959] fstat(3, <unfinished ...>

[pid 960] mmap(0x7fb0d10a9000, 73728, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x3000 <unfinished ...>

[pid 959] <... fstat resumed>{st_mode=S_IFREG|0644, st_size=104984, ...}) = 0

[pid 960] <... mmap resumed>) = 0x7fb0d10a9000

[pid 959] mmap(NULL, 107592, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0 <unfinished ...>

[pid 960] mmap(0x7fb0d10bb000, 16384, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x15000 <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f1463496000

[pid 960] <... mmap resumed>) = 0x7fb0d10bb000

[pid 959] mmap(0x7f1463499000, 73728, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x3000 <unfinished ...>

[pid 960] mmap(0x7fb0d10bf000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x18000 <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f1463499000

[pid 960] <... mmap resumed>) = 0x7fb0d10bf000

[pid 959] mmap(0x7f14634ab000, 16384, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x15000 <unfinished ...>

[pid 960] close(3 <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f14634ab000

[pid 960] <... close resumed>) = 0

[pid 959] mmap(0x7f14634af000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x18000 <unfinished ...>

[pid 960] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libpthread.so.0", O_RDONLY|O_CLOEXEC <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f14634af000

[pid 960] <... openat resumed>) = 3

[pid 959] close(3 <unfinished ...>

[pid 960] read(3, <unfinished ...>

[pid 959] <... close resumed>) = 0

[pid 960] <... read resumed>"\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220q\0\0\0\0\0\0"..., 832) = 832

[pid 959] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libpthread.so.0", O_RDONLY|O_CLOEXEC <unfinished ...>

[pid 960] pread64(3, <unfinished ...>

[pid 959] <... openat resumed>) = 3

[pid 960] <... pread64 resumed>"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\232e\273F\236E\241\306\373\317\372\345\270*/\327"..., 68, 824) = 68

[pid 959] read(3, <unfinished ...>

[pid 960] fstat(3, <unfinished ...>

[pid 959] <... read resumed>"\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220q\0\0\0\0\0\0"..., 832) = 832

[pid 960] <... fstat resumed>{st_mode=S_IFREG|0755, st_size=157224, ...}) = 0

[pid 959] pread64(3, <unfinished ...>

[pid 960] pread64(3, <unfinished ...>

[pid 959] <... pread64 resumed>"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\232e\273F\236E\241\306\373\317\372\345\270*/\327"..., 68, 824) = 68

[pid 960] <... pread64 resumed>"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\232e\273F\236E\241\306\373\317\372\345\270*/\327"..., 68, 824) = 68

[pid 959] fstat(3, <unfinished ...>

[pid 960] mmap(NULL, 140408, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0 <unfinished ...>

[pid 959] <... fstat resumed>{st_mode=S_IFREG|0755, st_size=157224, ...}) = 0

[pid 960] <... mmap resumed>) = 0x7fb0d1083000

[pid 959] pread64(3, <unfinished ...>

[pid 960] mmap(0x7fb0d1089000, 69632, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x6000 <unfinished ...>

[pid 959] <... pread64 resumed>"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\232e\273F\236E\241\306\373\317\372\345\270*/\327"..., 68, 824) = 68

[pid 960] <... mmap resumed>) = 0x7fb0d1089000

[pid 959] mmap(NULL, 140408, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0 <unfinished ...>

[pid 960] mmap(0x7fb0d109a000, 24576, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x17000 <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f1463473000

[pid 960] <... mmap resumed>) = 0x7fb0d109a000

[pid 959] mmap(0x7f1463479000, 69632, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x6000 <unfinished ...>

[pid 960] mmap(0x7fb0d10a0000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1c000 <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f1463479000

[pid 960] <... mmap resumed>) = 0x7fb0d10a0000

[pid 959] mmap(0x7f146348a000, 24576, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x17000 <unfinished ...>

[pid 960] mmap(0x7fb0d10a2000, 13432, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0 <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f146348a000

[pid 960] <... mmap resumed>) = 0x7fb0d10a2000

[pid 959] mmap(0x7f1463490000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1c000 <unfinished ...>

[pid 960] close(3 <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f1463490000

[pid 960] <... close resumed>) = 0

[pid 959] mmap(0x7f1463492000, 13432, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0 <unfinished ...>

[pid 960] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f1463492000

[pid 960] <... openat resumed>) = 3

[pid 959] close(3 <unfinished ...>

[pid 960] read(3, <unfinished ...>

[pid 959] <... close resumed>) = 0

[pid 960] <... read resumed>"\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\300A\2\0\0\0\0\0"..., 832) = 832

[pid 960] pread64(3, <unfinished ...>

[pid 959] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC <unfinished ...>

[pid 960] <... pread64 resumed>"\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

[pid 959] <... openat resumed>) = 3

[pid 960] pread64(3, <unfinished ...>

[pid 959] read(3, <unfinished ...>

[pid 960] <... pread64 resumed>"\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

[pid 959] <... read resumed>"\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\300A\2\0\0\0\0"..., 832) = 832

[pid 960] pread64(3, <unfinished ...>

[pid 959] pread64(3, <unfinished ...>

[pid 960] <... pread64 resumed>"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\7\2C\n\357_\243\335\2449\206V>\237\374\304"..., 68, 880) = 68

[pid 959] <... pread64 resumed>"\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

[pid 960] fstat(3, {st_mode=S_IFREG|0755, st_size=2029592, ...}) = 0

[pid 959] pread64(3, <unfinished ...>

[pid 960] pread64(3, <unfinished ...>

[pid 959] <... pread64 resumed>"\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

[pid 960] <... pread64 resumed>"\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

[pid 959] pread64(3, <unfinished ...>

[pid 960] pread64(3, <unfinished ...>

[pid 959] <... pread64 resumed>"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\7\2C\n\357_\243\335\2449\206V>\237\374\304"..., 68, 880) = 68

[pid 960] <... pread64 resumed>"\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

[pid 960] pread64(3, <unfinished ...>

[pid 959] fstat(3, <unfinished ...>

[pid 960] <... pread64 resumed>"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\7\2C\n\357_\243\335\2449\206V>\237\374\304"..., 68, 880) = 68

[pid 959] <... fstat resumed>{st_mode=S_IFREG|0755, st_size=2029592, ...}) = 0

[pid 960] mmap(NULL, 2037344, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0 <unfinished ...>

[pid 959] pread64(3, <unfinished ...>

[pid 960] <... mmap resumed>) = 0x7fb0d0e91000

[pid 959] <... pread64 resumed>"\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

[pid 960] mmap(0x7fb0d0eb3000, 1540096, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x22000 <unfinished ...>

[pid 959] pread64(3, <unfinished ...>

[pid 960] <... mmap resumed>) = 0x7fb0d0eb3000

[pid 959] <... pread64 resumed>"\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

[pid 960] mmap(0x7fb0d102b000, 319488, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x19a000) = 0x7fb0d102b000

[pid 959] pread64(3, <unfinished ...>

[pid 960] mmap(0x7fb0d1079000, 24576, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1e7000 <unfinished ...>

[pid 959] <... pread64 resumed>"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\7\2C\n\357_\243\335\2449\206V>\237\374\304"..., 68, 880) = 68

[pid 960] <... mmap resumed>) = 0x7fb0d1079000

[pid 959] mmap(NULL, 2037344, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0 <unfinished ...>

[pid 960] mmap(0x7fb0d107f000, 13920, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0 <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f1463281000

[pid 960] <... mmap resumed>) = 0x7fb0d107f000

[pid 959] mmap(0x7f14632a3000, 1540096, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x22000 <unfinished ...>

[pid 960] close(3 <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f14632a3000

[pid 960] <... close resumed>) = 0

[pid 959] mmap(0x7f146341b000, 319488, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x19a000 <unfinished ...>

[pid 960] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libm.so.6", O_RDONLY|O_CLOEXEC <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f146341b000

[pid 960] <... openat resumed>) = 3

[pid 959] mmap(0x7f1463469000, 24576, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1e7000 <unfinished ...>

[pid 960] read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\300\323\0\0\0\0\0\0"..., 832) = 832

[pid 959] <... mmap resumed>) = 0x7f1463469000

[pid 960] fstat(3, <unfinished ...>

[pid 959] mmap(0x7f146346f000, 13920, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0 <unfinished ...>

[pid 960] <... fstat resumed>{st_mode=S_IFREG|0644, st_size=1369384, ...}) = 0

[pid 959] <... mmap resumed>) = 0x7f146346f000

[pid 960] mmap(NULL, 1368336, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0 <unfinished ...>

[pid 959] close(3 <unfinished ...>

[pid 960] <... mmap resumed>) = 0x7fb0d0d42000

[pid 959] <... close resumed>) = 0

[pid 960] mmap(0x7fb0d0d4f000, 684032, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0xd000 <unfinished ...>

[pid 959] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libm.so.6", O_RDONLY|O_CLOEXEC <unfinished ...>

[pid 960] <... mmap resumed>) = 0x7fb0d0d4f000

[pid 959] <... openat resumed>) = 3

[pid 960] mmap(0x7fb0d0df6000, 626688, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0xb4000 <unfinished ...>

[pid 959] read(3, <unfinished ...>

[pid 960] <... mmap resumed>) = 0x7fb0d0df6000

[pid 959] <... read resumed>"\177ELF\2\1\1\3\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\300\323\0\0\0\0\0\0"..., 832) = 832

[pid 960] mmap(0x7fb0d0e8f000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x14c000 <unfinished ...>

[pid 959] fstat(3, <unfinished ...>

[pid 960] <... mmap resumed>) = 0x7fb0d0e8f000

[pid 959] <... fstat resumed>{st_mode=S_IFREG|0644, st_size=1369384, ...}) = 0

[pid 960] close(3) = 0

[pid 959] mmap(NULL, 1368336, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0 <unfinished ...>

[pid 960] mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0 <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f1463132000

[pid 960] <... mmap resumed>) = 0x7fb0d0d40000

[pid 959] mmap(0x7f146313f000, 684032, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0xd000 <unfinished ...>

[pid 960] mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0 <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f146313f000

[pid 960] <... mmap resumed>) = 0x7fb0d0d3d000

[pid 959] mmap(0x7f14631e6000, 626688, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0xb4000 <unfinished ...>

[pid 960] arch_prctl(ARCH_SET_FS, 0x7fb0d0d3d740 <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f14631e6000

[pid 960] <... arch_prctl resumed>) = 0

[pid 959] mmap(0x7f146327f000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x14c000 <unfinished ...>

[pid 960] mprotect(0x7fb0d1079000, 16384, PROT_READ <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f146327f000

[pid 960] <... mprotect resumed>) = 0

[pid 959] close(3 <unfinished ...>

[pid 960] mprotect(0x7fb0d0e8f000, 4096, PROT_READ <unfinished ...>

[pid 959] <... close resumed>) = 0

[pid 960] <... mprotect resumed>) = 0

[pid 959] mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0 <unfinished ...>

[pid 960] mprotect(0x7fb0d10a0000, 4096, PROT_READ <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f1463130000

[pid 960] <... mprotect resumed>) = 0

[pid 959] mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0 <unfinished ...>

[pid 960] mprotect(0x7fb0d10bf000, 4096, PROT_READ <unfinished ...>

[pid 959] <... mmap resumed>) = 0x7f146312d000

[pid 960] <... mprotect resumed>) = 0

[pid 959] arch_prctl(ARCH_SET_FS, 0x7f146312d740) = 0

[pid 959] mprotect(0x7f1463469000, 16384, PROT_READ) = 0

[pid 960] mprotect(0x7fb0d1292000, 45056, PROT_READ <unfinished ...>

[pid 959] mprotect(0x7f146327f000, 4096, PROT_READ <unfinished ...>

[pid 960] <... mprotect resumed>) = 0

[pid 959] <... mprotect resumed>) = 0

[pid 960] mprotect(0x7fb0d12ab000, 4096, PROT_READ <unfinished ...>

[pid 959] mprotect(0x7f1463490000, 4096, PROT_READ <unfinished ...>

[pid 960] <... mprotect resumed>) = 0

[pid 959] <... mprotect resumed>) = 0

[pid 960] mprotect(0x5567b4641000, 4096, PROT_READ <unfinished ...>

[pid 959] mprotect(0x7f14634af000, 4096, PROT_READ <unfinished ...>

[pid 960] <... mprotect resumed>) = 0

[pid 959] <... mprotect resumed>) = 0

[pid 960] mprotect(0x7fb0d12e5000, 4096, PROT_READ) = 0

[pid 960] munmap(0x7fb0d12af000, 33773) = 0

[pid 960] set_tid_address(0x7fb0d0d3da10 <unfinished ...>

[pid 959] mprotect(0x7f1463682000, 45056, PROT_READ <unfinished ...>

[pid 960] <... set_tid_address resumed>) = 960

[pid 960] set_robust_list(0x7fb0d0d3da20, 24 <unfinished ...>

[pid 959] <... mprotect resumed>) = 0

[pid 960] <... set_robust_list resumed>) = 0

[pid 959] mprotect(0x7f146369b000, 4096, PROT_READ <unfinished ...>

[pid 960] rt_sigaction(SIGRTMIN, {sa_handler=0x7fb0d1089bf0, sa_mask=[], sa_flags=SA_RESTORER|SA_SIGINFO, sa_restorer=0x7fb0d1097420}, <unfinished ...>

[pid 959] <... mprotect resumed>) = 0

[pid 960] <... rt_sigaction resumed>NULL, 8) = 0

[pid 960] rt_sigaction(SIGRT_1, {sa_handler=0x7fb0d1089c90, sa_mask=[], sa_flags=SA_RESTORER|SA_RESTART|SA_SIGINFO, sa_restorer=0x7fb0d1097420}, <unfinished ...>

[pid 959] mprotect(0x55ebc4a6f000, 4096, PROT_READ <unfinished ...>

[pid 960] <... rt_sigaction resumed>NULL, 8) = 0

[pid 959] <... mprotect resumed>) = 0

[pid 960] rt_sigprocmask(SIG_UNBLOCK, [RTMIN RT_1], <unfinished ...>

[pid 959] mprotect(0x7f14636d5000, 4096, PROT_READ <unfinished ...>

[pid 960] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 959] <... mprotect resumed>) = 0

[pid 960] prlimit64(0, RLIMIT_STACK, NULL, <unfinished ...>

[pid 959] munmap(0x7f146369f000, 33773 <unfinished ...>

[pid 960] <... prlimit64 resumed>{rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) = 0

[pid 959] <... munmap resumed>) = 0

[pid 959] set_tid_address(0x7f146312da10 <unfinished ...>

[pid 960] brk(NULL <unfinished ...>

[pid 959] <... set_tid_address resumed>) = 959

[pid 960] <... brk resumed>) = 0x5567b4e99000

[pid 960] brk(0x5567b4eba000 <unfinished ...>

[pid 959] set_robust_list(0x7f146312da20, 24 <unfinished ...>

[pid 960] <... brk resumed>) = 0x5567b4eba000

[pid 959] <... set_robust_list resumed>) = 0

[pid 960] futex(0x7fb0d12a06bc, FUTEX_WAKE_PRIVATE, 2147483647 <unfinished ...>

[pid 959] rt_sigaction(SIGRTMIN, {sa_handler=0x7f1463479bf0, sa_mask=[], sa_flags=SA_RESTORER|SA_SIGINFO, sa_restorer=0x7f1463487420}, <unfinished ...>

[pid 960] <... futex resumed>) = 0

[pid 959] <... rt_sigaction resumed>NULL, 8) = 0

[pid 960] futex(0x7fb0d12a06c8, FUTEX_WAKE_PRIVATE, 2147483647 <unfinished ...>

[pid 959] rt_sigaction(SIGRT_1, {sa_handler=0x7f1463479c90, sa_mask=[], sa_flags=SA_RESTORER|SA_RESTART|SA_SIGINFO, sa_restorer=0x7f1463487420}, <unfinished ...>

[pid 960] <... futex resumed>) = 0

[pid 959] <... rt_sigaction resumed>NULL, 8) = 0

[pid 960] statfs("/dev/shm/", <unfinished ...>

[pid 959] rt_sigprocmask(SIG_UNBLOCK, [RTMIN RT_1], <unfinished ...>

[pid 960] <... statfs resumed>{f_type=TMPFS_MAGIC, f_bsize=4096, f_blocks=492036, f_bfree=492031, f_bavail=492031, f_files=492036, f_ffree=492030, f_fsid={val=[2396858144, 2263180149]}, f_namelen=255, f_frsize=4096, f_flags=ST_VALID|ST_NOSUID|ST_NODEV|ST_NOATIME}) = 0

[pid 959] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 960] futex(0x7fb0d10a5390, FUTEX_WAKE_PRIVATE, 2147483647) = 0

[pid 959] prlimit64(0, RLIMIT_STACK, NULL, <unfinished ...>

[pid 960] openat(AT_FDCWD, "/dev/shm/sem.s_parent", O_RDWR|O_NOFOLLOW <unfinished ...>

[pid 959] <... prlimit64 resumed>{rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) = 0

[pid 960] <... openat resumed>) = 3

[pid 960] fstat(3, <unfinished ...>

[pid 959] brk(NULL <unfinished ...>

[pid 960] <... fstat resumed>{st_mode=S_IFREG|0644, st_size=32, ...}) = 0

[pid 959] <... brk resumed>) = 0x55ebc57dd000

[pid 960] mmap(NULL, 32, PROT_READ|PROT_WRITE, MAP_SHARED, 3, 0) = 0x7fb0d12e4000

[pid 959] brk(0x55ebc57fe000 <unfinished ...>

[pid 960] close(3 <unfinished ...>

[pid 959] <... brk resumed>) = 0x55ebc57fe000

[pid 960] <... close resumed>) = 0

[pid 960] openat(AT_FDCWD, "/dev/shm/sem.s_child2", O_RDWR|O_NOFOLLOW <unfinished ...>

[pid 959] futex(0x7f14636906bc, FUTEX_WAKE_PRIVATE, 2147483647 <unfinished ...>

[pid 960] <... openat resumed>) = 3

[pid 959] <... futex resumed>) = 0

[pid 960] fstat(3, {st_mode=S_IFREG|0644, st_size=32, ...}) = 0

[pid 959] futex(0x7f14636906c8, FUTEX_WAKE_PRIVATE, 2147483647 <unfinished ...>

[pid 960] mmap(NULL, 32, PROT_READ|PROT_WRITE, MAP_SHARED, 3, 0 <unfinished ...>

[pid 959] <... futex resumed>) = 0

[pid 960] <... mmap resumed>) = 0x7fb0d12b7000

[pid 960] close(3 <unfinished ...>

[pid 959] statfs("/dev/shm/", <unfinished ...>

[pid 960] <... close resumed>) = 0

[pid 959] <... statfs resumed>{f_type=TMPFS_MAGIC, f_bsize=4096, f_blocks=492036, f_bfree=492031, f_bavail=492031, f_files=492036, f_ffree=492030, f_fsid={val=[2396858144, 2263180149]}, f_namelen=255, f_frsize=4096, f_flags=ST_VALID|ST_NOSUID|ST_NODEV|ST_NOATIME}) = 0

[pid 960] openat(AT_FDCWD, "/dev/shm/shm_child2", O_RDWR|O_NOFOLLOW|O_CLOEXEC <unfinished ...>

[pid 959] futex(0x7f1463495390, FUTEX_WAKE_PRIVATE, 2147483647 <unfinished ...>

[pid 960] <... openat resumed>) = 3

[pid 959] <... futex resumed>) = 0

[pid 960] mmap(NULL, 1024, PROT_READ, MAP_SHARED, 3, 0 <unfinished ...>

[pid 959] openat(AT_FDCWD, "/dev/shm/sem.s_parent", O_RDWR|O_NOFOLLOW <unfinished ...>

[pid 960] <... mmap resumed>) = 0x7fb0d12b6000

[pid 959] <... openat resumed>) = 3

[pid 960] openat(AT_FDCWD, "file2.txt", O_WRONLY|O_CREAT|O_TRUNC, 0666 <unfinished ...>

[pid 959] fstat(3, <unfinished ...>

[pid 960] <... openat resumed>) = 4

[pid 959] <... fstat resumed>{st_mode=S_IFREG|0644, st_size=32, ...}) = 0

[pid 960] futex(0x7fb0d12b7000, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 0, NULL, FUTEX_BITSET_MATCH_ANY <unfinished ...>

[pid 959] mmap(NULL, 32, PROT_READ|PROT_WRITE, MAP_SHARED, 3, 0) = 0x7f14636d4000

[pid 959] close(3) = 0

[pid 959] openat(AT_FDCWD, "/dev/shm/sem.s_child1", O_RDWR|O_NOFOLLOW) = 3

[pid 959] fstat(3, {st_mode=S_IFREG|0644, st_size=32, ...}) = 0

[pid 959] mmap(NULL, 32, PROT_READ|PROT_WRITE, MAP_SHARED, 3, 0) = 0x7f14636a7000

[pid 959] close(3) = 0

[pid 959] openat(AT_FDCWD, "/dev/shm/shm_child1", O_RDWR|O_NOFOLLOW|O_CLOEXEC) = 3

[pid 959] mmap(NULL, 1024, PROT_READ, MAP_SHARED, 3, 0) = 0x7f14636a6000

[pid 959] openat(AT_FDCWD, "file1.txt", O_WRONLY|O_CREAT|O_TRUNC, 0666) = 4

[pid 959] futex(0x7f14636a7000, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 0, NULL, FUTEX_BITSET_MATCH_ANYstring

<unfinished ...>

[pid 956] <... read resumed>"string\n", 1024) = 7

[pid 956] futex(0x7f812eb81000, FUTEX_WAKE, 1) = 1

[pid 959] <... futex resumed>) = 0

[pid 956] write(1, "Parent: Sent data to child1: str"..., 36 <unfinished ...>

[pid 959] fstat(1, Parent: Sent data to child1: string

<unfinished ...>

[pid 956] <... write resumed>) = 36

[pid 959] <... fstat resumed>{st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0

[pid 956] futex(0x7f812ebae000, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 0, NULL, FUTEX_BITSET_MATCH_ANY <unfinished ...>

[pid 959] write(1, "Child1: Received data: string\n", 30Child1: Received data: string

) = 30

[pid 959] write(4, "gnirts\n", 7) = 7

[pid 959] futex(0x7f14636d4000, FUTEX_WAKE, 1 <unfinished ...>

[pid 956] <... futex resumed>) = 0

[pid 959] <... futex resumed>) = 1

[pid 956] write(1, "Parent: Woke up after child1 pro"..., 45 <unfinished ...>

[pid 959] write(1, "Child1: Processed data: gnirts\n", 31Parent: Woke up after child1 processed data.

<unfinished ...>

[pid 956] <... write resumed>) = 45

Child1: Processed data: gnirts

[pid 959] <... write resumed>) = 31

[pid 956] read(0, <unfinished ...>

[pid 959] futex(0x7f14636a7000, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 0, NULL, FUTEX_BITSET_MATCH_ANYsssstring

<unfinished ...>

[pid 956] <... read resumed>"sssstring\n", 1024) = 10

[pid 956] futex(0x7f812eb81000, FUTEX_WAKE, 1) = 1

[pid 959] <... futex resumed>) = 0

[pid 956] write(1, "Parent: Sent data to child1: sss"..., 39 <unfinished ...>

[pid 959] write(1, "Child1: Received data: sssstring"..., 33Parent: Sent data to child1: sssstring

Child1: Received data: sssstring

<unfinished ...>

[pid 956] <... write resumed>) = 39

[pid 959] <... write resumed>) = 33

[pid 956] futex(0x7f812ebae000, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 0, NULL, FUTEX_BITSET_MATCH_ANY <unfinished ...>

[pid 959] write(4, "gnirtssss\n", 10) = 10

[pid 959] futex(0x7f14636d4000, FUTEX_WAKE, 1 <unfinished ...>

[pid 956] <... futex resumed>) = 0

[pid 959] <... futex resumed>) = 1

[pid 956] write(1, "Parent: Woke up after child1 pro"..., 45 <unfinished ...>

[pid 959] write(1, "Child1: Processed data: gnirtsss"..., 34Parent: Woke up after child1 processed data.

<unfinished ...>

Child1: Processed data: gnirtssss

[pid 956] <... write resumed>) = 45

[pid 959] <... write resumed>) = 34

[pid 956] read(0, <unfinished ...>

[pid 959] futex(0x7f14636a7000, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 0, NULL, FUTEX_BITSET_MATCH_ANYquit

<unfinished ...>

[pid 956] <... read resumed>"quit\n", 1024) = 5

[pid 956] futex(0x7f812eb81000, FUTEX_WAKE, 1) = 1

[pid 959] <... futex resumed>) = 0

[pid 956] futex(0x7f812eb80000, FUTEX_WAKE, 1 <unfinished ...>

[pid 959] close(4 <unfinished ...>

[pid 956] <... futex resumed>) = 1

[pid 960] <... futex resumed>) = 0

[pid 956] wait4(959, <unfinished ...>

[pid 959] <... close resumed>) = 0

[pid 960] close(4 <unfinished ...>

[pid 959] munmap(0x7f14636a6000, 1024 <unfinished ...>

[pid 960] <... close resumed>) = 0

[pid 959] <... munmap resumed>) = 0

[pid 960] munmap(0x7fb0d12b6000, 1024) = 0

[pid 959] munmap(0x7f14636d4000, 32 <unfinished ...>

[pid 960] munmap(0x7fb0d12e4000, 32 <unfinished ...>

[pid 959] <... munmap resumed>) = 0

[pid 960] <... munmap resumed>) = 0

[pid 959] munmap(0x7f14636a7000, 32 <unfinished ...>

[pid 960] munmap(0x7fb0d12b7000, 32 <unfinished ...>

[pid 959] <... munmap resumed>) = 0

[pid 960] <... munmap resumed>) = 0

[pid 959] exit_group(0 <unfinished ...>

[pid 960] exit_group(0 <unfinished ...>

[pid 959] <... exit_group resumed>) = ?

[pid 960] <... exit_group resumed>) = ?

[pid 960] +++ exited with 0 +++

[pid 959] +++ exited with 0 +++

<... wait4 resumed>[{WIFEXITED(s) && WEXITSTATUS(s) == 0}], 0, NULL) = 959

--- SIGCHLD {si_signo=SIGCHLD, si_code=CLD_EXITED, si_pid=960, si_uid=1000, si_status=0, si_utime=0, si_stime=0} ---

wait4(960, [{WIFEXITED(s) && WEXITSTATUS(s) == 0}], 0, NULL) = 960

munmap(0x7f812eb7f000, 1024) = 0

munmap(0x7f812eb7e000, 1024) = 0

unlink("/dev/shm/shm_child1") = 0

unlink("/dev/shm/shm_child2") = 0

munmap(0x7f812ebae000, 32) = 0

munmap(0x7f812eb81000, 32) = 0

munmap(0x7f812eb80000, 32) = 0

unlink("/dev/shm/sem.s_parent") = 0

unlink("/dev/shm/sem.s_child1") = 0

unlink("/dev/shm/sem.s_child2") = 0

Вывод

В ходе лабораторной работе я приобрел базовые навыки по работе с разделяемой памятью в си. Я научился создавать объект разделяемой памяти, записывать в него данные и читать их из него. Также я узнал о работе с семафорами, научился использовать их для синхронизации при работе с разделяемой памятью. Помимо этого, я узнал о файловых системах и памяти в целом.