How to write test cases

This document provides you the information of how to write the test cases which will run in PolyVerif framework.

There are two way you can write the test cases-

* Using the PythonAPI’s
* Using the Scenic (Scenario Description Language)

## PythonAPI’s –

Following is the pre-requisite for running the python testcases –

* + Lg Simulator Scene/Map (environment\_ BorregasAve)
  + PythonAPI
  + Lg Simulator (Version 2020.06)

Follow below link to understand how the API’s will work –

<https://www.svlsimulator.com/docs/python-api/python-api/>

While writing the test script (example.py) using the PythonAPI’s in polyVerif framework, you need to add the below code at the starting of the script as this code take input from the polyVerif framework -

**rain = 0 # Setting default rain parameter**

**fog = 0 # Setting default fog parameter**

**wetness = 0 # Setting default wetness parameter**

**cloudiness = 0 # Setting default cloudiness parameter**

**damage = 0 # Setting default damage parameter**

**scene = "BorregasAve" # Setting the default scene**

**home = str(Path.home())**

**file = open(home+'/pid','w');**

**t = os.getpid()**

**pid = str(t)**

**file.write(pid)**

**file.close()**

**print("pid : ",pid)**

**if sys.argv[1]:**

**rain = float(sys.argv[1])**

**fog = float(sys.argv[2])**

**wetness = float(sys.argv[3])**

**cloudiness = float(sys.argv[4])**

**damage = float(sys.argv[5])**

**scene = sys.argv[6]**

**if sim.current\_scene == scene:**

**sim.reset()**

**else:**

**sim.load(scene)**

**# Add your test case condition accordingly**

In the end of the script, you have to add the below lines of the code as this code help to end/terminate the simulation after some times.

**t0 = time.time()**

**sim.run(time\_limit=25, time\_scale=1)**

**t1 = time.time()**

You can change the time limit from 25 second to whatever time you required to run the simulation.

Once the testcase is completed, put the example.py in below path-

**ade@adehome/Test\_Cases/<scene/map-dir>/<condition\_dir>/example.py**

## Scenic –

Following is the below pre-requisite for running the python testcases –

* + Lg Simulator Scene/Map of location (environment\_ BorregasAve)
  + PythonAPI
  + Lg Simulator (Version 2020.06)
  + Scenic Library
  + Map files in xodr format (borregasave.xodr)

Follow below link of tutorials to understand the apis of using the scenic library-

<https://scenic-lang.readthedocs.io/en/latest/tutorials/tutorial.html>

Below is the sample example of writing the scenic test cases (example.scenic) –

**param map = localPath('maps/borregasave.xodr')**

**param lgsvl\_map = 'BorregasAve'**

**param time\_step = 1.0/10**

**model scenic.domains.driving.model**

**behavior PullIntoRoad():**

**while (distance from self to ego) > 15:**

**wait**

**do FollowLaneBehavior(laneToFollow=ego.lane)**

**ego = Car with behavior DriveAvoidingCollisions(avoidance\_threshold=10)**

**rightCurb = ego.laneGroup.curb**

**spot = OrientedPoint on visible rightCurb**

**badAngle = Uniform(1.0, -1.0) \* Range(10, 20) deg**

**parkedCar = Car left of spot by 0.5,**

**facing badAngle relative to roadDirection,**

**with behavior PullIntoRoad**

**require (distance to parkedCar) > 20**

**monitor StopAfterInteraction:**

**for i in range(50):**

**wait**

**while ego.speed > 2:**

**wait**

**for i in range(50):**

**wait**

**terminate**

Once the testcase is completed, put the example.scenic in below path-

**ade@adehome/Test\_Cases/<scene/map-dir>/<scenic\_condition\_dir>/example. scenic**

**Adding new map in scenic:**

Put MapName.xord file in below path-

**ade@adehome/Test\_Cases/<scene/map-dir>/<scenic\_condition\_dir>/maps**