Damir Nabiullin - Lab 11

1. In this case we can change our `/etc/systemd/timesyncd.conf` and set `NTP = <address of other device>` . Here other device is some local sync NTP server (not on the internet). Then restart `systemctl restart systemd-timesyncd` and check that we connected to our server `timedatectl timesync-status` .

2. In this case we can configure the first server as NTP server and the second as client. In this case the second server will have the same date and time as the first. MOreover, both of them will be sync.
   We can check, that we are sync with coimmand: `timedatectl timesync-status`

3. `apt` is a subset of `apt-get` and `apt-cache` commands providing necessary commands for package management.
   So with `apt` , you get all the necessary tools in one place. You won't be lost under tons of command options. The main aim of apt is to provide an efficient way of handling package in a way "pleasant for end users".

   `apt-get` may be considered as lower-level and "back-end", and support other APT-based tools.
   `apt` is designed for end-users (human) and its output may be changed between versions.

4. `apt upgrade` is the command used to download and apply any available updates to your packages in a safe manner by not removing packages that are previously installed in a given Linux system.
   `apt full-upgrade` command is used to do the same thing except if needed previously installed packages are removed to make the upgrade happen.

5. 1) `echo "deb [ trusted=yes ] http://10.90.137.100/apt-repo stable main" | sudo tee /etc/apt/sources.list.d/lab11assign.list`

```
dale@dale-nitro:~$ echo "deb [ trusted=yes ] http://10.90.137.100/apt-repo stable main" | sudo tee /e
tc/apt/sources.list.d/lab11assign.list
deb [ trusted=yes ] http://10.90.137.100/apt-repo stable main
dale@dale-nitro:~$ cat /etc/apt/sources.list.d/lab11assign.list
deb [ trusted=yes ] http://10.90.137.100/apt-repo stable main
```

   2) `sudo apt update`

```
dale@dale-nitro:~$ ls /etc/apt/sources.list.d
graphics-drivers-ubuntu-ppa-focal.list        lab11assign.list  teamviewer.list.save
graphics-drivers-ubuntu-ppa-focal.list.save  teamviewer.list
dale@dale-nitro:~$ sudo apt update
Get:1 http://10.90.137.100/apt-repo stable InRelease [1,600 B]
Hit:2 http://ru.archive.ubuntu.com/ubuntu focal InRelease
Hit:3 http://ru.archive.ubuntu.com/ubuntu focal-updates InRelease
Get:4 http://ru.archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Ign:1 http://10.90.137.100/apt-repo stable InRelease
Get:5 http://10.90.137.100/apt-repo stable/main amd64 Packages [309 B]
Hit:6 http://security.ubuntu.com/ubuntu focal-security InRelease
Hit:7 http://ppa.launchpad.net/graphics-drivers/ppa/ubuntu focal InRelease
Hit:8 https://linux.teamviewer.com/deb stable InRelease
Fetched 110 kB in 1s (170 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
151 packages can be upgraded. Run 'apt list --upgradable' to see them.
W: GPG error: http://10.90.137.100/apt-repo stable InRelease: The following signatures couldn't be ve
rified because the public key is not available: NO_PUBKEY FB41C0344EC71F11
N: Skipping acquire of configured file 'main/binary-i386/Packages' as repository 'http://10.90.137.10
0/apt-repo stable InRelease' doesn't support architecture 'i386'
```

```
dale@dale-nitro:~$ sudo apt install lab11assign
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libevent-core-2.1-7 libevent-pthreads-2.1-7 libopts25 sntp
Use 'sudo apt autoremove' to remove them.
The following NEW packages will be installed:
  lab11assign
0 upgraded, 1 newly installed, 0 to remove and 151 not upgraded.
Need to get 2,598 B of archives.
After this operation, 0 B of additional disk space will be used.
Get:1 http://10.90.137.100/apt-repo stable/main amd64 lab11assign amd64 1.0 [2,598 B]
Fetched 2,598 B in 0s (152 kB/s)
Selecting previously unselected package lab11assign.
(Reading database ... 265937 files and directories currently installed.)
Preparing to unpack .../lab11assign_1.0_amd64.deb ...
Unpacking lab11assign (1.0) ...
Setting up lab11assign (1.0) ...
dale@dale-nitro:~$
```

```
dale@dale-nitro:~$ sudo apt search lab11
Sorting... Done
Full Text Search... Done
lab11assign/stable,now 1.0 amd64 [installed]
  A program for SNA lab 11
```

6. Commands used to create a package:

```
mkdir lab11pack
mkdir -p lab11pack/var/helloworld/
nano lab11pack/var/helloworld/helloworld.py
sudo chmod +x lab11pack/var/helloworld/helloworld.py
mkdir -p lab11pack/usr/local/bin/
nano lab11pack/usr/local/bin/helloworld
chmod +x lab11pack/usr/local/bin/helloworld
mkdir lab11pack/DEBIAN
nano lab11pack/DEBIAN/control
dpkg-deb --build --root-owner-group lab11pack
```

```
dale@dale-nitro:~/Documents/SNA/Week 11$ mkdir lab11pack
dale@dale-nitro:~/Documents/SNA/Week 11$ mkdir -p lab11pack/var/helloworld/
dale@dale-nitro:~/Documents/SNA/Week 11$ nano lab11pack/var/helloworld/helloworld.py
dale@dale-nitro:~/Documents/SNA/Week 11$ sudo chmod +x lab11pack/var/helloworld/helloworld.py
dale@dale-nitro:~/Documents/SNA/Week 11$ mkdir -p lab11pack/usr/local/bin/
dale@dale-nitro:~/Documents/SNA/Week 11$ nano lab11pack/usr/local/bin/helloworld
dale@dale-nitro:~/Documents/SNA/Week 11$ chmod +x lab11pack/usr/local/bin/helloworld
dale@dale-nitro:~/Documents/SNA/Week 11$ mkdir lab11pack/DEBIAN
dale@dale-nitro:~/Documents/SNA/Week 11$ nano lab11pack/DEBIAN/control
dale@dale-nitro:~/Documents/SNA/Week 11$ dpkg-deb --build --root-owner-group lab11pack
dpkg-deb: building package 'lab11pack' in 'lab11pack.deb'.
dale@dale-nitro:~/Documents/SNA/Week 11$ ls
lab11pack  lab11pack.deb
dale@dale-nitro:~/Documents/SNA/Week 11$ dpkg -i lab11pack.deb
dpkg: error: requested operation requires superuser privilege
dale@dale-nitro:~/Documents/SNA/Week 11$ sudo dpkg -i lab11pack.deb
Selecting previously unselected package lab11pack.
(Reading database ... 265938 files and directories currently installed.)
Preparing to unpack lab11pack.deb ...
Unpacking lab11pack (1.0) ...
Setting up lab11pack (1.0) ...
```

`lab11pack/usr/local/bin/helloworld`:

```
#!/bin/bash
python3 /var/helloworld/helloworld.py
```

`lab11pack/DEBIAN/control`:

```
Package: lab11pack
Version: 1.0
Maintainer: Damir
Architecture: all
Description: Lab SNA
```

Check that package is installed correctly:

```
dale@dale-nitro:~/Documents/SNA/Week 11$ sudo dpkg -c lab11pack.deb
drwxrwxr-x root/root         0 2022-11-10 23:36 ./
drwxrwxr-x root/root         0 2022-11-10 23:34 ./usr/
drwxrwxr-x root/root         0 2022-11-10 23:34 ./usr/local/
drwxrwxr-x root/root         0 2022-11-10 23:35 ./usr/local/bin/
-rwxrwxr-x root/root        50 2022-11-10 23:35 ./usr/local/bin/helloworld
drwxrwxr-x root/root         0 2022-11-10 23:33 ./var/
drwxrwxr-x root/root         0 2022-11-10 23:33 ./var/helloworld/
-rwxrwxr-x root/root        46 2022-11-10 23:33 ./var/helloworld/helloworld.py
dale@dale-nitro:~/Documents/SNA/Week 11$ ls /usr/local/bin/ | grep "hello"
helloworld
dale@dale-nitro:~/Documents/SNA/Week 11$ ls /var/helloworld/
helloworld.py
dale@dale-nitro:~/Documents/SNA/Week 11$ helloworld
Hello, World!
```