GPS-devices

Overview

GPS stands for **G**lobal **P**ositioning **S**ystem. GPS devices (also referred to as GPS receivers) provide the user with his/her geographic coordinates. GPS sport watches allow to save and export tracks, that is collections of geo-localized points describing the run or any movement that was done. This howto is based on experiences on Garmin Etrex Legend HCx (GPS device) and, on Slackware 15.0, on a Garmin Forerunner 205 (GPS sport watch); but it should also work at least for any Garmin GPS receiver.

Software

I'm mostly using gpsbabel; this command line tool can retrieve and send data from/to a GPS device. There's also qlandkartegt which can deal with the data provided by the GPS receiver.
Both are available via SlackBuilds.org

Connecting the Device

When a GPS device is connected to the computer, it becomes recognized as a USB device by udev and the module garmin_gps is loaded. In most cases the module will not work for us. Fortunately gpsbabel comes with its own drivers so the module garmin_gps is not needed. One can blacklist it by adding in /etc/modprobe.d/blacklist.conf the line

```
blacklist garmin_gps
```

udev-rules

If you want to access the device as a non-root user, the following udev rule allows users who are members of the *plugdev* group to access the GPS device.

```
# /etc/udev/rules.d/51-garmin.rules
ATTR{idVendor}=="091e", ATTR{idProduct}=="0003", MODE="666", GROUP="plugdev"
```

Sending Data to the Device

As an example here is the code which transfers a gpx waypoint file to a Garmin GPS device.

```
gpsbabel -i gpx -f $file -o garmin -F usb:
```

Exporting Data from the Device

In case of a GPS sport watch, the most important operation is extracting tracks from the device, usually in a gpx format. Here is an example to extract all the tracks saved in the device to a single gpx file (using GPX format version 1.1):

```
gpsbabel -t -i garmin -f usb: -o gpx,gpxver=1.1 -F $FILEOUT
```

To extract to file $FILEOUT a single gpx track with name $TRACKNAME from a global gpx file $FILEIN containing all tracks:

```
gpsbabel -i gpx -t -f $FILEIN -x track,name=${TRACKNAME} -o gpx,gpxver=1.1 -F $FILEOUT
```

The extracted gpx track can then be further processed by other sw, such as ZombieTrackerGPS, or uploaded on Garmin Connect website (GPX format version 1.1 is mandatory)

Further Reading

The website for gpsbabel
The website for qlandkartegt
The website for ZombieTrackerGPS
The openstreetmap project

Sources

- Originally written by Markus Hutmacher
- Contributions by Pasquale Ceres

howtos, gps,, gpsd,, gpsbabel

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