

Connecting V-REP with Python Script through Remote API

ON OCTOBER 6, 2019OCTOBER 7, 2019 / BY BILAL JAVED

Connecting your V-REP simulation with your application is one of the most complex task you will ever face while controlling your simulated scene from an external application. There are many APIs out there to help you accomplish this task. For this purpose, we will be using the Remote API which is one of the available APIs for V-REP.

The latest version of the Remote API is the B0-based remote API.

According to Coppelia Robotics

(<http://www.coppeliarobotics.com/helpFiles/en/b0RemoteApiOverview.htm>):

The B0-based remote API should not be mixed-up with the legacy remote API

(<http://www.coppeliarobotics.com/helpFiles/en/legacyRemoteApiOverview.htm>) (or simply remote API) which is an older version of the remote API that is less flexible, and more difficult to extend.

The B0-based remote API supports Python, Java, C++, Matlab and Lua. We will use it to connect to a Python script. We will configure it for the client side (Our Python script) and the server side (V-REP).

For this tutorial, I assume that you have V-REP, Python and pip already installed on your Ubuntu.

For the client side, the first step is to install a Python package MessagePack through pip which is one of the dependencies for the API we are using. To install this package, go to your terminal and run this command:

```
pip install msgpack
```

Now, go to your V-REP root folder and copy the following files under the directory programming/b0RemoteApiBindings/python/ to the working directory of your choice where you are working on the python script.

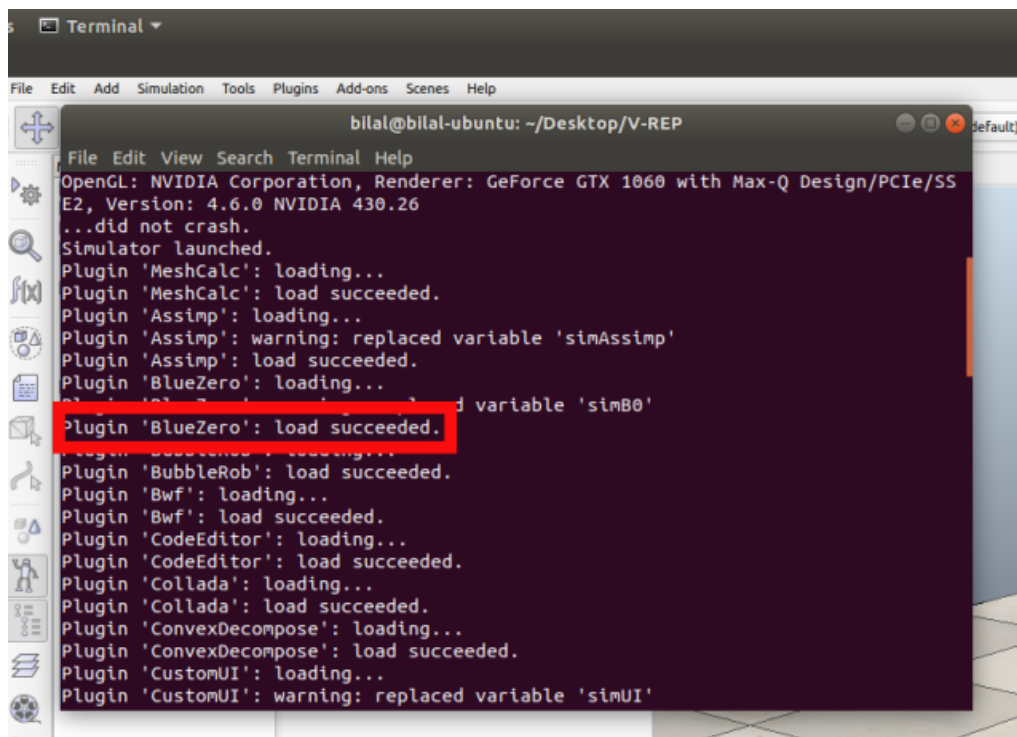
1. b0RemoteApi.py
2. b0.py
3. simpleTest.py (A sample script for a demo scene to verify that everything is working fine)

and in the V-REP root directory copy the file libb0.so

Also, copy the demo scene for this API which is scenes/B0-basedRemoteApiDemo.ttt into your working directory of Python script for easy access.

For the server side, note that the server side API is based on a Lua script which is inside the lua/ folder in the V-REP root folder. The name of the Lua script file is b0RemoteApiServer.lua

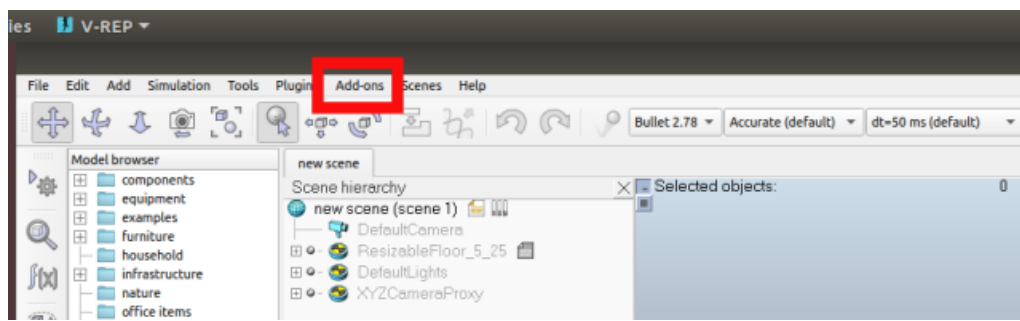
To verify that everything is working fine, run V-REP from your terminal and double check that the BlueZero plugin has loaded successfully in that terminal window.



The image shows a screenshot of a V-REP application window with a terminal pane open. The terminal displays the output of running V-REP, showing various plugins being loaded. The line "Plugin 'BlueZero': load succeeded." is highlighted with a red rectangular box. The terminal text includes:

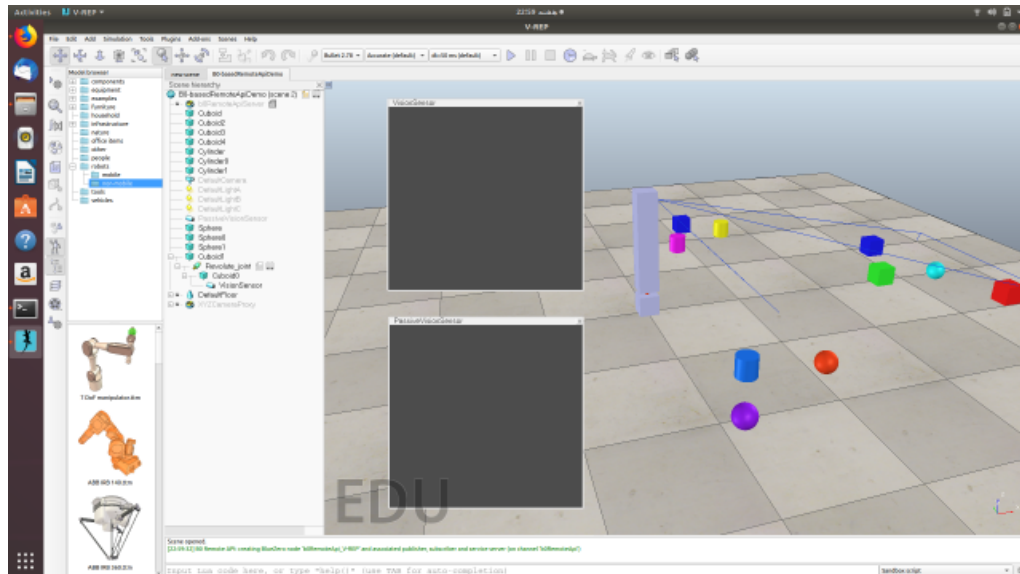
```
OpenGL: NVIDIA Corporation, Renderer: GeForce GTX 1060 with Max-Q Design/PCIe/SS
E2, Version: 4.6.0 NVIDIA 430.26
...did not crash.
Simulator launched.
Plugin 'MeshCalc': loading...
Plugin 'MeshCalc': load succeeded.
Plugin 'Assimp': loading...
Plugin 'Assimp': warning: replaced variable 'simAssimp'
Plugin 'Assimp': load succeeded.
Plugin 'BlueZero': loading...
Plugin 'BlueZero': load succeeded.
Plugin 'BubbleRob': loading...
Plugin 'BubbleRob': load succeeded.
Plugin 'Bwf': loading...
Plugin 'Bwf': load succeeded.
Plugin 'CodeEditor': loading...
Plugin 'CodeEditor': load succeeded.
Plugin 'Collada': loading...
Plugin 'Collada': load succeeded.
Plugin 'ConvexDecompose': loading...
Plugin 'ConvexDecompose': load succeeded.
Plugin 'CustomUI': loading...
Plugin 'CustomUI': warning: replaced variable 'simUI'
```

After that, in the menu bar of V-REP go to Add-ons.

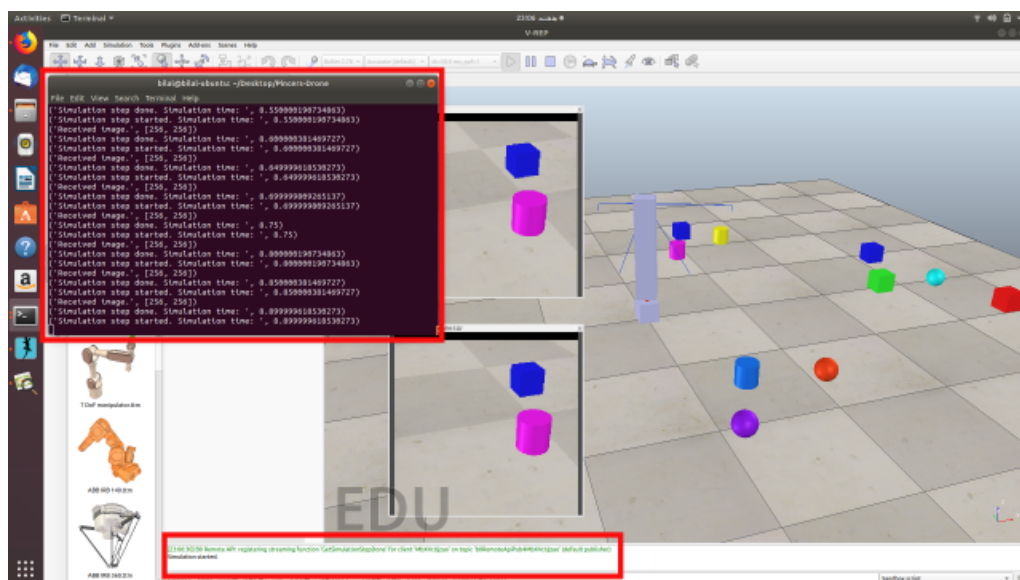


Check the option `b0RemoteApiServer` to run it.

Open the demo scene you have copied earlier.



Open another terminal and run the `simpleTest.py` script. If this is what you get,



you are all set to simulate your own scene and control it through your external Python script.

...and that's it!

2 thoughts on “Connecting V-REP with Python Script through Remote API”

1. Dragoon_71

Really well explained and easy to follow. Kindly also post a blog for ROS 😊

🕒 OCTOBER 6, 2019 AT 12:33 AM ↩ REPLY

2. p166060nuedupk

I got this error while, Sir when I run .py script

./simpleTest.py

import-im6.q16: not authorized `b0RemoteApi' @

error/constitute.c/WriteImage/1037.

import-im6.q16: not authorized `time' @

error/constitute.c/WriteImage/1037.

./simpleTest.py: line 22: syntax error near unexpected token `('

./simpleTest.py: line 22: `with

b0RemoteApi.RemoteApiClient('b0RemoteApi_pythonClient','b0RemoteApi')

as client: '

🕒 OCTOBER 6, 2019 AT 2:40 PM ↩ REPLY

