

System and Device Programming

Lab 06 Exercises - /proc filesystem and character device driver

Exercise 1

Compile, install and test the **hello-5** driver.

Write a report that lists the steps that you followed, and that indicates where you find the outputs.

Exercise 2

Compile, and install the **chardev_SDP_lab** driver.

Compile the program **test_chardev.c**

After you install the module look at the tail of the file **/var/log/kern.log**
it will suggest you how to create the special file **/dev/chardev_SDP_lab**

Execute as root **test_chardev /dev/chardev_SDP_lab**

Verify that it works correctly.

Give the command **echo something > /dev/chardev_SDP_lab**

Try **cat /dev/chardev_SDP_lab**

what is its output?

Why **test_chardev /dev/chardev_SDP_lab** gives the correct results, whereas **cat** does not behave as expected?

Correct your device driver so that to **cat** produces the expected result.

- In particular, verify that executing in sequence the commands:

```
echo something > /dev/chardev_SDP_lab
cat /dev/chardev_SDP_lab
echo xxx > /dev/chardev_SDP_lab
cat /dev/chardev_SDP_lab
```

you get the strings **something** and **xxx**, respectively, nothing else.

- Verify also that executing in sequence the commands:

```
echo "First and " > /dev/chardev_SDP_lab
echo "second string" > /dev/chardev_SDP_lab
cat /dev/chardev_SDP_lab
```

you get the output **First and second string** .

Hints:

- Use `printk` to follow the control and data flow, this should allow you to figure out what is the difference between `test_chardev` and `cat` and to change your driver code.

Post your code, a description of your solution, and examples of usage of your driver.