Software management

Main goals

- Understand the software management techniques that are used by the computer and a Linux distribution such as Debian.

- Be able to install software (apps, utilities …) in the computer from source code and using others system tools.

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1. Take a snapshot with the initial state of the system.

2. Install the last version of the ssh server *(openssh)*, from source code, in the directory /opt/openssh/ (**without overwriting the current version[1]**). Look for the code in the *OpenSSH repository (http://www.openssh.org/portable.html*) Resolve *zlib* dependency with source code installation (do not use apt)[2]. Resolve *libcrypto* dependency with apt[3].

3. Make the new version of both ssh command and sshd service operative by default:
   a. ssh -V to check your ssh version.
   b. Modify the sshd service (/lib/system/system/ssh.service), to point to the new sshd binary. Reboot your machine and try to connect via ssh from the host[4].

4. Debian distribution system allows the generation of installable packages from its source code. Download and build (compile) "automatically" with apt-get[5] the .deb package for the last version of text editor *nedit[6]*. Check it installing previously a X server[7].

5. Guess which version of *sed* software is installed in the system and the amount of disk space occupied by it. Identify which have been the last changes of the installed version[8].

6. List the keys of the repositories employed by APT.

7. Change the software repositories URL to the closest Debian mirror to your current location and download package information from these new sources (apt-get update).

8. Install the last version of the Google Chrome from the Unofficial Debian repository[9]. Start the X server and try your google chrome installation.

9. Take a snapshot with the initial state of the system. Upgrade your Debian distribution to the next release in the timeline and check that the process ended correctly[10].

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[1] Both versions must coexist, do not delete previous version (binaries should be renamed or installed in different paths).

[2] Use https://zlib.net/ url.

[3] Install the following package: apt-get install libssl-dev

[4] If your process is correct, you should find two "errors". One concerning ssh keys and another one related to the ssh configuration (take a look at the options in the sshd_config file used by the service). Try to fix both errors.

[5] Use the man pages of apt-get to find out the appropriate option to fetch source packages.

[6] Install (use apt-get) the required packages to solve the dependencies that might appear.

[7] Install the package *xorg* from Debian repositories and run `startx`

[8] changelog option of apt-get command.

[9] Take a look at https://wiki.debian.org/DebianRepository/Unofficial to obtain the repository url. Follow the corresponding link for the authentication key and a few instructions about installation.

[10] Upgrade process might consume a large amount of disk, you can delete this snapshot after finishing the exercise if you have storage problems in your laptop.

Shell Scripting (Homework)

1. Create a shell script with a single command line argument, the name of the package that we want to know if it's installed or not. In case it's installed the script prints the release number of the package, otherwise the script auto installs the package and its dependencies with the command apt-get. All the installation process is saved in an external logfile.