

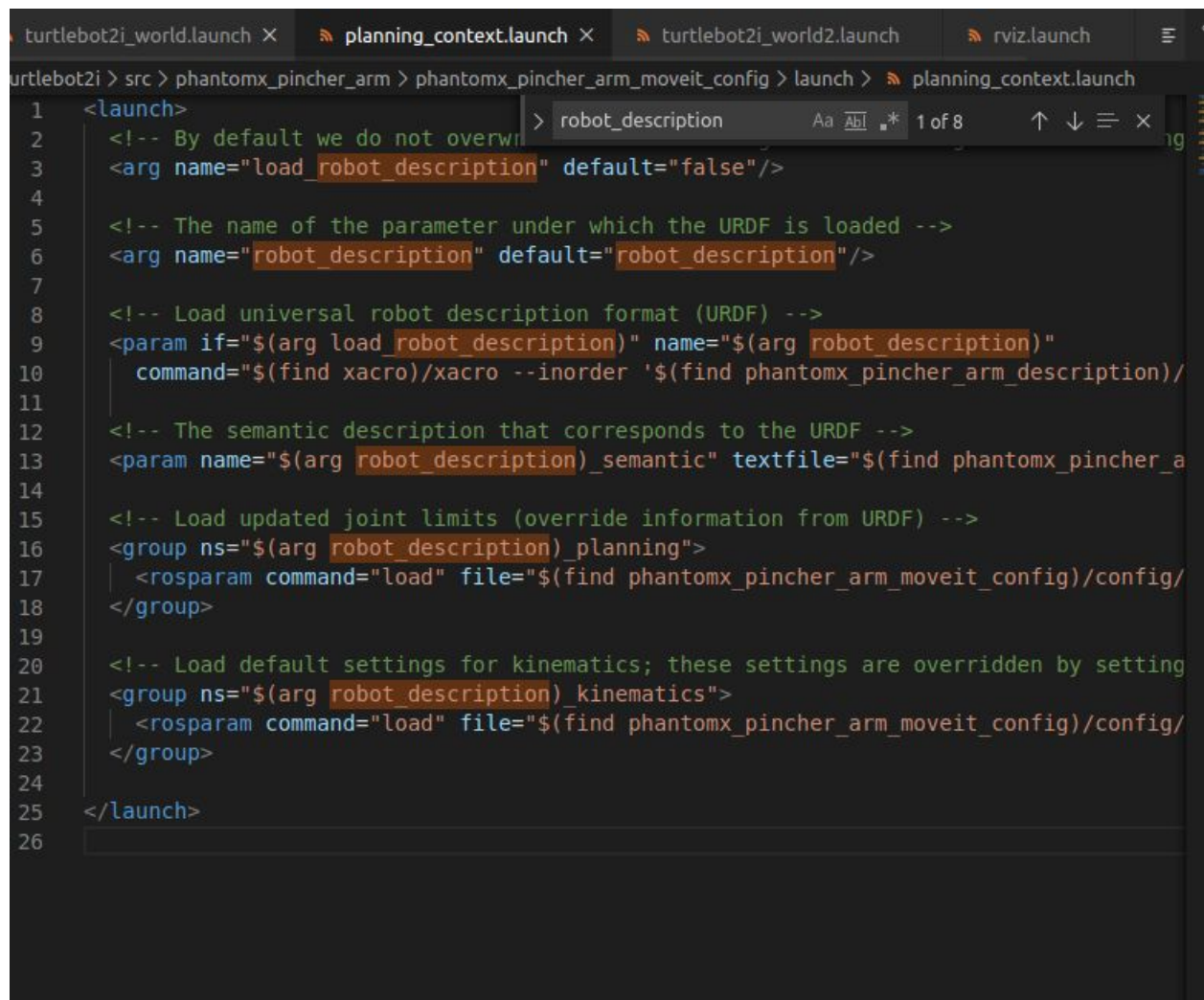
Rviz not coming up: issue with /robot_description_semantic

Found in rviz launch file:

```
turtlebot2i > src > turtlebot2i_bringup > rviz > turtlebot2i.rviz
766      Max Value: 10
767      Min Value: -10
768      Value: true
769      Axis: Z
770      Channel Name: intensity
771      Class: rviz/PointCloud2
772      Color: 255; 255; 255
773      Color Transformer: RGB8
774      Decay Time: 0
775      Enabled: true
776      Invert Rainbow: false
777      Max Color: 255; 255; 255
778      Max Intensity: 4096
779      Min Color: 0; 0; 0
780      Min Intensity: 0
781      Name: PointCloud2
782      Position Transformer: XYZ
783      Queue Size: 10
784      Selectable: true
785      Size (Pixels): 3
786      Size (m): 0.009999999978
787      Style: Flat Squares
788      Topic: /block_detection_action_server/block_output
789      Unreliable: false
790      Use Fixed Frame: true
791      Use rainbow: true
792      Value: true
793      - Class: moveit_rviz_plugin/PlanningScene
794      Enabled: true
795      Move Group Namespace: ""
796      Name: PlanningScene
797      Planning Scene Topic: move_group/monitored_planning_scene
798      Robot Description: robot_description
799      Scene Geometry:
800      Scene Alpha: 0.200000003
801      Scene Color: 50; 230; 50
802      Scene Display Time: 0.200000003
803      Show Scene Geometry: true
804      Voxel Coloring: Z-Axis
805      Voxel Rendering: Occupied Voxels
806      Scene Robot:
807      Attached Body Color: 150; 50; 150
808      Links:
809      All Links Enabled: true
810      Expand Joint Details: false
```

This is due to the Moveit package not being instantiated before this is:

It is launched in the 'planning_context.launch' file.

A screenshot of a code editor window showing the 'planning_context.launch' file. The editor has a dark theme and a search bar at the top right with the text 'robot_description'. The file content is XML for a ROS launch file, with line numbers 1 through 26 on the left. The XML includes arguments for 'load_robot_description' and 'robot_description', a conditional parameter for loading URDF, semantic description, and joint limits, and two groups for planning and kinematics settings. The terminal path at the top indicates the file is located at 'src > phantomx_pincher_arm > phantomx_pincher_arm_moveit_config > launch > planning_context.launch'.

```
1 <launch>
2 <!-- By default we do not overw
3 <arg name="load_robot_description" default="false"/>
4
5 <!-- The name of the parameter under which the URDF is loaded -->
6 <arg name="robot_description" default="robot_description"/>
7
8 <!-- Load universal robot description format (URDF) -->
9 <param if="$ (arg load_robot_description)" name="$ (arg robot_description)"
10   command="$ (find xacro)/xacro --inorder '$ (find phantomx_pincher_arm_description)/
11
12 <!-- The semantic description that corresponds to the URDF -->
13 <param name="$ (arg robot_description)_semantic" textfile="$ (find phantomx_pincher_a
14
15 <!-- Load updated joint limits (override information from URDF) -->
16 <group ns="$ (arg robot_description) planning">
17   <rosparam command="load" file="$ (find phantomx_pincher_arm_moveit_config)/config/
18 </group>
19
20 <!-- Load default settings for kinematics; these settings are overridden by setting
21 <group ns="$ (arg robot_description) kinematics">
22   <rosparam command="load" file="$ (find phantomx_pincher_arm_moveit_config)/config/
23 </group>
24
25 </launch>
26
```

So I try running that along with the turtlebot2i_world.launch file before rviz to see if it fixes it.

Ran, then ended with no processes to monitor.

```
john@john-VirtualBox: /opt/ros/kinetic/share/gazebo_ros 77x41
* /robot_description_planning/joint_limits/arm_shoulder_pan_joint/has_velocity_limits: True
* /robot_description_planning/joint_limits/arm_shoulder_pan_joint/max_acceleration: 1.0
* /robot_description_planning/joint_limits/arm_shoulder_pan_joint/max_velocity: 1.0
* /robot_description_planning/joint_limits/arm_wrist_flex_joint/has_acceleration_limits: True
* /robot_description_planning/joint_limits/arm_wrist_flex_joint/has_velocity_limits: True
* /robot_description_planning/joint_limits/arm_wrist_flex_joint/max_acceleration: 1.0
* /robot_description_planning/joint_limits/arm_wrist_flex_joint/max_velocity: 1.0
* /robot_description_planning/joint_limits/gripper_joint/has_acceleration_limits: True
* /robot_description_planning/joint_limits/gripper_joint/has_velocity_limits: True
* /robot_description_planning/joint_limits/gripper_joint/max_acceleration: 1.0
* /robot_description_planning/joint_limits/gripper_joint/max_velocity: 1.0
* /robot_description_planning/joint_limits/gripper_link_joint/has_acceleration_limits: True
* /robot_description_planning/joint_limits/gripper_link_joint/has_velocity_limits: True
* /robot_description_planning/joint_limits/gripper_link_joint/max_acceleration: 1.0
* /robot_description_planning/joint_limits/gripper_link_joint/max_velocity: 1.0
* /robot_description_semantic: <?xml version="1.0"
* /roscpp: kinetic
* /rosversion: 1.12.14

NODES

ROSMaster_URI=http://localhost:11311

No processes to monitor
shutting down processing monitor...
... shutting down processing monitor complete
john@john-VirtualBox: /opt/ros/kinetic/share/gazebo_ros$
```

Tried to run rviz, got this error:

```

process[rviz-1]: started with pid [9830]
[ERROR] [1585600163.602507913]: Robot semantic description not found. Did you
forget to define or remap '/robot_description_semantic'?
^C[rviz-1] killing on exit
shutting down processing monitor...
... shutting down processing monitor complete
done
john@john-VirtualBox:/opt/ros/kinetic/share/gazebo_ros$ roslaunch turtlebot2i
bringup rviz.launch
... logging to /home/john/.ros/log/17cff43c-72c5-11ea-a32f-08002704f54d/rosla
unch-john-VirtualBox-11807.log
Checking log directory for disk usage. This may take awhile.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://john-VirtualBox:37113/

SUMMARY
=====

PARAMETERS
* /rostdistro: kinetic
* /rosversion: 1.12.14

NODES
/
  rviz (rviz/rviz)

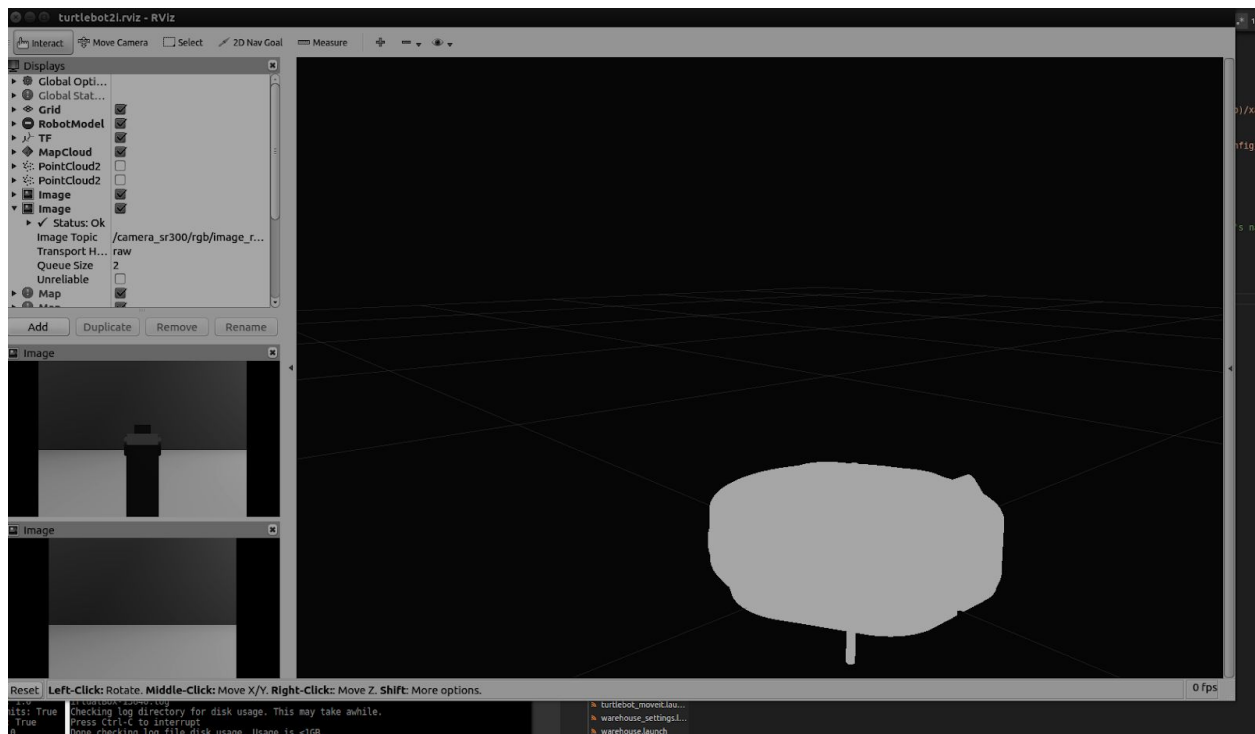
ROS_MASTER_URI=http://localhost:11311

process[rviz-1]: started with pid [11824]
[ERROR] [1585600629.371772965]: Semantic description is not specified for the
same robot as the URDF
^C

```

So the urdf is incorrect, must use another semantic param to load the correct urdf

Rviz will now load and display the image from the camera correctly, but will not load links correctly, and will freeze right after it turns on.



For now, trying to see if I can get the rtab to open correctly, in case that fixes Rviz problem:

Current problem:


```

[ INFO] [1585601559.833574014]: rtabmap: tf_delay      = 0.050000
[ INFO] [1585601559.833705929]: rtabmap: tf_tolerance = 0.100000
[ INFO] [1585601559.833766223]: rtabmap: odom_sensor_sync = false
[ERROR] [1585601560.115037326]: /camera_sr300/driver - No cameras detected!
[ERROR] [1585601560.115188681]: /camera_sr300/driver - Error calling rs_create_context ( api_version:11201 ):
uvcdvideo kernel module is not loaded

[FATAL] [1585601560.358192563]: Failed to load nodelet '/camera_sr300/depth_metric' of type 'depth_image_proc/convert_metric' to manager '/camera/camera_nodelet_manager'
[FATAL] [1585601560.358192818]: Failed to load nodelet '/camera_sr300/points_xyzrgb_sw_registered' of type 'depth_image_proc/point_cloud_xyzrgb' to manager '/camera/camera_nodelet_manager'
[FATAL] [1585601560.358260835]: Failed to load nodelet '/camera_sr300/driver' of type 'realsense_camera/SR300Nodelet' to manager '/camera/camera_nodelet_manager'
[FATAL] [1585601560.358398747]: Failed to load nodelet '/camera_sr300/rgb_rectify_color' of type 'image_proc/rectify' to manager '/camera/camera_nodelet_manager'
[FATAL] [1585601560.358651331]: Failed to load nodelet '/camera_sr300/depth_metric_rect' of type 'depth_image_proc/convert_metric' to manager '/camera/camera_nodelet_manager'
[FATAL] [1585601560.358695661]: Failed to load nodelet '/camera_sr300/rgb_debayer' of type 'image_proc/debayer' to manager '/camera/camera_nodelet_manager'
[FATAL] [1585601560.358891460]: Failed to load nodelet '/camera_sr300/rgb_rectify_mono' of type 'image_proc/rectify' to manager '/camera/camera_nodelet_manager'
[FATAL] [1585601560.359318197]: Failed to load nodelet '/camera_sr300/depth_r

```

In order to stop this error, I commented out the 3d_sensor launch file.

The rtab seems to launch without problems, but still need to make sure that the simulated camera is being used.

When run in this order:

Roslaunch turtlebot2i_gazebo turtlebot2i_world2.launch

roslaunch turtlebot2i_bringup rtabmap.launch args:=--delete_db_on_start

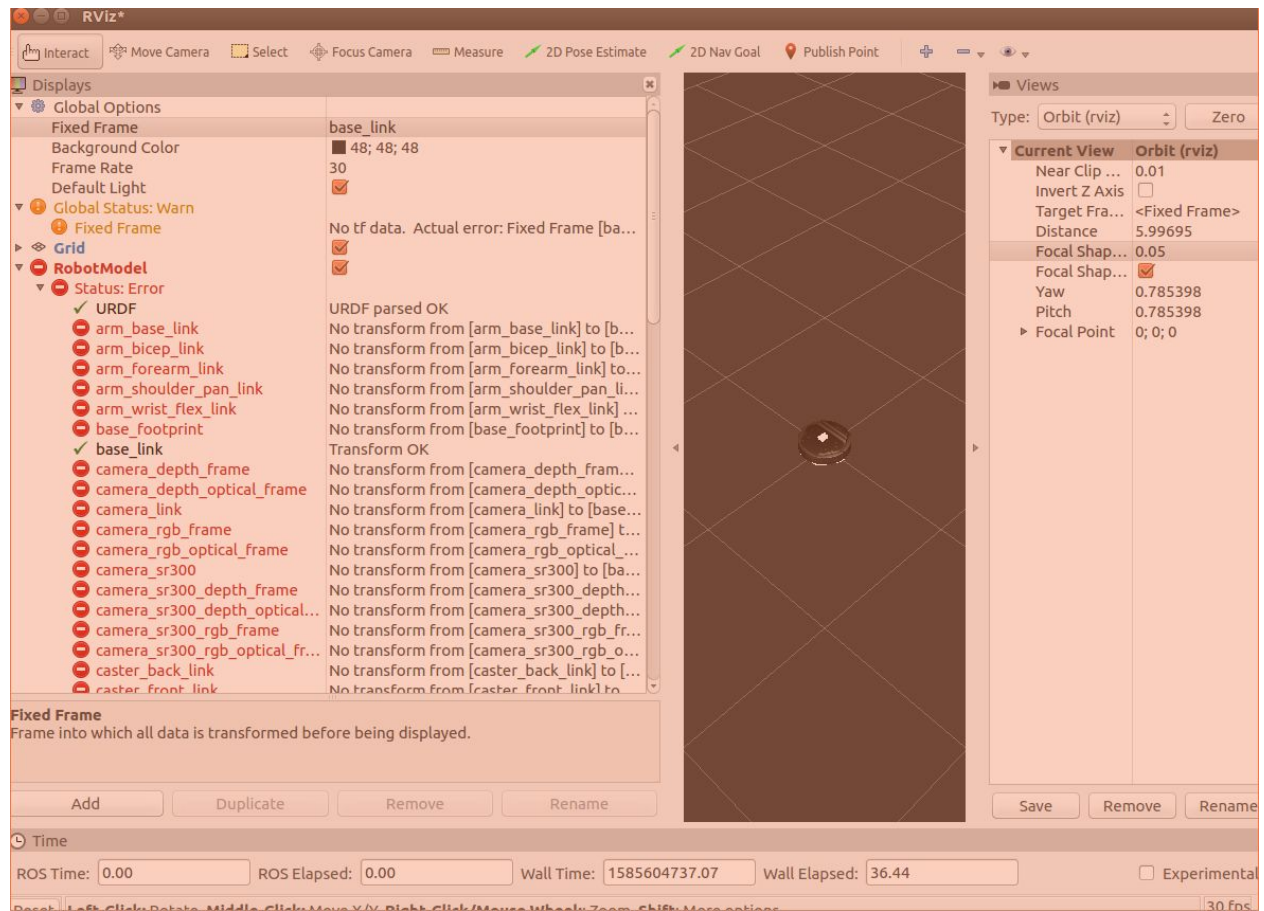
roslaunch turtlebot2i_moveit_config planning_context.launch

roslaunch turtlebot2i_bringup rviz.launch

The rviz appears to have an image showing up, but then still freezes immediately.

Issue seems to be a URDF one, so I will go through it to make sure it all matches up like it should. Currently, nothing is linked correctly, even when the base_link is made the base link in RVIZ.

I need to be careful, however, since the URDF is currently working in Gazebo, so it's most likely a top level issue.



I'm guessing a similar URDF problem is what is causing this RTAB problem too:

```
john@john-VirtualBox: ~ 77x19
to frame [odom]. canTransform returned after 187.47 timeout was 0.2.".
[ INFO] [1585603935.558437353, 187.6360000000]: Using plugin "static_layer"
[ INFO] [1585603935.564326623, 187.6410000000]: Requesting the map...
[ WARN] [1585603935.945845660, 187.9090000000]: Could not get transform from b
ase_footprint to camera_sr300_depth_optical_frame after 0.200000 seconds (for
stamp=187.605000)! Error="canTransform: source frame camera_sr300_depth_opti
cal_frame does not exist.. canTransform returned after 0.2 timeout was 0.2.".
[ERROR] [1585603935.945921353, 187.9090000000]: TF of received image 0 at time
187.605000s is not set!
[ERROR] [1585603935.945975574, 187.9090000000]: Could not convert rgb/depth ms
gs! Aborting rtabmap update...
[ WARN] [1585603937.712154060, 188.9890000000]: Could not get transform from b
ase_footprint to camera_sr300_depth_optical_frame after 0.200000 seconds (for
stamp=188.623000)! Error="canTransform: source frame camera_sr300_depth_opti
cal_frame does not exist.. canTransform returned after 0.203 timeout was 0.2.
".
[ERROR] [1585603937.712261472, 188.9890000000]: TF of received image 0 at time
188.623000s is not set!
[ERROR] [1585603937.712300597, 188.9890000000]: Could not convert rgb/depth ms
john@john-VirtualBox: ~ 77x19
```

I have modified the launch file to take in a pre-processed URDF in order to parse out any potential errors. The URDF has all of the valid links, but when it is run in RVIZ, it shows that all but the base link does not have a valid transform.

As it turns out, the reason it was not working in RVIZ was that gazebo does not public joint states usually, so I need to do that on top of what else is going on.

So what I should do it remap /link_states to /tf since /link_states is in world frame, which is what I want.

Suddenly, Rviz seems to work completely correctly, except for gripper and wheels. I'm guessing it has something to do with Gazebo since their the only movable joints.