

## Using ROS with Docker

### Recommended Steps

1. Make sure u have installed docker properly
2. Pull a proper image, u may find an ros image with the links below:
  - [dockerhub-osrf/ros](#)
  - [atomhub-ros](#)
3. Create a container based on the image you pulled, a recommended command is as below:

```
1 docker run -it --privileged=true --network=host -p 11311:11311 --env="
  DISPLAY" --env="QT_X11_NO_MITSHM=1" --name <your_container_name> <
  image_name_or_image_id>
```

e.g.

```
1 docker run -it --privileged=true --network=host -p 11311:11311 --env="
  DISPLAY" --env="QT_X11_NO_MITSHM=1" --name docker-ros2 osrf/ros:
  humble-desktop-full
```

4. Start & Enter the container, and regist a non-root user:

```
1 # Start Container
2 docker container start <your_container_name>
3
4 # Interact with the Container
5 docker exec -it <your_container_name> /bin/bash
```

- Create a non-root user: ref

5. Enter the container with the non-root user and your favirate shell (bash, zsh, fish, blabla...)

```
1 # For bash
2 docker exec --user <your_created_non_root_user> -it <
  your_container_name> /bin/bash
3
4 # For zsh, make sure zsh is installed in the container
5 docker exec --user <your_created_non_root_user> -it <
  your_container_name> /usr/bin/zsh
```

5. Set aliases for quicker oprations:

For me, I like using aliases to eaze my fingers. You may check these three aliases, add them into your shell configuration (maybe .bashrc, bash\_aliases, .zshrc, blabla...)

```
1 # Let's say I have not installed ros2 in my local machine, I want to
  use ros2 in a container
2 # the container is called "docker-ros2", user name is "spiderman",
  shell is zsh
3 alias ros2_start_container='docker container start docker-ros2'
4 alias ros2_stop_container='docker container stop docker-ros2'
5 alias ros2='exec --user spiderman -it docker-ros2 /user/bin/zsh'
```

Every time u use the container:

- First, run `ros2_start_container` to start the container
- Then run `ros2` in a new terminal to enter the container, then enjoy it
- When I want to shut down the container `docker-ros2`, simply run `ros2_stop_container`