Documentation Redpitaya

# Important/helpful links to get start or to deal with problems

Information about rp.h : <https://github.com/RedPitaya/RedPitaya/blob/master/api/include/redpitaya/rp.h#L145>

Examples of RF Input Output: <https://redpitaya.readthedocs.io/en/latest/appsFeatures/examples/genRF-exm1.html#code-c>

Information about IOs: <https://redpitaya.readthedocs.io/en/latest/developerGuide/125-14/fastIO.html>

Specs of the Redpitaya: <https://www.redpitaya.com/f146/specifications>

Sampling rates, etc: <https://redpitaya.readthedocs.io/en/latest/appsFeatures/examples/acqRF-samp-and-dec.html#s-rate-and-dec>

Ringbuffer stuff: <https://github.com/RedPitaya/RedPitaya/issues/100>

# Procedure Initial Start

# Recurrent work

## Building App

Alex, da hast du dein Video, vllt einfach kurz beschreiben oder/und aufs video verweisen

# Known issues and workaround

## Filesystem is read-only

Call `rw` inside of the RP console to make writeable

## Call the Redpitaya webserver fails within Windows

## SSH connection breaks

Simple restart should work. We don’t know why it happens but maybe it’s a temperature problem.

## Acquiring data never stops

If you call the “rp\_App\_Init()” to initialize the Webapp, replace it with “rp\_Init()”. Until now we didn’t notice any different behavior, only the acquiring process stops correctly.

To stop the acquiring process, its needed to push the FPGA image again via “cat /opt/redpitaya/fpga/fpga\_0.94.bit > /dev/xdevcfg”.

## Ws.app is null by starting up the Webapp

The name of the application (in the app.js) must be the same as the name of the folder

## Cannot read fpga file

Maybe you modified the fpga.conf of your project in windows, than everytime you open the file in nano, the file gets parsed from “DOT format” and somehow the path gets corrupted. Just copy a file from a working project or build up the file from scratch, but do it in Linux.

# Our VPN solution for „home office“

1. Build and configure a wireguard server
2. Build certificates for every client.
3. Install wireguard client software on your pc
4. Wireguard doesn’t work on the redpitaya directly therefore we did a little workaround
   1. Install wireguard on a raspberry or similar (following link should contain tutorial)
      1. https://www.sigmdel.ca/michel/ha/wireguard/wireguard\_02\_en.html
   2. Configure and connect the raspi
   3. Activate vnc server on the Raspberry
   4. Connect the redpitaya via lan to the raspberry
   5. You should now be able to control the raspi via vncViewer
      1. It is very important to use (real vncViewer) other clients didn’t work in our tests (https://www.realvnc.com/de/connect/download/viewer/)
   6. And on the raspi the Redpitaya should be available
   7. Finally build autostart (build in wireguard service)
      1. https://www.sigmdel.ca/michel/ha/wireguard/wireguard\_02\_en.html

4.1 Install (Ubuntu/Mint/Arch/Manjaro):

* `sudo apt install wireguard` (Ubuntu/Mint)
* `sudo pacman -s wireguard-tools` (Arch/Manjaro)
* Save .conf file to /etc/wireguard
* To start VPN: `wg-quick up <nameofconf>`
* To stop VPN: `wg-quick down <nameofconf>`
* If error `resolvconf: command not found` run `sudo ln -s /usr/bin/resolvectl /usr/local/bin/resolvconf`
* `sudo wg show all` shows the current connection

4.2 Install (Windows)

* Install: https://download.wireguard.com/windows-client/wireguard-installer.exe
* Run and import config file