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引用其他包的msg

首先cmakelists.txt

```
find_package(catkin REQUIRED COMPONENTS
  message_generation
  pcl_ros
  roscpp
  rospy
  std_msgs
  wjj
)

catkin_package(
  INCLUDE_DIRS include
  CATKIN_DEPENDS message_runtime pcl_ros roscpp rospy std_msgs wjj
)

add_dependencies(teaching
${catkin_EXPORTED_TARGETS}
wjj_gencpp)
```

再者package.xml

```
<build_depend>wjj</build_depend>
<exec_depend>wjj</exec_depend>
```

最后使用

```
#include <wjJ/SaeJ1939.h>
```

sudo rosdep init & rosdep update 失败

该解决方案是针对由于以下两个无法正常访问，但可以ping通，于是修改hosts文件，加入以下两个网址的IP地址实现访问。

'sudo gedit /etc/hosts'

添加

```
199.232.28.133 raw.githubusercontent.com
151.101.228.133 raw.githubusercontent.com
```

修改完成后，在终端执行

```
sudo rosdep init
rosdep update
```

vscode python ros debug

首先

```
catkin_make -DCMAKE_BUILD_TYPE=DEBUG
```

其次点击debug按钮，选择生成新的launch文件。

debug时遇到路径问题,例如rosmmsg路径，最好在文件属性里复制路径，不然容易出错

```
import sys
sys.path.append("/home/pmjd/Downloads/catkin_ws/devel/lib/python2.7/dist-packages")
```

Error: package 'teleop_twist_keyboard' not found

You need to download the teleop_twist_keyboard from the github to your ~/catkin_ws/src folder. Steps:

1. `cd ~/catkin_ws/src`
2. `git clone https://github.com/ros-teleop/teleop_twist_keyboard`

Spawn service failed. Exiting.

```
export ROS_MASTER_URI=http://promote-OMEN-by-HP-Laptop-17-cb1xxx:11311/
```

createQuaternionFromRPY

```
static geometry_msgs::Quaternion createQuaternionFromRPY(double roll, double pitch, double yaw) { geometry_msgs::Quaternion q; double t0 = cos(yaw * 0.5); double t1 = sin(yaw * 0.5); double t2 = cos(roll * 0.5); double t3 = sin(roll * 0.5); double t4 = cos(pitch * 0.5); double t5 = sin(pitch * 0.5); q.w = t0 * t2 * t4 + t1 * t3 * t5; q.x = t0 * t3 * t4 - t1 * t2 * t5; q.y = t0 * t2 * t5 + t1 * t3 * t4; q.z = t1 * t2 * t4 - t0 * t3 * t5; return q; }
```

launch 启动 rviz

```
<launch>
  <node type="rviz" name="rviz" pkg="rviz" args="-d $(find package_name)/rviz/config_file.rviz" />
</launch>
```

rosdep失败

首先`sudo rosdep init`

这一步会在`/etc/ros/rosdep/sources.list.d/`目录下新建`20-default.list`

```
# os-specific listings first
yaml https://raw.githubusercontent.com/ros/rosdistro/master/rosdep/osx-homebrew.yaml osx

# generic
yaml https://raw.githubusercontent.com/ros/rosdistro/master/rosdep/base.yaml
yaml https://raw.githubusercontent.com/ros/rosdistro/master/rosdep/python.yaml
yaml https://raw.githubusercontent.com/ros/rosdistro/master/rosdep/ruby.yaml
gbpdistro
https://raw.githubusercontent.com/ros/rosdistro/master/releases/fuerte.yaml
fuerte

# newer distributions (Groovy, Hydro, ...) must not be listed anymore, they
are being fetched from the rosdistro index.yaml instead
```

我们需要依次下载`osx-homebrew.yaml`等这几个`yaml`文件, [下载工具](#), 存放在`/home/promote/Downloads`目录下

然后更改`20-default.list`为

```
# os-specific listings first
yaml file:///home/promote/Downloads/2021-04-01-14-01-21-master-osx-homebrew.yaml osx

# generic
yaml file:///home/promote/Downloads/2021-04-01-14-02-25-master-base.yaml
yaml file:///home/promote/Downloads/2021-04-01-14-05-35-master-python.yaml
yaml file:///home/promote/Downloads/2021-04-01-14-06-50-master-ruby.yaml
gbpdistro file:///home/promote/Downloads/2021-04-01-14-07-41-master-fuerte.yaml fuerte

# newer distributions (Groovy, Hydro, ...) must not be listed anymore, they
are being fetched from the rosdistro index.yaml instead
```

还需要使用`mate-search-tool` 在`/usr/lib/`目录下找到包含`DEFAULT_INDEX_URL`的`py`文件。`/usr/lib/python2.7/dist-packages/rosdistro/__init__.py`

找到代码行

```
DEFAULT_INDEX_URL =
'https://raw.githubusercontent.com/ros/rosdistro/master/index-v4.yaml'
```

同样我们下载index-v4.yaml文件至/home/promote/Downloads，把此行代码改为

```
# DEFAULT_INDEX_URL =  
'https://raw.githubusercontent.com/ros/rosdistro/master/index-v4.yaml'  
DEFAULT_INDEX_URL = 'file:/home/promote/Downloads/2021-04-01-14-51-42-  
rosdistro-index-v4.yaml'
```

这时再运行rosdep update

会提示No such file or directory:

```
'/home/promote/Downloads/dashing/distribution.yaml'
```

我们需要下载

<https://raw.githubusercontent.com/ros/rosdistro/master/dashing/distribution.yaml>

在/home/promote/Downloads目录下新建文件夹dashing，并把下载的yaml文件放入dashing文件夹下重命名为distribution.yaml

重复上一步，依次下载完dashing, kinetic, melodic, rolling, noetic, foxy等

再运行rosdep update就成功了

ros node 打包

安装依赖

Install bloom:

```
sudo apt-get install python-bloom
```

or (recommended)

```
sudo pip install -U bloom
```

Install fakeroot:

```
sudo apt-get install fakeroot
```

准备

To make a debian folder structure from the ROS package you must cd into the package to be in the same folder where `package.xml` file is.

生成debian包

```
bloom-generate rosdebian --os-name ubuntu --os-version trusty --ros-distro  
indigo
```