

Radioberry Device Driver

This device driver is a special for the RPI-4.

I have learned that making a device driver on your local rpi is something different than deploying on the different rpi's running different kernel versions.

This means, for now, that you need to build the driver yourself. Which is not that complex.

Build step:

First get the linux headers:

```
sudo apt-get install raspberrypi-kernel-headers
```

Second you need to start the build process:

use in a command window, in the folder driver (which contains the Makefile) : make

This will results in a radioberry.ko file.

Hereby a step by step setup:

Step -1-

CL025 FPGA Radioberry users: Copy the gateway radioberry.rbf into the folder /lib/firmware

CL016 FPGA Radioberry users: Rename your radioberry-10CL016.rbf gateway to radioberry.rbf Copy the gateway radioberry.rbf into the folder /lib/firmware

Loading the device driver will also load the gateway (content of the rbf file) into the FPGA

Step -2-

Make a module folder in the driver area of your running kernel, and install the driver called radioberry.ko in this folder.

```
cd /lib/modules/$(uname -r)/kernel/drivers
```

```
sudo mkdir sdr
```

```
copy the radioberry.ko to /lib/modules/$(uname -r)/kernel/drivers/sdr
```

Step -3-

run the command: sudo depmod

Check: use the command: modinfo radioberry Gives you detailed info about the radioberry device driver.

Step -4-

load the device driver

```
run the command: sudo modprobe radioberry
```

In the folder /dev the radioberry must be present using the ls command. Also possible to check by the command: lsmod |grep radioberry

Step -5-

Optional step.

```
Execute: dtc -@ -I dts -O dtb -o radioberry.dtbo radioberry.dts
```

This results in an overlay fiel radioberry.dtbo

```
cp this radioberry.dtbo into /boot/overlays
```

add the following line in config.txt:

```
dtoverlay=radioberry
```

This loads the kernel module during boot.

Alternative step:

If you like to load the device driver during boot, execute the following:

```
/etc/modules-load.d/modules.conf
```

add the device driver in this file, see content example:

```
# /etc/modules: kernel modules to load at boot time.
```

#

This file contains the names of kernel modules that should be loaded

at boot time, one per line. Lines beginning with “#” are ignored.

i2c-dev

snd-mixer-oss

snd-pcm-oss

radioberry

Step -6-

Optional step.

sudo chmod 666 /dev/radioberry

Makes it possible to run the radioberry firmware version for the device driver, running as the logged in user:

Step -7-

Run using the command ./radioberry firmware or sudo ./radioberry

Step -8- Start a SDR program!

Have fun listening to your Radioberry using the radioberry device driver.

73 Johan PA3GSB