Advanced Linux System Administration: Lab Exam (Topics 6-11)

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/ExamenParcial2.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 (2.5p). Power on the machine from snapshot Ej1Begin. Perform the following tasks:
1. Without making use of any automatization tool, eliminate the user user1 from the system. This elimination includes removing every file from the system owned by the user.
2. Next, also without using automatization tools, create step by step a new user named user2. You can find its configuration parameters in the file /root/userCommon.txt.
3. Making use of the appropriate PAM module, establish the following limits for the new user: Maximum number of processes: 50, nice value associated with every user process: 10, maximum size for core file: 128Kbytes (can be exceeded during the established grace period) and hard limit, 256KBytes.

Exercise 2 (3p) Power on the machine from snapshot Ej2Begin. This virtual machine provides 3 additional hard disks, each with 1 GB size. Carry out the following tasks:
1. Configure a RAID system of level 5 with the 3 disks using partitions (1 per disk), on top of it you must create two logical volumes of the same size (the maximum available). These logical volumes will have an ext4 file system.
2. Make the necessary changes to put the content of the /home directory in the first logical volume (by default and permanently). Employ the remaining volume to perform a level 0 backup of the content in the /home directory.
3. In order to check out that the backup has been performed correctly, recover all the content of the backup in the directory /tmp/recovered/.

Exercise 3 (2.5p). Power on the machine from snapshot Ej3Begin. Perform the following tasks:
1. Create a shell script named ControlUser.sh whose function is to check out if user1 is logged on. If so, a log message will be generated, including the date and the following text:: "User1 active!!" in the log file /var/log/user1.log.
2. Configure the automatic execution of the script to be performed every hour of every working day (Monday to Friday).
3. Configure the rotation of the log file generated by the script to be performed monthly, saving all the information for a whole year.

Exercise 4 (2p). Power on the machine from snapshot Ej4Begin. Perform the following tasks:
1. Do the required modifications to obtain the correct answer from the command:
     ping www.unican.es.
2. Change the network interface configuration from automatic to static (manual). Such changes must be permanent.
Data:
     DNS: 193.144.193.11

Once you have finished the exam, copy the following files to the device provided by the teacher:
     -ExamenParcial2.vbox
     -Snapshots (whole folder)