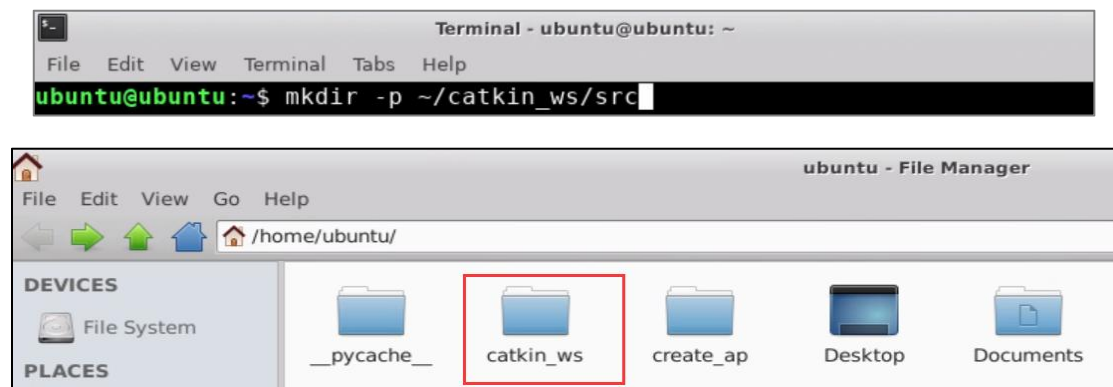


## Lesson 4 Create Workspace and Package

The creation of messages and services, the writing of publishers and subscribers, the writing of servers and clients all operate on the basis of ROS function packages, so it is necessary to create workspace and function packages before performing the operations above.

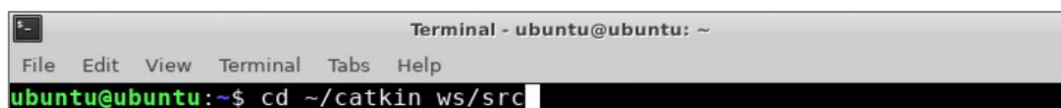
### 1. Create Workspace

- 1) Open the terminal.
- 2) Input “mkdir -p ~/catkin\_ws/src” command and press “Enter” to create a workspace named catkin\_ws under the specified directory.



### 2. Create ROS Package

- 1) Input “cd ~/catkin\_ws/src” command, and then press “Enter” to come to the source file space (src) directory of catkin\_ws.



- 2) Input “catkin\_create\_pkg beginner\_hiwonder std\_msgs rospy roscpp” command, and then press “Enter” to create function package named

“beginner\_hiwonder” and add dependencies (msgs, rospy, roscpp).

```
Terminal - ubuntu@ubuntu: ~/catkin_ws/src
File Edit View Terminal Tabs Help
ubuntu@ubuntu:~/catkin_ws/src$ catkin_create_pkg beginner_hiwonder std_msgs rospy roscpp
Created file beginner_hiwonder/package.xml
Created file beginner_hiwonder/CMakeLists.txt
Created folder beginner_hiwonder/include/beginner_hiwonder
Created folder beginner_hiwonder/src
Successfully created files in /home/ubuntu/catkin_ws/src/beginner_hiwonder. Please adjust the values
in package.xml.
```

3) Input “cd ~/catkin\_ws” command and press “Enter” to back to workspace.

```
Terminal - ubuntu@ubuntu: ~/catkin_ws/src/beginner_hiwonder
File Edit View Terminal Tabs Help
ubuntu@ubuntu:~/catkin_ws/src/beginner_hiwonder$ cd ~/catkin_ws
```

4) Input “catkin\_make” command and press “Enter” to complete the creation of function package in catkin workspace.

```
Terminal - ubuntu@ubuntu: ~/catkin_ws
File Edit View Terminal Tabs Help
ubuntu@ubuntu:~/catkin_ws$ catkin_make

-- traversing 1 packages in topological order:
-- ~ - beginner_hiwonder
--
-- +++ processing catkin package: 'beginner_hiwonder'
-- ==> add_subdirectory(beginner_hiwonder)
-- Configuring done
-- Generating done
-- Build files have been written to: /home/ubuntu/catkin_ws/build
####
#### Running command: "make -j4 -l4" in "/home/ubuntu/catkin_ws/build"
####
```

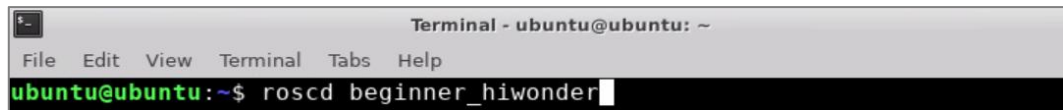
5) Input “echo “source ~/catkin\_ws/devel/setup.bash” >> ~/.bashrc” command to add catkin\_ws workspace to ROS enviroment, which the creation of function package is completed.

```
Terminal - ubuntu@ubuntu: ~
File Edit View Terminal Tabs Help
ubuntu@ubuntu:~$ echo "source ~/catkin_ws/devel/setup.bash" >> ~/.bashrc
```

6) Input “source ~/.bashrc” command and press “Enter” to add the path.

```
Terminal - ubuntu@ubuntu: ~
File Edit View Terminal Tabs Help
ubuntu@ubuntu:~$ source ~/.bashrc
```

- 7) Input “roscd beginner\_hiwonder” command to enter the directory of function package and press “Enter” to verify whether the function package is created.

A screenshot of a terminal window titled "Terminal - ubuntu@ubuntu: ~". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". The terminal prompt is "ubuntu@ubuntu:~\$". The command "roscd beginner\_hiwonder" has been entered, and a cursor is visible at the end of the command.

```
Terminal - ubuntu@ubuntu: ~
File Edit View Terminal Tabs Help
ubuntu@ubuntu:~$ roscd beginner_hiwonder
```