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Build, Tune, Explore with OpenWebRX+

Web-Connected Software-Defined
Radio Made Simple



Richard Murnane, VK2SKY

edited by Kelly Lee

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No Need to Beat Them, Just Join Them

So much for flight tracking aggregators... what about sharing the other data that we decode?

Let's go to Settings > Spotting and reporting, and have a look around. This is where we can set how we share our coded data. There are four sections that we'll cover here:

- APRS-IS settings
- PSKReporter settings
- WSPRnet settings, and
- MQTT settings.

(Lurking at the bottom, trying not to draw attention to itself, is another section, RigControl settings: this has nothing to do with the aggregators.)

Try this: Enable Background Decoding

Background decoding is an optional step here: if you don't enable it, decoding will happen only when you have OpenWebRX+ opened in your browser. You might be fine with this, or you might prefer to leave the OpenWebRX+ host running 24/7 and decoding while you sleep. It's up to you.

Go to Settings > SDR device settings > RTL-SDR, and under "Device settings", ensure that the "Enable this device" and "Keep device running at all times" are ticked. Then go down to "Additional optional settings", select "Run background services on this device" from the drop-down list, and click the Add button. Then tick the new "Run background services on this device" checkbox.

Under "Additional optional settings", you might like to select "Require magic key to switch profiles on this device", click the green Add button, then ensure the new checkbox is ticked. This will stop anyone accidentally changing the band the SDR is monitoring as it decodes data.

Lastly on this screen, click "Apply and save" to make the changes permanent.

Next, we want to enable background decoding: without it, the SDR would only decode signals while we have a browser tab open watching the decoder. So, in Settings > Background decoding, first tick the "Enable background decoding services" checkbox.

Next, we need to decide which kinds of signals we want to decode: we can see a long line of checkboxes, one for each supported decoder. While it's tempting to tick them all, keep in mind that each decoder places a load on the Pi's

processor, so it's best to check only the one's we are specifically interested in. We can come back and change our selections here any time.

Remember also that the RTL-SDR can deal with only a 2.5MHz chunk of spectrum, so for example it could not hear NOAA satellite signals on 137MHz and VHF Amateur band APRS signals on 145MHz at the same time; there would be no point in having both decoders running simultaneously.

If we were to add more RTL-SDRs, then we could have one monitoring NOAA and the other monitoring APRS, but we're not there yet.

Try this: Create an APRS IGate

An IGate (Internet Gateway) takes received APRS transmissions and relays them to the APRS Internet Service;⁵ from there, web sites such as the popular APRS.fi⁶ site in Finland present the received APRS data on an interactive map.

Hams only

To run an IGate, you must hold an Amateur Radio licence, as APRS-IS requires an Amateur Radio call sign for access.



You also need an APRS-IS network passcode; strangely, there's no formal procedure to apply for one. Instead, you can use an online APRS-IS Passcode Generator, give it your call sign, and you will get a passcode back.

In Settings > Background decoding, tick the Packet checkbox in the “Enabled services” list.

In Settings > Spotting and reporting, fill out the “APRS-IS settings” section:

- “APRS callsign”: enter your Amateur Radio call sign; some operators append a substation id such as “-1” to distinguish their IGate from their other APRS transmissions;
- “APRS-IS server”: the APRS Tier 2 Network page⁷ lists the regional servers. Pick the one nearest you, and append the “client-defined filter” port number, “:14580”. For example, in Australia and New Zealand, we use the Oceania server, so we would enter “aunz.aprs2.net”;
- “APRS-IS network password”: your network passcode, as described above;

5. <https://www.aprs-is.net/>

6. <https://aprs.fi/>

7. <https://www.aprs2.net/>

- Optionally, tick the “Send the receiver position to the APRS-IS network” checkbox, if you have set up your OpenWebRX+ receiver location in General Settings and you are happy for it to be displayed online;
- “APRS beacon symbol”: pick “Receive only IGate (R&)” from the drop-down list; the IGate will appear on the APRS.fi map as a black diamond with the letter R (for Repeater);
- “APRS beacon text”: can be any short descriptive text, for example “OpenWebRX+ APRS IGate”;
- “Antenna height”, “Antenna gain”, and “Antenna direction” can be left blank.

Click “Apply and save” button.

Make sure that your RTL-SDR is switched to a profile that includes your local APRS frequency.

It may take a minute or two, but if you have allowed your receiver location to be sent to APRS-IS, then you’ll see its marker on the APRS.fi map, tagged with your call sign. Click on the marker, and then on “info” to see more information about your new IGate.

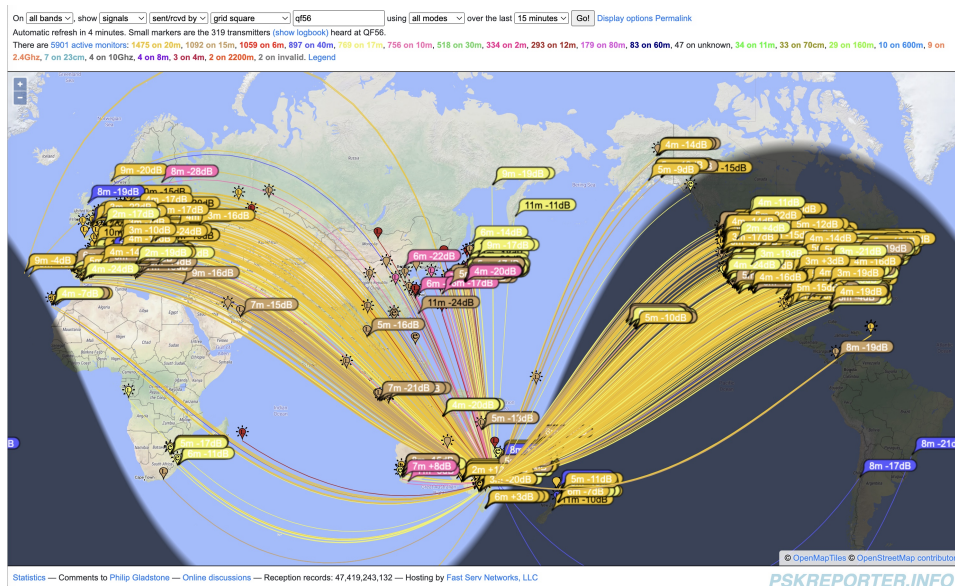
OpenWebRX+ transmits identification packets to APRS-IS once an hour, or whenever you change something. Also, any APRS transmissions that your IGate hears will be relayed to the servers, so you’ll be able to see the movements of passing vehicles, and more.

Congratulations, you are now feeding receiver data to the world!

On APRS.fi, the tracks of moving vehicles will appear, and if you hover over dots on the track, you’ll see lines to the IGates that provided the data feed; hopefully, your IGate will be among them!

Try this: Discover Signals In and Out of Your Area

PSK Reporter is another web site that accepts reports of digital radio transmissions and displays them on a map. The sending and receiving stations usually include their locations, so PSK Reporter can build up a picture for any place on Earth, showing the flow of radio signals in and out of the area, like this:



We can feed our own signal reports to this site as well, but first let's see how we can make a map like the one above, for our location.

- Open a new browser tab, and go to the PSK Reporter propagation map⁸
- Next, we need to find our Maidenhead Grid Square, which we met in [About Maidenhead Locators, on page ?](#):
 - Click on “Display options”
 - Tick the “show grid” checkbox
 - Close the “Display options” dialog box
- Zoom the map in to your location (or any other area of interest), and note the four-character code in the centre of the box: this is your “Grid Square”; make a note of it;
- Open the “Display Options” again, and set the options like this:

8. <https://pskreporter.info/pskmap.html>