

Using your WSPRlite

Important Note: Your WSPRlite can be damaged by excessive reverse RF. If you transmit on another antenna when your WSPRlite is connected to an antenna, coupling between the antennas can cause the WSPRlite USB control chip to fail. Your WSPRlite will continue to operate but it will no longer be possible to program it as it will not be recognised by your computer. We recommend limiting reverse RF less than 100 mW.

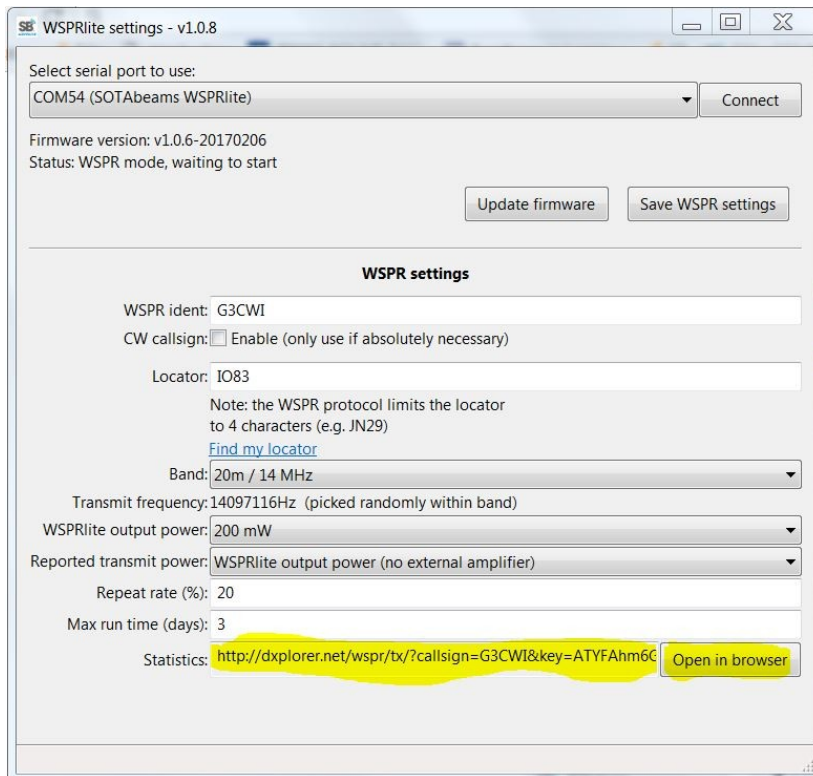
Programming

1. Download the configuration app (WSPRliteConfig.zip) from <https://dxplorer.net/software/WSPRliteConfig.zip>
Some web browsers save files to your Downloads folder by default.
2. Unzip the folder.
3. Install the drivers from: <https://www.silabs.com/developers/usb-to-uart-bridge-vcp-driver>
Instructions for this can be found at: <https://dxplorer.net/wsprlite/WSPRlite-drivers.pdf>
4. Connect your WSPRlite to your PC.
 - If your WSPRlite has never been programmed the LED will flash red/green rapidly.
 - If it has been programmed before the LED will flash red.
5. Open the configuration app.
 - The first time that you run the app Windows may give you a warning. Select “more info” and the Run button will appear.
 - Some antivirus software does not like unknown executable files and you may need to set an exception (see your antivirus instructions).
6. In the **Select serial port to use:** drop down, select the WSPRlite.
 - Not all USB leads support data. Some are just charging leads. If you cannot see your WSPRlite in the config app, try using another lead.
 - If the WSPRlite does not appear in the drop down, try connecting it to another USB port on your computer.
 - If you are still having problems, please see [the relevant fault finding document](#).
7. Click the **Connect** button.
 - If your WSPRlite has been programmed before, the configuration app will read the WSPRlite configuration.
8. Enter your **callsign** to be transmitted in WSPR messages e.g. WB4EDF, 2E0SQL etc.
 - Some compound callsigns such as G3CWI/P or 9H1/MOGIA are accepted, but there are some [limitations](#) on the compound callsign format and how they can be transmitted.

9. If you are using the CW callsign option, check the box and enter your callsign. This facility has no limitations on the format of the callsign.
10. Enter your **Locator** in the format JN27ab. The precision of the locator in WSPR transmissions is limited to either 4 or 6 characters.
 - If you are not sure what your locator is, please visit a website such as <https://www.whatsmylocator.co.uk/> or https://www.levinecentral.com/ham/grid_square.php to find out.
11. Select the **Band** that you wish to use from the drop-down box.
 - Note that the built-in filter is suitable for 20m and 30m use. Using lower frequency bands will require additional low-pass filtering at the output.
12. Select the **WSPRlite output power** that you wish your WSPRlite to transmit at.
 - The levels available are those defined in the WSPR protocol and supported by the WSPRlite hardware (200 mW – 5 mW).
13. Select the **Reported transmit power**. This is the power that will be sent as part of your WSPR transmission.
 - This will normally be the same as the **WSPRlite output power** unless you are using an external amplifier or attenuators.
14. The **Repeat rate** sets the amount of time your WSPRlite will transmit. The maximum setting is 50%; ideally leave the default setting (20%). The WSPR allocations are shared by many WSPR users and lower transmit percentages are more neighbourly.
 - 20% means your WSPRlite will transmit in 20% of the available time-slots each hour. There are 30 available slots each hour so your WSPRlite will transmit in six time-slots. These will be chosen at random.
15. Set the **Max run time** (1 - 30 days). Your WSPRlite will stop transmitting after this time.
 - We recommend using the shortest time consistent with your experimental aims.
16. Click **Save WSPR Setting** to program your WSPRlite. It can now be disconnected from the computer. Note that the light will continue to flash even when you have successfully configured your WSPRlite. Before closing the Config app, set up your access to DXplorer.net as shown below.

Using DXplorer.net

There is no special software to download to use DXplorer.net – it is a website. To access DXplorer.net click the **Open in browser** button at the bottom of the WSPRlite Config app to go to your personal statistical analysis environment on DXplorer. This link includes an encrypted key that provides **Premium access** to DXplorer. We suggest bookmarking this special URL in your browser. This special URL will change only if you change the WSPR callsign that you will be using.



You may wish to use your special DXplorer.net URL on other devices. To do this we recommend that you copy the URL and e-mail it to yourself. It contains information specific to your WSPRlite and enables Premium access to DXplorer. Many modern internet browsers (e.g. Chrome) will share bookmarks across platforms.

DXplorer will not display anything until your WSPRlite has been transmitting for a few minutes.

A note on Linux and Mac OS-x

The source code for the Config app is available at <https://github.com/SOTAbears/WSPRliteConfig>

This has been successfully compiled by third parties for Linux and OS-X. We do not directly support these compilations. Details are available by asking at the WSPRlite Facebook group (a good source for more general user-led support on WSPRlite and DXplorer.net).

<https://www.facebook.com/groups/607517072784534/>

Getting on the air

First connect an antenna to your WSPRlite. This should be an antenna for the band that you are intending to transmit on and the SWR should be less than 3:1. A WSPRlite will not have sufficient power to trigger an automatic antenna tuner to work (or even to indicate on many SWR bridges) so it is a good idea to sort the tuning of your antenna out before connecting the WSPRlite.

Your WSPRlite will need a USB power supply (5 volts). This can be from a computer, a USB battery pack or a mobile phone charger. Note that while most USB supply sources are suitable, they vary in

the quality of the DC output – some mobile phone chargers have a lot of ripple which will degrade the transmission quality.

When you connect power to your WSPRlite the red LED will flash rapidly. Your WSPRlite is now waiting for you to press the button to set the timing. Press the button 2 seconds after the start of an **even minute** i.e 14:58:02, 10:20:02 etc. The time must be set accurately – we tend to use a radio-controlled clock or a mobile phone app that gives accurate network time.

The website <http://time.is> is a good choice for accurate time. To work properly, the time needs to be accurate within 1 second. Once the button is pressed, the LED will show a steady red light for about 110 seconds indicating your WSPRlite is transmitting. If you pressed it too early, just press it again at the start of the next even minute.

Now is a good time to have a quick **listen** to your WSPRlite transmission with a nearby receiver to make sure that the tone sounds okay. Excessive hum on the tone indicates a poor USB supply - try another one! Using the SOTABEAMS Power Conditioner is a great way to ensure a good clean USB supply from any 12 Volt DC source. The transmission will sound like an unmodulated carrier – single tone. The data is encoded with very small frequency shifts that most people cannot hear.

The nominal WSPR USB frequencies are:

- 630m 0.4742 MHz
- 160m 1.836600 MHz
- 80m 3.568600 MHz
- 40m 7.038600 MHz
- 30m 10.138700 MHz
- 20m 14.095600 MHz
- 17m 18.104600 MHz*
- 15m 21.094600 MHz*
- 12m 24.924600 MHz*
- 10m 28.124600 MHz*
- 6m 50.293000 MHz*

* = WSPRlite Flexi only.

Each time your WSPRlite is reprogrammed it will randomly pick a frequency within the standard WSPR allocation.

What does the LED mean?

A steady red light indicates that a transmission is in progress.

Your WSPRlite will give three short and one long green flash just after the start of each **even minute** when not transmitting. The leading edge of the longer green flash should indicate 2 seconds after the start of the minute (e.g. 09:22:02). This sequence allows you to check the timing.



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If the LED is flashing red quickly it means the WSPRlite is waiting to you to press the button to start it transmitting. The LED should flash like this when you power-up your WSPRlite and also when the Maximum Run Time has been reached.

If the LED is flashing rapidly red and green, your WSPRlite has not been programmed with a callsign and will not function. Use the app to program it.

Support

If you are having trouble, read our **fault finding tips** available via:

<https://dxplorer.net/wsprlite/>

Try asking for help on the WSPRlite Facebook group where a growing user community are happy to share their experiences.

<https://www.facebook.com/groups/607517072784534/>

There is a handy **WSPRlite FAQ** available. We recommend giving it a look!

<https://dxplorer.net/wsprlite/FAQ.pdf>

Failing that, feel free to contact Richard@sotabeams.co.uk for support.