

Lab Assignment 7

Corresponding to Topic 10, "Kernel Fundamentals"

L7

Main goals

- To learn how to manage OS kernel, devices and drivers.
- To learn how to perform administration tasks with integrated tools.

The Linux Kernel

1) **Create a new snapshot.**

2) **Dynamic Reconfiguration (/proc):**

- a) Configure the CD-ROM to auto-eject when unmounted. Make the change permanent.
- b) Configure the system to automatically reboot 15 seconds after a KERNEL PANIC.
- c) Configure the system to avoid system reboot after "ctrl+alt+del" combo.

3) Modules:

- a) Check the modules that have been loaded during the OS boot process.
- b) Make sure the Linux kernel headers are installed in your system.
- c) Now, we are going to build a new custom kernel module. Download the source from http://www.ce.unican.es/OCW/SI/mi_modulo.tar.gz and compile it. Then, install the new module (.ko file) and check the messages log file. Check out the source code file module.
- d) Check if your new module (si_mod) has dependencies with any other kernel module. Solve any error found until you obtain the required information.

4) Devices and “device files”:

- a) Login to a second terminal. Send a message from the first console to the second console only making use of the echo command. Identify the device file used by both terminals (clue: command who).

Turn off your virtual machine to modify its configuration. Add a new floppy disk controller and insert the floppy image downloaded from:

<http://www.ce.unican.es/OCW/SI/floppy.img>. Then:

- I) Create, MANUALLY, in root a device file associated to the floppy disk drive you created previously and check that it works correctly (to do that, just check that when you try to use it through the device file it activates on the bottom of the virtual screen).
- II) Identify, through its device file, which kernel module is in charge of the hard disk (/dev/sda).
- III) Obtain information about your system CPU through the OS.

5) Restore the Virtual Machine to the initial Snapshot.