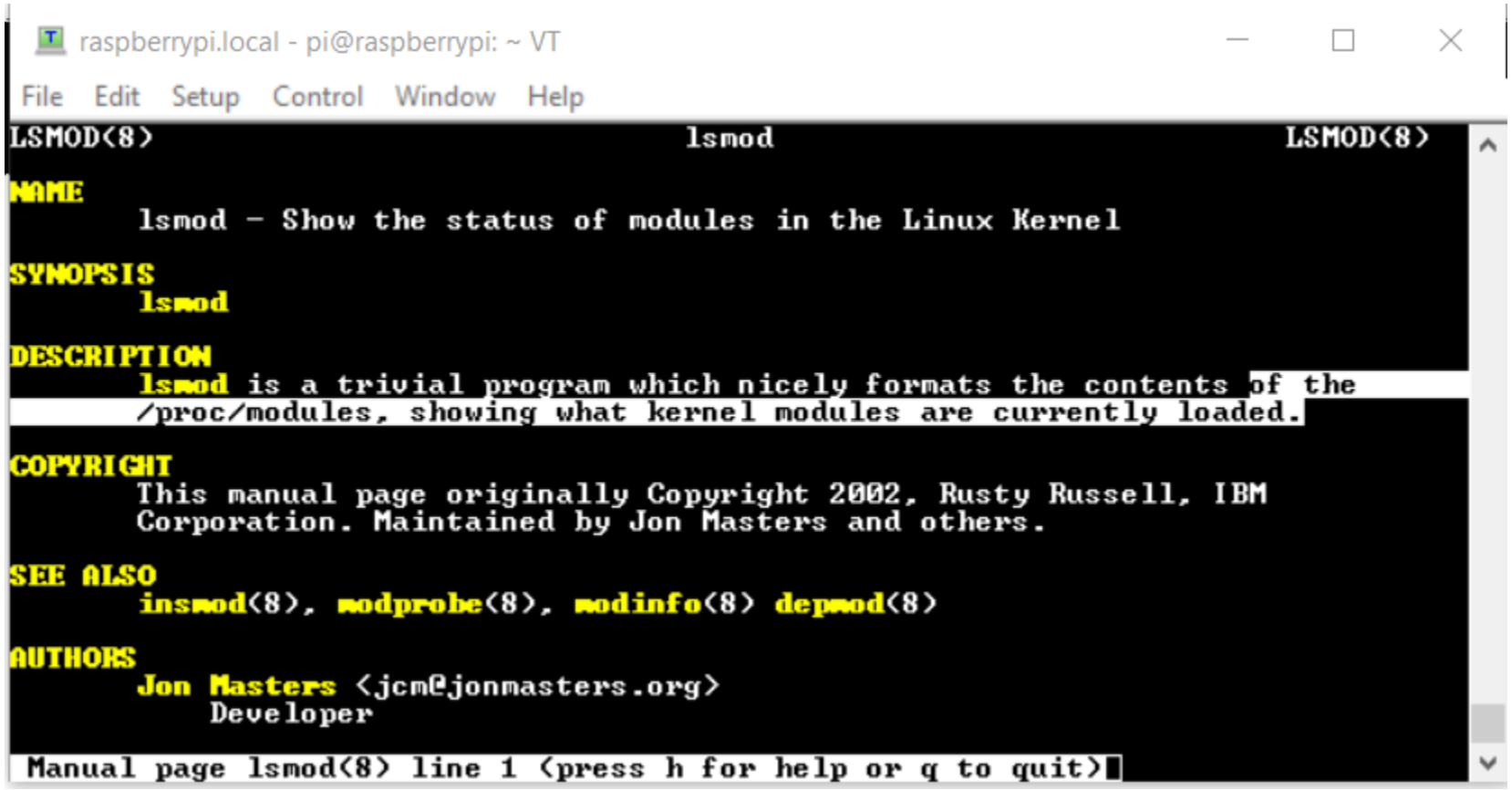
UCSD Embedded Linux Assignment 5

By

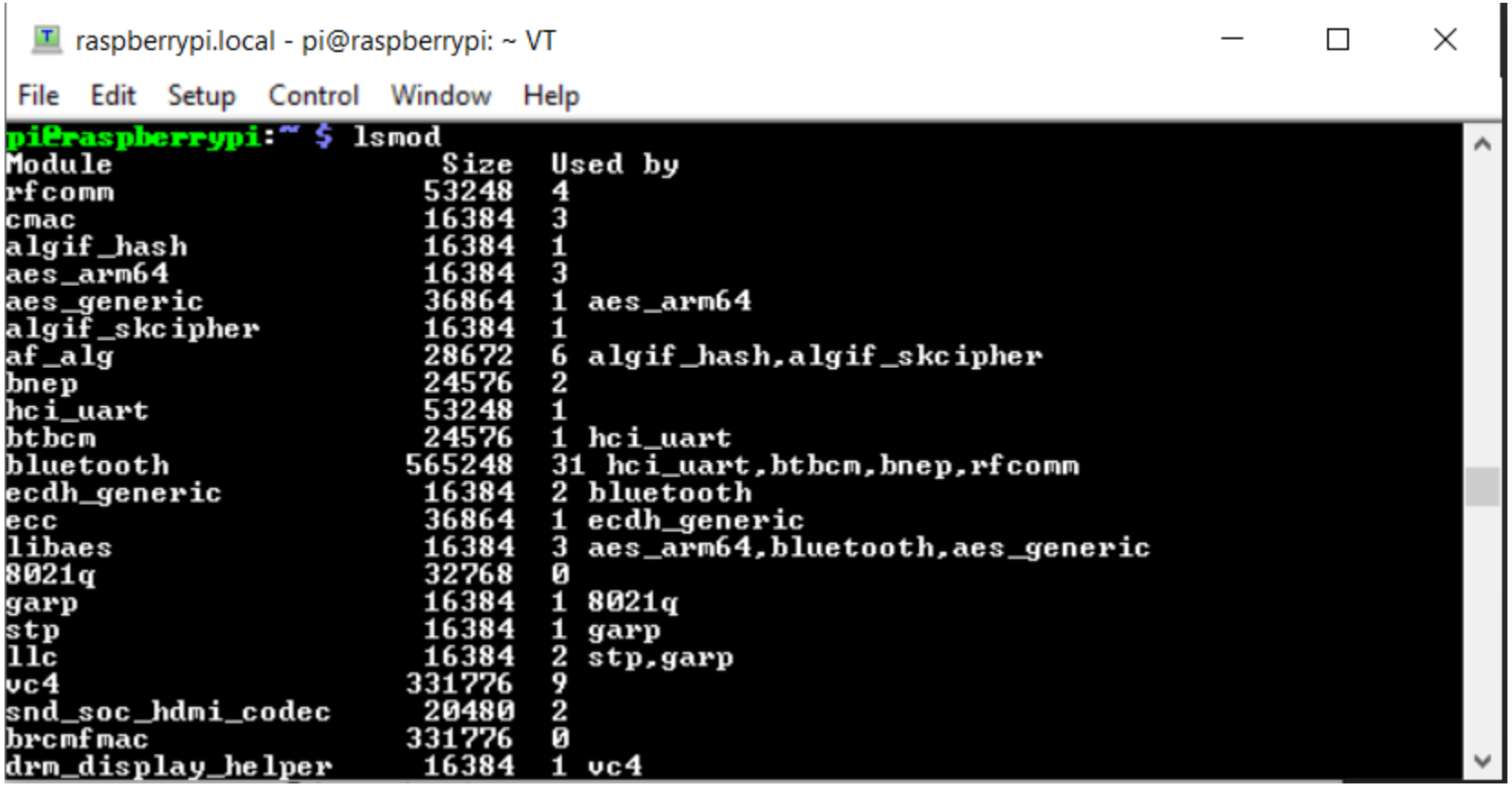
Hsuankai Chang

hsuankac@umich.edu

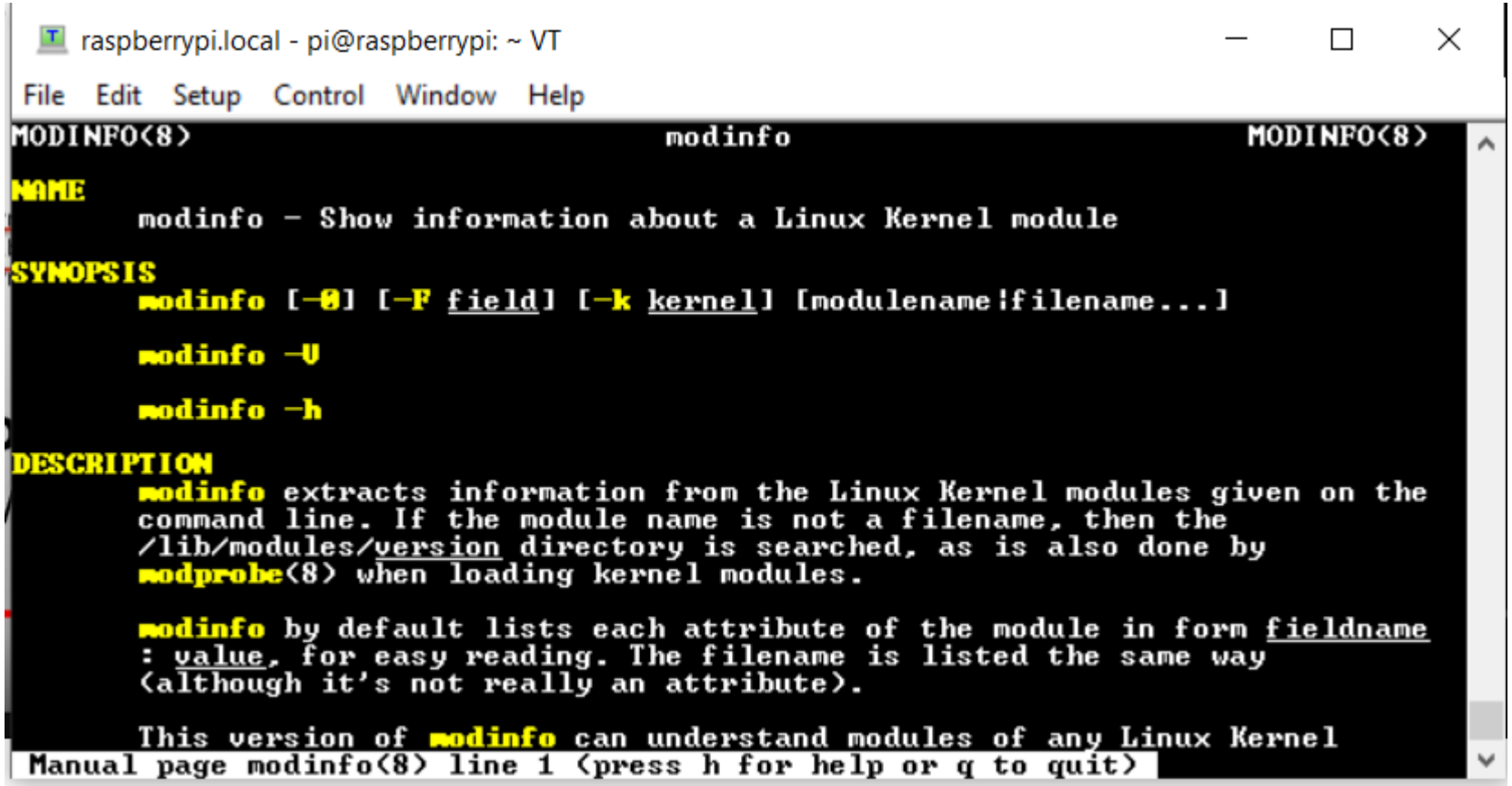
Step 1. man lsmod



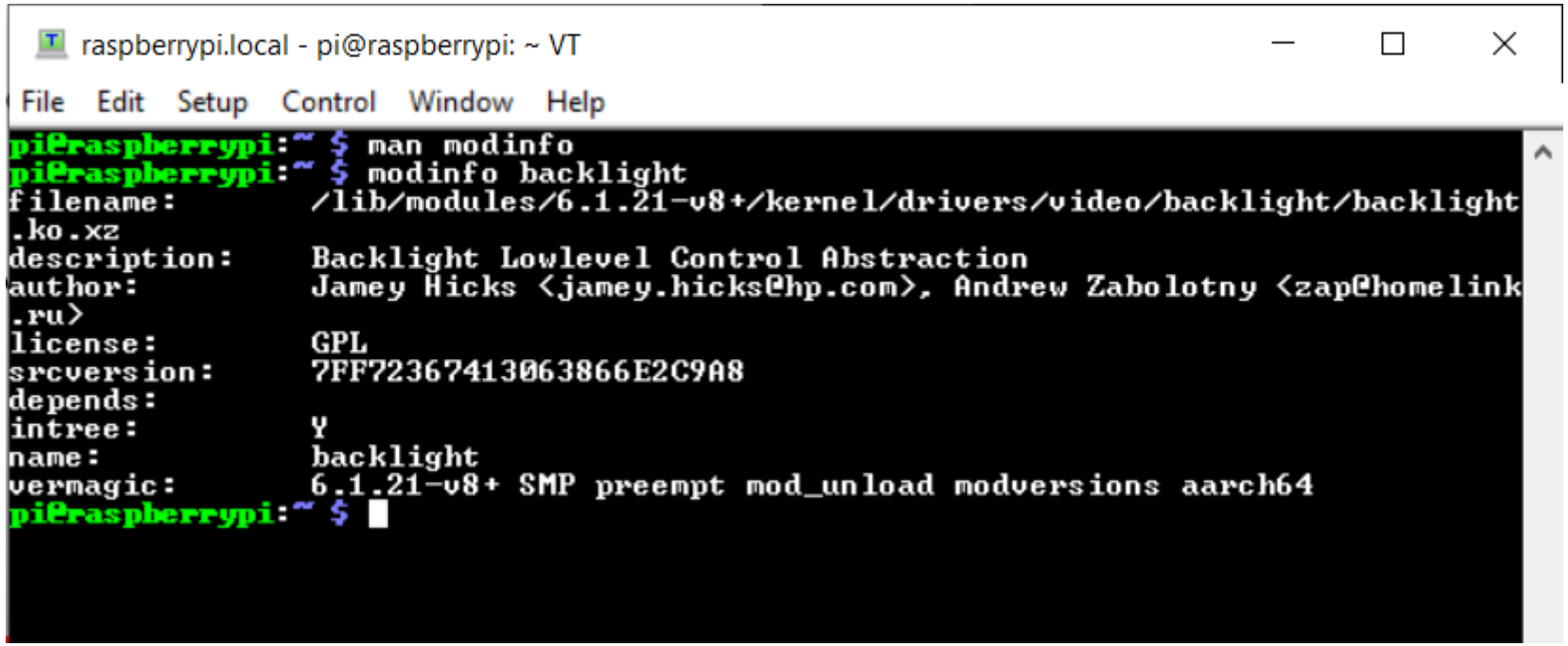
Step 2. lsmod demo



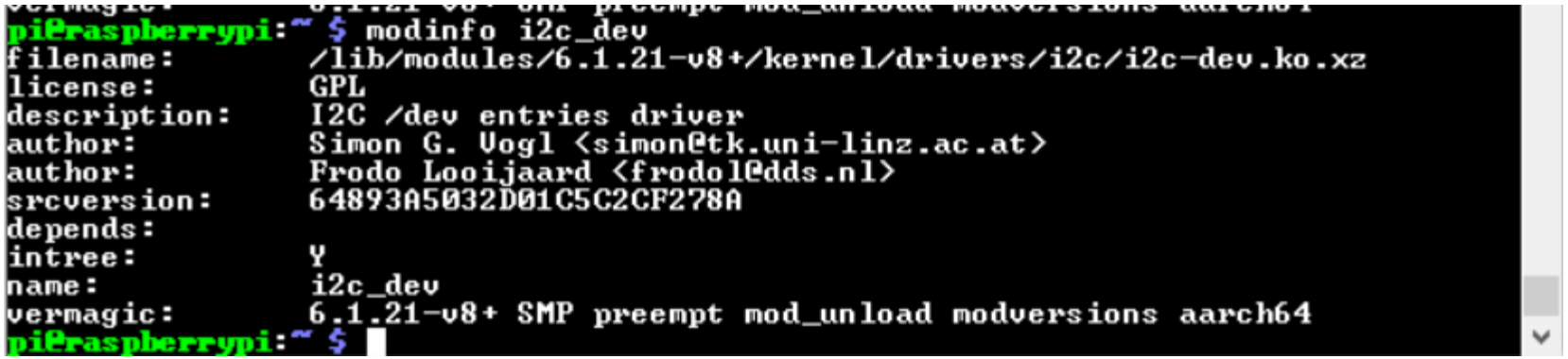
Step 3. man modinfo



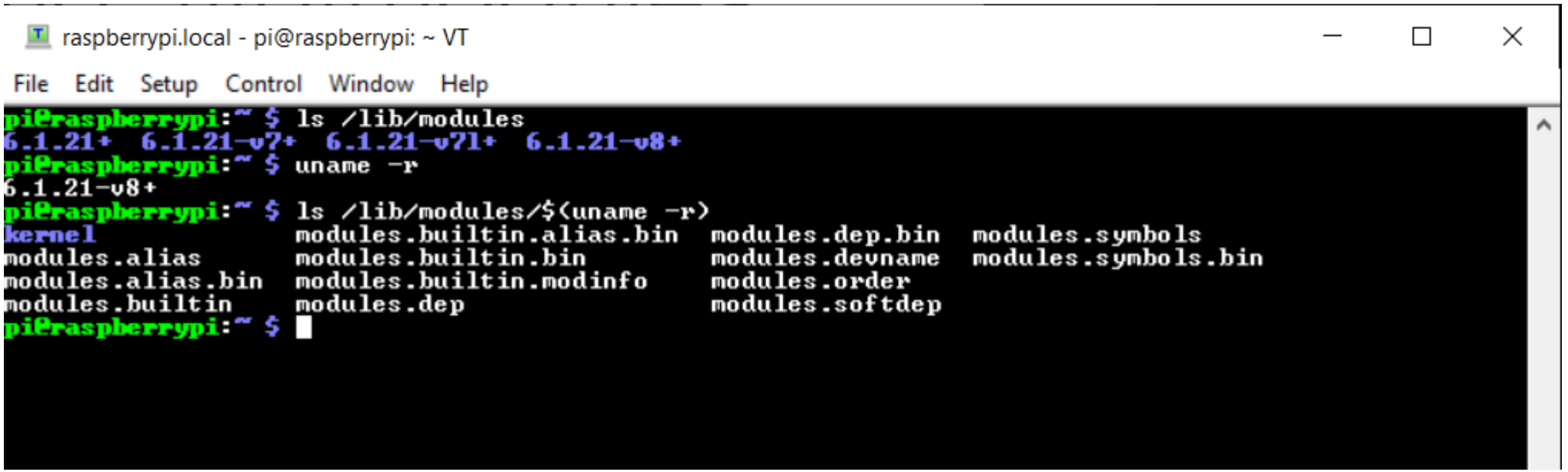
Step 4. Demo: modinfo backlight



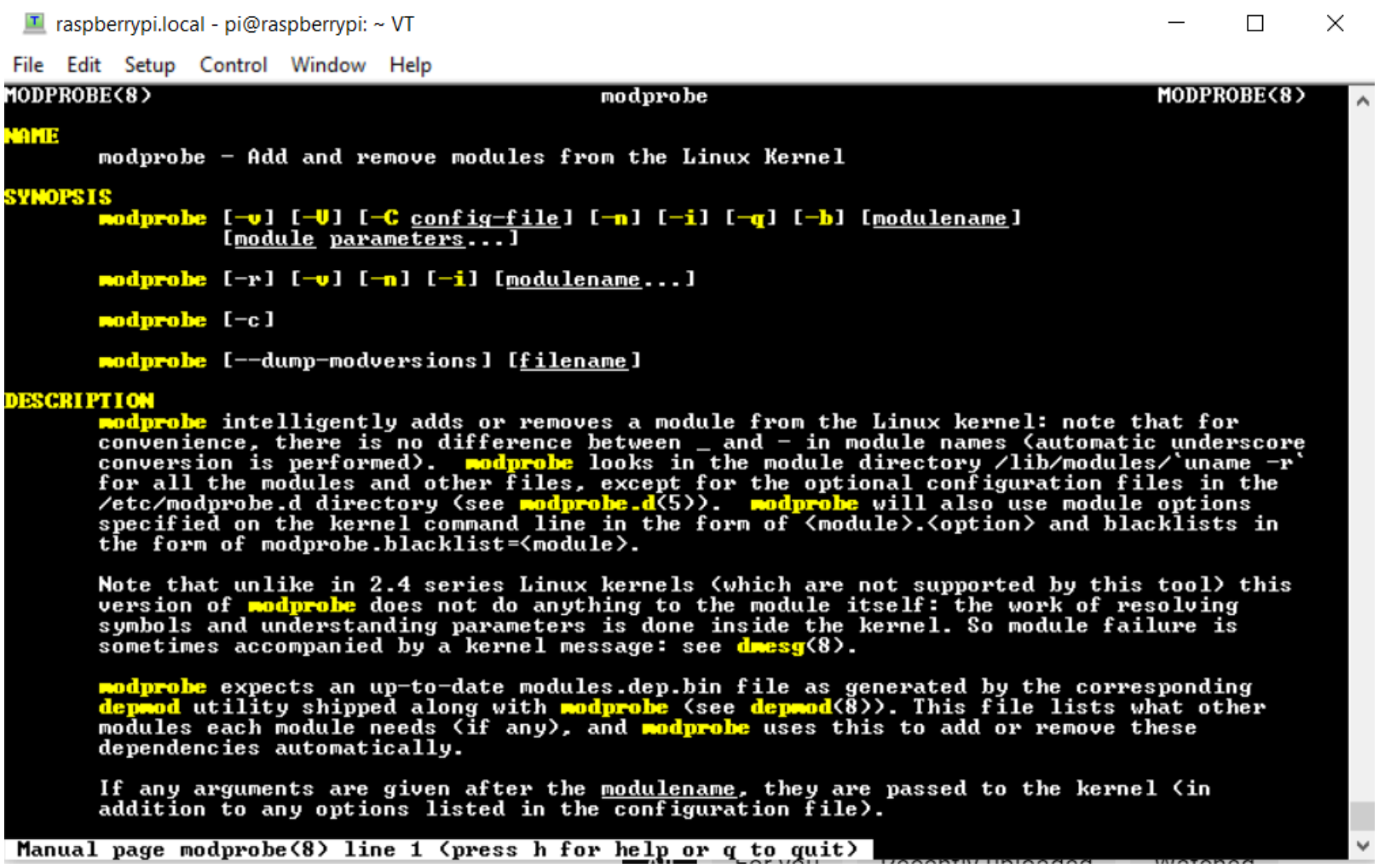
Step 5. Demo: modinfo i2c_dev



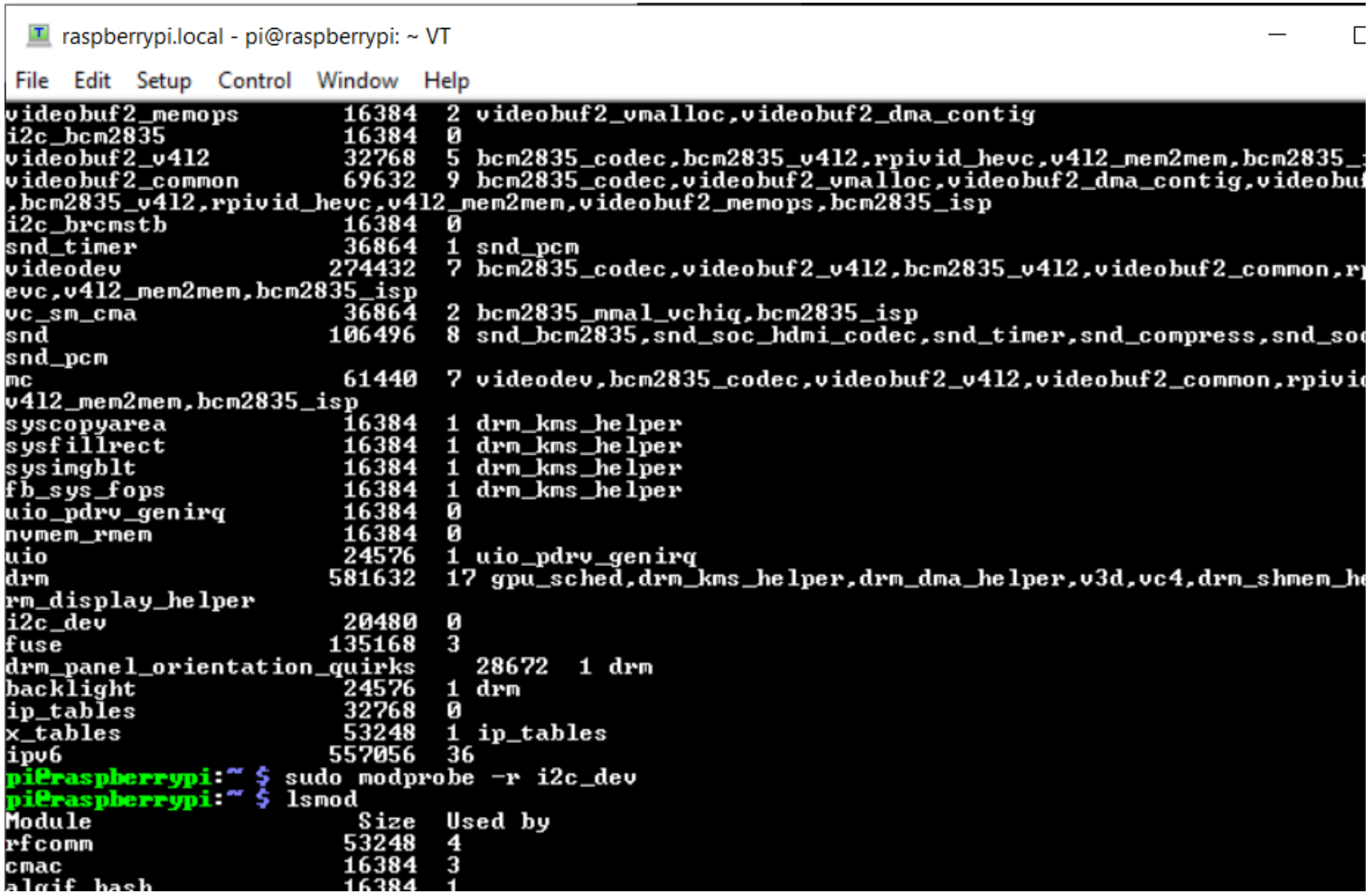
Step 6. Demo: /lib/modules



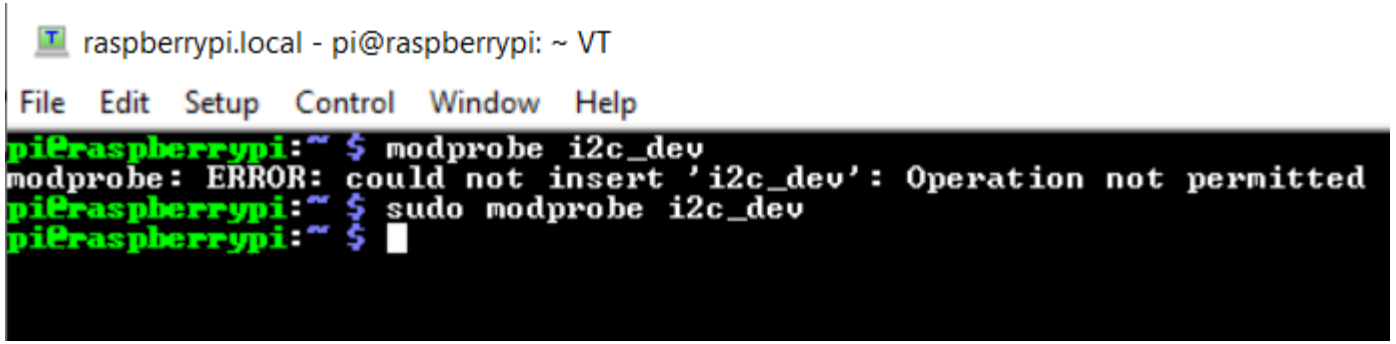
Step 7. man modprobe



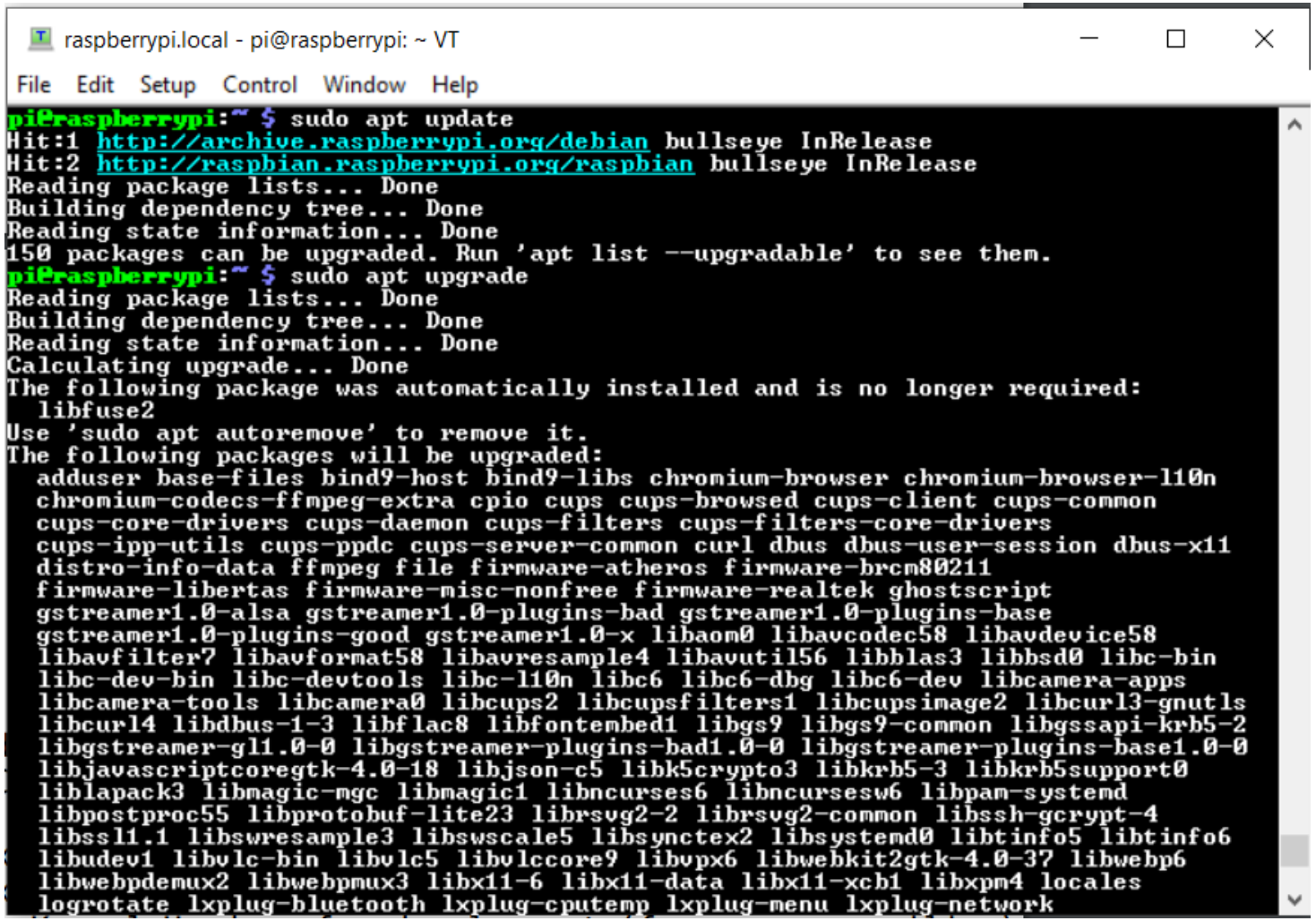
Step 8. Demo: modprobe –r, I played around with the i2c_dev module



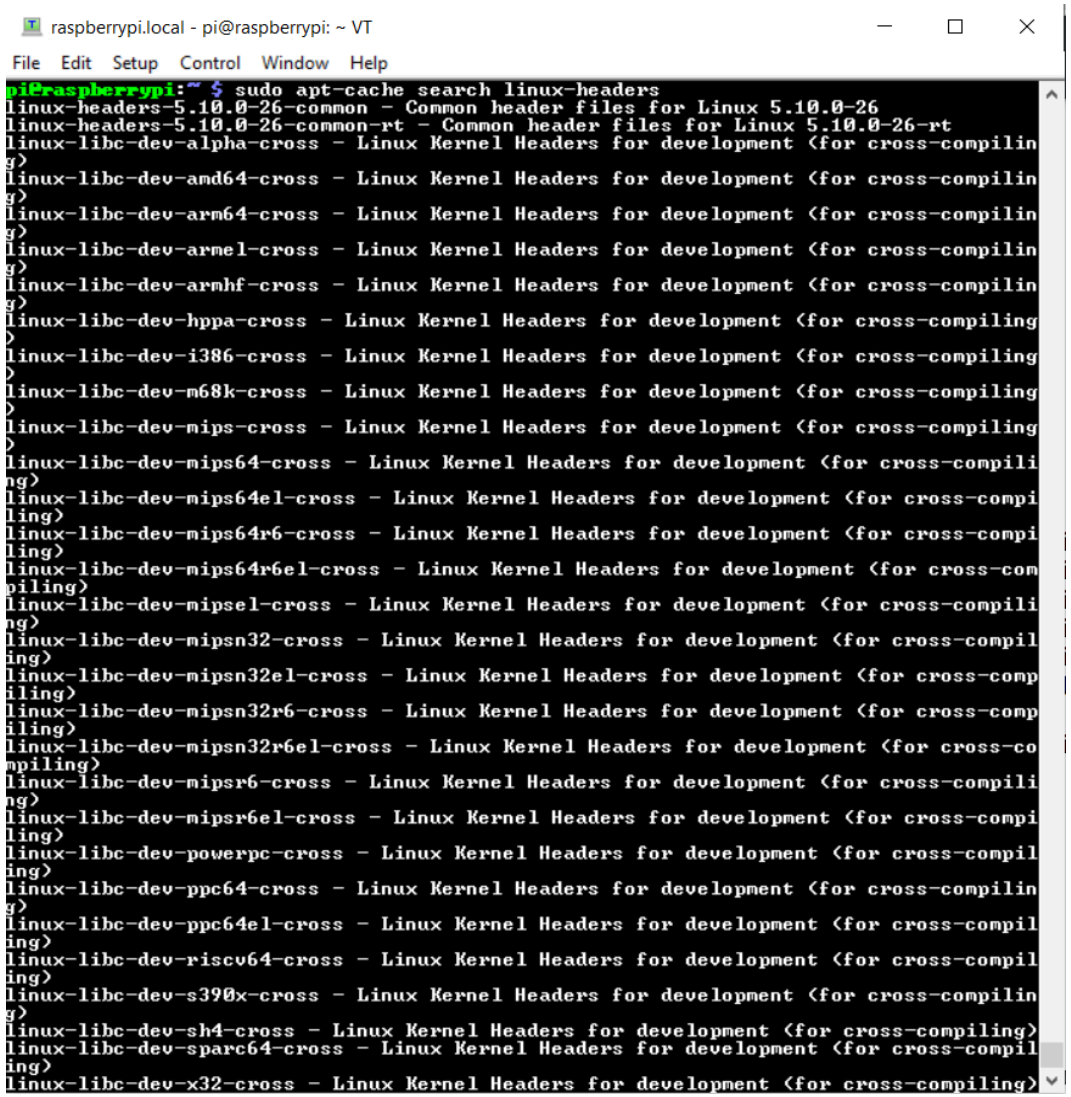
Step 9. Demo: Adding the module back



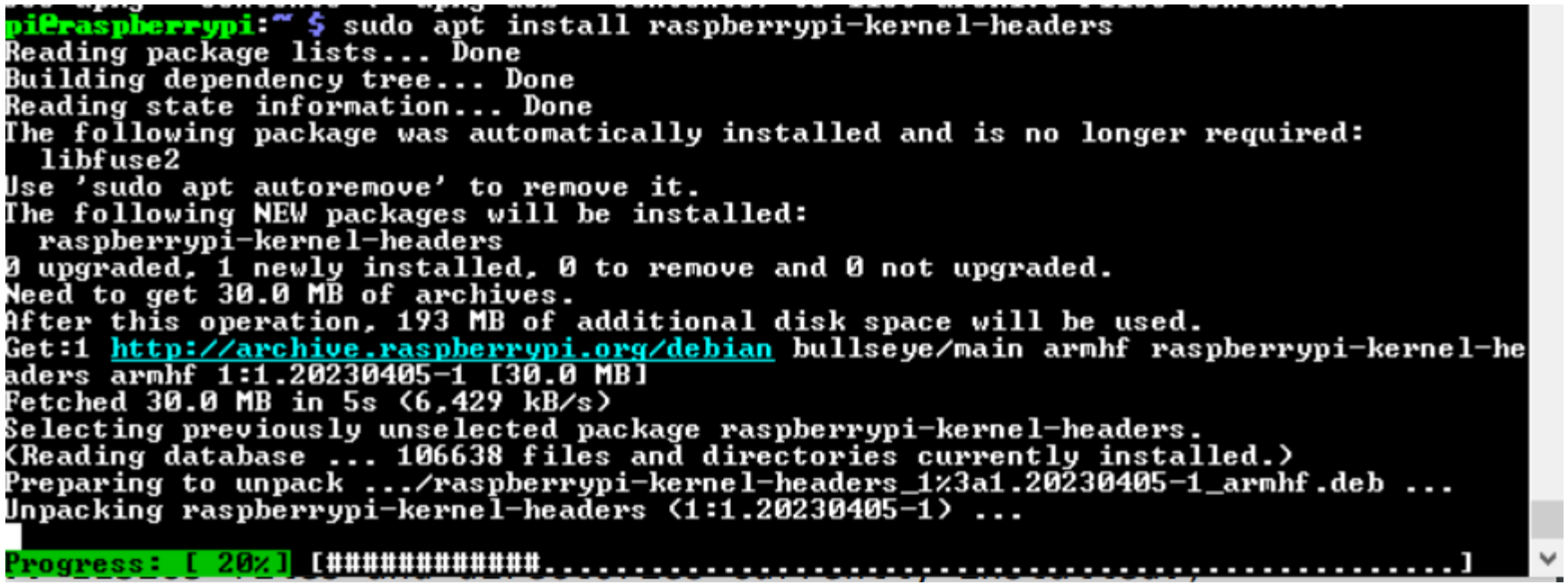
Step 10. Installing Kernel Headers Step 1



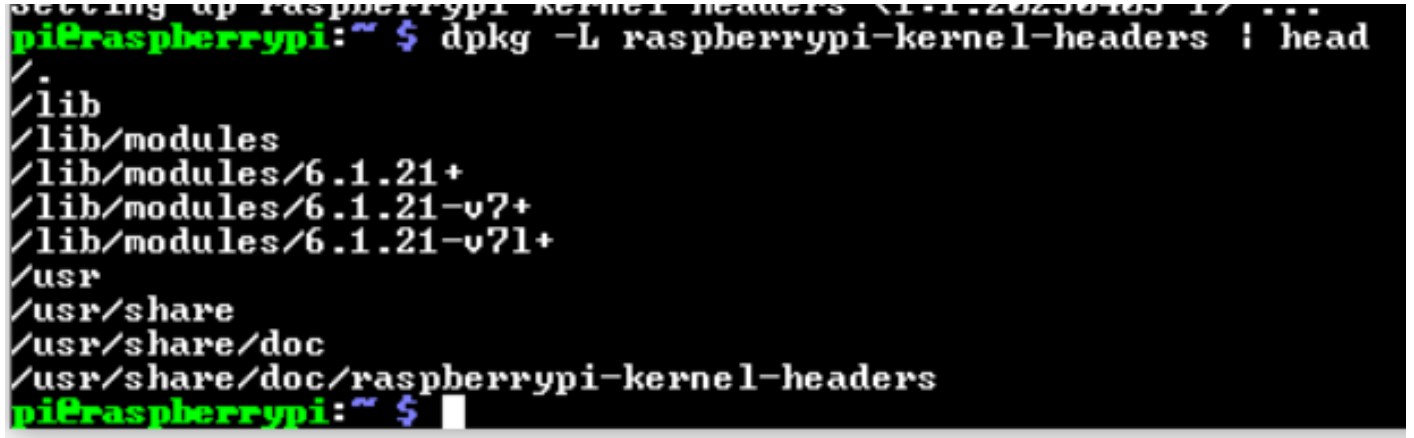
Step 11. Installing Kernel Headers Step 2



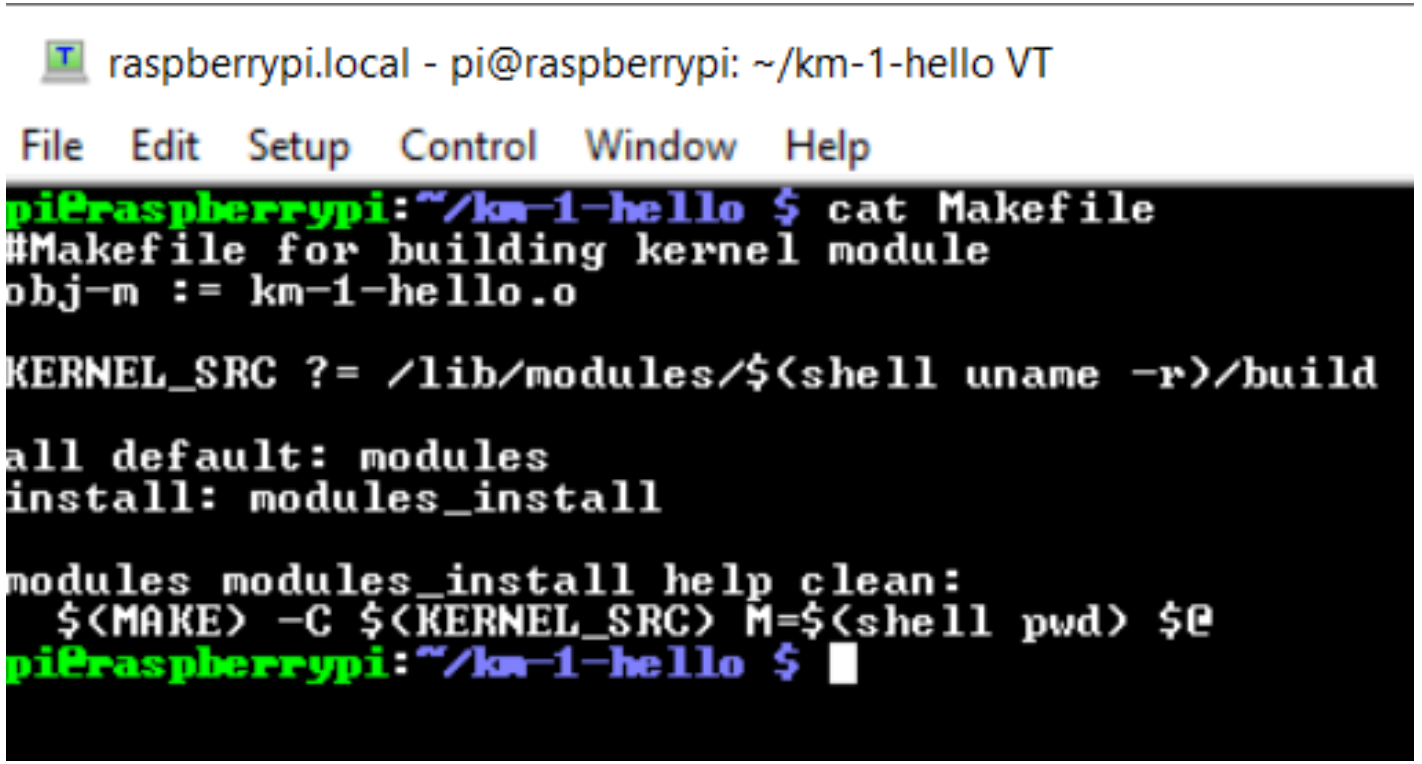
Step 12. Installing Kernel Headers Step 3



Step 13. Installing Kernel Headers Step 4



Step 14. Makefile



Step 15. km-1-hello.c

raspberrypi.local - pi@raspberrypi: ~/km-1-hello VT

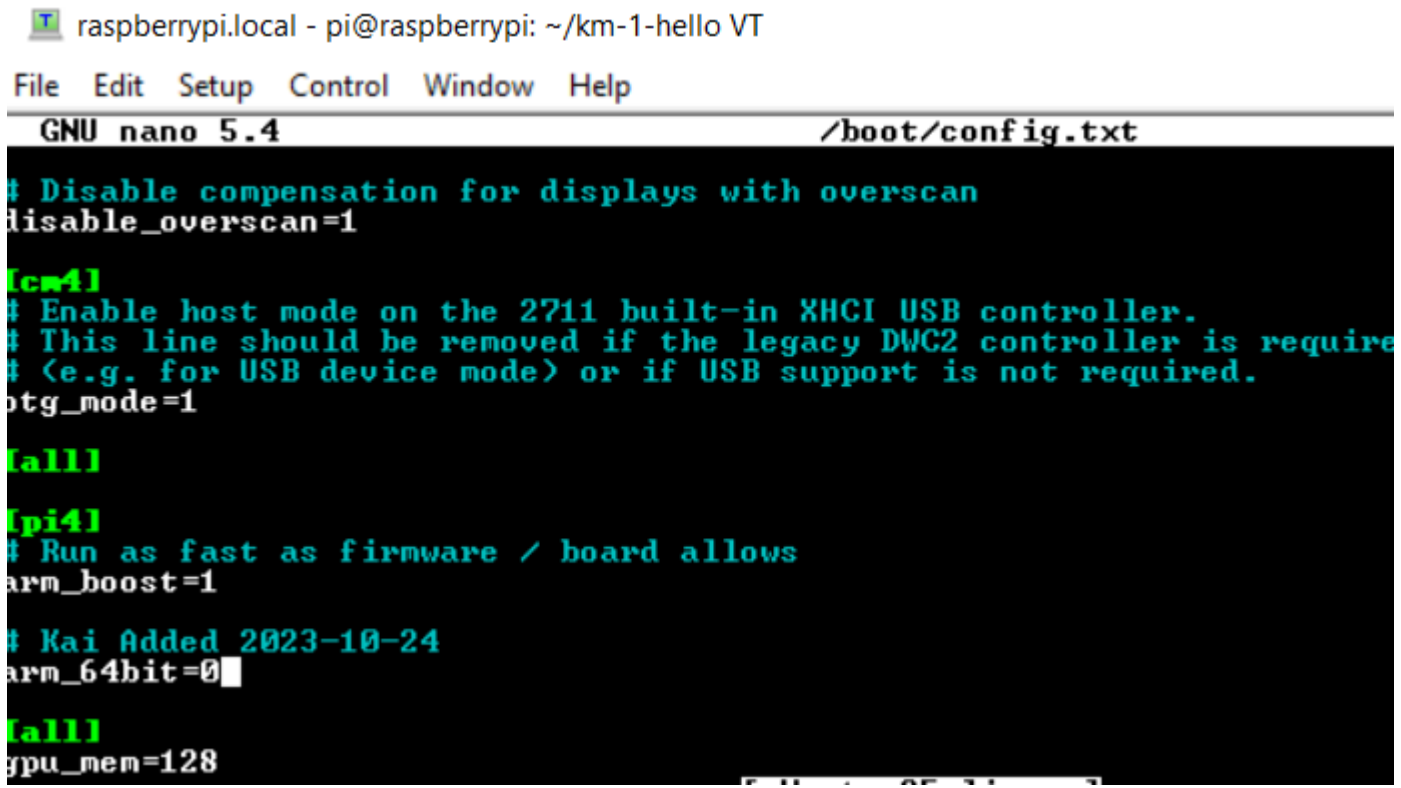
File Edit Setup Control Window Help

```
pi@raspberrypi:~/km-1-hello $ cat km-1-hello.c
#include <linux/init.h>
#include <linux/module.h>
#include <linux/kernel.h>

MODULE_LICENSE("GPL");
MODULE_ARTHUR("Kai Chang<kevin821027@gmail.com>");
MODULE_DESCRIPTION("Hello World Kernel Module");
MODULE_VERSION("0.1");

static int __init hello_init(void)
{
    printk(KERN_INFO "Hello Kernel Module\n");
    return 0;
}

static void __exit hello_exit(void)
{
    printk(KERN_INFO "Goodbye Kernel Module\n");
}

module_init(hello_init);
module_exit(hello_exit);
pi@raspberrypi:~/km-1-hello $
```

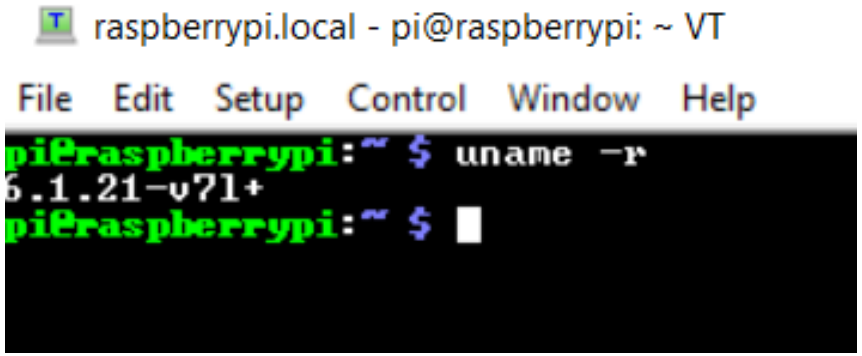
Step 16. make error

```
pi@raspberrypi:~/km-1-hello $ make
make -C /lib/modules/6.1.21-v8+/build M=/home/pi/km-1-hello modules
make[1]: *** /lib/modules/6.1.21-v8+/build: No such file or directory.  Stop.
make: *** [Makefile:9: modules] Error 2
pi@raspberrypi:~/km-1-hello $
```

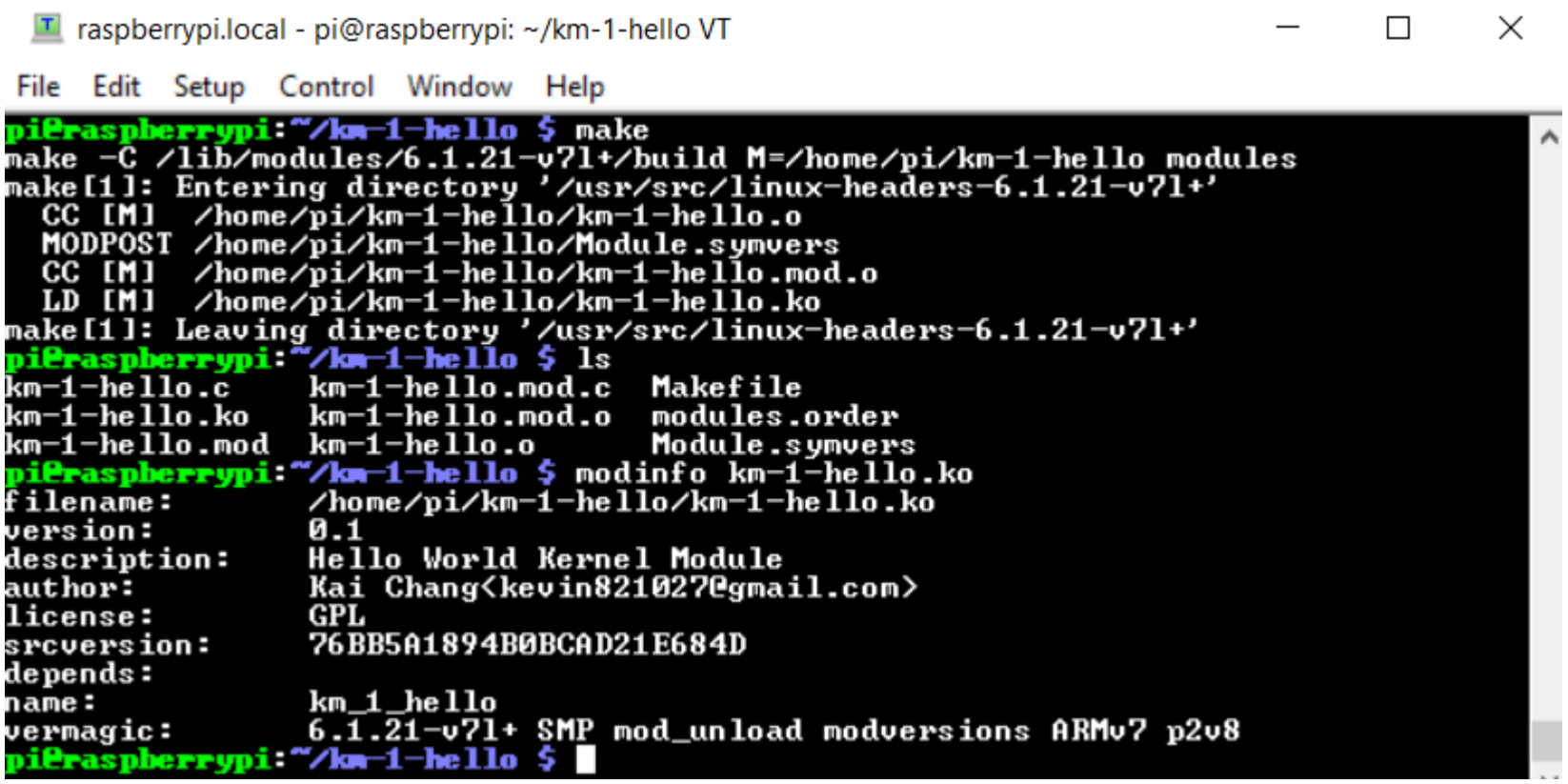
Step 17. Modify the /boot/config.txt file



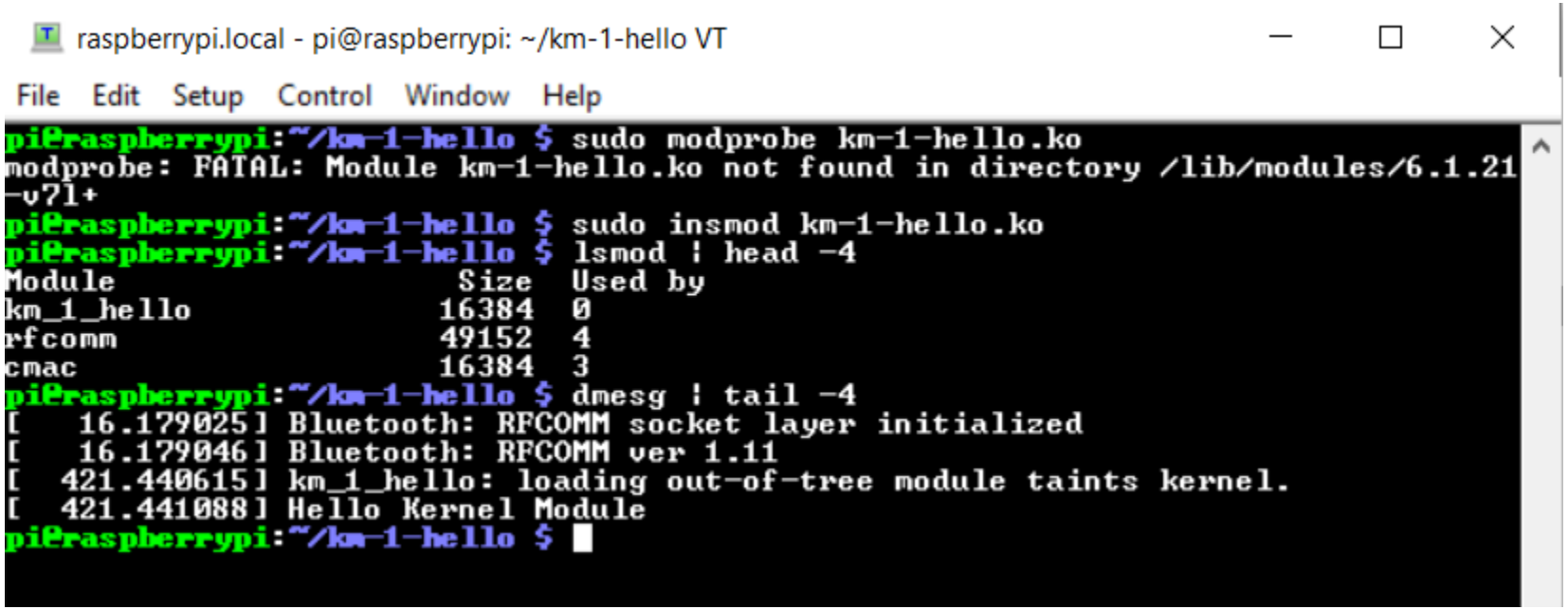
Step 18. After rebooting, version becomes v71+



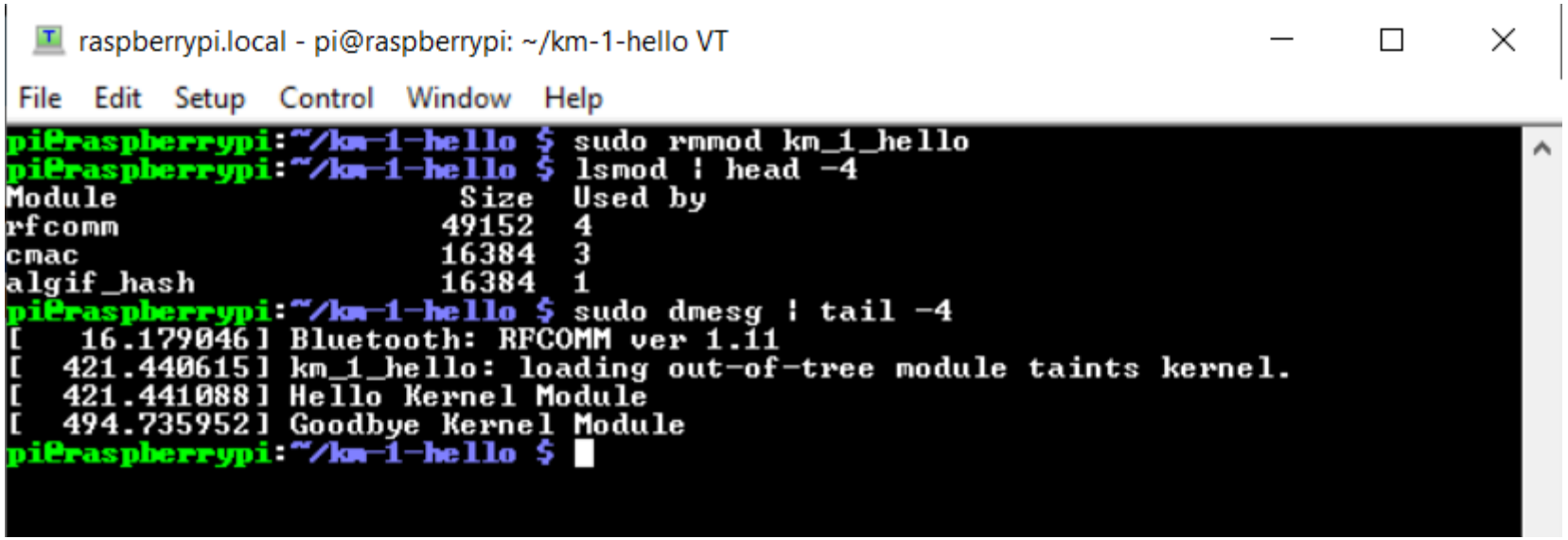
Step 19. After changing to v71+, the build is successful



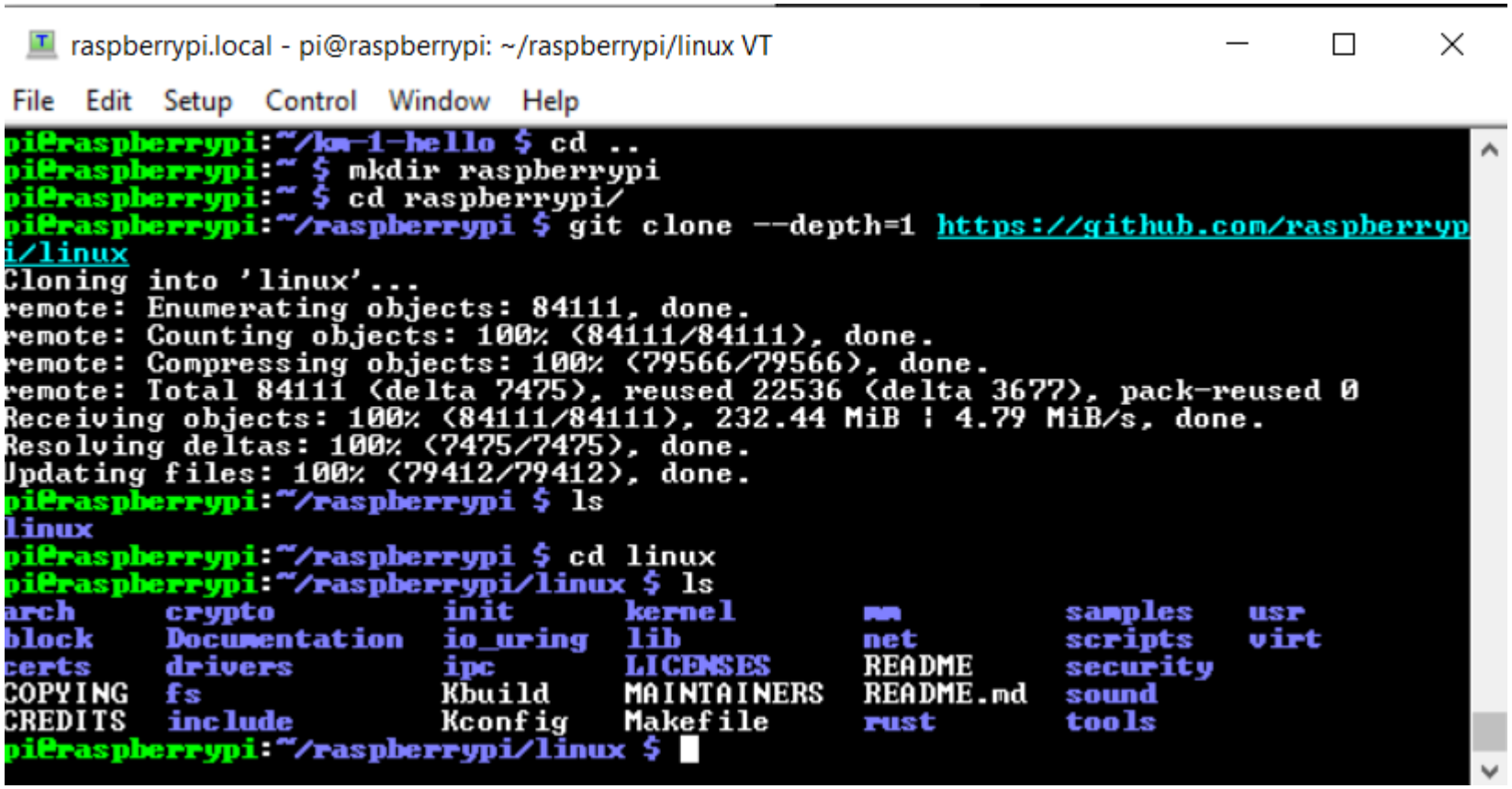
Step 20. Loading Kernel Module



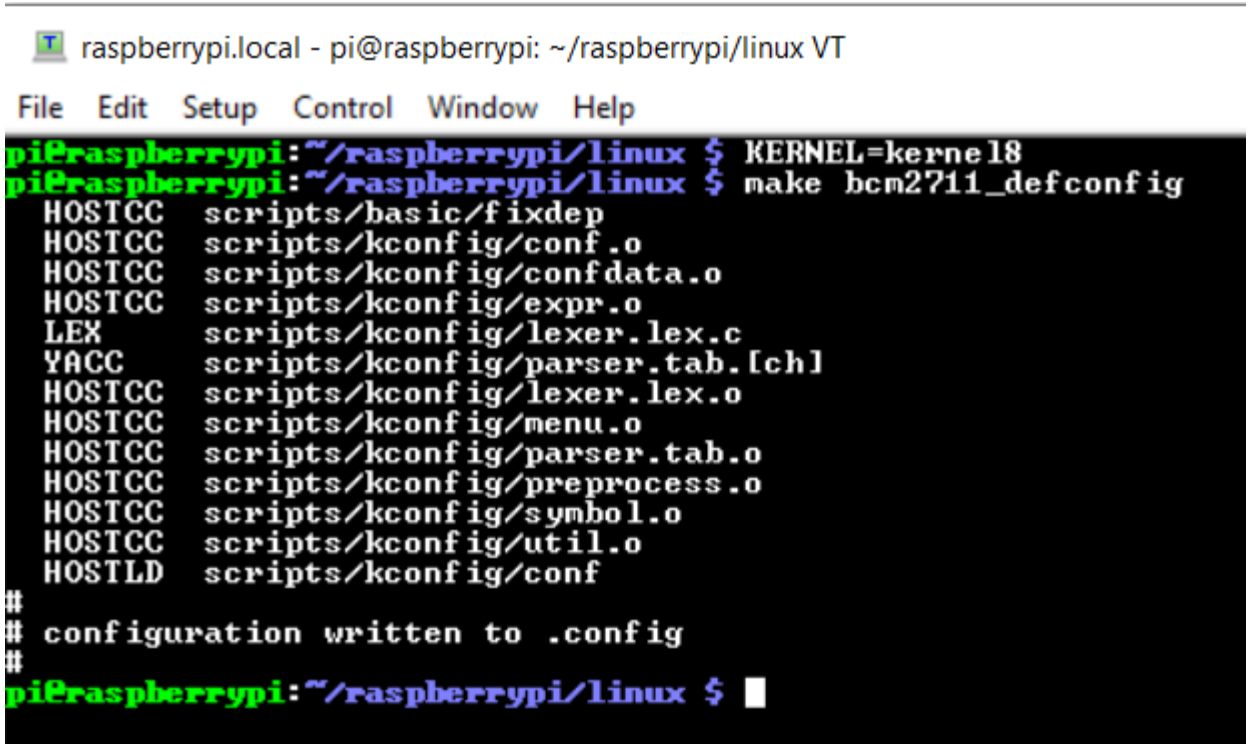
Step 21. Unloading Kernel Module



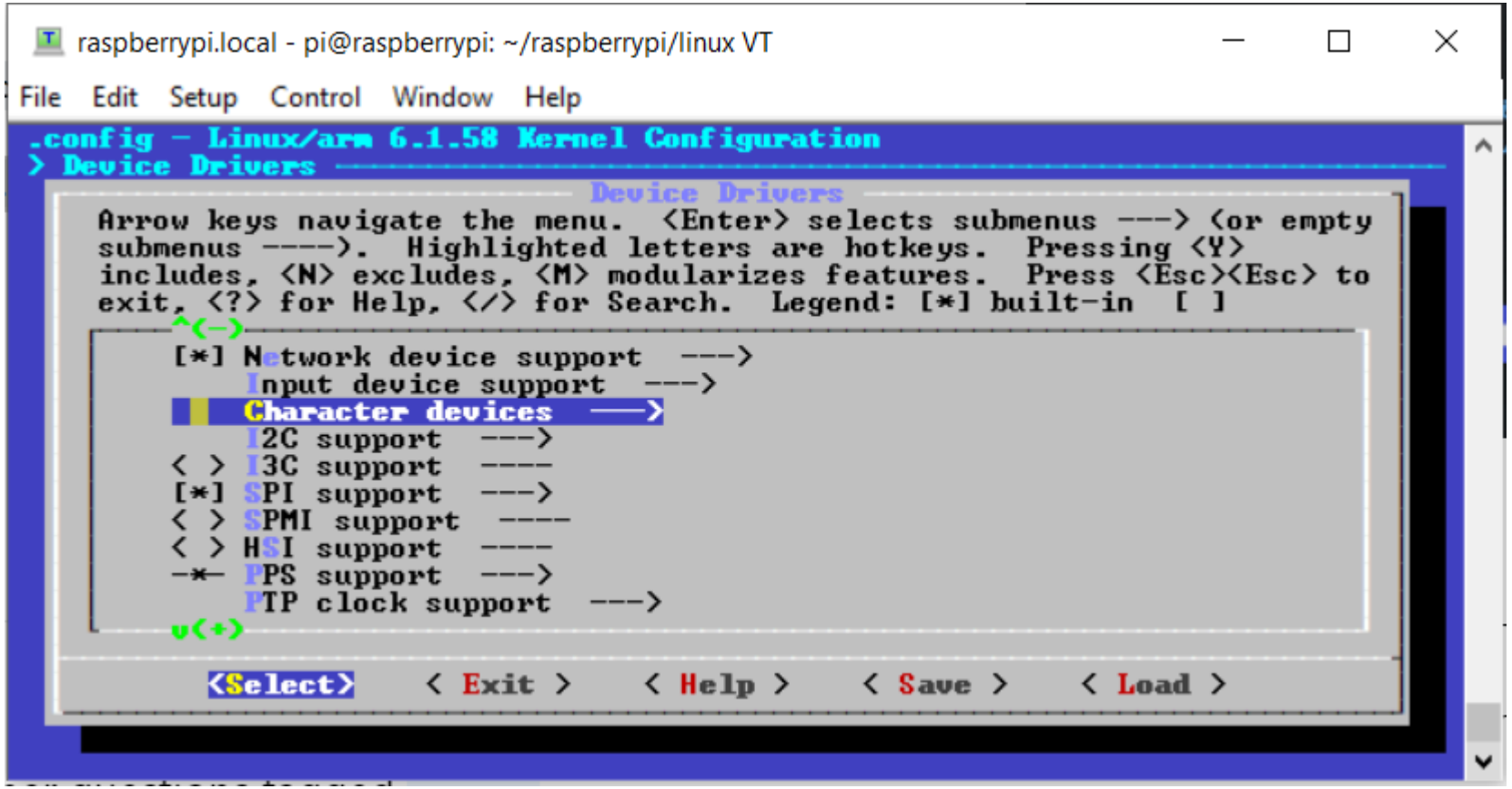
Step 22. Download Rpi source



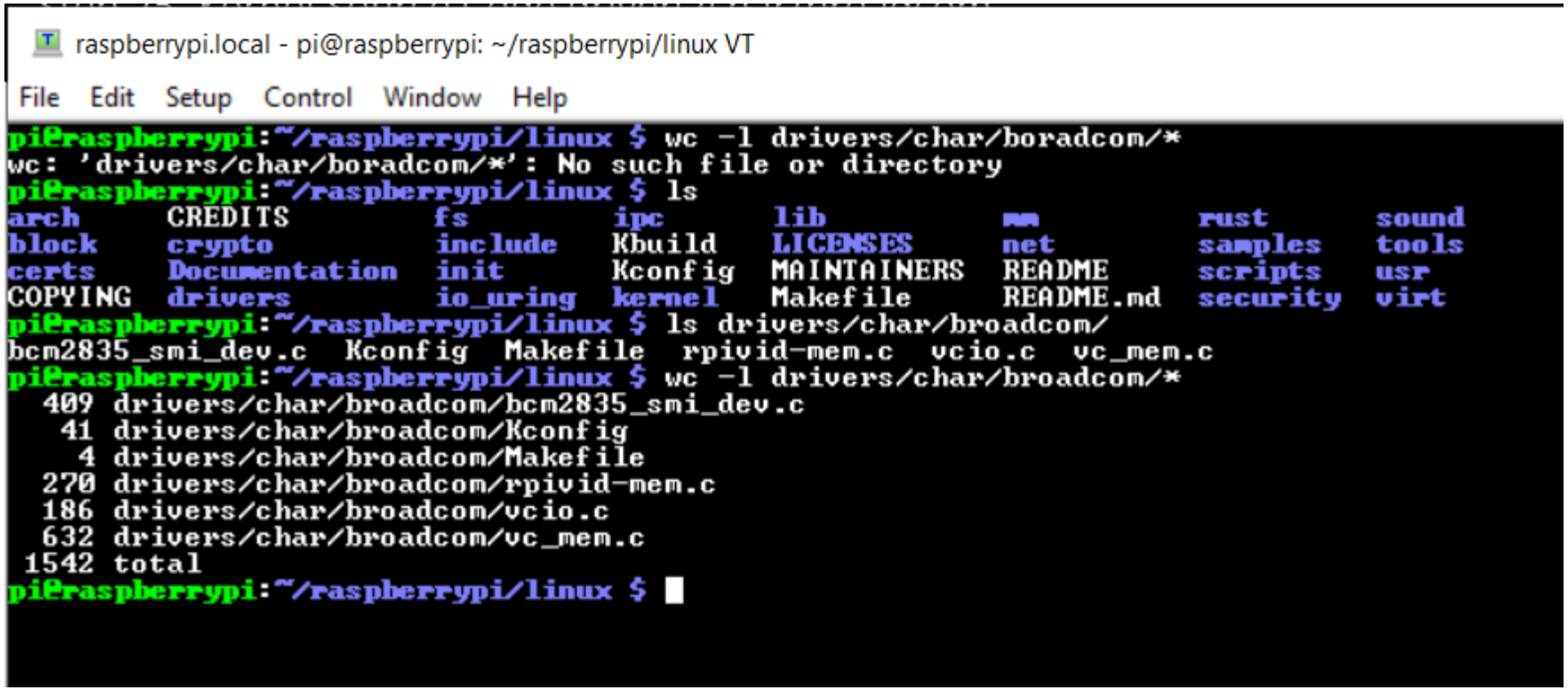
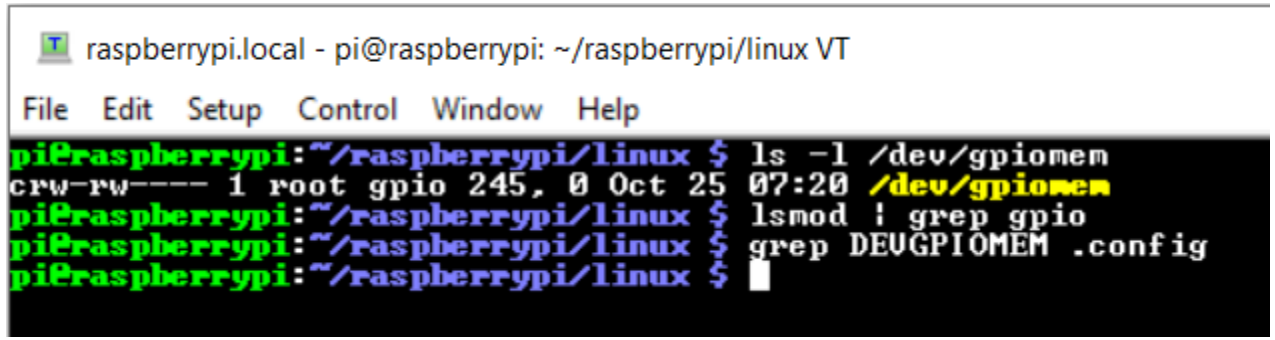
Step 23. Default Kernel Configuration



Step 24. make menuconfig



Step 25. Kernel Source Code drivers/char/broadcom



Step 26. ls /dev/gpiomem. Question: Why my last command did not show anything