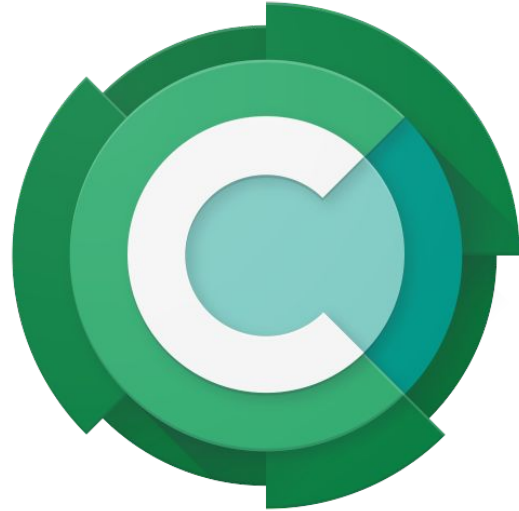


# Cartographer Open House

June 6, 2017



# What landed on master? • cartographer

- First unstable release ([#295](#)).
- Evolution:
  - Improvements to 3D loop closure detection ([#296](#)).
  - Simplified configuration of uncertainty ([#307](#), [#308](#), [#309](#))
- Lifelong:
  - Refactor multi-trajectory support to keep data separate for each trajectory ([#256](#)) in preparation of deletion of data from the optimization problem.
  - Beginnings of pure localization ([#283](#)).

# What landed on master? • cartographer\_ros

- Evolution:
  - Use intensities of [PointCloud2](#) in the asset\_writer ([#348](#)).
  - Added an assets pipeline demo for 3D ([#352](#)).
  - Better tuning for Revo LDS demo ([#362](#)) (demo).
- Trajectory visualization ([#360](#), joint venture between [Magazino](#) and [Juraj Oršulić](#)) (demo)
- Lifelong/Multi Robot
  - Enable multi-trajectory on ROS ([#346](#), [#358](#), both contributed by [TRI](#)).

# Demo • Trajectory Visualization

The screenshot displays the RViz interface for trajectory visualization. The central 3D view shows a white 3D model of a building layout with a blue trajectory overlaid. The trajectory starts at a red robot model and moves through the building's corridors and rooms. The interface includes a top toolbar with icons for Interact, Move Camera, Select, Focus Camera, Measure, 2D Pose Estimate, 2D Nav Goal, and Publish Point. On the left, the Displays panel lists various visual elements: Global Options, Global Status: Ok, Grid, TF, RobotModel, Submaps, PointCloud2, and MarkerArray. The Submaps section is expanded, showing parameters for /submap\_list and /scan\_matched\_points2. On the right, the Views panel shows the current view is TopDownOrtho (rvi) with a Zero zoom level. The Time panel at the bottom displays ROS Time: 1437125009.61, ROS Elapsed: 984.44, Wall Time: 1496926154.11, and Wall Elapsed: 499.47. The status bar at the bottom indicates 30 fps and includes experimental mode and control instructions.

File Panels Help

Interact Move Camera Select Focus Camera Measure 2D Pose Estimate 2D Nav Goal Publish Point

Displays

- Global Options
- Global Status: Ok
- Grid
- TF
- RobotModel
- Submaps
  - Status: Ok
  - Topic: /submap\_list
  - Unreliable
  - Submap query service: /submap\_query
  - Map frame
  - Tracking frame
  - Submaps
- PointCloud2
  - Status: Ok
  - Topic: /scan\_matched\_points2
  - Unreliable
  - Selectable
  - Style: Flat Squares
  - Size (m): 0.05
  - Alpha: 1
  - Decay Time: 0
  - Position Transformer: XYZ
  - Color Transformer: FlatColor
  - Queue Size: 10
  - Color: 0: 255: 0
- MarkerArray

Add Duplicate Remove Rename

Views

Type: TopDownOrtho (rvi) Zero

Current View	TopDownOrtho (rvi)
Near Clip Di...	0.01
Target Frame	<Fixed Frame>
Scale	26.4782
Angle	0
X	-6.50105
Y	-5.86022

Save Remove Rename

Time

ROS Time: 1437125009.61 ROS Elapsed: 984.44 Wall Time: 1496926154.11 Wall Elapsed: 499.47

Reset Left-Click: Rotate. Middle-Click: Move X/Y. Right-Click: Zoom. Shift: More options.

Experimental 30 fps

# What landed on master? • `point_cloud_viewer`

- Bug fixes, performance improvements.
- A second, native SDL2 based viewer.
- Gamma control [#23](#)
- Demo



# Current work

- Serialization of in-memory state ([#253](#))
- Pure localization ([#315](#))
- Submap deletion ([#283](#))
- Constraints visualization ([#361](#)).
- Landmarks ([#244](#))

Placeholder for other status reports

Help wanted!



# Thanks!

Next Open House:  
**June 22, 5pm CEST (8am PST)**

If you would like to present anything next meeting, please reach out to  
[hrapp@google.com](mailto:hrapp@google.com)