

**Prior Instructions:**

In the following link you will find a file named ExamenParcial.zip. Download it to a local folder, uncompress the file and add the machine to Virtualbox.

<http://www.ce.unican.es/OCW/SI/Eval/2016-17/ExamenJunio.zip>

Each Exercise has its own snapshot as a starting point, named Ej<X>Begin. After booting the machine, log in as root user: login=root / password=root. **After finishing each exercise, power off the virtual machine and create a snapshot labeled Ej<X>Result (replace <X> with the exercise number).**

**Exercise 1 (1p).** Power on the machine from snapshot Ej1Begin. Do the required reparations to obtain a correct booting of the operating system.

**Exercise 2 (1.5p)** Power on the machine from snapshot Ej2Begin. Perform the following actions on the file datos.txt, located in /root. Employ a single command per action.

1. Copy to the file section1.txt, every line starting with two digits followed by a letter.
2. Create a reduced version in the file section2.txt, that only contains the first, third and fourth columns of the original text.
3. Remove from the file those lines containing the word “message”.
4. Replace the word Monday by Friday in the same file.

**Exercise 3 (3p).** Power on the machine from snapshot Ej3Begin. Do the following tasks:

1. Create a *Shell Script* named ControlUser.sh in charge of checking out the logged users every 5 minutes. For each logger user, a log message is generated through the standard output, including the date and the following text: “User1 logged!!”.
2. Create a new script named UserControl, in charge of starting and stopping previous script. The service associated will have the following properties: it can only be used in runlevel 2, and must start after service cron, but before service rc.local. When the machine is powered off, it will be the first service to stop printing the following message on the screen: “Killing service UserControl”.

**Exercise 4 (2p).** Power on the machine from snapshot Ej4Begin. Carry out the following maintenance tasks:

1. Making use of a single command line, remove all the files of the system belonging to the user test that have not been modified for the last 10 days.
2. Establish the following limits for user test: Maximum file size 128KBytes and maximum number of opened files 128.
3. Perform the necessary actions to change all tasks scheduled by the user root from weekly to daily execution. Modify the rotation parameters for the file /var/log/mail.log to be carried out daily, storing information for the last 15 days.
4. Analyzing the system at kernel level, write down in a README.txt file in /root the CPU model of your system as well as the programmed behavior in the event of “Kernel Panic”.

**Exercise 5 (2.5p)** Power on the machine from snapshot Ej5Begin. Carry out the following tasks:

1. In your virtual machine, one of the disks from the RAID system has failed. Find out which one it was and perform the recovery process, replacing the disk by a new one without losing any data (employ the available disk that is not in use).
2. Additionally, create two logical volumes of the same size (and maximum available) on top of the group volume vg0. These volumes must have a ext3 file system.
3. Perform the necessary changes to mount the content of the /home directory on the first logical volume (permanently).

**Once you have finished the exam, copy the following files to the device provided by the teacher:**

- ExamenJunio.vbox
- Snapshots (carpeta)