Brandon Fowler

execve("./a.out", ["./a.out"], [/* 63 vars */]) = 0
brk(0)   = 0x116d000
access("/etc/ld.so.nohwcap", F_OK)   = -1 ENOENT (No such file or directory)
mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7fa5d81cc000
access("/etc/ld.so.preload", R_OK)   = -1 ENOENT (No such file or directory)
open("/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

**//The above open system call, opens ld.so.cache, the dynamic linker/loader that contains
libraries necessary to prepare a program and run it. 3 is assigned as the file descriptor.**

fstat(3, {st_mode=S_IFREG|0644, st_size=88456, ...}) = 0
mmap(NULL, 88456, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7fa5d81b6000
close(3)   = 0

**//The above close system call, closes the previously opened ld.so.cache by using its
assigned file descriptor.**

access("/etc/ld.so.nohwcap", F_OK)   = -1 ENOENT (No such file or directory)
open("/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3

**//The above open system call, opens the standard c library and assigns 3 as the file
descriptor.**

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\320\37\2\0\0\0\0\0"..., 832) = 832

**//The above read system call, reads from an ELF format header file from the c standard
library.**

fstat(3, {st_mode=S_IFREG|0755, st_size=1845024, ...}) = 0
mmap(NULL, 3953344, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7fa5d7be6000
mprotect(0x7fa5d7da1000, 2097152, PROT_NONE) = 0
mmap(0x7fa5d7fa1000, 24576, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|
MAP_DENYWRITE, 3, 0x1bb000) = 0x7fa5d7fa1000
mmap(0x7fa5d7fa7000, 17088, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|
MAP_ANONYMOUS, -1, 0) = 0x7fa5d7fa7000
close(3)   = 0

//The above close system call, closes the previously opened standard c library.

mmap(NULL, 4096, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7fa5d81b5000
mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7fa5d81b3000
arch_prctl(ARCH_SET_FS, 0x7fa5d81b3740) = 0
mprotect(0x7fa5d7fa1000, 16384, PROT_READ) = 0
mprotect(0x600000, 4096, PROT_READ)   = 0
mprotect(0x7fa5d81ce000, 4096, PROT_READ) = 0
munmap(0x7fa5d81b6000, 88456)   = 0
brk(0)   = 0x116d000
brk(0x118e000)   = 0x118e000
open("test.txt", O_RDONLY)   = 3

//The above open system call, opens the test.txt input file, and assigns 3 as the file descriptor.

fstat(3, {st_mode=S_IFREG|0664, st_size=72, ...}) = 0
mmap(NULL, 4096, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7fa5d81cb000
read(3, "Now is the time for all good\nmen"..., 4096) = 72

//The above read system call, reads in all of the text from test.txt, which totals 72 characters.

fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(136, 0), ...}) = 0
mmap(NULL, 4096, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7fa5d81ca000
write(1, "Now is the time for all good\n", 29) = 29

//The above write system call, writes the first line of output to standard out, which totals 29 characters.

write(1, "men to come to the aid of their\n", 32) = 32

//The above write system call, writes the second line of output to standard out, which totals 32 characters.

write(1, "university\n", 11)   = 11

//The above write system call, writes the third line of output to standard out, which totals 11 characters.

read(3, "", 4096)   = 0

//The above read system call, reaches/reads the end of the file.

close(3)   = 0

//The above close system call, closes test.txt

munmap(0x7fa5d81cb000, 4096)   = 0
exit_group(0)   = ?
+++ exited with 0 +++

% time	seconds	usecs/call	calls	errors	syscall
31.59	0.000193	21	9		mmap
17.35	0.000106	35	3	3	access
10.80	0.000066	17	4		mprotect
9.33	0.000057	14	4		fstat
9.00	0.000055	18	3		open
5.73	0.000035	12	3		brk
4.75	0.000029	15	2		munmap
3.76	0.000023	23	1		execve
3.11	0.000019	6	3		close
2.29	0.000014	5	3		read
1.31	0.000008	3	3		write
0.98	0.000006	6	1		arch_prctl
100.00	0.000611		39	3	total