

Ros环境下安装vrpn-client

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环境要求

安装步骤

1. 拷贝文件至ros工作路径下解压
2. 安装vrpn_client_ros
3. 返回工作空间编译
4. 编译完成后，需要更新.bash
5. 运行代码
 - 方式一
 - 方式二
 - 注意事项
6. 查看接收到的数据
 - 提示信息

异常情况

1. 没有数据信息

示例代码

CPP

联系方式

环境要求

1. 支持[ROS Melodic Morenia](#)以及[ROS Kinetic Kame](#)（测试环境是Melodic。Kinetic之前的版本可能不兼容）

安装步骤

1. 拷贝文件至ros工作路径下解压

```
happy@ubuntu: ~/soft/first_ws/src
文件(F) 编辑(E) 查看(V) 搜索(S) 终端(T) 帮助(H)
happy@ubuntu:~/soft/first_ws$ ls
build  devel  src
happy@ubuntu:~/soft/first_ws$ cd src/
happy@ubuntu:~/soft/first_ws/src$ ls
CMakeLists.txt  vrpn_client_ros.tar.xz
happy@ubuntu:~/soft/first_ws/src$ tar -xvf vrpn_client_ros.tar.xz
vrpn_client_ros/
vrpn_client_ros/CHANGELOG.rst
vrpn_client_ros/CMakeLists.txt
vrpn_client_ros/include/
vrpn_client_ros/include/vrpn_client_ros/
vrpn_client_ros/include/vrpn_client_ros/vrpn_client_ros.h
vrpn_client_ros/launch/
vrpn_client_ros/launch/sample.launch
vrpn_client_ros/launch/listener.launch
vrpn_client_ros/package.xml
vrpn_client_ros/src/
vrpn_client_ros/src/vrpn_client_node.cpp
vrpn_client_ros/src/vrpn_client_ros.cpp
vrpn_client_ros/src/vrpn_tracker_node.cpp
happy@ubuntu:~/soft/first_ws/src$ ls
CMakeLists.txt  vrpn_client_ros  vrpn_client_ros.tar.xz
```

2.安装vrpn_client_ros

kinetic下安装

```
1 | sudo apt-get install ros-kinetic-vrpn-client-ros
```

melodic下安装

```
1 | sudo apt-get install ros-melodic-vrpn-client-ros
```

```
happy@ubuntu:~$ sudo apt-get install ros-melodic-vrpn-client-ros
[sudo] happy 的密码:
正在读取软件包列表... 完成
正在分析软件包的依赖关系树
正在读取状态信息... 完成
下列软件包将被升级:
  ros-melodic-vrpn-client-ros
升级了 1 个软件包, 新安装了 0 个软件包, 要卸载 0 个软件包, 有 191 个软件包未被升级。
需要下载 101 kB 的归档。
解压缩后会消耗 0 B 的额外空间。
获取:1 http://mirrors.ustc.edu.cn/ros/ubuntu bionic/main amd64 ros-melodic-vrpn-client-ros amd64 0.2.2-0bionic.20200930.060827 [101 kB]
已下载 101 kB, 耗时 0秒 (808 kB/s)
(正在读取数据库 ... 系统当前共安装有 251081 个文件和目录。)
正准备解包 .../ros-melodic-vrpn-client-ros_0.2.2-0bionic.20200930.060827_amd64.deb ...
正在将 ros-melodic-vrpn-client-ros (0.2.2-0bionic.20200930.060827) 解包到 (0.2.2-0bionic.20200821.180444) 上 ...
正在设置 ros-melodic-vrpn-client-ros (0.2.2-0bionic.20200930.060827) ...
```

3.返回工作空间编译

```
1 | happy@ubuntu:~/soft/first_ws/src$ cd ..
2 | happy@ubuntu:~/soft/first_ws$ pwd
3 | /home/happy/soft/first_ws
4 | happy@ubuntu:~/soft/first_ws$ catkin_make
```

```
happy@ubuntu: ~/soft/first_ws
文件(F) 编辑(E) 查看(V) 搜索(S) 终端(T) 帮助(H)
happy@ubuntu:~/soft/first_ws/src$ cd ..
happy@ubuntu:~/soft/first_ws$ pwd
/home/happy/soft/first_ws
happy@ubuntu:~/soft/first_ws$ catkin_make
Base path: /home/happy/soft/first_ws
Source space: /home/happy/soft/first_ws/src
Build space: /home/happy/soft/first_ws/build
Devel space: /home/happy/soft/first_ws/devel
Install space: /home/happy/soft/first_ws/install
####
#### Running command: "cmake /home/happy/soft/first_ws/src -DCATKIN_DEVEL_PREFIX=
/home/happy/soft/first_ws/devel -DCMAKE_INSTALL_PREFIX=/home/happy/soft/first_ws/
install -G Unix Makefiles" in "/home/happy/soft/first_ws/build"
####
-- Using CATKIN_DEVEL_PREFIX: /home/happy/soft/first_ws/devel
-- Using CMAKE_PREFIX_PATH: /opt/ros/melodic
-- This workspace overlays: /opt/ros/melodic
-- Found PythonInterp: /usr/bin/python2 (found suitable version "2.7.17", minimum
required is "2")
-- Using PYTHON_EXECUTABLE: /usr/bin/python2
-- Using Debian Python package layout
-- Using empy: /usr/bin/empy
-- Using CATKIN_ENABLE_TESTING: ON
```

4.编译完成后，需要更新.bash

```
1 | source devel/setup.bash
```

5.运行代码

运行程序前，请确认ros的工作路径。建议每次启动前在准备使用的工程目录下执行步骤4。

方式一

```
1 | roslaunch vrpn_client_ros sample.launch server:=192.168.3.137
```

roslaunch vrpn_client_ros [launch文件下的launch文件] server:=192.168.3.137

默认的sample.launch，运行后会自行检索对应的vrpn,成功匹配到以后会出现下图内容

```
[ INFO] [1602570295.890009653]: Connection established
[ INFO] [1602570296.892478577]: Found new sender: MCServer
[ INFO] [1602570296.892784404]: Creating new tracker MCServer
```

```
happy@ubuntu:~/soft/first_ws$ roslaunch vrpn_client_ros sample.launch server:=192.168.3.137
... logging to /home/happy/.ros/log/724badf6-0cfe-11eb-9406-000c29ac280d/roslaunch-ubuntu-7009.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://ubuntu:35685/

SUMMARY
=====
PARAMETERS
* /rostdistro: melodic
* /rosversion: 1.14.9
* /vrpn_client_node/broadcast_tf: True
* /vrpn_client_node/frame_id: world
* /vrpn_client_node/port: 3883
* /vrpn_client_node/refresh_tracker_frequency: 1.0
* /vrpn_client_node/server: 192.168.3.137
* /vrpn_client_node/update_frequency: 100.0
* /vrpn_client_node/use_server_time: False

NODES
/
  vrpn_client_node (vrpn_client_ros/vrpn_client_node)

ROS_MASTER_URI=http://localhost:11311

process[vrpn_client_node-1]: started with pid [7024]
[ INFO] [1602570295.881733656]: Connecting to VRPN server at 192.168.3.137:3883
check_vrpn_cookie(): VRPN Note: minor version number doesn't match: (prefer 'vrpn: ver. 07.34', got 'vrpn: ver. 07.30 0'). This is not normally a problem.
[ INFO] [1602570295.890009653]: Connection established
[ INFO] [1602570296.892478577]: Found new sender: MCServer
[ INFO] [1602570296.892784404]: Creating new tracker MCServer
```

方式二

先修改vrpn_client_ros/launch文件,如下图

```
1 | sensor_id:true//启用物体id标识
```

```

1 <launch>
2
3   <arg name="server" default="localhost" />
4
5   <node pkg="vrpn_client_ros" type="vrpn_client_node" name="vrpn_client_node" output="screen">
6     <rosparam subst value="true">
7       server: $(arg server)
8       port: 3883
9
10      update_frequency: 100.0
11      frame_id: world
12
13      # Use the VRPN server's time, or the client's ROS time.
14      use_server_time: false
15      broadcast_tf: true
16
17      # Must either specify refresh frequency > 0.0, or a list of trackers to create
18      refresh_tracker_frequency: 1.0
19      #trackers:
20      #- FirstTracker
21      #- SecondTracker
22    </rosparam>
23  </node>
24
25 </launch>

```

替换为服务端的ip

可写可不写，如要修改，请修改为与服务端服务名一致：MCServer（可以通过服务端配置修改）

```
1 | roslaunch vrpn_client_ros sample.launch
```

```

happy@ubuntu:~/soft/first_ws$ clear
happy@ubuntu:~/soft/first_ws$ source devel/setup.bash
happy@ubuntu:~/soft/first_ws$ roslaunch vrpn_client_ros listener.launch
... logging to /home/happy/.ros/log/467c1e4a-0d35-11eb-83e3-00c29ac280d/roslaunch-ubuntu-3011.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://ubuntu:42901/

SUMMARY
=====
PARAMETERS
* /rostdistro: melodic
* /rosversion: 1.14.9
* /vrpn_client_node/broadcast_tf: True
* /vrpn_client_node/frame_id: world
* /vrpn_client_node/port: 3883
* /vrpn_client_node/refresh_tracker_frequency: 1.0
* /vrpn_client_node/server: 192.168.3.137
* /vrpn_client_node/update_frequency: 100.0
* /vrpn_client_node/use_server_time: False

NODES
/
  vrpn_client_node (vrpn_client_ros/vrpn_client_node)

ROS_MASTER_URI=http://localhost:11311

process[vrpn_client_node-1]: started with pid [3026]
[ INFO] [1602582953.770675685]: Connecting to VRPN server at 192.168.3.137:3883
[ INFO] [1602582953.777319967]: Connection established
check_vrpn_cookie(): VRPN Note: minor version number doesn't match: (prefer 'vrpn: ver. 07.34', got 'vrpn: ver. 07.30 0'). This is not
normally a problem.
[ INFO] [1602582954.781262153]: Found new sender: MCServer
[ INFO] [1602582954.781712719]: Creating new tracker MCServer

```

注意事项

如果是虚拟机下运行ros，可能会出现找不到发送的者的情况仅出现

```
[ INFO] [1602582346.683577053]: Connection established
```

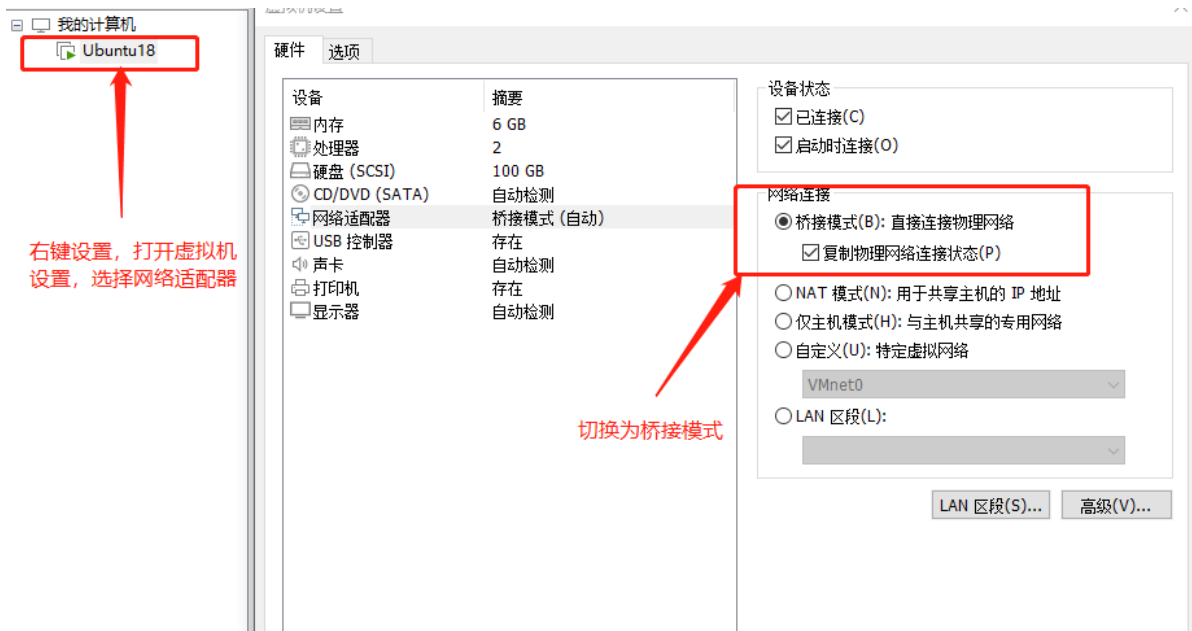
而没有后面两条

```
[ INFO] [1602582347.703744913]: Found new sender: MCServer
```

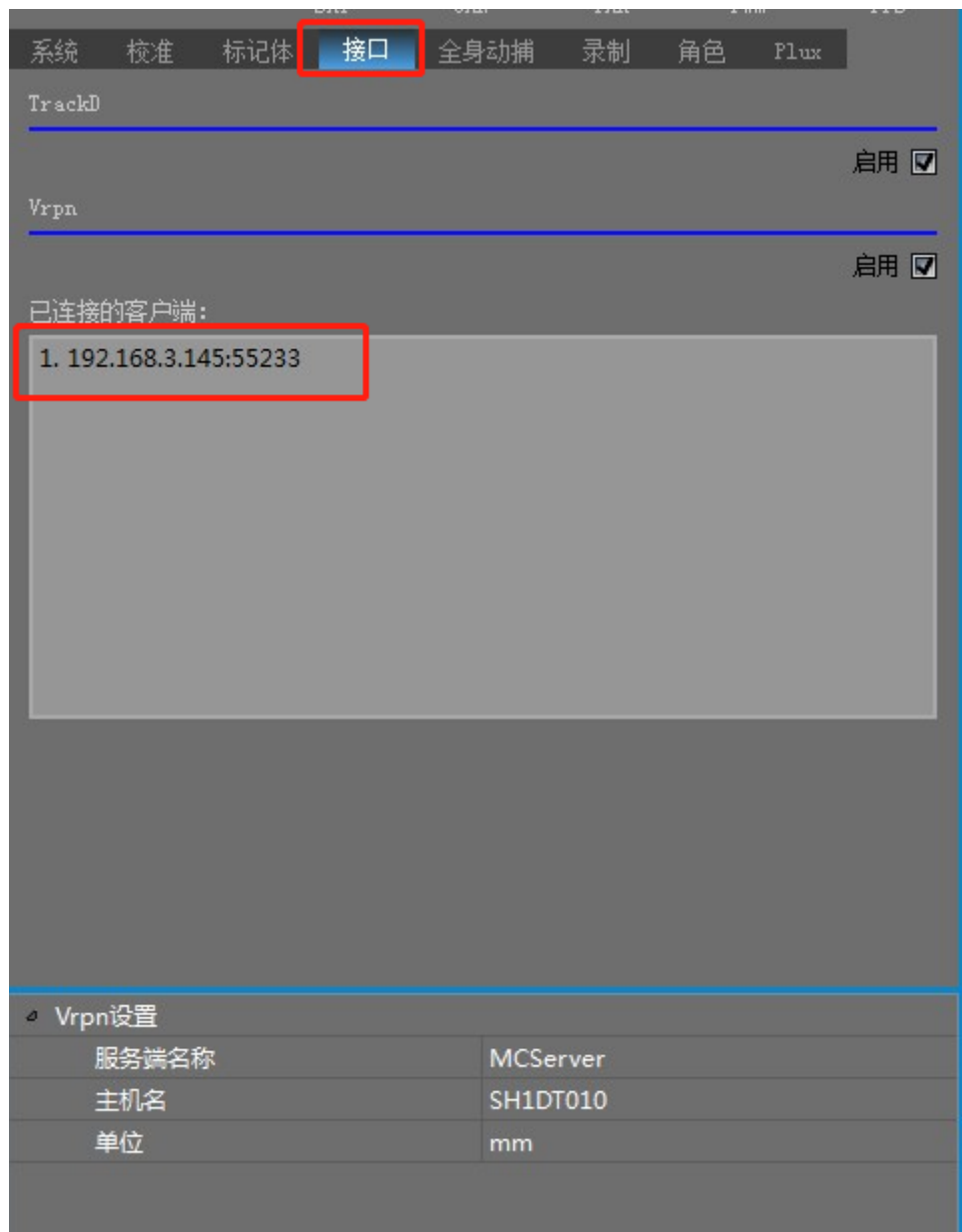
```
[ INFO] [1602582347.704082242]: Creating new tracker MCServer
```

这种情况下，请将虚拟机的网络连接

方式切换为桥接，VMware如下

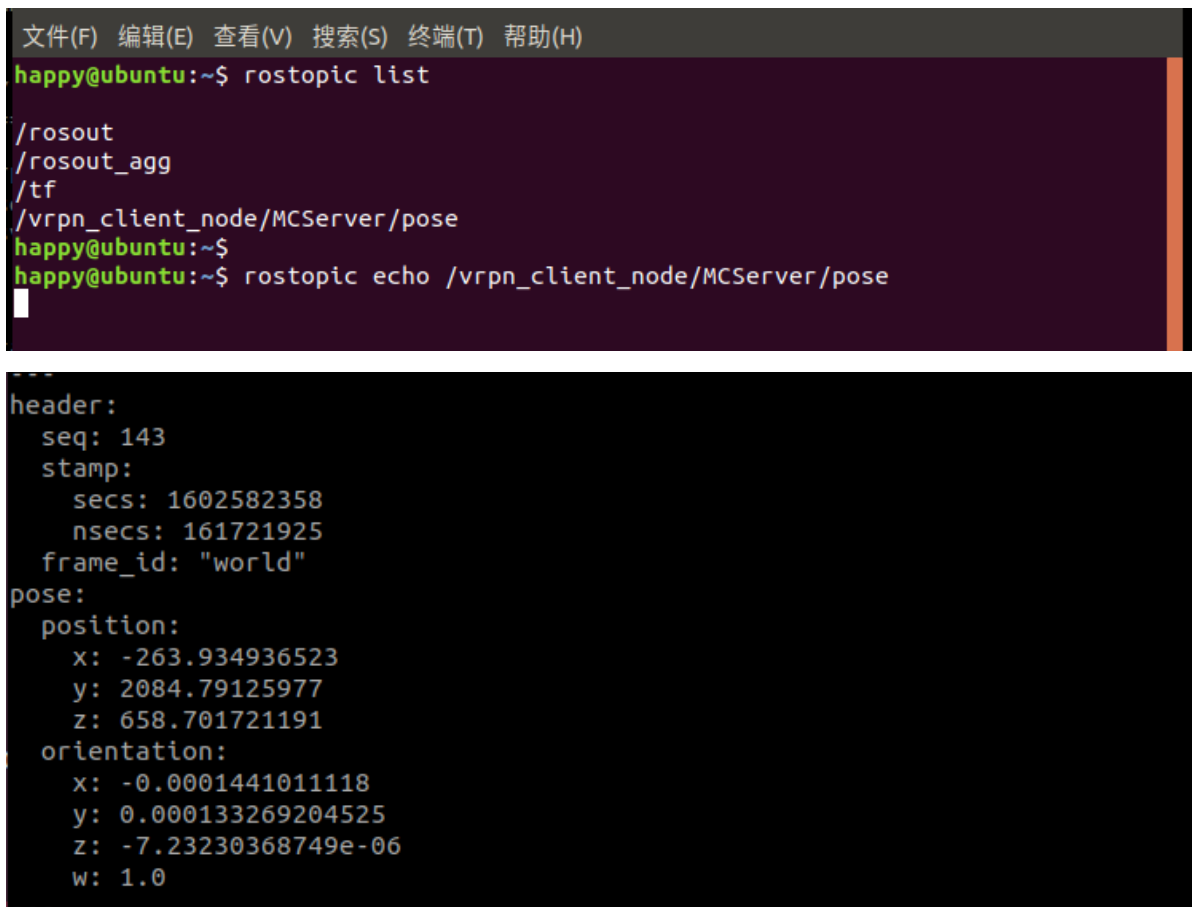


再次确认已经连接上服务端,在TrackerClient上确认已经和ros中的vrpnNode连接, 如下图显示ros环境的ip地址以及端口号



6.查看接收到的数据

```
1 rostopic list
2 rostopic echo /vrpn_client_node/MCServer/pose
```



```
文件(F) 编辑(E) 查看(V) 搜索(S) 终端(T) 帮助(H)
happy@ubuntu:~$ rostopic list
/rosout
/rosout_agg
/tf
/vrpn_client_node/MCServer/pose
happy@ubuntu:~$
happy@ubuntu:~$ rostopic echo /vrpn_client_node/MCServer/pose
header:
  seq: 143
  stamp:
    secs: 1602582358
    nsecs: 161721925
  frame_id: "world"
pose:
  position:
    x: -263.934936523
    y: 2084.79125977
    z: 658.701721191
  orientation:
    x: -0.0001441011118
    y: 0.000133269204525
    z: -7.23230368749e-06
    w: 1.0
```

提示信息

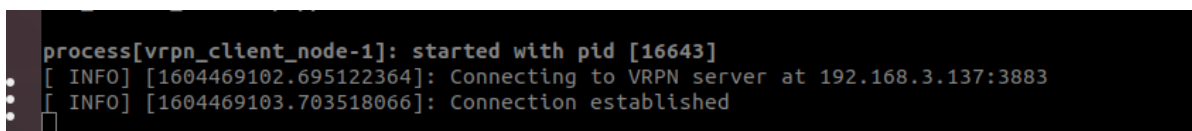
可以用ros提供可视化工具，更方便的查看数据内容。

```
1 rosrn rqt_console rqt_console
2 rosrn rqt_logger_level rqt_logger_level
```

异常情况

1.没有数据信息

如图1.1情况，排除安装[步骤5下的注意事项](#)的原因，可能原因是服务端没有数据发送，请检查CMtracker clinet上是否已经添加标记体（刚体或者人物模型等）参考图1.2。



```
process[vrpn_client_node-1]: started with pid [16643]
[ INFO] [1604469102.695122364]: Connecting to VRPN server at 192.168.3.137:3883
[ INFO] [1604469103.703518066]: Connection established
```

图1.1

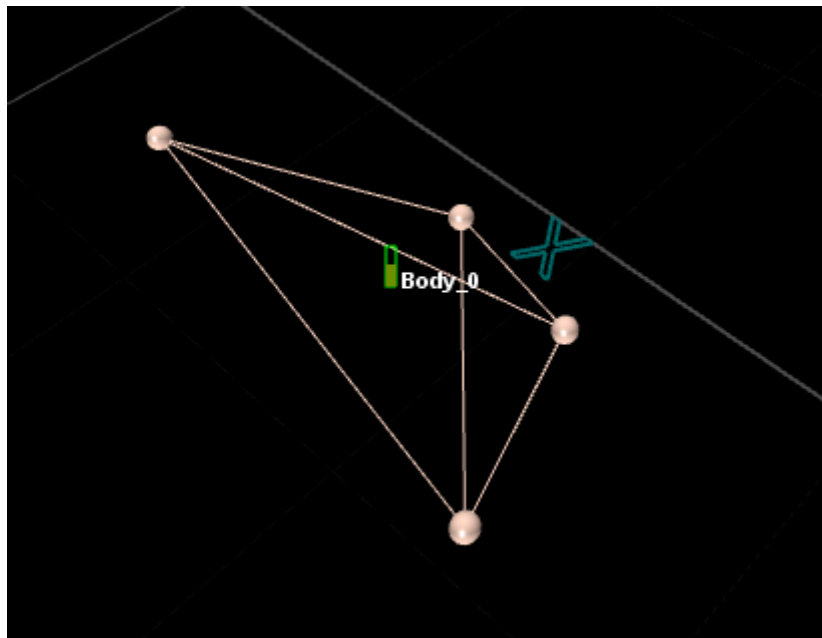


图1.2

示例代码

CPP

```
1  #include "ros/ros.h"
2  #include <iostream>
3  #include "geometry_msgs/PoseStamped.h"
4
5  using namespace std;
6
7  void topicCallback(const geometry_msgs::PoseStamped & transform_stamped) {
8      ROS_INFO_STREAM("Received a piece of data:" <<
9          transform_stamped.header);
10         //ROS_INFO_STREAM("Received a piece of data:" <<
11             transform_stamped.pose);
12     }
13
14     int main(int argc, char **argv) {
15         string nodeName = "cppsubscriber";
16         string topicName = "/vrpn_client_node/MCServer/pose";
17
18         //初始化节点
19         ros::init(argc, argv, nodeName);
20         ros::NodeHandle node;
21         //创建订阅者
22         const ros::Subscriber &subscriber = node.subscribe(topicName, 1000,
23             topicCallback);
24         // 阻塞线程
25         ros::spin();
26         return 0;
27     }
```

联系方式

如果您安装的过程中遇到了其他疑问，欢迎致电青瞳视觉科技有限公司。

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