

# Instructions for the Installation of supportive software and the SDR software

## Installation of supportive software

The students will proceed to download the RTL-SDR radio software following the instructions for the teacher.

- a. First, using the school computer or/and student personal computer, will visit the following link <https://dotnet.microsoft.com/en-us/download/dotnet/5.0/runtime>
- b. There, they will choose Windows operating system “Run desktop apps” and “Download x86”.
- c. Once it has downloaded, the student must double click to run the installation.

## Installation of SDR#

- a. Following, the students will visit the link <https://airspy.com/download/>
- b. In the web page, the students will click download on the “Software Defined Radio Package (Change Log)”.
- c. Then unzip the unloaded folder and double-click on “install-rtlsdr.bat”.
- d. After, they will plug in the dongle and proceed to find the folder zadig.exe file. They will right click it and select “Run as Administrator”.
- e. In the Zadig application, in the menu bar navigate to “Options”.
- f. In the pop up that appears:
  - Ensure that “List All Devices” is checked.
  - Ensure that “Ignore Hubs or Composite Parents” is unchecked. (This is necessary to run the RTLSDR Scanner used in later steps.)
  - Select RTL2832UHIDIR or RTL2832U from the drop down list in the center of the Zadig dialog box.
  - Do NOT select “Bulk-In, Interface (Interface 0)”, “Bulk-In, Interface (Interface 1) ” or “USB Receiver (Interface 0)”.
  - Also, ensure that WinUSB is selected in the box next to where it says driver.
- g. Click Install Driver or Replace Driver. A warning may appear saying that the publisher cannot be verified, but click “Install this driver software anyway”.

**IMPORTANT:** This driver has only been installed onto the USB port that the dongle is plugged into. Note which USB port has the dongle plugged into. If the dongle is moved to another port, or an additional dongle is used, zadig.exe will need to be installed for any USB port used.

- h. Open SDRSharp by clicking on the SDRSharp application icon which is in the same folder as Zadig.
- i. When SDR# opens, find the “Source” partition and from the drop-down menu select RTL-SDR USB.
- j. Click on the Configure button (shaped like a gear) at the top of the SDR# window to bring up the configure menu (Figure 10).
- k. By default, the RTLSDR’s gain is set to zero. Increase this gain by moving the RF Gain slider up. Gain is an amplification factor—it is increasing the strength of signal so that the software can detect it. Gain values of around 40 are commonly used. Alternatively, the AGC (automatic gain control) option can be enabled.

**References:**

- [1] <https://www.rtl-sdr.com/rtl-sdr-quick-start-guide/>  
[2] Windows based RTL-SDR Technical Guide

**Note:** This document is a summary of the mentioned in the references. See the original for further details.