

# GNSS

- [wonderful introduction on GNSS](#)
- [stations](#) that broadcast real time RTCM (protocol) Radio Technical Commission for Maritime
- [ubxtool examples](#)
- NEO-M9N
- ZED-F9P

## ntrip caster

- <https://gitlab.com/ihfazhillah/simple-ntrip-caster/-/tree/master>
- <https://gitlab.com/hydrasystem/ntripcaster.git>

sourcetable.dat

```
CAS;rtcm-  
ntrip.org;2101;NtripInfoCaster;BKG;0;DEU;50.12;8.69;http://www.rtcn-ntrip.or  
g/home  
STR;castagne;Verona;RTCM3;none;1;none;TEST;ITA;45.4935250;11.1068889;421;0;r  
eceiver5;none;B;N;3600;none
```

test caster, must return source table

```
curl http://192.168.2.50:2101
```

## ntrip base station

configure ublox in NMEA

```
systemctl stop gpsd  
systemctl stop gpsd.socket  
  
DEVICE=/dev/gps0  
ubxtool -f $DEVICE -p RESET  
ubxtool -f $DEVICE -e NMEA  
ubxtool -f $DEVICE -d BINARY  
ubxtool -f $DEVICE -p SAVE
```

ntrip source

```
str2str -in 'serial://ttyACM0:115200#stq' -out  
'ntrips://:mev@localhost:2101/castagne#rtcm2' -p 45.4935250 011.1068889 421  
-msg "1004,1006,1019,1033,1012,1030"
```

GPS

```
gpsd -N -n -D3 /dev/gps0 # no -b option
```

```
# with DGPS
```

```
gpsd -N -n -D3 /dev/gps0 ntrip://NTRIP.itsware.net:2101/AB50_RTCM3
```

```
psd -N -n -D1 /dev/gps0 ntrip://rtk2go.com:2101/MEV0
```

```
ubxtool -p MON-VER
```

```
UBX-MON-VER:
```

```
swVersion EXT CORE 1.00 (61b2dd)
```

```
hwVersion 00190000
```

```
extension ROM BASE 0x118B2060
```

```
extension FWVER=HPG 1.12
```

```
extension PROTVR=27.11
```

```
extension MOD=ZED-F9P
```

```
extension GPS;GLO;GAL;BDS
```

```
extension QZSS
```

```
export UBXOPTS="-P 27.11 -v 2"
```

```
ubxtool -p RESET
```

```
ubxtool -e BINARY
```

```
ubxtool -d NMEA
```

get current dynamic mode

```
ubxtool -p CFG-NAV5
```

```
...
```

```
dynModel (Portable)
```

```
...
```

```
# or
```

```
ubxtool -p CFG-NAV5 | grep dynModel
```

switch model to automotive

```
ubxtool -p MODEL,4
```

## udev

</etc/udev/rules.d/91-ubox.rules>

```
#SUBSYSTEMS=="usb", DRIVERS=="usb", ACTION=="add",  
ATTRS{idVendor}=="1546", ATTRS{idProduct}=="01a9", SYMLINK+="gps0",  
MODE="0666"
```

```
ATTRS{idVendor}=="1546", ATTRS{idProduct}=="01a9", SYMLINK+="gps%n",  
TAG+="systemd", ENV{SYSTEMD_WANTS}="gpsdctl@%k.service"
```

[/etc/default/gpsd](#)

```
START_DAEMON="false"  
# binary mode for ublox  
GPSD_OPTIONS="-b"  
DEVICES=""  
USBAUTO="true"
```

## test

- <https://gpsd.gitlab.io/gpsd/ppp-howto.html>

```
gpsd -b -N /dev/ttyACM0
```

```
gpspipe -r | nc -l 29999
```

```
yay -S qt5-location
```

qml

```
import QtQuick 2.1  
import QtQuick.Window 2.0  
import QtPositioning 5.5  
import QtLocation 5.6
```

```
Window {  
    id:page  
    width: 1024  
    height: 1024  
    visible: true
```

```
    Map {  
        id:myMap  
        anchors.fill: parent  
        plugin: mapPlugin  
        zoomLevel: 23  
  
        property MapCircle circle
```

```
        function update(pos) {  
            removeMapItem(circle);
```

```
            circle = Qt.createQmlObject('import QtLocation 5.3; MapCircle {}',  
page);
```

```
    circle.radius = 2;
    circle.color = "transparent";
    circle.border.color = "red"
    circle.border.width = 3;
    myMap.addMapItem(circle);

    circle.center = pos.coordinate;
    myMap.center = pos.coordinate;

    //console.log("Coordinates: ", pos.coordinate.latitude,
pos.coordinate.longitude);
  }
}

Plugin {
  id: mapPlugin
  name: "osm"
}

PositionSource {
  id: gpsPos
  updateInterval: 500
  active: true
  nmeaSource: "socket://localhost:29999"

  onPositionChanged: {
    myMap.update(position);
  }
}
}
```

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