**Description / Scenario**

As a Linux administrator, you will have to perform a variety of tasks on the system. In this project you will set up a 64-bit Debian Linux server as a virtual machine in Oracle VM VirtualBox.

Note: First Name = Everest

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Thus, you are asked to perform the following tasks:

1. (*Setting up Linux*) Create a virtual machine in Virtual Box (www.virtualbox.org) with a 25 GB dynamically allocated virtual hard drive and 2048 MB of memory. Install in it a fresh copy of 64-bit Debian Linux, from a small installation CD (<https://www.debian.org/distrib/netinst>).   
   During the installation steps:
   * Provide “debian-server” as hostname and an empty domain
   * Select the minimalist Xfce desktop environment instead of the default
   * Set root password to “[Admin@4321](mailto:Admin@4321)”
   * Set the regular user username to the form *xy*, where *x* is your first name initial and *y* is your surname, and password to “User4321”
2. (*Software installation*) Install the following software: The GNUC++ compiler, *nmap*, *mdadm*, *gparted*, and *OpenSSH server*.
3. (*User management*) Add a third user “test” and set its password to “Test4321”, its home directory to */home/test\_home* (owner set accordingly for this directory), and its shell to */bin/sh*.
4. (*sudo privileges*) Give sudoer privileges to the regular user to have superuser access to all commands except *bash, dash* and *sh* shells grouped in alias “SHELLS”. Give sudoer privileges to the “test” user to execute as superuser the “*gparted*” and “*mdadm*” binaries grouped in alias “STORAGE\_ADMIN”.
5. (*Adding hard disks/LVM*) Add three hard disks of capacity 250 MB each in VirtualBox. Create two logical volumes on top of those additional hard disks, of capacities ~500 MB and ~250 MB and format them using the *ext4* filesystem.
6. (*Installing LAMP*) Install Apache, PHP and MariaDB services. Set MariaDB root password as *yourname123*, where *yourname* is your first name. Also install phpmyadmin and configure it for access at http://localhost/phpmyadmin. Add a virtual host with the server name being www.xy.com, where *x* is your name and *y* is your surname, having as document root the directory *~/xy.com* where the regular user keeps the web documents.
7. (*Installing a Web application*) Download and properly install (according to the vendor instructions) a Web application according to the following table:

|  |  |
| --- | --- |
| **Web application** | **Official site** |
| Moodle | moodle.org |

1. *(Shell scripting)* Create a “sh” script in /usr/local/bin, as specified below:

Write a script that does the following:  
If the current user is a regular user, the script displays the last sudo entry in “auth.log” for that user. If the current user is the root, it requires one argument, which is the username for whom to display the last sudo entry in “auth.log”.   
Sample execution:

$ /usr/local/bin/last\_sudo (or, # /usr/local/bin/last\_sudo john)

Dec 20 16:05:16 john-linux sudo:    john : TTY=pts/0 ; PWD=/home/john/Desktop ; USER=root ; COMMAND=/sbin/reboot

Check arguments and show usage message if wrong arguments.

1. (*cron*) Add cron tasks in the regular user’s crontab, which delete the contents of */tmp* every midnight and the contents of *~/Temporary* every Wednesday, 02:00 AM and every Sunday, 03:30 AM. Log any errors produced by those tasks into ~/.my\_cron\_log.
2. (*Dockers and/or containers*) Create an image that sandboxes a simple web application. If you have not built a personal app already (hosted on your github account), please go ahead and clone the repository of a publicly available web app locally. Next step, create an image with the web app of your choice using a Dockerfile - a simple text file that contains a list of commands that the Docker client calls while creating an image.

* **Short report** documenting the steps**.** For each of the required tasks above, list the commands you typed or configurations you made, or briefly describe the procedure you followed, using screenshots if appropriate.
* **Virtual machine**. After performing all the required tasks, export the virtual machine into an Open Virtualization Format (.ova / .ovf) file and submit it to the instructor in a DVD disk. Make sure you keep the size of the exported file within the necessary limits.