

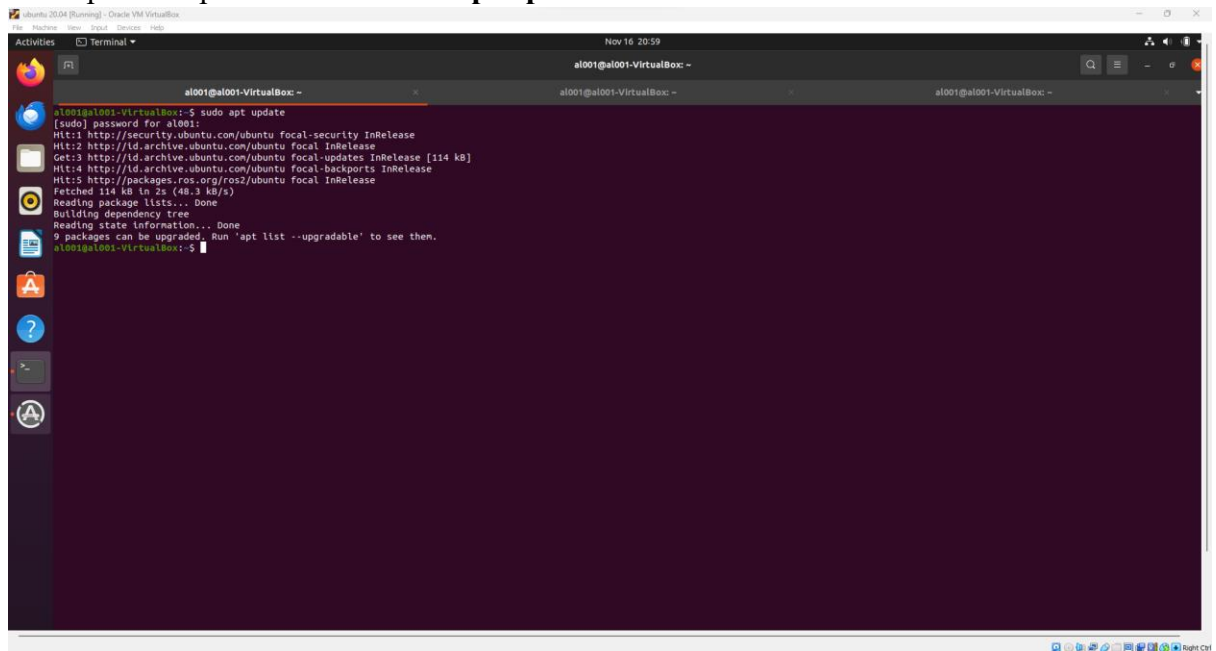
Nama : Ichlasul Al Gifari

NIM : 1103204236

Kelas : TK – 44 – 06

Technical Report UTS Robotika

1. Update ubuntu bagi yang sudah berhasil menginstall ROS2
Ketik perintah pada terminal **sudo apt update**

A screenshot of a terminal window titled 'al001@al001-VirtualBox: ~' running the command 'sudo apt update'. The terminal output shows the process of updating package lists from various sources, including security updates, focal updates, focal backports, and ROS2 updates. It indicates that 114 kB of data was fetched and that 9 packages can be upgraded. The terminal window is part of a larger desktop environment with a sidebar on the left showing application icons like Dash, Home, Files, and Settings.

```
al001@al001-VirtualBox:~$ sudo apt update
[sudo] password for al001:
Hit:1 http://security.ubuntu.com/ubuntu focal-security InRelease
Hit:2 http://id.archive.ubuntu.com/ubuntu focal InRelease
Get:3 http://id.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Hit:4 http://id.archive.ubuntu.com/ubuntu focal-backports InRelease
Hit:5 http://packages.ros.org/ros2/ubuntu focal InRelease
Fetched 114 kB in 2s (48.3 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
9 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

2. Install Python 3 setelah update Ubuntu

Ketik perintah pada terminal **sudo apt install python3-colcon-common-extensions**

```
al001@al001-VirtualBox:~$ sudo apt install python3-colcon-common-extensions
Reading package lists... Done
Building dependency tree
Reading state information... Done
python3-colcon-common-extensions is already the newest version (0.3.0-1).
0 upgraded, 0 newly installed, 0 to remove and 9 not upgraded.
```

Tampilan seperti gambar diatas karena pada program saya python 3 sudah terinstall jadi berbeda, jika yang belum terinstall maka setelah mengetik perintah akan berjalan proses installnya.

3. Membuat file directory pada terminal

Ketik perintah **cd /usr/share/colcon_argcomplete/hook/**

```
al001@al001-VirtualBox:~$ cd /usr/share/colcon_argcomplete/hook/
bash: cd: /usr/share/colcon_argcomplete/hook/: No such file or directory
al001@al001-VirtualBox:~$
```

Karena file directory saya sudah terganti oleh webots maka file saya yang python sudah tidak terbaca tapi jika yang baru menjalankan pasti akan langsung terbuat.

4. Menampilkan Text Editor dari terminal untuk menuliskan source yang akan kita install

Ketik perintah **gedit ~/.bashrc**

```
al001@al001-VirtualBox:~$ gedit ~/.bashrc
[Open] [Save] [Tab Width: 8] [Ln 122, Col 1] [INS]

90 # sleep 10; alert
97 alias alert='notify-send --urgency=low -i "${[ $? = 0 ] && echo terminal || echo
error}" "${history|tail -n1|sed -e '\''s/^\s*[0-9]\+\s*//;s/[\;]&|'-
\s*alert$//'\`}'"
98
99 # Alias definitions.
100 # You may want to put all your additions into a separate file like
101 # ~/.bash_aliases, instead of adding them here directly.
102 # See /usr/share/doc/bash-doc/examples in the bash-doc package.
103
104 if [ -f ~/.bash_aliases ]; then
105     . ~/.bash_aliases
106 fi
107
108 # enable programmable completion features (you don't need to enable
109 # this, if it's already enabled in /etc/bash.bashrc and /etc/profile
110 # sources /etc/bash.bashrc).
111 if ! shopt -oq posix; then
112     if [ -f /usr/share/bash-completion/bash_completion ]; then
113         . /usr/share/bash-completion/bash_completion
114     elif [ -f /etc/bash_completion ]; then
115         . /etc/bash_completion
116     fi
117 fi
118
119 source /opt/ros/foxy/setup.bash
120 source /usr/share/colcon_argcomplete/hook/colcon-argcomplete.bash
121 source ~/ros2_ws/install/setup.bash
122
```

Agar file yang sudah terinstall bisa tersimpan

5. Membuat directory dengan nama ros2_ws

Ketik perintah pada terminal **mkdir ros2_ws**

```
al001@al001-VirtualBox:~$ source ~/.bashrc
al001@al001-VirtualBox:~$ ls
build Desktop Documents Downloads install log Music Pictures Public ros2_ws snap Templates Videos webots_ros2
al001@al001-VirtualBox:~$ mkdir ros2_ws
mkdir: cannot create directory 'ros2_ws': File exists
al001@al001-VirtualBox:~$
```

Karena saya sudah membuat directory tersebut jadi akan keluar kata **File exists** atau file sudah tersedia.

6. Masuk ke directory yang sudah dibuat sebelumnya untuk membuat directory dalam directory.

Ketik perintah **cd ros2_ws/** untuk memasuki directory ros2_ws lalu ketik perintah **mkdir src** untuk membuat directory src pada ros2_ws.

```
al001@al001-VirtualBox:~$ cd ros2_ws/
al001@al001-VirtualBox:~/ros2_ws$ ls
build install log ros2_ws src
al001@al001-VirtualBox:~/ros2_ws$ mkdr src

Command 'mkdr' not found, did you mean:

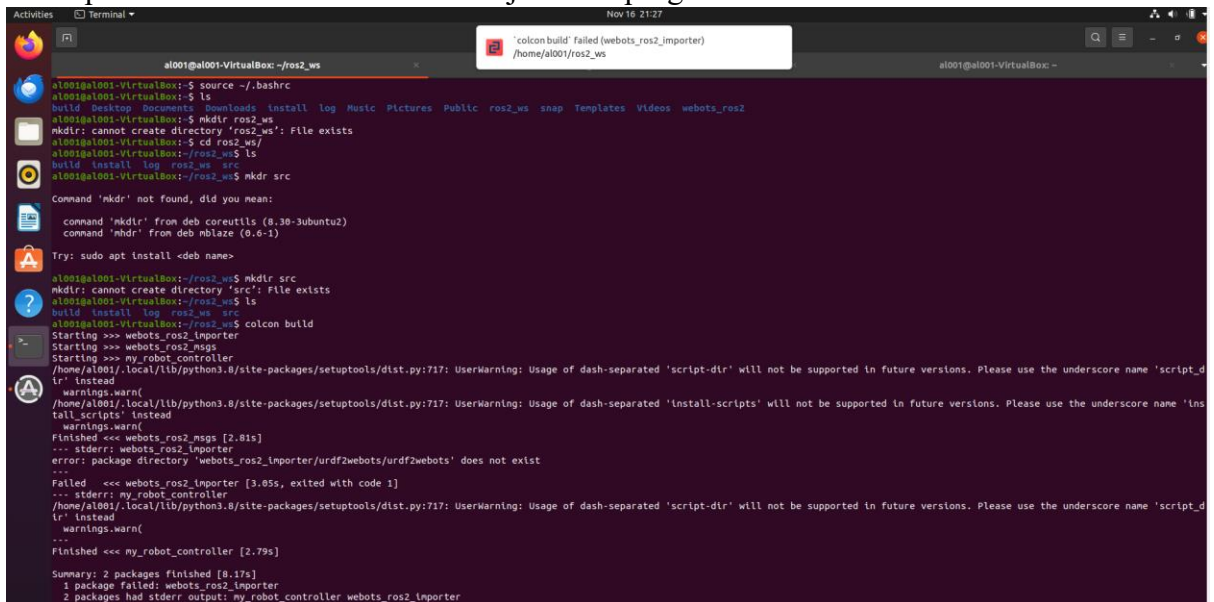
  command 'mkdir' from deb coreutils (8.30-3ubuntu2)
  command 'mhdr' from deb mblaze (0.6-1)

Try: sudo apt install <deb name>

al001@al001-VirtualBox:~/ros2_ws$ mkdir src
mkdir: cannot create directory 'src': File exists
al001@al001-VirtualBox:~/ros2_ws$
```

7. Lalu setelah selesai membuat directory maka selanjutnya kita menjalankan ROS2 di directory tersebut

Ketik perintah **colcon build** untuk menjalankan program



```
al001@al001-VirtualBox:~/ros2_ws$ source ~/.bashrc
al001@al001-VirtualBox:~/ros2_ws$ ls
build Desktop Documents Downloads install log Music Pictures Public ros2_ws snap Templates Videos webots_ros2
al001@al001-VirtualBox:~/ros2_ws$ mkdir ros2_ws
mkdir: cannot create directory 'ros2_ws': File exists
al001@al001-VirtualBox:~/ros2_ws$ cd ros2_ws/
al001@al001-VirtualBox:~/ros2_ws$ ls
build install log ros2_ws src
al001@al001-VirtualBox:~/ros2_ws$ mkdir src
Command 'mkdr' not found, did you mean:
  command 'mkdir' from deb coreutils (8.30-3ubuntu2)
  command 'mhdr' from deb mblaze (0.6-1)
Try: sudo apt install <deb name>
al001@al001-VirtualBox:~/ros2_ws$ mkdir src
mkdir: cannot create directory 'src': File exists
al001@al001-VirtualBox:~/ros2_ws$ ls
build install log ros2_ws src
al001@al001-VirtualBox:~/ros2_ws$ colcon build
Starting >>> webots_ros2_importer
Starting >>> webots_ros2_msgs
Starting >>> my_robot_controller
/home/al001/.local/lib/python3.8/site-packages/setuptools/dist.py:717: UserWarning: Usage of dash-separated 'script-dir' will not be supported in future versions. Please use the underscore name 'script_dir' instead
  warnings.warn(
/home/al001/.local/lib/python3.8/site-packages/setuptools/dist.py:717: UserWarning: Usage of dash-separated 'install-scripts' will not be supported in future versions. Please use the underscore name 'install_scripts' instead
  warnings.warn(
Finished <<< webots_ros2_msgs [2.81s]
--- stderr: webots_ros2_importer
error: package directory 'webots_ros2_importer/urdf2webots/urdf2webots' does not exist
---
Failed <<< webots_ros2_importer [3.05s, exited with code 1]
--- stderr: my_robot_controller
/home/al001/.local/lib/python3.8/site-packages/setuptools/dist.py:717: UserWarning: Usage of dash-separated 'script-dir' will not be supported in future versions. Please use the underscore name 'script_dir' instead
  warnings.warn(
Finished <<< my_robot_controller [2.79s]

Summary: 2 packages finished [8.17s]
  1 package failed: webots_ros2_importer
  2 packages had stderr output: my_robot_controller webots_ros2_importer
```

Karena punya saya prigramnya sudah lanjut ke webots dan saat ini masih error jad jika saya mengetik perintah **colcon build** pada terminal maka yang akan jalan adalah program terbaru yang habis ditambahkan.

```
ed@ed-vm:~/ros2_ws$ colcon build

Summary: 0 packages finished [0.59s]
```

Gambar diatas adalah contoh jika menjalankan ROS2 kita berhasil.

8. Mengecek program apa saja yang sudah terinstall pada directory kita
Ketik perintah pada terminal **cd install/**

```
al001@al001-VirtualBox:~/ros2_ws$ cd install/
al001@al001-VirtualBox:~/ros2_ws/install$ ls
COLCON_IGNORE  local_setup.ps1  _local_setup_util_ps1.py  local_setup.zsh  setup.bash  setup.sh  webots_ros2_importer
local_setup.bash  local_setup.sh  _local_setup_util_sh.py  my_robot_controller  setup.ps1  setup.zsh  webots_ros2_msgs
al001@al001-VirtualBox:~/ros2_ws/install$
```

Karena gambar diatas milik saya sudah sampai webots maka pada directory yang sudah terinstal terampil webots.

```
ed@ed-vm:~/ros2_ws$ cd install/
ed@ed-vm:~/ros2_ws/install$ ls
COLCON_IGNORE  local_setup.ps1  _local_setup_util_ps1.py  local_setup.zsh  setup.ps1  setup.zsh
local_setup.bash  local_setup.sh  _local_setup_util_sh.py  setup.bash  setup.sh
ed@ed-vm:~/ros2_ws/install$
```

Jika masih hanya install ROS2 maka directory akan sama seperti gambar diatas.

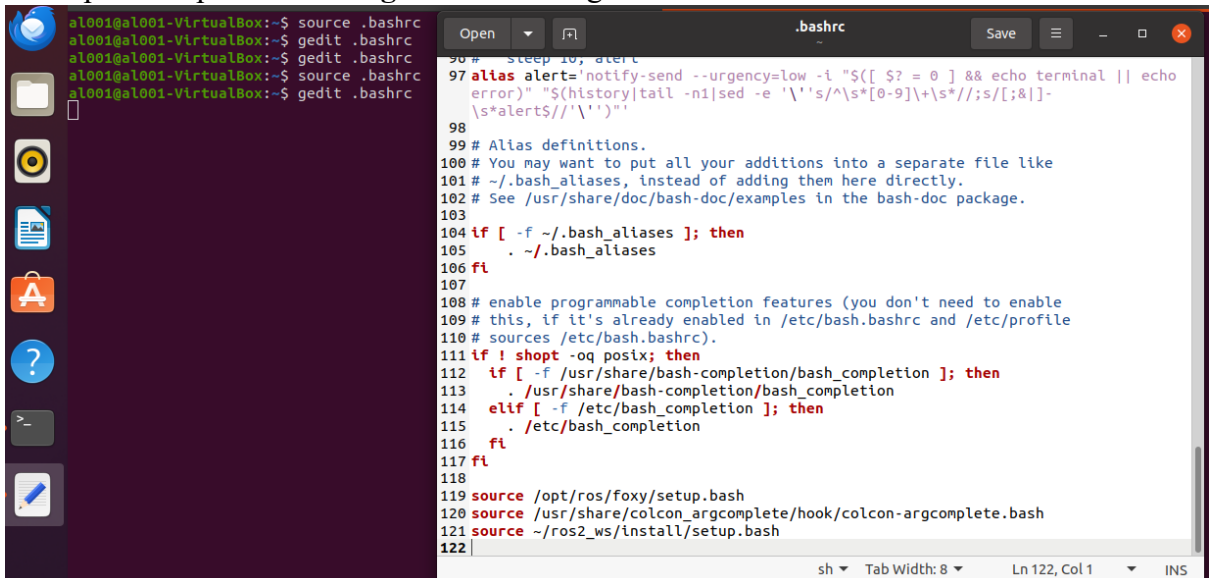
9. Lalu jalankan install setup.bashnya

Ketik perintah **source ~/ros2_ws/install/setup.bash**

```
al001@al001-VirtualBox:~$ source ~/ros2_ws/install/setup.bash
al001@al001-VirtualBox:~$
```

10. Tulis hasil source pada text editor yang dipanggil di terminal

Ketik perintah pada terminal **gedit .bashrc** lagi



```
al001@al001-VirtualBox:~$ source .bashrc
al001@al001-VirtualBox:~$ gedit .bashrc
al001@al001-VirtualBox:~$ gedit .bashrc
al001@al001-VirtualBox:~$ source .bashrc
al001@al001-VirtualBox:~$ gedit .bashrc
```

```
119 source /opt/ros/foxy/setup.bash
120 source /usr/share/colcon_argcomplete/hook/colcon-argcomplete.bash
121 source ~/ros2_ws/install/setup.bash
122
```