

## 1 RadServe

The RadServe allows remote access to different radar systems from Inras. It is meant to run on a powerful computer to allow maximum data transfer rates from the board and stream the recorded data to a HDF5 compatible file. The program enables remote control of the radar system as shown in Fig. 1. In a typical setup the RadarLog is connected to a powerful PC1 which is equipped with an SSD (e.g. Intel Nuke with a Linux operating system). The RadServe handles the USB communication and can be used to configure the radar system from a remote PC with a Matlab or Python script. In the shown setup the application is run on a PC2 and a TCP/IP connection is used to configure the radar system at startup.

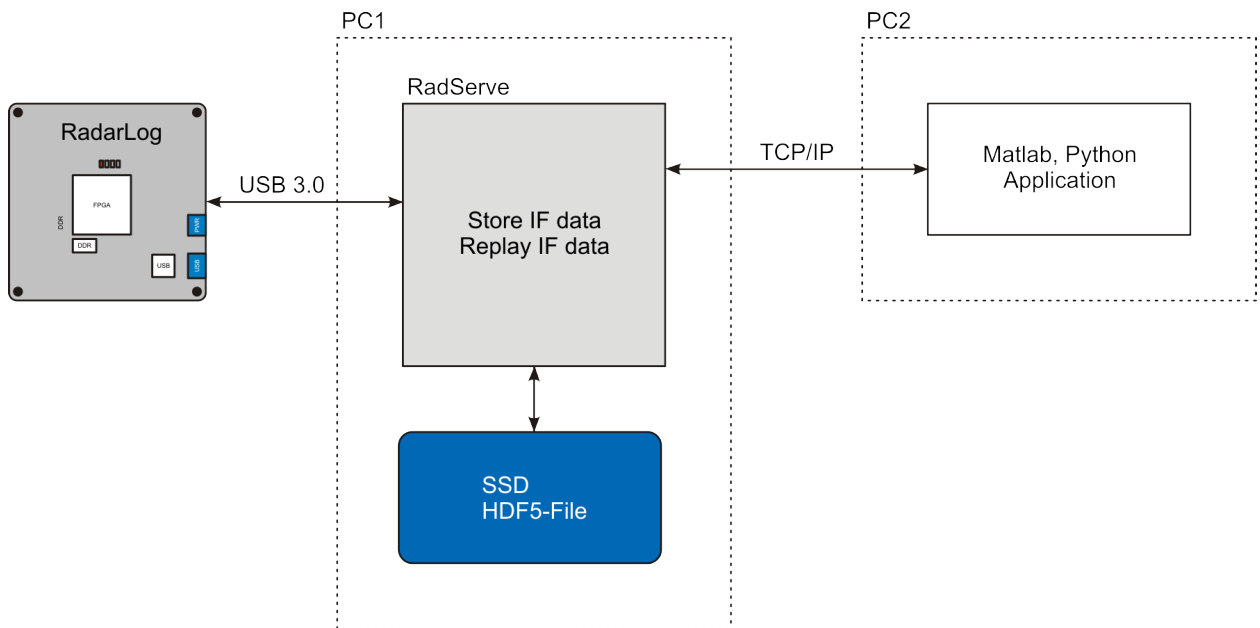


Figure 1: Typical setup with two PCs.

The RadServe controls the USB 3.0 interface for accessing the measured IF data at high data rates. The recorded samples can be streamed to a HDF5 file or forwarded over the TCP/IP connection. For continuous data recording the maximum speed can only be achieved when the data is streamed directly to the HDF5 file. If frontends with multiple receive antennas are operated, then the data is stored to separate streams in the HDF5 file, which simplifies the data access.

The main features of the tool RadServe (version 2.0.0) include

- Handling the USB 3.0 interface to the radar platforms (RadarLog and Radarbook with USB module),
- TCP/IP server for configuring and data access,
- Available with graphical user interface or as console program for Linux,
- Buffered transfer mode over TCP/IP to minimize packet loss, and
- HDF5 file streaming with tested speeds up to 1.6 GBit/s.

The next version will enable additional features

- Accessing data from HDF5 files over TCP/IP connection (replay feature),
- Support of video cameras (synchronization of radar data and video),
- Data rates up to 3.2 GBit/s, and
- Data post processing interface.