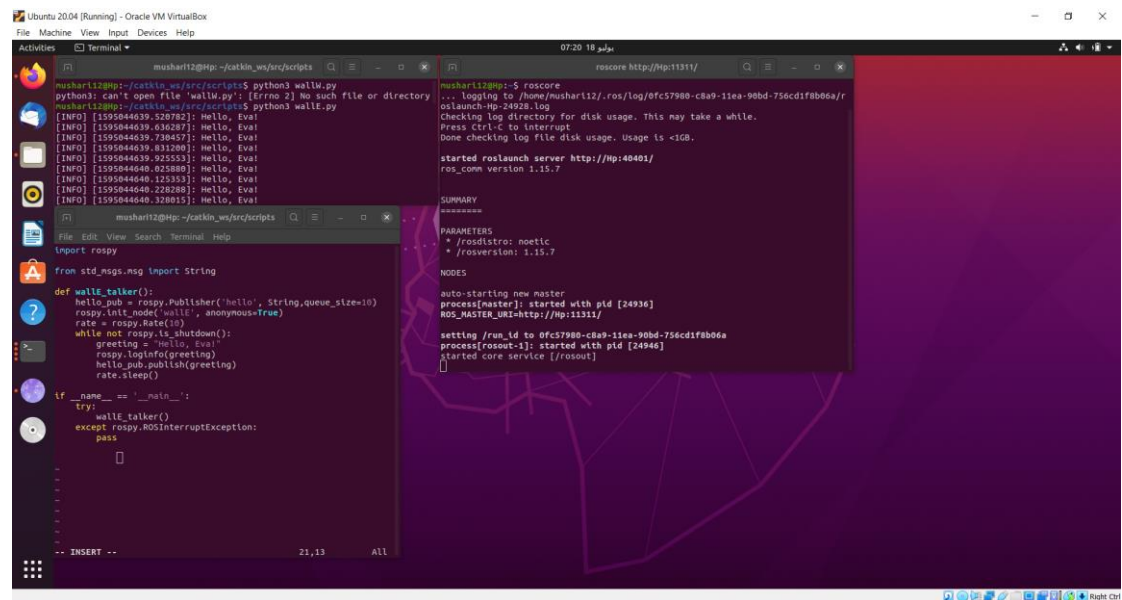


test_publisher

Step1:



The screenshot shows a terminal window with the following content:

```
mushari12@Hpi:~/catkin_ws/src/scripts$ python3 wallE.py
python3: can't open file 'wallE.py': [Errno 2] No such file or directory
mushari12@Hpi:~/catkin_ws/src/scripts$ python3 wallE.py
[INFO] [1595844639.520782]: Hello, Eval!
[INFO] [1595844639.520782]: Hello, Eval!
[INFO] [1595844639.730457]: Hello, Eval!
[INFO] [1595844639.831200]: Hello, Eval!
[INFO] [1595844639.925552]: Hello, Eval!
[INFO] [1595844640.025880]: Hello, Eval!
[INFO] [1595844640.125353]: Hello, Eval!
[INFO] [1595844640.228280]: Hello, Eval!
[INFO] [1595844640.328015]: Hello, Eval!
```

Below the terminal, a code editor shows the following Python script:

```
import rospy
from std_msgs.msg import String

def wallE_talker():
    hello_pub = rospy.Publisher('hello', String, queue_size=10)
    rospy.init_node('wallE', anonymous=True)
    rate = rospy.Rate(10)
    while not rospy.is_shutdown():
        greeting = 'Hello, Eval!'
        rospy.loginfo(greeting)
        hello_pub.publish(greeting)
        rate.sleep()

if __name__ == '__main__':
    try:
        wallE_talker()
    except rospy.ROSInterruptException:
        pass
```

On the right, a terminal window shows the output of the `roscore` command:

```
mushari12@Hpi:~$ roscore
... logging to /home/mushari12/.ros/log/0fc57980-c8a9-11ea-90bd-756cdf8b06a/r
oslaunch-HP-24928.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

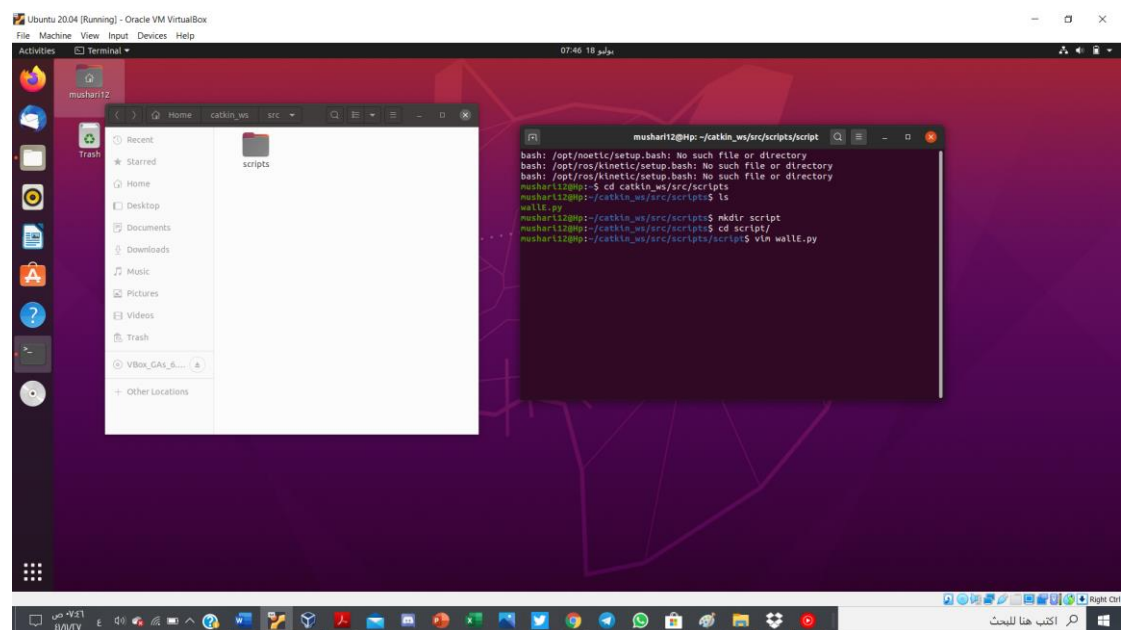
started roslaunch server http://Hpi:40401/
ros_comm version 1.15.7

SUMMARY
=====
PARAMETERS
 * /roslistro: noetic
 * /rosversion: 1.15.7

NODES
auto-starting new master
process[master]: started with pid [24936]
ROS_MASTER_URI=http://Hpi:11311/

setting /run_id to 0fc57980-c8a9-11ea-90bd-756cdf8b06a
process[roscout-1]: started with pid [24946]
started core service [/roscout]
```

Step2:



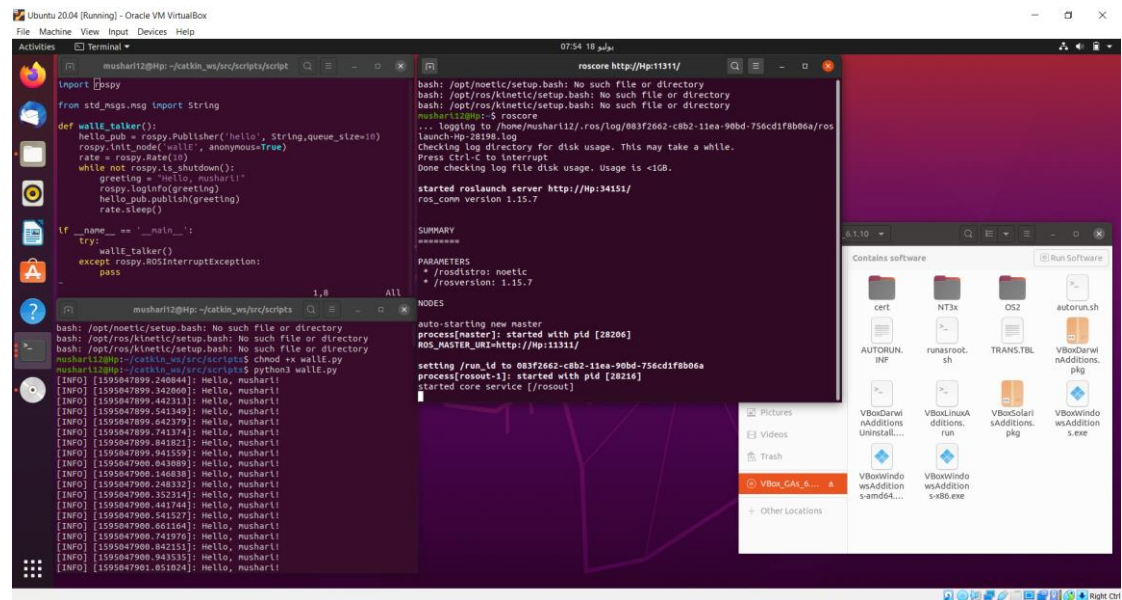
The screenshot shows a file manager window displaying the contents of the `scripts` directory:

- recent
- starred
- Home
- Desktop
- Documents
- Downloads
- Music
- Pictures
- Videos
- Trash
- Other Locations

Below the file manager, a terminal window shows the following commands and output:

```
mushari12@Hpi:~/catkin_ws/src/scripts$ ls
wallE.py
mushari12@Hpi:~/catkin_ws/src/scripts$ mkdir script
mushari12@Hpi:~/catkin_ws/src/scripts$ cd script/
mushari12@Hpi:~/catkin_ws/src/scripts/script$ vln wallE.py
```

Step3:



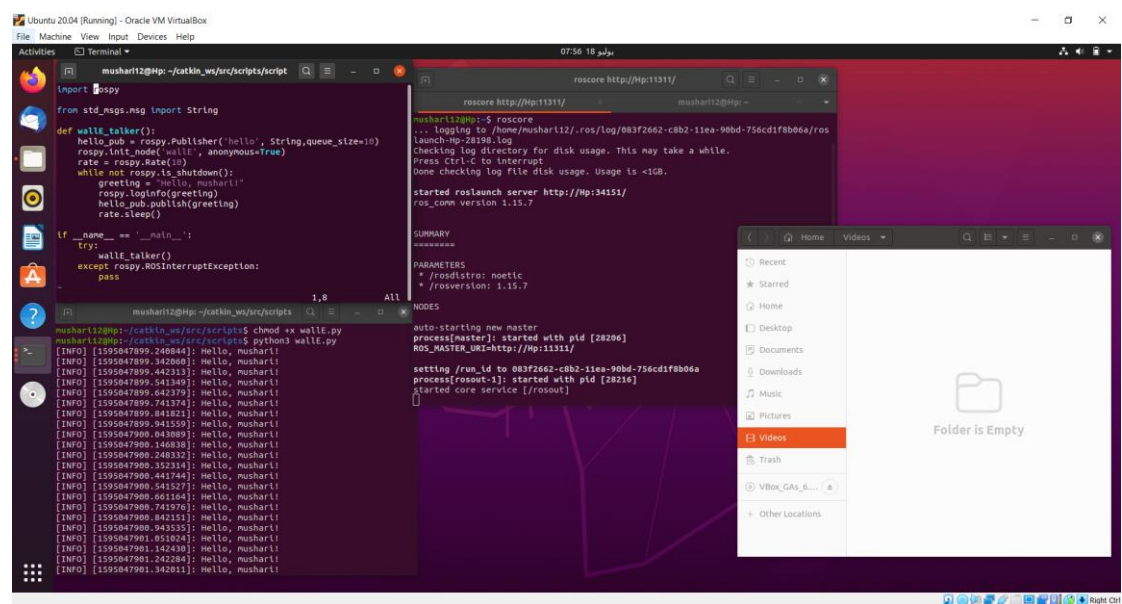
```
musharti2@Hp: ~/catkin_ws/src/scripts/script$ python3 wall_e_talker.py
from std_msgs.msg import String

def wall_e_talker():
    hello_pub = rospy.Publisher('hello', String, queue_size=10)
    rospy.init_node('wall_e', anonymous=True)
    rate = rospy.Rate(10)
    while not rospy.is_shutdown():
        greeting = "hello, musharti!"
        hello_pub.publish(greeting)
        rate.sleep()

if __name__ == '__main__':
    try:
        wall_e_talker()
    except rospy.ROSInterruptException:
        pass

musharti2@Hp: ~/catkin_ws/src/scripts$ chmod +x wall_e.py
musharti2@Hp: ~/catkin_ws/src/scripts$ ./wall_e.py
[INFO] [1595847899.240844]: Hello, musharti!
[INFO] [1595847899.342060]: Hello, musharti!
[INFO] [1595847899.442113]: Hello, musharti!
[INFO] [1595847899.541349]: Hello, musharti!
[INFO] [1595847899.642379]: Hello, musharti!
[INFO] [1595847899.741374]: Hello, musharti!
[INFO] [1595847899.841821]: Hello, musharti!
[INFO] [1595847899.941559]: Hello, musharti!
[INFO] [1595847900.041089]: Hello, musharti!
[INFO] [1595847900.140838]: Hello, musharti!
[INFO] [1595847900.240332]: Hello, musharti!
[INFO] [1595847900.352314]: Hello, musharti!
[INFO] [1595847900.441744]: Hello, musharti!
[INFO] [1595847900.541527]: Hello, musharti!
[INFO] [1595847900.661164]: Hello, musharti!
[INFO] [1595847900.741976]: Hello, musharti!
[INFO] [1595847900.842151]: Hello, musharti!
[INFO] [1595847900.943535]: Hello, musharti!
[INFO] [1595847901.051024]: Hello, musharti!
```

Step4:



```
musharti2@Hp: ~/catkin_ws/src/scripts/script$ python3 wall_e_talker.py
from std_msgs.msg import String

def wall_e_talker():
    hello_pub = rospy.Publisher('hello', String, queue_size=10)
    rospy.init_node('wall_e', anonymous=True)
    rate = rospy.Rate(10)
    while not rospy.is_shutdown():
        greeting = "hello, musharti!"
        hello_pub.publish(greeting)
        rate.sleep()

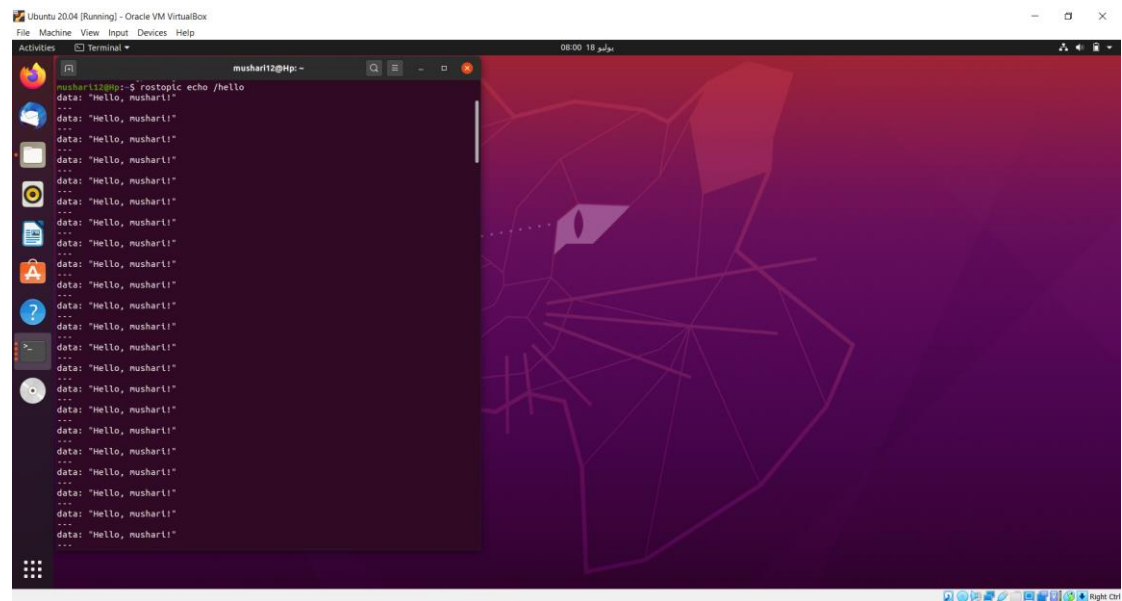
if __name__ == '__main__':
    try:
        wall_e_talker()
    except rospy.ROSInterruptException:
        pass

musharti2@Hp: ~/catkin_ws/src/scripts$ chmod +x wall_e.py
musharti2@Hp: ~/catkin_ws/src/scripts$ ./wall_e.py
[INFO] [1595847899.240844]: Hello, musharti!
[INFO] [1595847899.342060]: Hello, musharti!
[INFO] [1595847899.442113]: Hello, musharti!
[INFO] [1595847899.541349]: Hello, musharti!
[INFO] [1595847899.642379]: Hello, musharti!
[INFO] [1595847899.741374]: Hello, musharti!
[INFO] [1595847899.841821]: Hello, musharti!
[INFO] [1595847899.941559]: Hello, musharti!
[INFO] [1595847900.041089]: Hello, musharti!
[INFO] [1595847900.140838]: Hello, musharti!
[INFO] [1595847900.240332]: Hello, musharti!
[INFO] [1595847900.352314]: Hello, musharti!
[INFO] [1595847900.441744]: Hello, musharti!
[INFO] [1595847900.541527]: Hello, musharti!
[INFO] [1595847900.661164]: Hello, musharti!
[INFO] [1595847900.741976]: Hello, musharti!
[INFO] [1595847900.842151]: Hello, musharti!
[INFO] [1595847900.943535]: Hello, musharti!
[INFO] [1595847901.051024]: Hello, musharti!
[INFO] [1595847901.152430]: Hello, musharti!
[INFO] [1595847901.242284]: Hello, musharti!
[INFO] [1595847901.342011]: Hello, musharti!
```

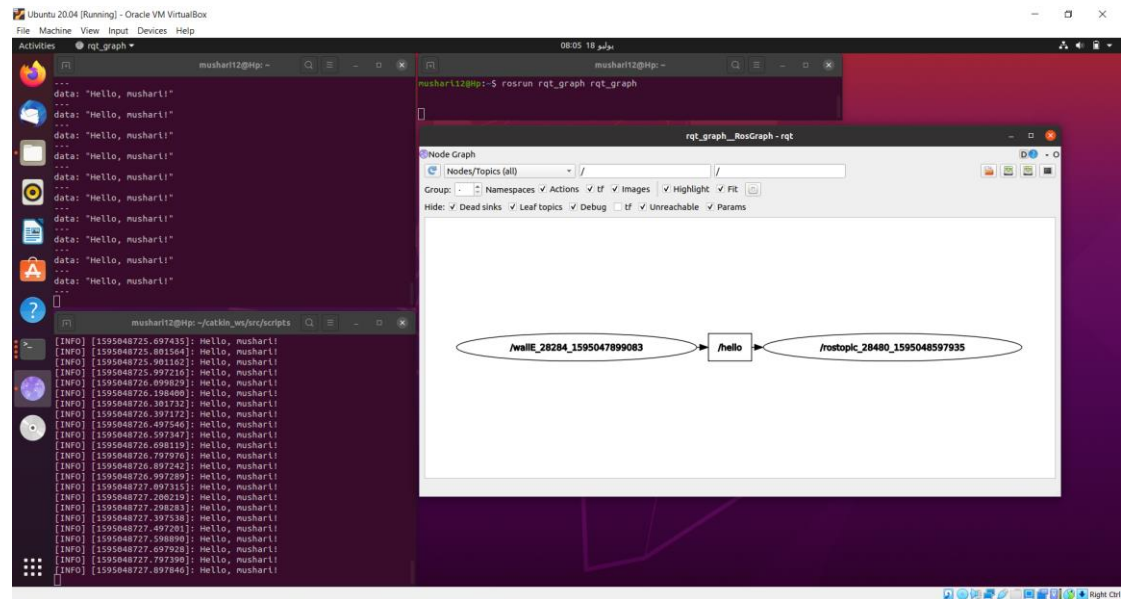
Step5:

```
ros-user@SP: ~  
/walle  
ros-user@SP:~$ rostopic info /walle  
-----  
Node [/walle]  
Publications:  
* /rosout [rosgraph_msgs/Log]  
* /hello [std_msgs/String]  
  
Subscriptions: None  
  
Services:  
* /walle/set_logger_level  
* /walle/get_loggers  
  
contacting node http://SP:34553/ ...  
Pid: 12664  
Connections:  
* topic: /rosout  
  * to: /rosout  
  * direction: outbound  
  * transport: TCPROS  
  
ros-user@SP:~$
```

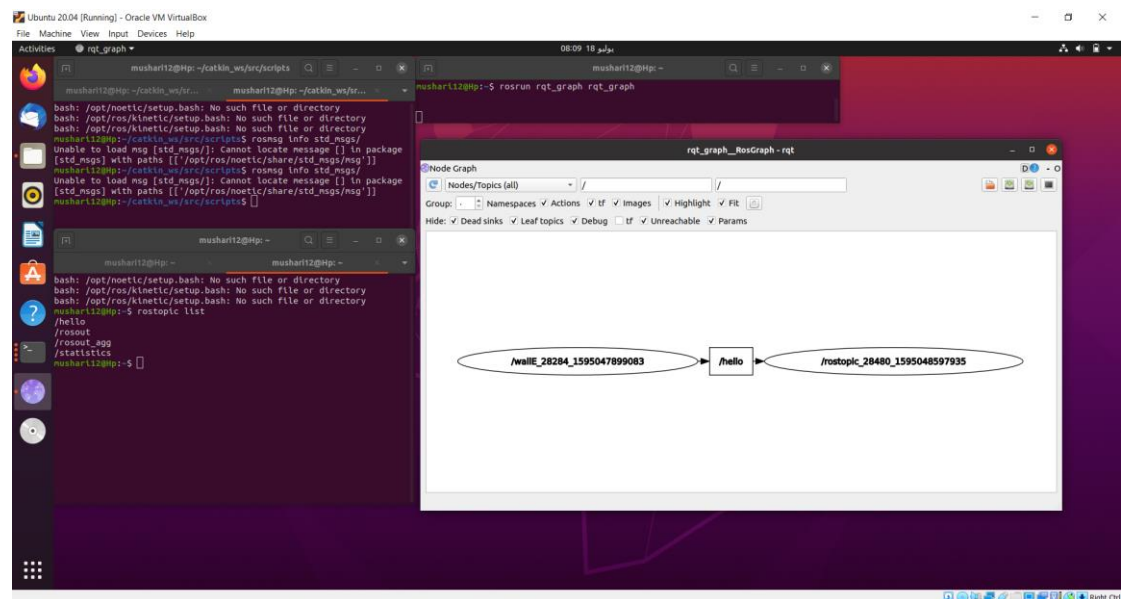
Step6:



Step7:



Step8:



Step9:

The screenshot displays a ROS2 environment within a VirtualBox VM. The interface is split into three main sections:

- Terminal (Left):** Shows the execution of several commands:
 - `bash: /opt/noetic/setup.bash: No such file or directory`
 - `bash: /opt/ros/kinetic/setup.bash: No such file or directory`
 - `bash: /opt/ros/kinetic/setup.bash: No such file or directory`
 - `mushari12@hp:~/catkin_ws/src$ rosmg info std_msgs/`
 - `Unable to load msg [std_msgs]: Cannot locate message [] in package [std_msgs] with paths ["/opt/ros/noetic/share/std_msgs/msg"]`
 - `mushari12@hp:~/catkin_ws/src$ rosmg info std_msgs/`
 - `Unable to load msg [std_msgs]: Cannot locate message [] in package [std_msgs] with paths ["/opt/ros/noetic/share/std_msgs/msg"]`
 - `mushari12@hp:~/catkin_ws/src$`
 - `mushari12@hp:~$ rosout`
 - `/rosout`
 - `/rosout_agg`
 - `/statistics`
 - `mushari12@hp:~$ rostopic echo /hello`
 - `data: "Hello, mushari!"`
 - `---`
 - `data: "Hello, mushari!"`
 - `---`
 - `data: "Hello, mushari!"`
 - `---`
 - `data: "Hello, mushari!"`
 - `---`
 - `data: "Hello, mushari!"`
 - `---`
 - `data: "Hello, mushari!"`
 - `---`
- Terminal (Right):** Shows the command `mushari12@hp:~$ roslaunch rqt_graph rqt_graph`.
- Node Graph (Right):** Displays a graph titled `rqt_graph_RosGraph - rqt`. It shows a node `/hello` connected to two topics: `/rostopic_28480_1595048597935` and `/rostopic_28697_1595049094064`. The graph also shows a topic `/wallE_28284_1595047899083` connected to the `/hello` node.