

Nama : Ilham Muhamad Firdaus

NIM : 1103202001

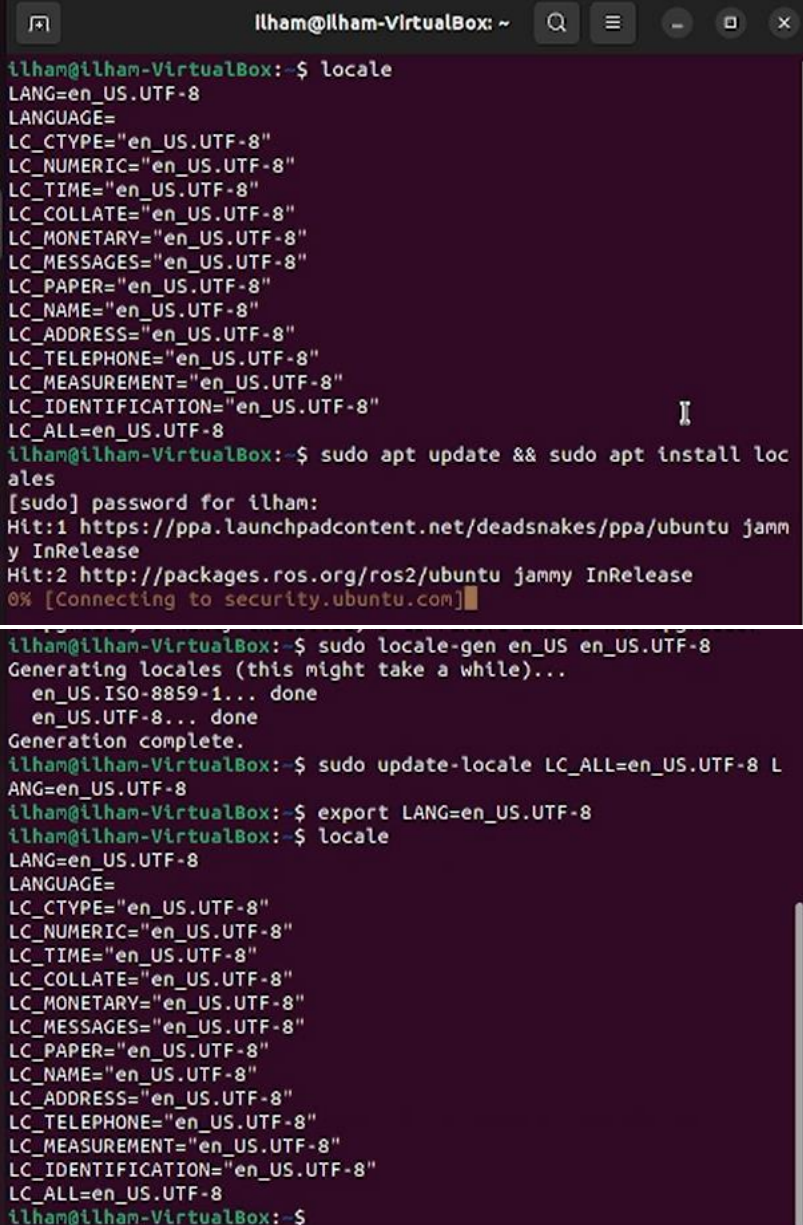
Kelas : TK-44-G7

Technical Report UTS

Untuk menginstal ROS 2 Foxy, ada dua metode yang dapat dipilih, tergantung pada kebutuhan pengguna. Paket biner cocok untuk pengguna umum yang ingin segera menggunakan ROS 2 tanpa perlu membangun dari sumber, sedangkan membangun dari sumber cocok untuk pengembang yang ingin mengubah atau menghilangkan bagian tertentu dari ROS 2, serta untuk platform yang tidak mendukung paket biner.

Berikut adalah Langkah-langkah instalasi :

1. Set Locale untuk mensupport UTF-8 dalam proses instalasi



```
ilham@ilham-VirtualBox: ~  
ilham@ilham-VirtualBox:~$ locale  
LANG=en_US.UTF-8  
LANGUAGE=  
LC_CTYPE="en_US.UTF-8"  
LC_NUMERIC="en_US.UTF-8"  
LC_TIME="en_US.UTF-8"  
LC_COLLATE="en_US.UTF-8"  
LC_MONETARY="en_US.UTF-8"  
LC_MESSAGES="en_US.UTF-8"  
LC_PAPER="en_US.UTF-8"  
LC_NAME="en_US.UTF-8"  
LC_ADDRESS="en_US.UTF-8"  
LC_TELEPHONE="en_US.UTF-8"  
LC_MEASUREMENT="en_US.UTF-8"  
LC_IDENTIFICATION="en_US.UTF-8"  
LC_ALL=en_US.UTF-8  
ilham@ilham-VirtualBox:~$ sudo apt update && sudo apt install locales  
[sudo] password for ilham:  
Hit:1 https://ppa.launchpadcontent.net/deadsnakes/ppa/ubuntu jammy InRelease  
Hit:2 http://packages.ros.org/ros2/ubuntu jammy InRelease  
0% [Connecting to security.ubuntu.com]  
ilham@ilham-VirtualBox:~$ sudo locale-gen en_US en_US.UTF-8  
Generating locales (this might take a while)...  
  en_US.ISO-8859-1... done  
  en_US.UTF-8... done  
Generation complete.  
ilham@ilham-VirtualBox:~$ sudo update-locale LC_ALL=en_US.UTF-8 LANG=en_US.UTF-8  
ilham@ilham-VirtualBox:~$ export LANG=en_US.UTF-8  
ilham@ilham-VirtualBox:~$ locale  
LANG=en_US.UTF-8  
LANGUAGE=  
LC_CTYPE="en_US.UTF-8"  
LC_NUMERIC="en_US.UTF-8"  
LC_TIME="en_US.UTF-8"  
LC_COLLATE="en_US.UTF-8"  
LC_MONETARY="en_US.UTF-8"  
LC_MESSAGES="en_US.UTF-8"  
LC_PAPER="en_US.UTF-8"  
LC_NAME="en_US.UTF-8"  
LC_ADDRESS="en_US.UTF-8"  
LC_TELEPHONE="en_US.UTF-8"  
LC_MEASUREMENT="en_US.UTF-8"  
LC_IDENTIFICATION="en_US.UTF-8"  
LC_ALL=en_US.UTF-8  
ilham@ilham-VirtualBox:~$
```

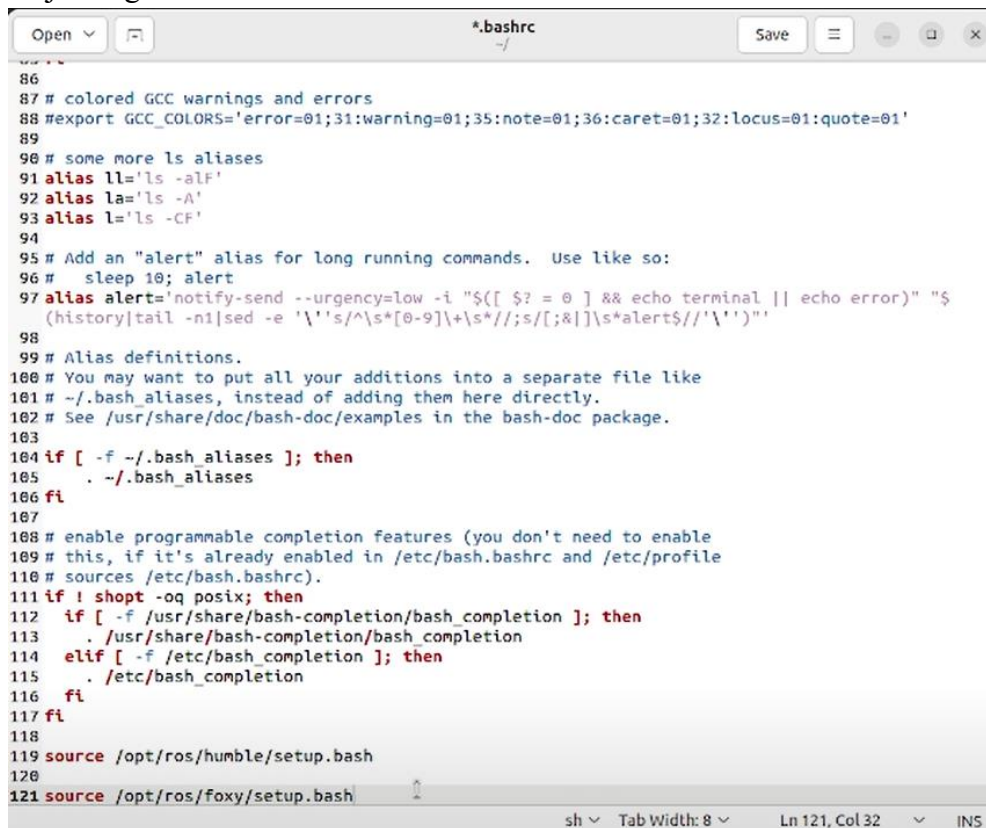
2. Setup sources untuk menambahkan ROS2 apt repository kedalam sistem.

```
ilham@ilham-VirtualBox:~$ sudo apt install software-properties-common
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
software-properties-common is already the newest version (0.99.22.7).
0 upgraded, 0 newly installed, 0 to remove and 13 not upgraded.
ilham@ilham-VirtualBox:~$ sudo apt update && sudo apt install curl -y
Hit:1 http://id.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://id.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://id.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:4 http://packages.ros.org/ros2/ubuntu jammy InRelease
Hit:5 https://cyberbotics.com/debian binary-amd64/ InRelease
Hit:6 https://ppa.launchpadcontent.net/deadsnakes/ppa/ubuntu jammy InRelease
Hit:7 http://security.ubuntu.com/ubuntu jammy-security InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
13 packages can be upgraded. Run 'apt list --upgradable' to see them.
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
curl is already the newest version (7.81.0-1ubuntu1.14).
0 upgraded, 0 newly installed, 0 to remove and 13 not upgraded.
ilham@ilham-VirtualBox:~$ sudo curl -sSL https://raw.githubusercontent.com/ros/rosdistro/master/ros.key -o /usr/share/keyrings/ros-archive-keyring.gpg
ilham@ilham-VirtualBox:~$ echo "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/ros-archive-keyring.gpg] http://packages.ros.org/ros2/ubuntu $(. /etc/os-release && echo $UBUNTU_CODENAME) main" | sudo tee /etc/apt/sources.list.d/ros2.list > /dev/null
ilham@ilham-VirtualBox:~$
```

3. Install paket ROS2 untuk memperbarui repository setelah menyiapkan repository sebelumnya.

```
ilham@ilham-VirtualBox:~$ sudo apt update
[sudo] password for ilham:
Hit:1 http://id.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://id.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Hit:3 http://id.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:4 https://ppa.launchpadcontent.net/deadsnakes/ppa/ubuntu jammy InRelease
Hit:5 http://packages.ros.org/ros2/ubuntu jammy InRelease
Get:6 http://id.archive.ubuntu.com/ubuntu jammy-updates/main i386 Packages [527 kB]
Get:7 http://id.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1,162 kB]
Get:8 http://id.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [998 kB]
Get:9 http://id.archive.ubuntu.com/ubuntu jammy-updates/universe i386 Packages [664 kB]
Hit:10 https://cyberbotics.com/debian binary-amd64/ InRelease
Get:11 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Fetched 3,580 kB in 14s (259 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
3 packages can be upgraded. Run 'apt list --upgradable' to see them.
ilham@ilham-VirtualBox:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
Get more security updates through Ubuntu Pro with 'esm-apps' enabled:
python2.7-minimal libavcodec-extra libjs-jquery-ui libopenexr-dev
libavdevice58 ffmpeg libopenexr25 python3-scipy libpostproc55 libswscale-dev
libavcodec-extra58 libavutil56 libswscale5 libavutil-dev libswresample3
libavformat58 libpmix-dev python2.7 libavformat-dev libavcodec-dev
libpython2.7-minimal libpmix2 libpython2.7-stdlib libswresample-dev
libavfilter7
Learn more about Ubuntu Pro at https://ubuntu.com/pro
The following packages have been kept back:
  gjs libgjs0g ubuntu-advantage-tools
0 upgraded, 0 newly installed, 0 to remove and 3 not upgraded.
ilham@ilham-VirtualBox:~$ sudo apt install ros-foxy-desktop
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

4. Setup environment untuk memastikan bahwa perintah-perintah ROS2 dapat diakses dan bekerja dengan baik di terminal.



```
86
87 # colored GCC warnings and errors
88 #export GCC_COLORS='error=01;31:warning=01;35:note=01;36:caret=01;32:locus=01:quote=01'
89
90 # some more ls aliases
91 alias ll='ls -alF'
92 alias la='ls -A'
93 alias l='ls -CF'
94
95 # Add an "alert" alias for long running commands. Use like so:
96 # 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/humble/setup.bash
120
121 source /opt/ros/foxy/setup.bash
```

sh Tab Width: 8 Ln 121, Col 32 INS