FORSENSE
原极科技

FSS-NAV680D 的 ROS 驱动使用方法

目录

注意：需要先将 NAV680D 的输出配置成 0x166 的数据流。
具体操作查看 NAV680D 产品手册 6.2 节。

6.2 配置输出组合导航数据流

配置输出 5.所示组合导航数据流，指令为：

指令：AT+SETNAV\r\n

应答：OK\r\n

默认输出 0x166 数据流，可以先配置后再保存参数。
具体操作查看 NAV680D 产品手册 6.7 节。

6.7 保存参数

指令 ：AT+SAVE\r\n

应答 ：OK\r\n

1. 安装 ROS serial

安装 ROS serial 软件包，本例程依赖 ROS 提供的 serial 包实现串口通信。

首先执行如下命令，下载安装 serial 软件包：

```
sudo apt-get install ros-melodic-serial
```

然后输入 `roscd serial` 命令，进入 serial 下载位置，如果安装成功，就会出现如下信息：

```
/opt/ros/melodic/share/serial
```

2. 编译代码

```
cd nav619_ros1/
```

```
catkin_make
```

```
[ 10%] Generating Javascript code from forsense_ins/forsense_insData.msg
Scanning dependencies of target forsense_ins_generate_messages_eus
Scanning dependencies of target forsense_ins_generate_messages_py
[ 20%] Generating Lisp code from forsense_ins/forsense_insData.msg
[ 30%] Generating EusLisp code from forsense_ins/forsense_insData.msg
[ 40%] Generating Python from MSG forsense_ins/forsense_insData
[ 40%] Built target forsense_ins_generate_messages_nodejs
[ 50%] Generating EusLisp manifest code for forsense_ins
[ 50%] Built target forsense_ins_generate_messages_lisp
Scanning dependencies of target forsense_ins_generate_messages_cpp
[ 60%] Generating C++ code from forsense_ins/forsense_insData.msg
[ 70%] Generating Python msg __init__.py for forsense_ins
[ 70%] Built target forsense_ins_generate_messages_cpp
[ 70%] Built target forsense_ins_generate_messages_py
[ 70%] Built target forsense_ins_generate_messages_eus
Scanning dependencies of target forsense_ins_generate_messages
Scanning dependencies of target forsense_ins
[ 70%] Built target forsense_ins_generate_messages
[ 90%] Building CXX object CMakeFiles/forsense_ins.dir/serial_parse.cpp.o
[ 90%] Building CXX object CMakeFiles/forsense_ins.dir/forsense_ins.cpp.o
[100%] Linking CXX executable /home/wenfeng/nav619_ros1/devel/lib/forsense_ins/f
orsense_ins
[100%] Built target forsense_ins
wenfeng@ubuntu:~/nav619_ros1$
```

编译完成

3. 将 IMU 通过 USB 接入系统

查看是否接入：

```
lsusb
```

```
wenfeng@ubuntu:~$ lsusb
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 002 Device 005: ID 0403:6001 Future Technology Devices International, Ltd FT
232 USB-Serial (UART) IC
Bus 002 Device 004: ID 0e0f:0008 VMware, Inc.
Bus 002 Device 003: ID 0e0f:0002 VMware, Inc. Virtual USB Hub
Bus 002 Device 002: ID 0e0f:0003 VMware, Inc. Virtual Mouse
Bus 002 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
wenfeng@ubuntu:~$
```

查看 USB 端口号：

```
ls /dev/ttyU*
```

```
wenfeng@ubuntu:~$ ls /dev/ttyU*
/dev/ttyUSB0
wenfeng@ubuntu:~$
```

配置打开 USB 转串口权限：

```
sudo chmod 777 /dev/ttyUSB0
```

4. 查看 NAV680D 数据

1、打开另一个终端，执行roscore 开启 ROS

```
roscore
```

回到 serial_imu_ws文件夹下 执行

```
source devel/setup.bash
```

执行启动 rosrun

```
rosrun forsense_ins
```

```
forsense_ins
```

```
wenfeng@ubuntu:~/nav619_ros1$ rosrun forsense_ins forsense_ins
[ INFO] [1695457979.128623440]: /dev/ttyUSB0 is opened.
```

2、打开新窗口

```
source devel/setup.bash
```

```
rostopic list
```

```
wenfeng@ubuntu:~/nav619_ros1$ rostopic list
/nav619Data
/rosout
/rosout_agg
```

输入命令查看 IMU 数据

```
rostopic echo /nav619Data
```

```
  frame_id: "WGS84"
itow: 549636980
week_num: 2280
lat: 312627286
lon: 1216155393
hgt: 38859
vn: 0.00240602344275
ve: 0.000262897461653
vd: 0.00270945159718
roll: -0.169113516808
pitch: -0.286453634501
yaw: 0.0
rtk_yaw: 359.766906738
wheel_angle: 0.0
imu: [-0.005366197787225246, 0.0035326573997735977, -1.004271149635315, -0.04756
217822432518, -0.11066819727420807, -0.06515973061323166, 35.8017578125]
fix_type: 16
sv_num: 28
diff_age: 0
heading_type: 0
pos_acc: 0
status: 3
---
```

5. 更新记录

版本	日期	状态/注释
版本 1.0	2023.09.20	首次发行