# Tema 2. Frames and Maps - Robótica Móvil

## Herramientas de tf2

```
ros2 run tf2_tools view_frames.py
ros2 run tf2_ros tf2_echo \
  [source_frame] [target_frame]
ros2 run tf2_ros tf2_echo odom base_footprint
ros2 run tf2_ros tf2_echo odom base_link
ros2 run tf2_ros tf2_echo \
  base_footprint base_link
```

$$ {}^{I}P = {}^{I}T_{R} \cdot {}^{R}P $$

## Map

```
source /opt/ros/humble/setup.bash
export ROS_LOCALHOST_ONLY=1
rviz2 -d config_map.rviz
```

```
source /opt/ros/humble/setup.bash
export ROS_LOCALHOST_ONLY=1
ros2 launch map_server.launch.py
```

```
source /opt/ros/humble/setup.bash
export ROS_LOCALHOST_ONLY=1
ros2 run tf2_ros static_transform_publisher --x 1 --y 8 --z 0 \
  --qx 0 --qy 0 --qz 0 --qw 1 --frame-id map --child-frame-id odom
```

Esto es lo que vamos cambiando para ir ajustándolo a lo que queremos.

```
ros2 bag record /clock /map /odom /scan /tf /tf_static
```