Move Robot via MoveIt

Thursday, November 23, 2023   1:22 PM

1. **Configure Network Connection**
   a. 192.168.255.10 / 255.255.255.0

2. **Started RC**
   a. On RC-Monitor was written: "**MotoROS2: Waiting for micro-ROS PC Agent (at udp://192.168.255.10:8888)**"

3. **Start micro-ROS via Docker**
   a. Open new Terminal
   b. Sudo docker run -it --rm --net=host microros/micro-ros-agent:humble udp4 --port 8888
   c. Should look like this
   d.
   ```
   lab@lab:~$ sudo docker run -it --rm --net=host microros/micro-ros-agent:humble udp4 --port 8888
   [sudo] password for lab:
   [1700750844.174311] info     | UDPv4AgentLinux.cpp | init                 | running...           | port: 8888
   [1700750844.174708] info     | Root.cpp            | set_verbose_level    | logger setup         | verbose_level: 4
   [1700750844.323948] info     | ProxyClient.cpp     | ProxyClient          | session hard timeout enabled | client_key: 0x73EB1C20, timeout: 10000 ms
   [1700750844.323982] info     | Root.cpp            | create_client        | create               | client_key: 0x73EB1C20, session_id: 0x81
   [1700750844.324039] info     | SessionManager.hpp  | establish_session    | session established  | client_key: 0x73EB1C20, address: 192.168.255.9:7618
   [1700750844.356132] info     | ProxyClient.cpp     | create_participant   | participant created  | client_key: 0x73EB1C20, participant_id: 0x000(1)
   [1700750844.369478] info     | ProxyClient.cpp     | create_topic         | topic created        | client_key: 0x73EB1C20, topic_id: 0x000(2), participant_id: 0x000(1)
   [1700750844.371788] info     | ProxyClient.cpp     | create_publisher     | publisher created    | client_key: 0x73EB1C20, publisher_id: 0x000(3), participant_id: 0x000(1)
   [1700750844.374100] info     | ProxyClient.cpp     | create_datawriter    | datawriter created   | client_key: 0x73EB1C20, datawriter_id: 0x000(5), publisher_id: 0x000(3)
   [1700750844.434073] info     | ProxyClient.cpp     | create_topic         | topic created        | client_key: 0x73EB1C20, topic_id: 0x001(2), participant_id: 0x000(1)
   [1700750844.437374] info     | ProxyClient.cpp     | create_publisher     | publisher created    | client_key: 0x73EB1C20, publisher_id: 0x001(3), participant_id: 0x000(1)
   [1700750844.439660] info     | ProxyClient.cpp     | create_datawriter    | datawriter created   | client_key: 0x73EB1C20, datawriter_id: 0x001(5), publisher_id: 0x001(3)
   [1700750844.442154] info     | ProxyClient.cpp     | create_topic         | topic created        | client_key: 0x73EB1C20, topic_id: 0x002(2), participant_id: 0x000(1)
   [1700750844.444693] info     | ProxyClient.cpp     | create_publisher     | publisher created    | client_key: 0x73EB1C20, publisher_id: 0x002(3), participant_id: 0x000(1)
   [1700750844.447052] info     | ProxyClient.cpp     | create_datawriter    | datawriter created   | client_key: 0x73EB1C20, datawriter_id: 0x002(5), publisher_id: 0x002(3)
   [1700750844.449325] info     | ProxyClient.cpp     | create_topic         | topic created        | client_key: 0x73EB1C20, topic_id: 0x003(2), participant_id: 0x000(1)
   [1700750844.451346] info     | ProxyClient.cpp     | create_publisher     | publisher created    | client_key: 0x73EB1C20, publisher_id: 0x003(3), participant_id: 0x000(1)
   [1700750844.454283] info     | ProxyClient.cpp     | create_datawriter    | datawriter created   | client_key: 0x73EB1C20, datawriter_id: 0x003(5), publisher_id: 0x003(3)
   [1700750844.457910] info     | ProxyClient.cpp     | create_replier       | replier created      | client_key: 0x73EB1C20, requester_id: 0x000(7), participant_id: 0x000(1)
   [1700750844.460704] info     | ProxyClient.cpp     | create_replier       | replier created      | client_key: 0x73EB1C20, requester_id: 0x001(7), participant_id: 0x000(1)
   [1700750844.464597] info     | ProxyClient.cpp     | create_replier       | replier created      | client_key: 0x73EB1C20, requester_id: 0x002(7), participant_id: 0x000(1)
   [1700750844.467289] info     | ProxyClient.cpp     | create_topic         | topic created        | client_key: 0x73EB1C20, topic_id: 0x004(2), participant_id: 0x000(1)
   [1700750844.469561] info     | ProxyClient.cpp     | create_publisher     | publisher created    | client_key: 0x73EB1C20, publisher_id: 0x004(3), participant_id: 0x000(1)
   [1700750844.472177] info     | ProxyClient.cpp     | create_datawriter    | datawriter created   | client_key: 0x73EB1C20, datawriter_id: 0x004(5), publisher_id: 0x004(3)
   [1700750844.476765] info     | ProxyClient.cpp     | create_topic         | topic created        | client_key: 0x73EB1C20, topic_id: 0x005(2), participant_id: 0x000(1)
   [1700750844.478831] info     | ProxyClient.cpp     | create_publisher     | publisher created    | client_key: 0x73EB1C20, publisher_id: 0x005(3), participant_id: 0x000(1)
   [1700750844.481387] info     | ProxyClient.cpp     | create_datawriter    | datawriter created   | client_key: 0x73EB1C20, datawriter_id: 0x005(5), publisher_id: 0x005(3)
   [1700750844.514876] info     | ProxyClient.cpp     | create_replier       | replier created      | client_key: 0x73EB1C20, requester_id: 0x003(7), participant_id: 0x000(1)
   [1700750844.520629] info     | ProxyClient.cpp     | create_replier       | replier created      | client_key: 0x73EB1C20, requester_id: 0x004(7), participant_id: 0x000(1)
   [1700750844.523726] info     | ProxyClient.cpp     | create_replier       | replier created      | client_key: 0x73EB1C20, requester_id: 0x005(7), participant_id: 0x000(1)
   [1700750844.527476] info     | ProxyClient.cpp     | create_replier       | replier created      | client_key: 0x73EB1C20, requester_id: 0x006(7), participant_id: 0x000(1)
   [1700750844.530997] info     | ProxyClient.cpp     | create_replier       | replier created      | client_key: 0x73EB1C20, requester_id: 0x007(7), participant_id: 0x000(1)
   [1700750844.534268] info     | ProxyClient.cpp     | create_replier       | replier created      | client_key: 0x73EB1C20, requester_id: 0x008(7), participant_id: 0x000(1)
   [1700750844.538041] info     | ProxyClient.cpp     | create_replier       | replier created      | client_key: 0x73EB1C20, requester_id: 0x009(7), participant_id: 0x000(1)
   [1700750844.541463] info     | ProxyClient.cpp     | create_replier       | replier created      | client_key: 0x73EB1C20, requester_id: 0x00A(7), participant_id: 0x000(1)
   [1700750844.543631] info     | ProxyClient.cpp     | create_replier       | replier created      | client_key: 0x73EB1C20, requester_id: 0x00B(7), participant_id: 0x000(1)
   [1700750844.546027] info     | ProxyClient.cpp     | create_replier       | replier created      | client_key: 0x73EB1C20, requester_id: 0x00C(7), participant_id: 0x000(1)
   [1700750844.551033] info     | ProxyClient.cpp     | create_replier       | replier created      | client_key: 0x73EB1C20, requester_id: 0x00D(7), participant_id: 0x000(1)
   [1700750844.553355] info     | ProxyClient.cpp     | create_replier       | replier created      | client_key: 0x73EB1C20, requester_id: 0x00E(7), participant_id: 0x000(1)
   ```
   e. If this is not the case, try to ping RC "ping 192.168.255.9"

4. **Check if MotoROS2 and micro-ROS agent communicated with each other**
   a. Open new Terminal
   b. cd colcon_starter_ws
   c. source install/setup.bash
   d. ros2 node list
      i.
      ```
      lab@lab:~/colcon_starter_ws$ ros2 node list
      /yaskawa/motoman_ros2
      ```

5. **Enable Moto Drives**
   a. Pendant need to be in *"remote"* mode
   b. New Terminal
   c. cd colcon_starter_ws/
   d. source install/setup.bash
   e. ros2 run cpp_pubsub enable_client

6. **Launch MoveIt**
   a. New Terminal
   b. cd colcon_starter_ws/
   c. source install/setup.bash
   d. ros2 launch moveit_resources_moto_moveit_config xy_start.launch.py

7. **Move Robot**
   a. Robot can be moved by dragging around in Rviz
   b. Press "Plan&Execute" for moving the robot