

Tello Driver I

Pedro Arias

Package Tello Driver

- **src**
 - `tello_driver_node.py`
- **launch**
 - `tello_driver.launch`
 - `tello_wrapper.launch`
 - `tello_rqt.launch`
- **test**
 - `tello_takeoff (sh rosservice...)`
 - `tello_land (sh rosservice...)`
 - `test_tello_driver.py`
 - `test_pubs.py`

Tests

- Takeoff / Land
 - sh
 - python
- Info

```
1  #!/usr/bin/env python
2
3  import rospy
4  from mavros_msgs.srv import CommandTOL
5  import time
6
7  ns_takeoff = 'mavros/cmd/takeoff'
8  ns_land = 'mavros/cmd/land'
9
10 try:
11     rospy.wait_for_service(ns_takeoff, timeout=5)
12     takeoff_srv = rospy.ServiceProxy(ns_takeoff, CommandTOL)
13     print("Takeoff service ready!")
14 except rospy.ServiceException:
15     print(e)
16
17 try:
18     rospy.wait_for_service(ns_land, timeout=5)
19     land_srv = rospy.ServiceProxy(ns_land, CommandTOL)
20     print("Land service ready!")
21 except rospy.ServiceException as e:
22     print(e)
23
24 resp = takeoff_srv(0.0, 0.0, 0.0, 0.0, 0.0)
25 print("Taking off!", resp)
26
27 time.sleep(5)
28
29 resp = land_srv(0.0, 0.0, 0.0, 0.0, 0.0)
30 print("Landing!", resp)
31
```

```
#!/bin/sh
```

```
rosservice call /mavros/cmd/takeoff 0.0 0.0 0.0 0.0 0.0
```

Node

- 7 topics: Pubs
- 1 topics: Subs
- 6 servicios

```
self.state_pub = rospy.Publisher('mavros/state', State, queue_size=10)
self.ext_state_pub = rospy.Publisher('mavros/extended_state', ExtendedState, queue_size=10)
self.pose_pub = rospy.Publisher('mavros/local_position/pose', PoseStamped, queue_size=10)
self.vel_body_pub = rospy.Publisher('mavros/local_position/velocity_body', TwistStamped, queue_size=10)
self.global_pub = rospy.Publisher('mavros/global_position/global', NavSatFix, queue_size=10)

★ self.img_pub = rospy.Publisher('tello/cam_frontal/image_raw', Image, queue_size=10)

★ self.bat_status_pub = rospy.Publisher('mavros/battery', BatteryState, queue_size=10) # EXTRA

rospy.Subscriber('mavros/setpoint_raw/local', PositionTarget, self.setpoint_cb)

★ self.takeoff_srv = rospy.Service('mavros/cmd/takeoff', CommandTOL, self.tello_takeoff) # EXTRA

self.arm_srv = rospy.Service('mavros/cmd/arming', CommandBool, self.tello_arm)
self.set_mode_srv = rospy.Service('mavros/set_mode', SetMode, self.tello_set_mode)
self.land_srv = rospy.Service('mavros/cmd/land', CommandTOL, self.tello_land)
self.param_set_srv = rospy.Service('mavros/param/set', ParamSet, self.tello_param_set)
self.param_get_srv = rospy.Service('mavros/param/get', ParamGet, self.tello_param_get)
```

tello/cam_frontal/image_raw

→ YAML / argumentos ¿?

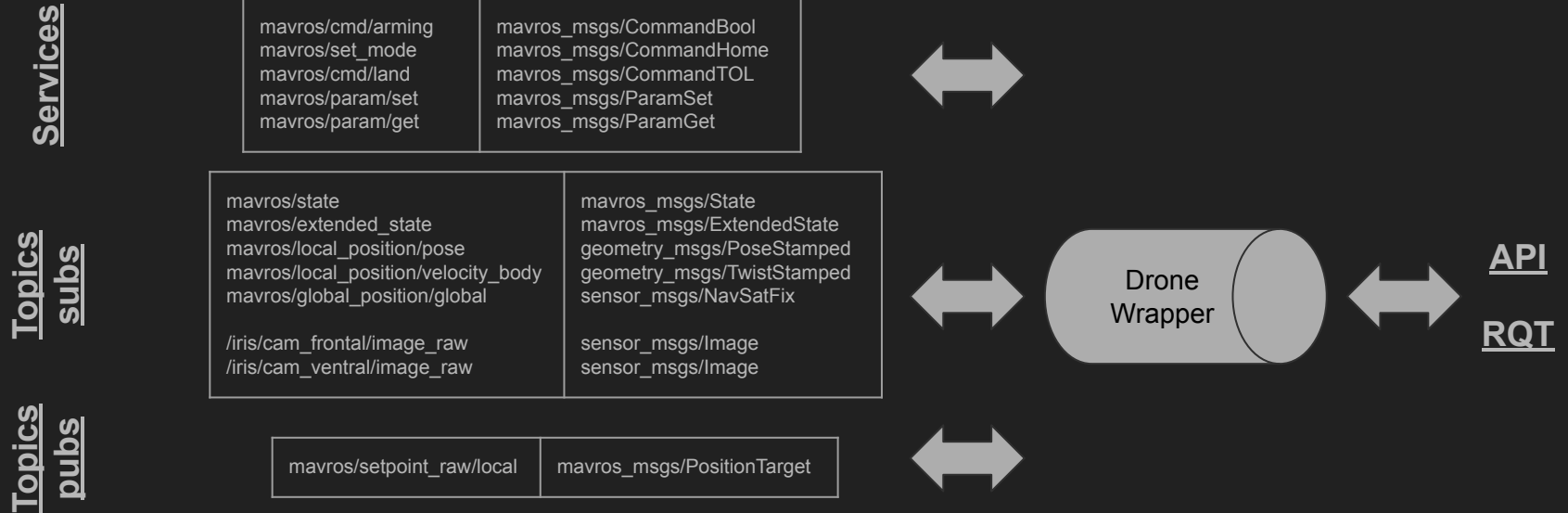
mavros/cmd/takeoff

→ nuevos srv? Como despegar?

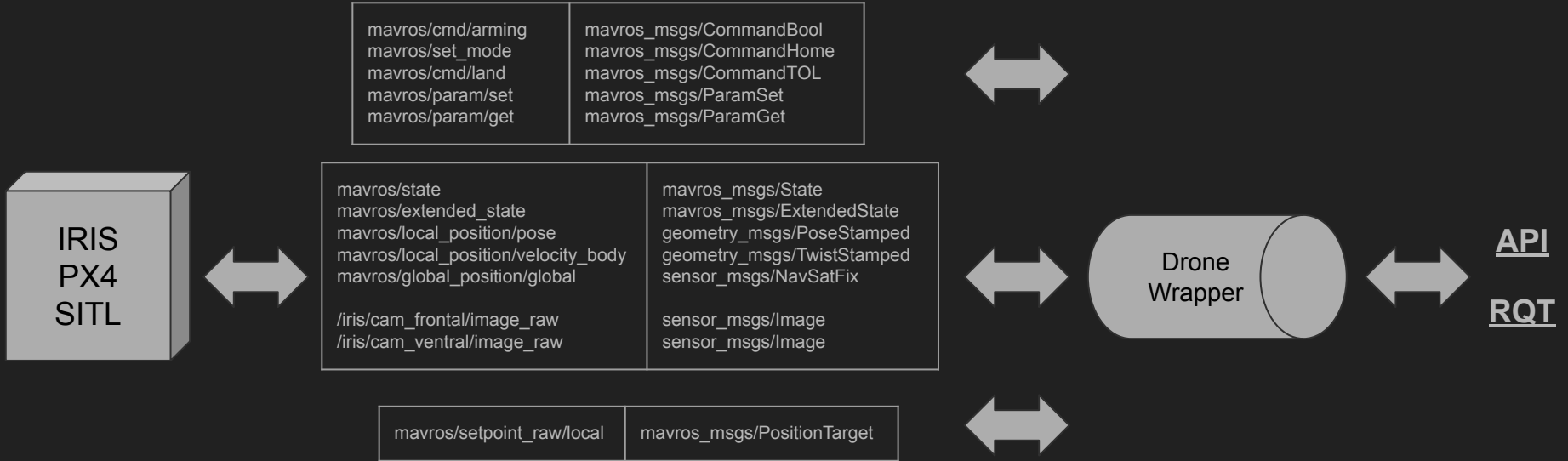
mavros/battery

→ topics necesarios para drones reales?

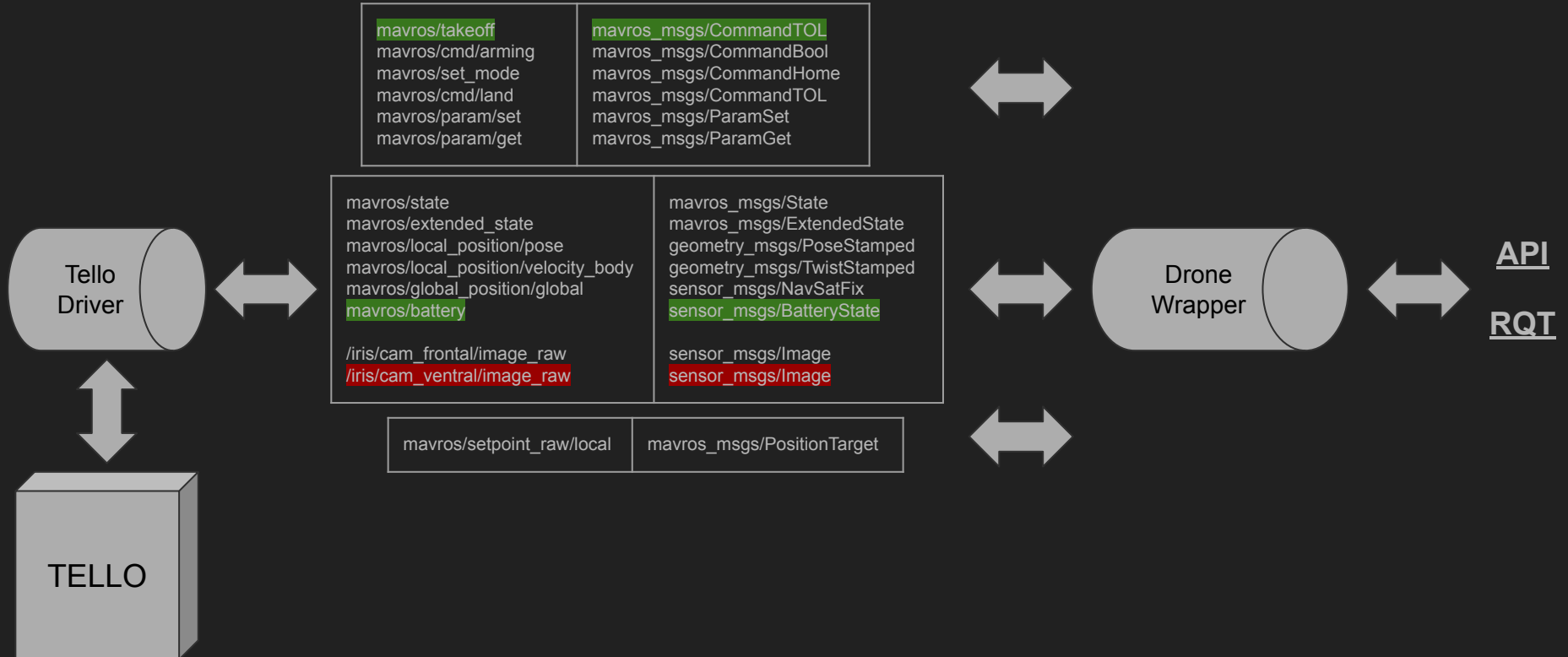
IRIS PX4 SITL



IRIS PX4 SITL



IRIS PX4 SITL



Launch standalone

1 Nodo:

tello_driver

qt

```
launch/tello_driver.launch http://localhost:11311
* /roscd: melodic
* /rosversion: 1.14.10

NODES
/
  tello_driver_node (tello_driver/tello_driver_node.py)

auto-starting new master
process[master]: started with pid [17311]
ROS_MASTER_URI=http://localhost:11311

setting /run_id to 561f1b02-90ae-11eb-b374-9cb6d01b8b1b
process[rosout-1]: started with pid [17322]
started core service [/rosout]
process[tello_driver_node-2]: started with pid [17325]
Tello: 18:46:41.951: Info: start video thread
Tello: 18:46:41.952: Info: video receive buffer size = 1048576
Tello: 18:46:41.981: Info: send connection request (cmd="conn_req:9617")
Tello: 18:46:41.984: Info: state transit State::disconnected -> State::connecting
Tello: 18:46:41.988: Info: connected. (port=9617)
Tello: 18:46:41.988: Info: send_time (cmd=0x46 seq=0x01e4)
Tello: 18:46:41.988: Info: state transit State::connecting -> State::connected
```

parias@parias-msi: ~/repos/2021-tfm-pedro-arias/tello_driver/test

```
384
#####
# TELLO STATUS #
#
# MODE: OFFBOARD #
# STATE: UNDEFINED #
# BAT: 90 % #
#
#####
[]
```

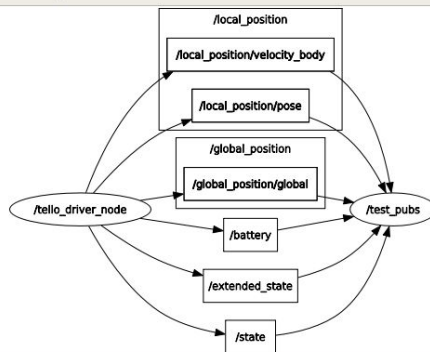
prueba - rqt

Node Graph

Nodes/Topics (all) / /

Group: 6 Namespaces Actions tf Images Highlight Fit

Hide: Dead sinks Leaf topics Debug tf Unreachable Params



parias@parias-msi: ~

```
parias@parias-msi:~$ rqt
^Cparias@parias-msi:~$ rqt
[]
```

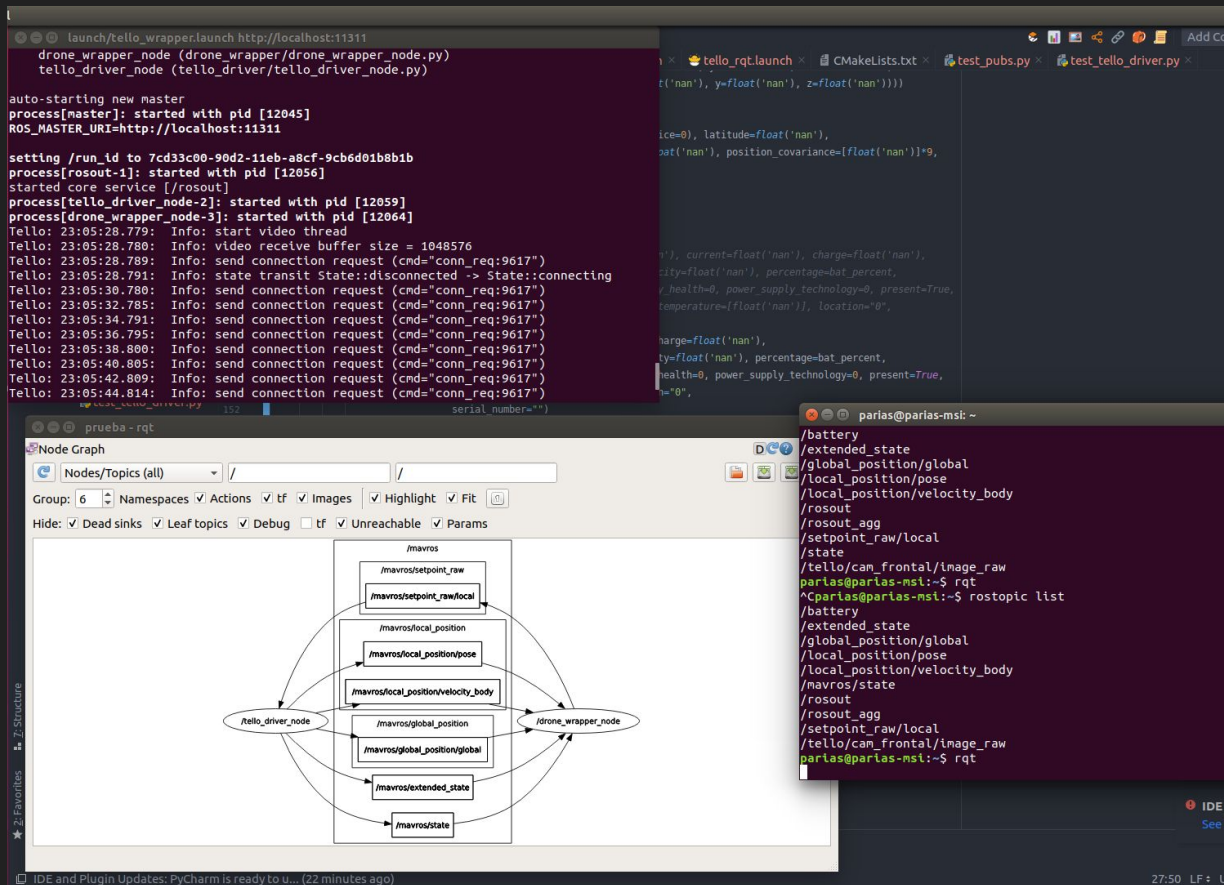

2 Nodos:

tello_driver

drone_wrapper

DroneWrapper...

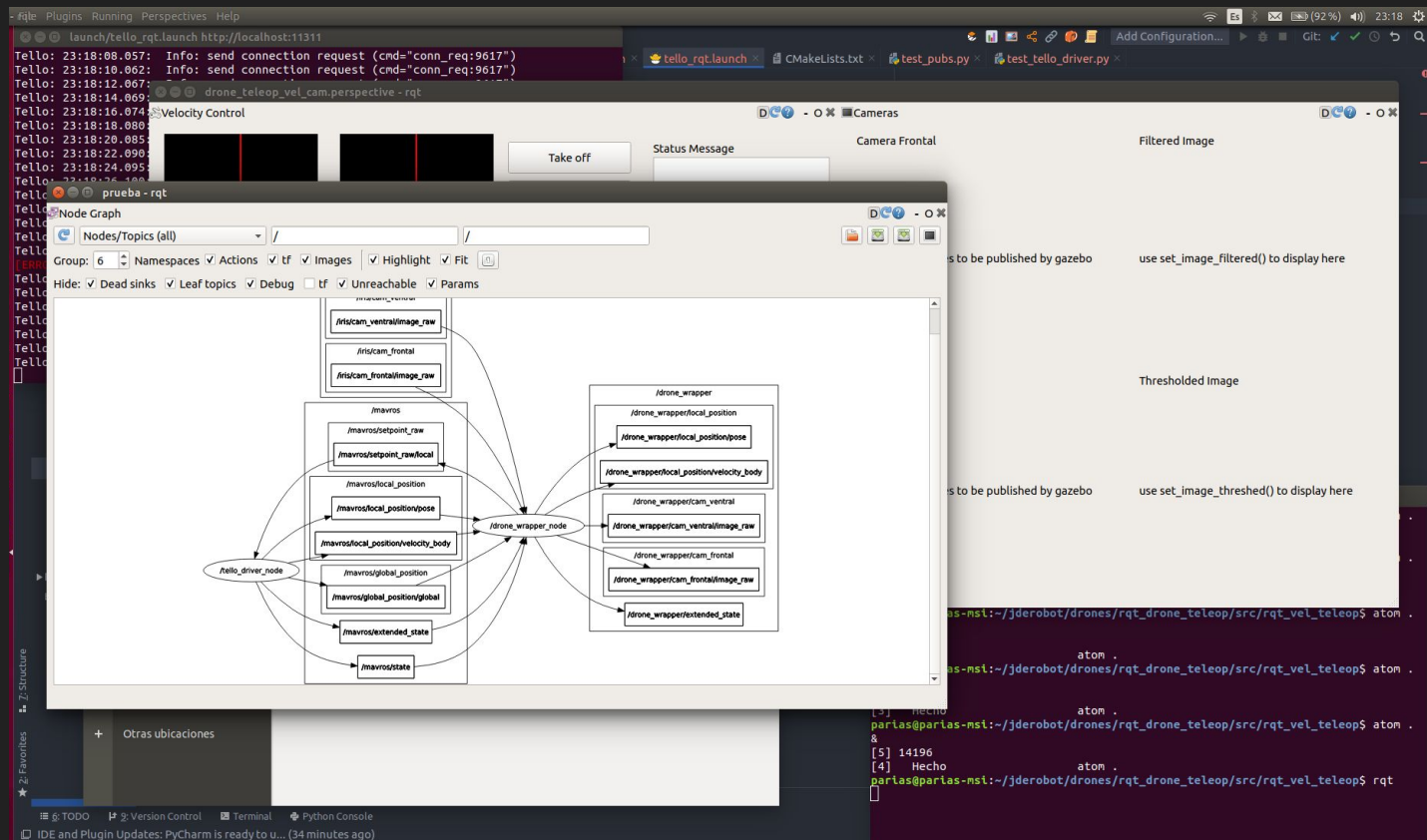
¿Nodo?



3 Nodos:

wrapper

rqt



TODO

- Completar topics en tello-driver (pubs)
 - Topics con imágenes: nuevos handlers
 - Órdenes de velocidad (subs)
-
- Drone_wrapper (#56):
 - YAML / arg
 - Init as node
 - Battery? Takeoff vs arming?
 - rqt
 - Pulir y eliminar dependencias