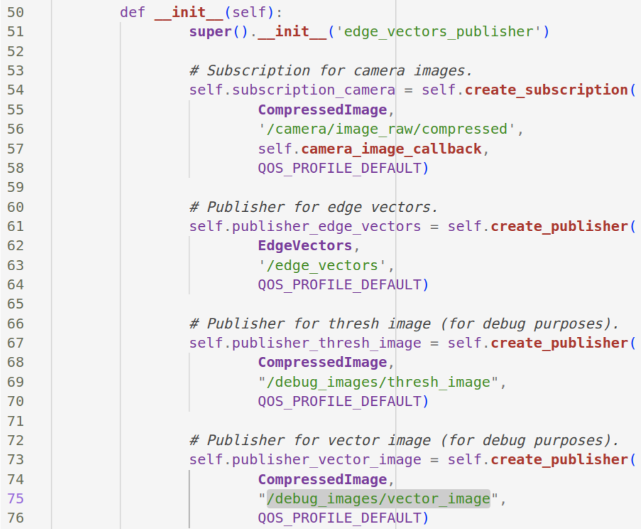
DEBUGGING W/ FLOXGLOVE

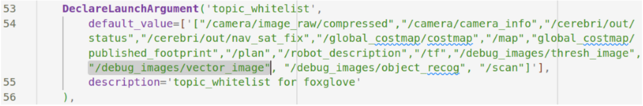
Friday, July 05, 2024 11:37 AM

1. Prerequisites:
    a. Camera Data: We can publish debug images from "b3rb_ros_line_follower/b3rb_ros_line_follower/b3rb_ros_edge_vectors.py".
        i. Create a new publisher in the __init__ function as shown in the attached image. We need to create a new topic and in our case we have chosen "/debug_images/vector_image".



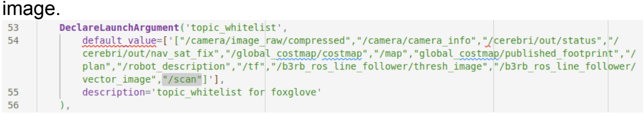
```python
	def __init__(self):
		super().__init__('edge_vectors_publisher')

		# Subscription for camera images.
		self.subscription_camera = self.create_subscription(
			CompressedImage,
			'/camera/image_raw/compressed',
			self.camera_image_callback,
			QOS_PROFILE_DEFAULT)

		# Publisher for edge vectors.
		self.publisher_edge_vectors = self.create_publisher(
			EdgeVectors,
			'/edge_vectors',
			QOS_PROFILE_DEFAULT)

		# Publisher for thresh image (for debug purposes).
		self.publisher_thresh_image = self.create_publisher(
			CompressedImage,
			"/debug_images/thresh_image",
			QOS_PROFILE_DEFAULT)

		# Publisher for vector image (for debug purposes).
		self.publisher_vector_image = self.create_publisher(
			CompressedImage,
			"/debug_images/vector_image",
			QOS_PROFILE_DEFAULT)
```

        ii. Now, pass this publisher (self.publisher_vector_image) and the image as arguments to the "**publish_debug_image**" function whenever you want to output your debug images.
        iii. cd ~/cognipilot/cranium
        iv. colcon build
        v. source install/setup.bash
        vi. Add the same topic name "/debug_images/vector_image" to the default_value of topic_whitelist in electrode/src/electrode/launch/electrode.launch.py as shown in the attached image.



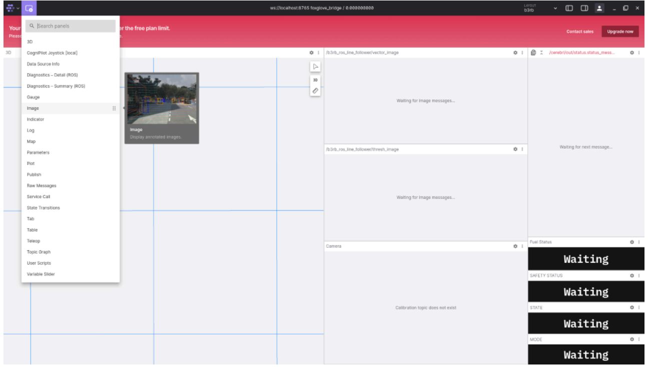
```python
    DeclareLaunchArgument('topic_whitelist',
        default_value=['["/camera/image_raw/compressed","/camera/camera_info","/cerebri/out/status","/cerebri/out/nav_sat_fix","/global_costmap/costmap","/map","global_costmap/published_footprint","/plan","/robot_description","/tf","/debug_images/thresh_image","/debug_images/vector_image", "/debug_images/object_recog", "/scan"]'],
        description='topic_whitelist for foxglove'
    ),
```

        vii. cd ~/cognipilot/electrode
        viii. colcon build
        ix. source install/setup.bash
    b. LIDAR Data:
        i. Add "/scan" to the default_value of topic_whitelist in electrode/src/electrode/launch/electrode.launch.py as shown in the attached image.

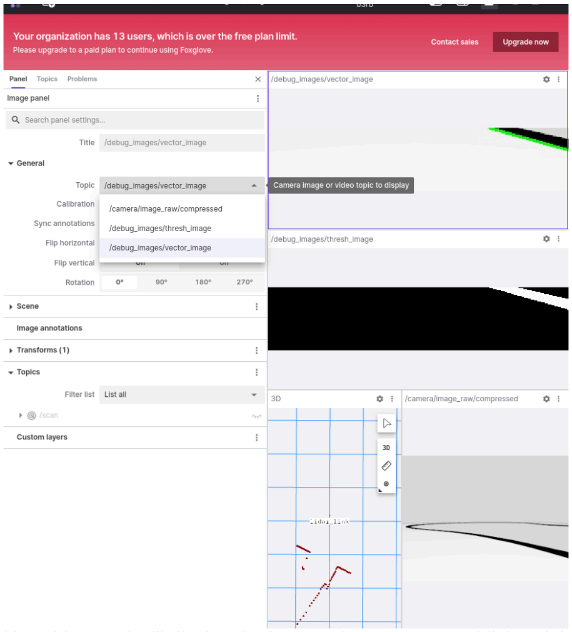


```python
    DeclareLaunchArgument('topic_whitelist',
        default_value=['["/camera/image_raw/compressed","/camera/camera_info","/cerebri/out/status","/cerebri/out/nav_sat_fix","/global_costmap/costmap","/map","global_costmap/published_footprint","/plan","/robot_description","/tf","/b3rb_ros_line_follower/thresh_image","/b3rb_ros_line_follower/vector_image","/scan"]'],
        description='topic_whitelist for foxglove'
    ),
```

        ii. cd ~/cognipilot/electrode
        iii. colcon build
        iv. source install/setup.bash
2. Launching Foxglove:
    a. ros2 launch electrode electrode.launch.py sim:=True
    b. Camera Data:
        i. Create a new Image panel as shown in the attached image.


ws://localhost:8765 foxglove_bridge / 0.000000000
LAYOUT
b3rb
Search panels
3D
CogniPilot Joystick [local]
Data Source Info
Diagnostics – Detail (ROS)
Diagnostics – Summary (ROS)
Gauge
Image
Indicator
Log
Map
Parameters
Plot
Publish
Raw Messages
Service Call
State Transitions
Tab
Table
Teleop
Topic Graph
User Scripts
Variable Slider
Image
Display annotated images.
Your
Please
r the free plan limit.
Contact sales
Upgrade now
3D
/b3rb_ros_line_follower/vector_image
Waiting for image messages...
/b3rb_ros_line_follower/thresh_image
Waiting for image messages...
Camera
Calibration topic does not exist
/cerebri/out/status.status_mess...
Waiting for next message...
Fuel Status
Waiting
SAFETY STATUS
Waiting
STATE
Waiting
MODE
Waiting

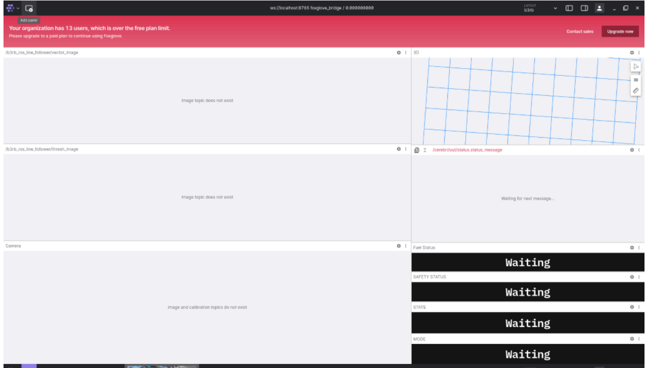
        ii. Then click on panel settings and select the topic for which you created a publisher in the "prerequisites" section.

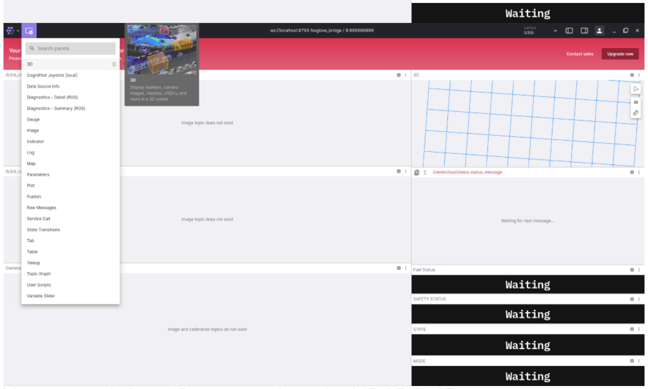

Your organization has 13 users, which is over the free plan limit.
Please upgrade to a paid plan to continue using Foxglove.
Contact sales
Upgrade now
Panel
Topics
Problems
Image panel
Search panel settings...
Title /debug_images/vector_image
General
Topic /debug_images/vector_image
Calibration
Sync annotations
Flip horizontal
Flip vertical
Rotation 0° 90° 180° 270°
/camera/image_raw/compressed
/debug_images/thresh_image
/debug_images/vector_image
Camera image or video topic to display
Scene
Image annotations
Transforms (1)
Topics
Filter list List all
/scan
Custom layers
/debug_images/vector_image
/debug_images/thresh_image
3D
/camera/image_raw/compressed
lidar_link

iii. Now this panel will display the image whenever you publish a debug image from your code to the said topic.

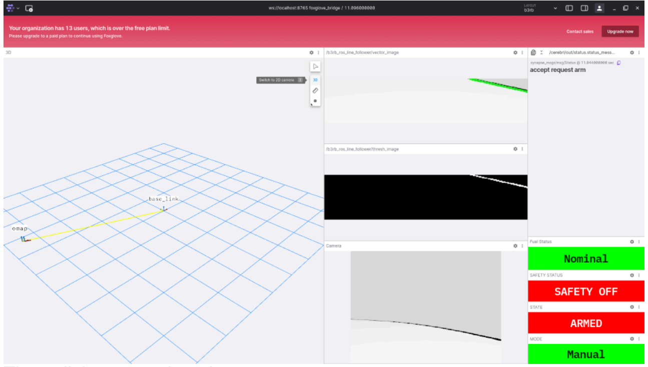
c. LIDAR Data:

i. Create a new 3D panel by clicking on the add panel button from the top-left corner as shown in the attached image.

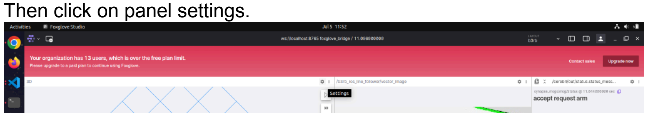

Your organization has 13 users, which is over the free plan limit.
Contact sales
Upgrade now
Image topic does not exist
3D
Waiting for next message...
Camera
Image and calibration topics do not exist
Waiting
Waiting
Waiting
Waiting

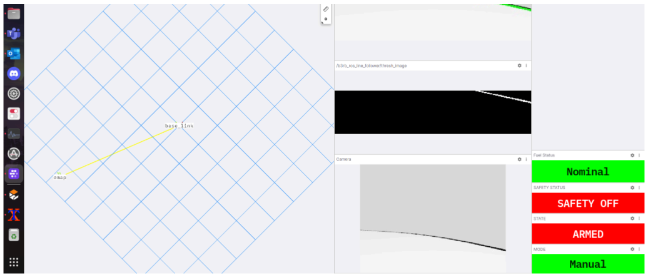


ii. You may switch to 2D camera since the LIDAR is 2D.

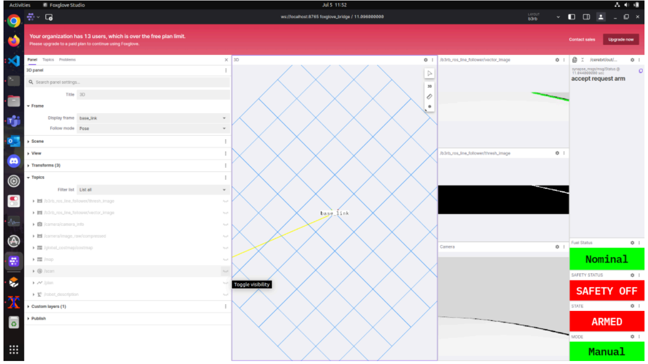


iii. Then click on panel settings.


Your organization has 13 users, which is over the free plan limit.
Settings
accept request arm

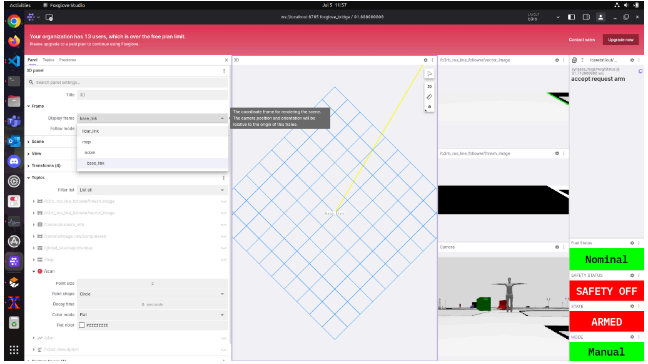


iv. Toggle visibility of "/scan" under Topics.



Your organization has 13 users, which is over the free plan limit.
Please upgrade to a paid plan to continue using Foxglove.

v. Then select "lidar_link" in Display frame under Frame.



Your organization has 13 users, which is over the free plan limit.
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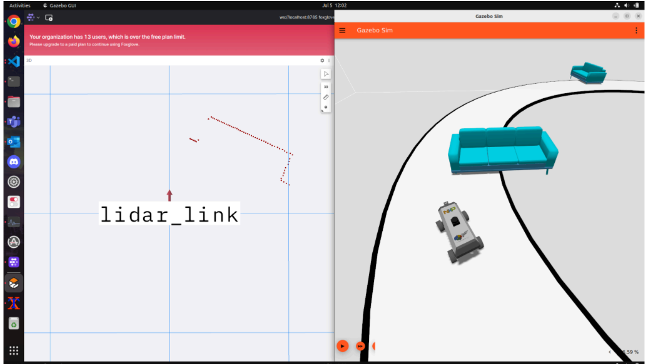
The coordinate frame for rendering the scene. The camera position and orientation will be relative to the origin of this frame.

Title: 3D
Display frame: base_link
Filter list: List all
Point size: 2
Point shape: Circle
Decay time: 0 seconds
Color mode: Flat
Flat color: #ffffffff

vi. You may close the panel settings after this.

vii. Please see the attached images for sample output.



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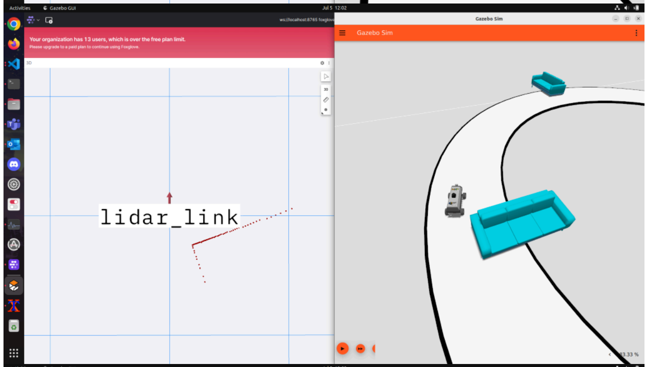
Please upgrade to a paid plan to continue using Foxglove.



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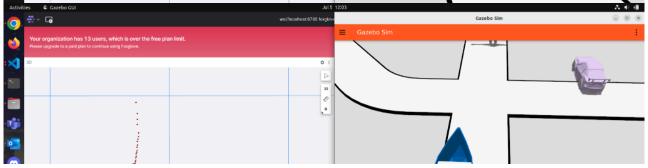

Your organization has 13 users, which is over the free plan limit.
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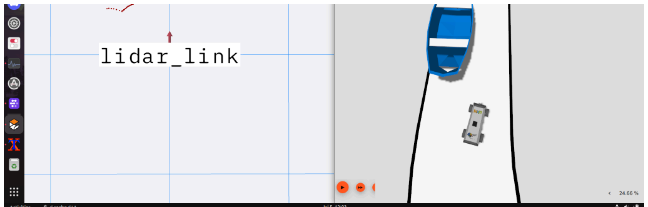

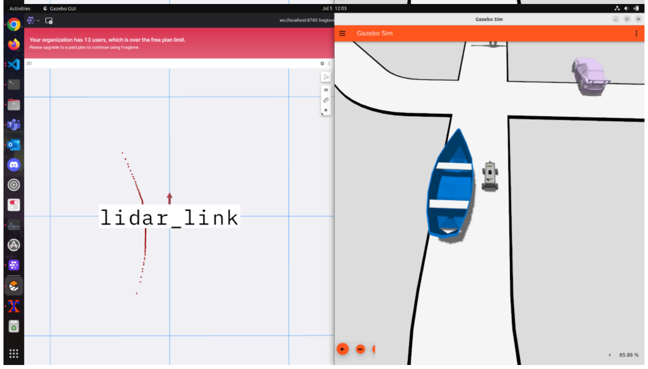

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Please upgrade to a paid plan to continue using Foxglove.