1. Install MoveIt with
   1. Sudo apt-get install ros-indigo-moveit
2. Run the MoveIt setup assistant to create model files needed for moveit
   1. roslaunch moveit\_setup\_assistant setup\_assistant.launch
   2. Click “Create new MoveIt …” and browse for your urdf file
      1. On desktop in lab I used ~/catkin\_ws/src/schunk\_canopen\_driver/urdf/lwa4p/arm.urdf.xacro
      2. On laptop I used ~/catkin\_ws/src/schunk\_robots/schunk\_lwa4p/urdf/robot.urdf.xacro
   3. Click Load Files
   4. Click self collisions
      1. set sampling density to highest to compute intercollision optimizations for the motion planning tool
      2. Click Regenerate Default Collision Matrix
   5. Click Virtual Joints
      1. Type “virtual\_joint” for Virtual joint name
      2. Click “base\_link” for Child link
      3. Type “odom\_combined” for Parent Frame Name
      4. Click “planar” for Joint Type
   6. Click Planning Groups
      1. Type “Arm” for Group Name
      2. Choose KDLKinematicsPlugin for Kinematic Solver
      3. Leave Search Resolution, Search Timeout, and Solver Attempts as defaults
      4. Add all joints to Joints and all links to Links
   7. Click Robot Poses
      1. Create a desired pose if necessary
   8. Click End Effectors
      1. Name the end effector and choose arm\_6\_link as the end effector link
   9. Skip Passive Joints
   10. Enter Author Information
   11. Click Configuration Files
       1. Choose a path to save the configuration package
   12. Click Generate Package and exit