

Advanced Operating Systems Report 1

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1 Source Code

```
1 // AOS Autumn 2019 - Report 2
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4 // This code forks and then prints out the VMA information of the child process
5
6 #include <fcntl.h>
7 #include <stdio.h>
8 #include <unistd.h>
9
10 #define MAX_PATH 17 // based on pids being at most 5 digits
11
12 int main(void) {
13     // Create a new process
14     pid_t pid = fork();
15
16     // Following code runs in parent process
17     if (pid) {
18         char path[MAX_PATH];
19         char buf[BUFSIZ];
20         int nbytes;
21
22         // Create string containing the VMA path from procfs
23         snprintf(path, MAX_PATH, "/proc/%d/maps", pid);
24
25         // Print the contents of the file to stdout
26         int fd = open(path, O_RDONLY);
27         while ((nbytes = read(fd, buf, BUFSIZ)) > 0) {
28             write(1, buf, nbytes);
29         }
30         close(fd);
31     }
32
33     return 0;
34 }
```

2 Output

1	7f70b57a0000-7f70b57c2000	r--p	00000000	00:00	90171	/lib/x86_64-linux
	-gnu/libc-2.28.so					
2	7f70b57c2000-7f70b590a000	r-xp	00022000	00:00	90171	/lib/x86_64-linux
	-gnu/libc-2.28.so					
3	7f70b590a000-7f70b5956000	r--p	0016a000	00:00	90171	/lib/x86_64-linux
	-gnu/libc-2.28.so					
4	7f70b5956000-7f70b5957000	---p	00022194	00:00	90171	/lib/x86_64-linux
	-gnu/libc-2.28.so					
5	7f70b5957000-7f70b595b000	r--p	001b6000	00:00	90171	/lib/x86_64-linux
	-gnu/libc-2.28.so					
6	7f70b595b000-7f70b595d000	rw-p	001ba000	00:00	90171	/lib/x86_64-linux
	-gnu/libc-2.28.so					
7	7f70b595d000-7f70b5961000	rw-p	00000000	00:00	0	
8	7f70b5970000-7f70b5972000	rw-p	00000000	00:00	0	
9	7f70b5990000-7f70b5991000	r--p	00000000	00:00	90166	/lib/x86_64-linux
	-gnu/ld-2.28.so					
10	7f70b5991000-7f70b59ae000	r-xp	00001000	00:00	90166	/lib/x86_64-linux
	-gnu/ld-2.28.so					
11	7f70b59ae000-7f70b59af000	r-xp	0001e000	00:00	90166	/lib/x86_64-linux
	-gnu/ld-2.28.so					
12	7f70b59af000-7f70b59b6000	r--p	0001f000	00:00	90166	/lib/x86_64-linux
	-gnu/ld-2.28.so					
13	7f70b59b6000-7f70b59b7000	r--p	00026000	00:00	90166	/lib/x86_64-linux
	-gnu/ld-2.28.so					
14	7f70b59b7000-7f70b59b8000	r--p	00026000	00:00	90166	/lib/x86_64-linux
	-gnu/ld-2.28.so					
15	7f70b59b8000-7f70b59b9000	rw-p	00027000	00:00	90166	/lib/x86_64-linux
	-gnu/ld-2.28.so					
16	7f70b59b9000-7f70b59ba000	rw-p	00000000	00:00	0	
17	7f70b59c1000-7f70b59c2000	r--p	00000000	00:00	697686	/mnt/c/Users/hs/
	Documents/utokyo/aos/report1/vma					
18	7f70b59c2000-7f70b59c3000	r-xp	00001000	00:00	697686	/mnt/c/Users/hs/
	Documents/utokyo/aos/report1/vma					
19	7f70b59c3000-7f70b59c4000	r--p	00002000	00:00	697686	/mnt/c/Users/hs/
	Documents/utokyo/aos/report1/vma					
20	7f70b59c4000-7f70b59c5000	r--p	00002000	00:00	697686	/mnt/c/Users/hs/
	Documents/utokyo/aos/report1/vma					
21	7f70b59c5000-7f70b59c6000	rw-p	00003000	00:00	697686	/mnt/c/Users/hs/
	Documents/utokyo/aos/report1/vma					
22	7ffff92c6000-7ffff9ac6000	rw-p	00000000	00:00	0	[stack]
23	7ffffa0c0000-7ffffa0c1000	r-xp	00000000	00:00	0	[vdso]