This page is stale and should be updated.

**ROS Topics**

This page is a description of all the topics we are using (or plan to use) on the sub. Below is a symbolic representation of data flow on the sub (with sensors as we have right now).

### Sensors

**/orientation**

Message: `geometry_msgs/Quaternion`

The current orientation of the sub, given as a quaternion. Any code wanting to know the sub's orientation should use this topic, not `/orientation/rpy`.

**/pretty/orientation**

Message: `robosub/Euler`

The current orientation of the sub, given in roll, pitch, yaw. This is meant just for human readability of the sub's orientation, code should use the `/orientation` topic.

**/depth**

Message: `std_msgs/Float32`

The current depth of the sub.

### Movement

**/thruster**

Message: `robosub/thruster`

Dynamic array of commands going to the thrusters. Order of the thrusters is dependent on their order in the settings file.
/control

Message: `robosub/control`  
Send messages to this topic to move the sub around, the control system subscribes to this topic.

/joystick_driver

Message: `robosub/joystick`  
This is the raw joystick state, published by the joystick driver. Shows the current state of all axes and buttons on the joystick.

/gamepad_driver

Message: `robosub/gamepad`  
This is the raw gamepad state, published by the gamepad driver. Shows the current state of all axes and buttons on the gamepad.

Vision

/camera/(left|right|bottom)/image

Message: `wfov_camera_msgs/WFOVImage`  
Images from our cameras.

/vision

Message: `rs_yolo/DetectionArray`  
Results of the deep vision processing system. It's a list detailing all the objects it sees.

Hydrophones

/hydrophones/[Frequency]/deltas

Message: Duplicated for all frequencies in the pool. Contains the latest time deltas between the reference and other 3 hydrophones.

<table>
<thead>
<tr>
<th>Header</th>
<th>header</th>
</tr>
</thead>
<tbody>
<tr>
<td>duration</td>
<td>d1</td>
</tr>
<tr>
<td>duration</td>
<td>d2</td>
</tr>
<tr>
<td>duration</td>
<td>d3</td>
</tr>
</tbody>
</table>
/hydrophones/[Frequency]/timestamps

Message: Duplicated for all frequencies in the pool. Contains the latest timestamps recorded by the system.

<table>
<thead>
<tr>
<th>Header header</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time ref</td>
</tr>
<tr>
<td>Time t1</td>
</tr>
<tr>
<td>Time t2</td>
</tr>
<tr>
<td>Time t3</td>
</tr>
</tbody>
</table>

/hydrophones/[Frequency]/debug

Message: Used for debugging the hydrophone system.

<table>
<thead>
<tr>
<th>Header header</th>
</tr>
</thead>
<tbody>
<tr>
<td>Int64 frequency</td>
</tr>
<tr>
<td>Int64 avg_sig_strength</td>
</tr>
<tr>
<td>Float64 approx_angle</td>
</tr>
</tbody>
</table>

/hydrophones/bearing

Message: geometry_msgs/Vector3Stamped
A 3-dimensional vector pointing at the pinger in $i,j,k$ notation.