

Homework Oct 31st

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ioctl

- Like configuring device. Not really reading/writing
- Sample: ioctl.c pg 49
- A more fundamental program is chardev2.c pg 52
 - This program accommodates ioctl
 - The result of message would be sufficient to submit

README

1. Compile & load the module

```
make  
insmod chardev2.ko
```

2. Module info

```
modinfo chardev2.ko
```

Below is the output

```
root@ip-172-31-16-174:~/adv-os-hw/ioctl# modinfo chardev2.ko  
filename:      /root/adv-os-hw/ioctl/chardev2.ko  
license:       GPL  
srcversion:    74FEC63FA8C43E086245E6B  
depends:  
retpoline:     Y  
name:          chardev2  
vermagic:      5.15.0-1019-aws SMP mod_unload modversions
```

3. Compile the driver function

```
gcc -o userspace_ioctl userspace_ioctl.c
```

4. Run the driver function

```
./userspace_ioctl
```

Below is the output

```
root@ip-172-31-16-174:~/adv-os-hw/ioctl# ./userspace_ioctl
get_nth_byte message:Message passed by ioctl
get_msg message:Message passed by ioctl
```

5. Output of kern.log

```
root@ip-172-31-16-174:~/adv-os-hw/ioctl# tail -n5 /var/log/kern.log
Oct 31 03:40:54 ip-172-31-16-174 kernel: [1200569.518626] device_release(00000000f2455f93,00000000f24fa350)
Oct 31 03:58:43 ip-172-31-16-174 kernel: [1201638.010836] device_open(0000000056429792)
Oct 31 03:58:43 ip-172-31-16-174 kernel: [1201638.010843] device_write(0000000056429792,0000000042af8a42,25)
Oct 31 03:58:43 ip-172-31-16-174 kernel: [1201638.011029] Read 24 bytes, 75 left
Oct 31 03:58:43 ip-172-31-16-174 kernel: [1201638.011193] device_release(00000000f2455f93,0000000056429792)
```

Miscellaneous

Error cant find stdio.h

<https://stackoverflow.com/questions/558803/how-to-add-a-default-include-path-for-gcc-in-linux>

...

```
export C_INCLUDE_PATH=/usr/include/
```

...

Error 2

```
sudo apt-get install gcc-multilib
```