

Here are the commands and output for creating a black square using turtlesim.

```
yahboom@yahboom-virtual-machine:~$ ros2 service call /turtle1/set_pen turtlesim/
srv/SetPen "{r: 0, g: 0, b: 0, width: 5}"
requester: making request: turtlesim.srv.SetPen_Request(r=0, g=0, b=0, width=5,
off=0)

response:
turtlesim.srv.SetPen_Response()

yahboom@yahboom-virtual-machine:~$ ros2 service call /turtle1/teleport_relative
turtlesim/srv/TeleportRelative "{linear: 2.0, angular: 0.0}"
waiting for service to become available...
requester: making request: turtlesim.srv.TeleportRelative_Request(linear=2.0, an
gular=0.0)

response:
turtlesim.srv.TeleportRelative_Response()

yahboom@yahboom-virtual-machine:~$ ros2 service call /turtle1/teleport_r
turtlesim/srv/TeleportRelative "{linear: 0.0, angular: 1.57079632679}"
requester: making request: turtlesim.srv.TeleportRelative_Request(linear=0.0, an
gular=1.57079632679)

response:
turtlesim.srv.TeleportRelative_Response()

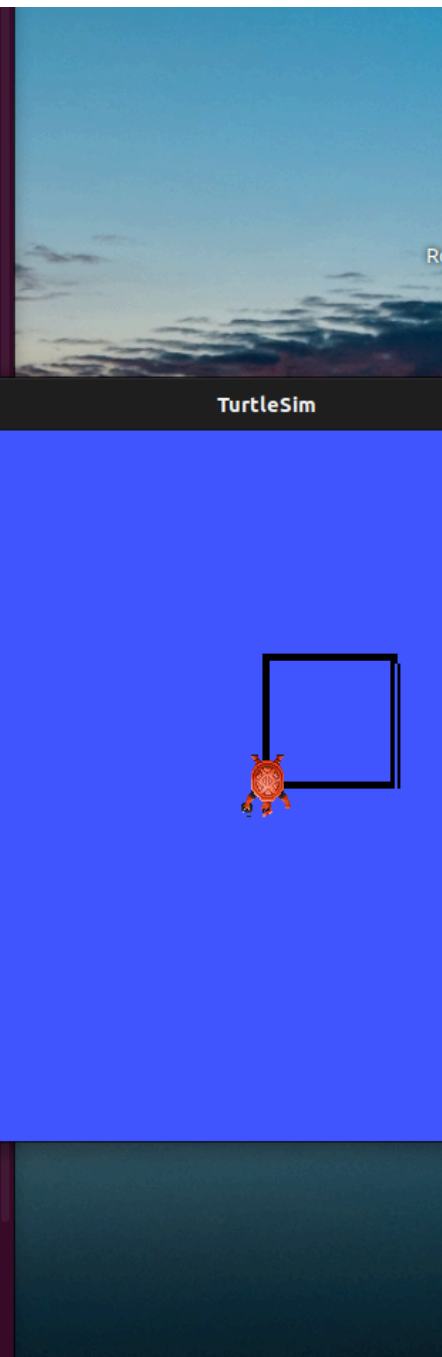
yahboom@yahboom-virtual-machine:~$ ros2 service call /turtle1/teleport_r
turtlesim/srv/TeleportRelative "{linear: 2.0, angular: 0.0}"
waiting for service to become available...
requester: making request: turtlesim.srv.TeleportRelative_Request(linear=2.0, an
gular=0.0)

response:
turtlesim.srv.TeleportRelative_Response()

yahboom@yahboom-virtual-machine:~$ ros2 service call /turtle1/teleport_r
turtlesim/srv/TeleportRelative "{linear: 0.0, angular: 1.57079632679}"
waiting for service to become available...
requester: making request: turtlesim.srv.TeleportRelative_Request(linear=0.0, an
gular=1.57079632679)

response:
turtlesim.srv.TeleportRelative_Response()

yahboom@yahboom-virtual-machine:~$ ros2 service call /turtle1/teleport_r
turtlesim/srv/TeleportRelative "{linear: 2.0, angular: 0.0}"
waiting for service to become available...
```



Here are the commands and output using the provided command.

```

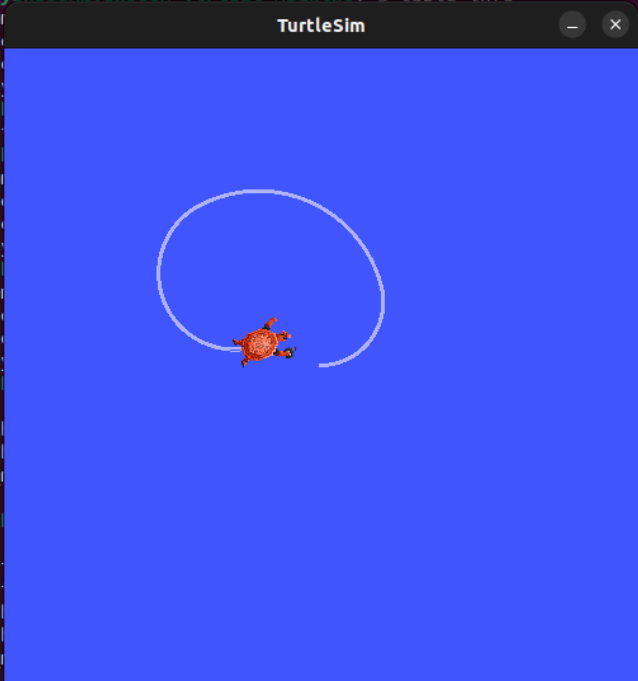
Cyanboom@yahboom-virtual-machine:~$ topic info
Topic: /turtle1/cmd_vel
Type: geometry_msgs/msg/Twist
QoS: 0
Publisher: 1
Subscriber: 0

Cyanboom@yahboom-virtual-machine:~$ ros2 topic pub --once /turtle1/cmd_vel geometry_msgs/msg/Twist "{linear: {x: 2.0, y: 0.0, z: 0.0}, angular: {x: 0.0, y: 0.0, z: 1.8}}"
Publisher: beginning loop
Publishing #1: geometry_msgs.msg.Twist(linear=geometry_msgs.msg.Vector3(x=2.0, y=0.0, z=0.0), angular=geometry_msgs.msg.Vector3(x=0.0, y=0.0, z=1.8))

Cyanboom@yahboom-virtual-machine:~$ ros2 topic pub --once /turtle1/cmd_vel geometry_msgs/msg/Twist "{linear: {x: 4.0, y: 0.0, z: 0.0}, angular: {x: 0.0, y: 0.0, z: 1.8}}"
Publisher: beginning loop
Publishing #1: geometry_msgs.msg.Twist(linear=geometry_msgs.msg.Vector3(x=4.0, y=0.0, z=0.0), angular=geometry_msgs.msg.Vector3(x=0.0, y=0.0, z=1.8))

Cyanboom@yahboom-virtual-machine:~$ ros2 topic pub --once /turtle1/cmd_vel geometry_msgs/msg/Twist "{linear: {x: 4.0, y: 0.0, z: 0.0}, angular: {x: 0.0, y: 0.0, z: 3.0}}"
Publisher: beginning loop
Publishing #1: geometry_msgs.msg.Twist(linear=geometry_msgs.msg.Vector3(x=4.0, y=0.0, z=0.0), angular=geometry_msgs.msg.Vector3(x=0.0, y=0.0, z=3.0))

```



The image shows a terminal window with the TurtleSim application running. The TurtleSim window has a blue background and a small orange turtle icon. A white circular line is drawn around the turtle, indicating its path. The terminal window shows the commands and output for publishing Twist messages to the /turtle1/cmd_vel topic. The first command publishes a Twist message with linear velocity (2.0, 0.0, 0.0) and angular velocity (0.0, 0.0, 1.8). The second command publishes a Twist message with linear velocity (4.0, 0.0, 0.0) and angular velocity (0.0, 0.0, 1.8). The third command publishes a Twist message with linear velocity (4.0, 0.0, 0.0) and angular velocity (0.0, 0.0, 3.0).

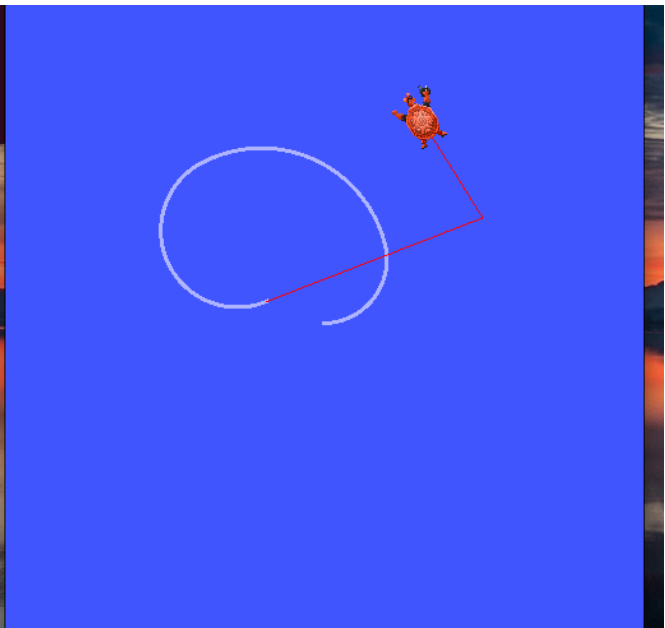
Here is the output of the line being changed to red.

```
[INFO] [1769795764.492325691] [turtlesim]: Spawning
a=[0.000000]

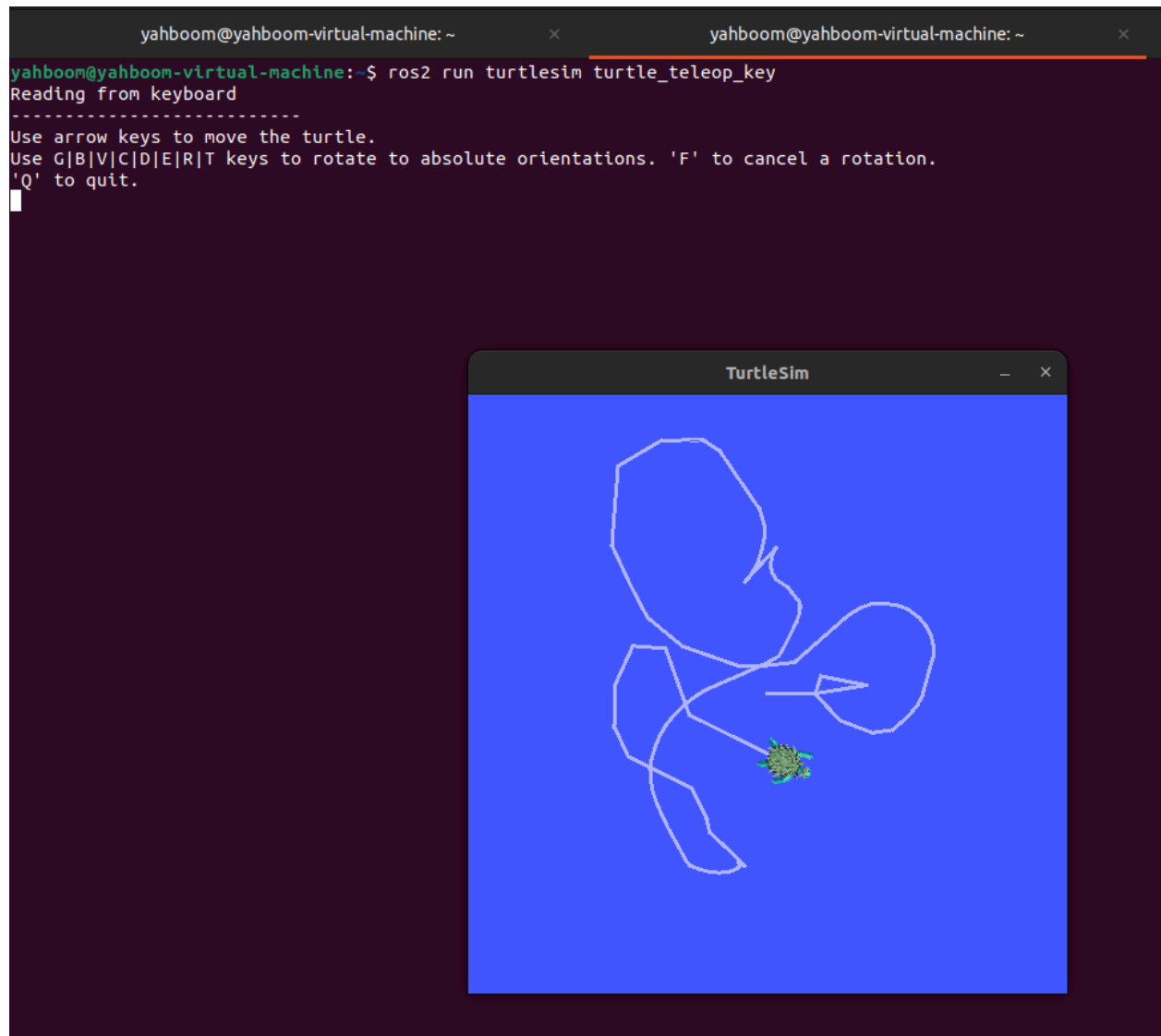
publishing #1: geometry_msgs.msg.Twist(linear=ge
ometry_msgs.msg.Vector3(x=4.0, y=0.0, z=0.0), an
gular=geometry_msgs.msg.Vector3(x=0.0, y=0.0, z=
3.0))

yahboom@yahboom-virtual-machine:~$ /turtle1/set_
pen
bash: /turtle1/set_pen: No such file or director
y
yahboom@yahboom-virtual-machine:~$ ros2 service
call /turtle1/set_pen turtlesim/srv/SetPen "r: 2
55"
requester: making request: turtlesim.srv.SetPen_
Request(r=255, g=0, b=0, width=0, off=0)

response:
turtlesim.srv.SetPen_Response()
```



Here is a screenshot of the turtle_teleop working.



Here is the feedback on the position/status of the turtle.

```
yahboom@yahboom-virtual-machine:~$ ros2 action s
end_goal /turtle1/rotate_absolute turtlesim/acti
on/RotateAbsolute "{theta: 1.57}" --feedback
Waiting for an action server to become available
...
Sending goal:
  theta: 1.57

Feedback:
  remaining: -0.015614628791809082

Goal accepted with ID: 96c5cf6709de4880b0b41533e
b168e97

Result:
  delta: 0.0

Goal finished with status: SUCCEEDED
```

Graph screenshot.

