

Ujian Tengah Semester

Robotika



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TK-44-G7

PROGRAM STUDI TEKNIK KOMPUTER

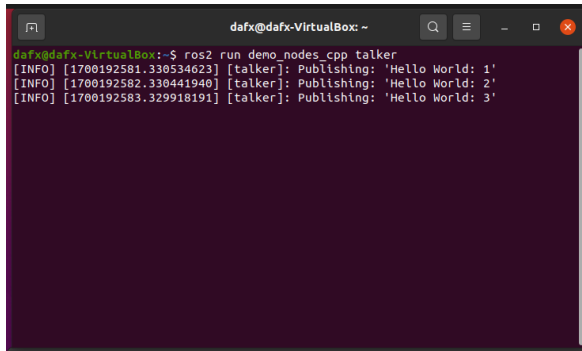
FAKULTAS TEKNIK ELEKTRO

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BANDUNG

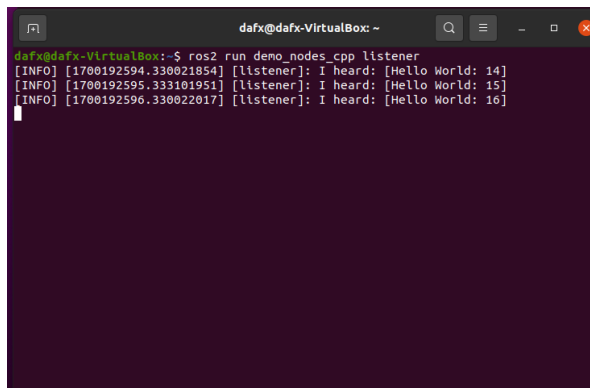
2023

1. Menjalankan talker sebagai robot yang mengirim pesan menggunakan perintah “ros2 run demo_nodes_cpp talker”



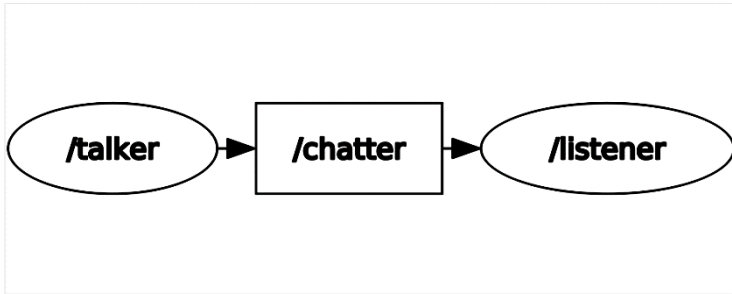
```
dafx@dafx-VirtualBox: ~  
dafx@dafx-VirtualBox:~$ ros2 run demo_nodes_cpp talker  
[INFO] [1700192581.330534623] [talker]: Publishing: 'Hello World: 1'  
[INFO] [1700192582.330441940] [talker]: Publishing: 'Hello World: 2'  
[INFO] [1700192583.329918191] [talker]: Publishing: 'Hello World: 3'
```

2. Menjalankan listener sebagai robot yang menerima pesan menggunakan perintah “ros2 run demo_nodes_cpp listener”



```
dafx@dafx-VirtualBox: ~  
dafx@dafx-VirtualBox:~$ ros2 run demo_nodes_cpp listener  
[INFO] [1700192594.330021854] [listener]: I heard: [Hello World: 14]  
[INFO] [1700192595.333101951] [listener]: I heard: [Hello World: 15]  
[INFO] [1700192596.330022017] [listener]: I heard: [Hello World: 16]
```

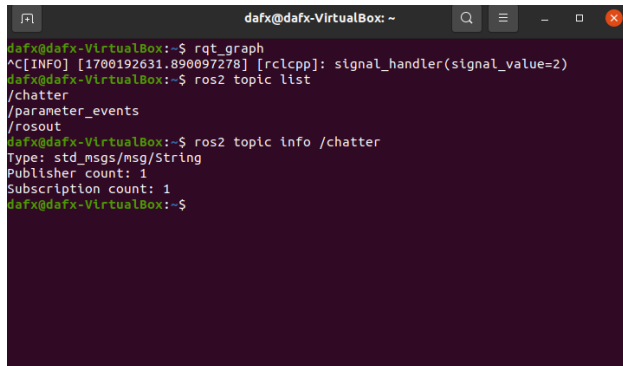
3. Membuka alur atau algoritma dari percakapan antara talker dengan listener yaitu menggunakan perintah “`rqt_graph`” dimana talker tidak langsung berbicara dengan listener tetapi melalui perantara chatter sebagai topic.



4. Kita juga bisa membuka list topic yang ada, menggunakan perintah “`ros2 topic list`”

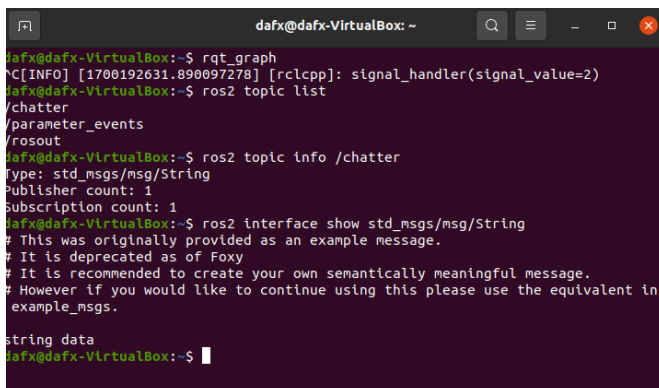
```
dafx@dafx-VirtualBox: ~  
dafx@dafx-VirtualBox:~$ rqt_graph  
^C[INFO] [1700192631.890097278] [rclcpp]: signal_handler(signal_value=2)  
dafx@dafx-VirtualBox:~$ ros2 topic list  
/chatter  
/parameter_events  
/rosout  
dafx@dafx-VirtualBox:~$
```

5. Kita juga bisa melihat apa isi dari topic tersebut, sebagai contoh kita membuka topic chatter menggunakan perintah “ros2 topic info /chatter” yang dimana disitu kita bisa melihat jumlah publisher dan subscription sampai typenya.



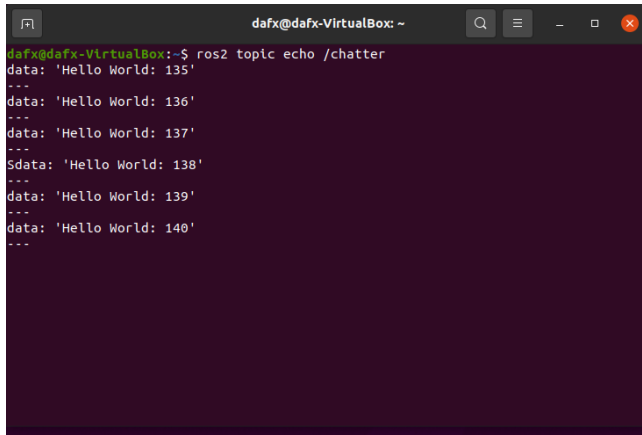
```
dafx@dafx-VirtualBox: ~  
dafx@dafx-VirtualBox:~$ rqt_graph  
^C[INFO] [1700192631.890097278] [rclcpp]: signal_handler(signal_value=2)  
dafx@dafx-VirtualBox:~$ ros2 topic list  
/chatter  
/parameter_events  
/rosout  
dafx@dafx-VirtualBox:~$ ros2 topic info /chatter  
Type: std_msgs/msg/String  
Publisher count: 1  
Subscription count: 1  
dafx@dafx-VirtualBox:~$
```

6. Untuk membuka type yang ada di dalam topic chatter, kita bisa menggunakan perintah “ros2 interface show std_msgs/msg/String” dimana pada perintah tersebut kita bisa melihat keterangan bahwasannya topic chatter memuat data string.



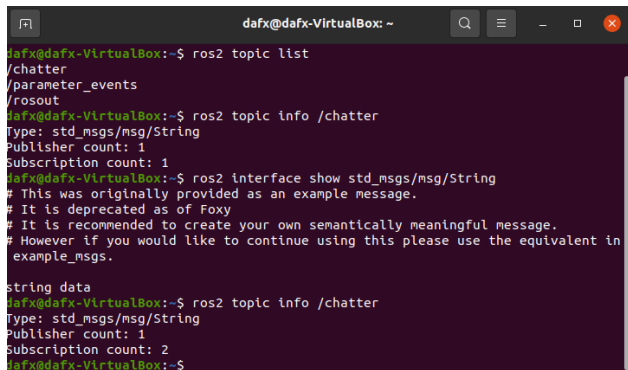
```
dafx@dafx-VirtualBox: ~  
dafx@dafx-VirtualBox:~$ rqt_graph  
^C[INFO] [1700192631.890097278] [rclcpp]: signal_handler(signal_value=2)  
dafx@dafx-VirtualBox:~$ ros2 topic list  
/chatter  
/parameter_events  
/rosout  
dafx@dafx-VirtualBox:~$ ros2 topic info /chatter  
Type: std_msgs/msg/String  
Publisher count: 1  
Subscription count: 1  
dafx@dafx-VirtualBox:~$ ros2 interface show std_msgs/msg/String  
# This was originally provided as an example message.  
# It is deprecated as of Foxy  
# It is recommended to create your own semantically meaningful message.  
# However if you would like to continue using this please use the equivalent in  
# example_msgs.  
string data  
dafx@dafx-VirtualBox:~$
```

7. Untuk menjalankan topic chatter, bisa menggunakan perintah “ros2 topic echo /chatter”

A terminal window titled 'dafx@dafx-VirtualBox: ~' with search, menu, and window control icons. It shows the command 'ros2 topic echo /chatter' being executed. The output consists of several lines of 'data: 'Hello World: 135'', 'data: 'Hello World: 136'', 'data: 'Hello World: 137'', 'Sdata: 'Hello World: 138'', 'data: 'Hello World: 139'', and 'data: 'Hello World: 140'', each followed by '----' on the next line.

```
dafx@dafx-VirtualBox: ~  
dafx@dafx-VirtualBox:~$ ros2 topic echo /chatter  
data: 'Hello World: 135'  
----  
data: 'Hello World: 136'  
----  
data: 'Hello World: 137'  
----  
Sdata: 'Hello World: 138'  
----  
data: 'Hello World: 139'  
----  
data: 'Hello World: 140'  
----
```

8. Ketika kita menjalankan ulang perintah “ros2 topic info /chatter” bisa dilihat perubahan pada subscription count menjadi 2. Hal tersebut disebabkan karena kita menjalankan listener dan echo chatter secara bersamaan.

A terminal window titled 'dafx@dafx-VirtualBox: ~' with search, menu, and window control icons. It shows a sequence of commands and their outputs. First, 'ros2 topic list' lists '/chatter', '/parameter_events', and '/rosout'. Then, 'ros2 topic info /chatter' shows 'Type: std_msgs/msg/String', 'Publisher count: 1', and 'Subscription count: 1'. Next, 'ros2 interface show std_msgs/msg/String' displays deprecation warnings. Finally, 'ros2 topic info /chatter' is run again, showing 'Subscription count: 2'.

```
dafx@dafx-VirtualBox: ~  
dafx@dafx-VirtualBox:~$ ros2 topic list  
/chatter  
/parameter_events  
/rosout  
dafx@dafx-VirtualBox:~$ ros2 topic info /chatter  
Type: std_msgs/msg/String  
Publisher count: 1  
Subscription count: 1  
dafx@dafx-VirtualBox:~$ ros2 interface show std_msgs/msg/String  
# This was originally provided as an example message.  
# It is deprecated as of Foxy  
# It is recommended to create your own semantically meaningful message.  
# However if you would like to continue using this please use the equivalent in  
# example_msgs.  
string data  
dafx@dafx-VirtualBox:~$ ros2 topic info /chatter  
Type: std_msgs/msg/String  
Publisher count: 1  
Subscription count: 2  
dafx@dafx-VirtualBox:~$
```

9. Node yang digambarkan pun menjadi berubah ketika kita menjalankan listener dan echo chatter secara bersamaan, artinya talker berkomunikasi kepada 2 node melalui chatter.

