

# TP 3 Assignment

GNU/Linux System Administration  
Info et Réseaux en Apprentissage, Sup Galilée, Paris Nord

October 9th, 2014

Work in a group of two or three people. Use your Debian GNU/Linux installation you configured in the first TPs to implement the following requirements. Some requirements are quite technical and easy to understand, some others need you some design of the solution. Document your work with the followings two documents.

- Administration change log – a simple text file stored in `/root/` describing the operations you performed on the machine. Follow the GNU guidelines for source change logging at: [https://www.gnu.org/prep/standards/html\\_node/Change-Logs.html](https://www.gnu.org/prep/standards/html_node/Change-Logs.html)
- Report – a PDF with answers to questions.

Send documents to `marco.solieri@lipn.univ-paris13.fr` by 4:30 pm.

## 1 RAID migration

1. Check the storage size that is actually used by your Debian virtual machine.
2. Create two new virtual disks for your Virtual Box, each of those having a size of at least twice the storage size used (perhaps it may be safer to select fixed sized files).
3. Create two partitions in each of those disks, that will respectively used for `/` and `/var`.
4. Create two RAID 1 volumes between the corresponding new partitions.
5. Check the status of the RAID in `/proc/mdstat`.
6. Create a filesystem in both of them.
7. Create two directories `/mnt/root` and `/mnt/var`.
8. Go in “single user” mode, remount all your partitions in read only mode (ignore all virtual ones, like `/proc`).
9. Mount the two RAIDs in the two directories in `/tmp`.
10. Copy all system data from your system to the two directories in `/tmp` (carefully choose the `cp` option). Go drink a coffee while waiting.
11. `chroot` into `/mnt/root`.

- (a) Adjust the configuration in `/etc/fstab`, so that the new RAID volumes are mounted as `/` and `/var`.
  - (b) Re-install GRUB in the two new disks.
12. Disable old virtual disks in your Virtual Box.
13. Boot into the new system.

## 2 RAID configuration

1. (Only if you have not done it yet in TP2)  
Configure the mail system alias to forward messages for root to every user who is administrator on the machine (you).
2. Install mutt, a console-based mail client, and test by sending an email to root.
3. Configure `mdadm` to send email to root.

## 3 RAID testing

1. Disable one of the virtual disks from the Virtual Box configuration.
2. Boot into the system and read your mail warning message.
3. Check the status of the RAID volumes in `/proc/mdstat`.
4. Re-enable the virtual disk just disabled.
5. Boot into the system and re-add the two partitions into your RAID volumes.
6. Check the recovery progress of the RAID volumes in `/proc/mdstat`.

## 4 RAID resizing

1. Choose a size variation between the two volumes used for `/` and `/var`.
2. Resize the two filesystems.
3. Resize the partitions.

## A Filesystem

1. Examine the content of a directory file as represented in the filesystem, using tools such as `od` or `hexdump`.
2. Try to figure out what does it mean, by comparison with the files contained in it.