

ADS-B (dump1090) User Guide



Overview

The SDRplay Radio combines together the Mirics flexible tuner front-end and USB Bridge to produce a SDR platform capable of being used for a wide range of worldwide radio and TV standards. This document provides an overview of the installation process and operation of the SDRplay ADS-B (dump1090) application.

Dump1090 was originally written by Salvatore Sanfilippo antirez@gmail.com in 2012 and is released under the BSD three clause license.

Malcolm Robb support@attavionics.com made a number of improvements in 2014. In this revision of the application, support has been added for the RSP.

Oliver Jowett oliver@mutability.co.uk created mutability version including oversampled demod in 2016.

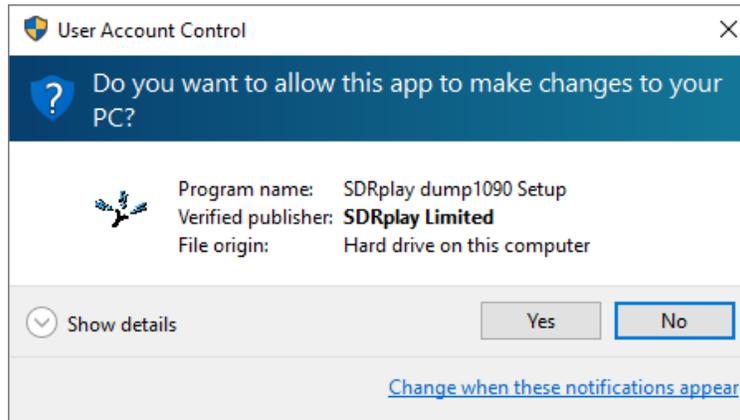
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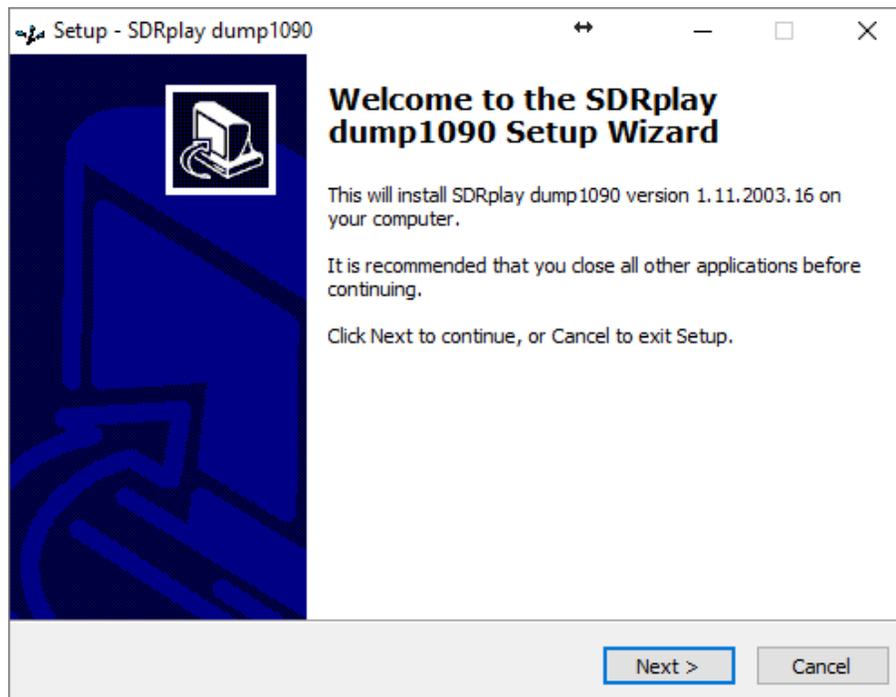
1. Installation

Download the SDRplay ADS-B (dump1090) installer from the Windows section of the website (<http://www.sdrplay.com/downloads>)

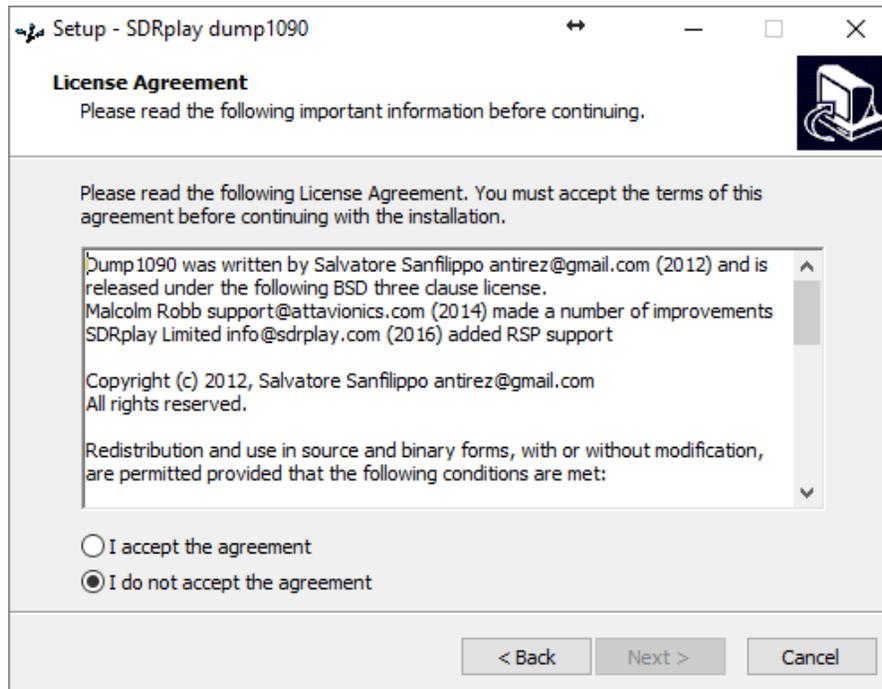
Run the downloaded installation file and you will see this, click Yes to continue.



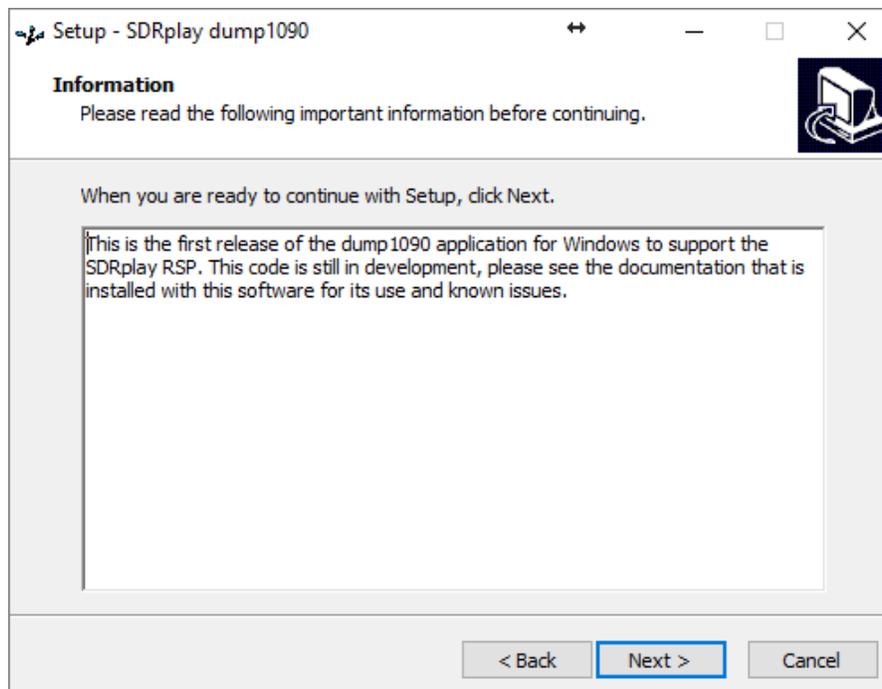
Click Next to continue past the welcome screen.



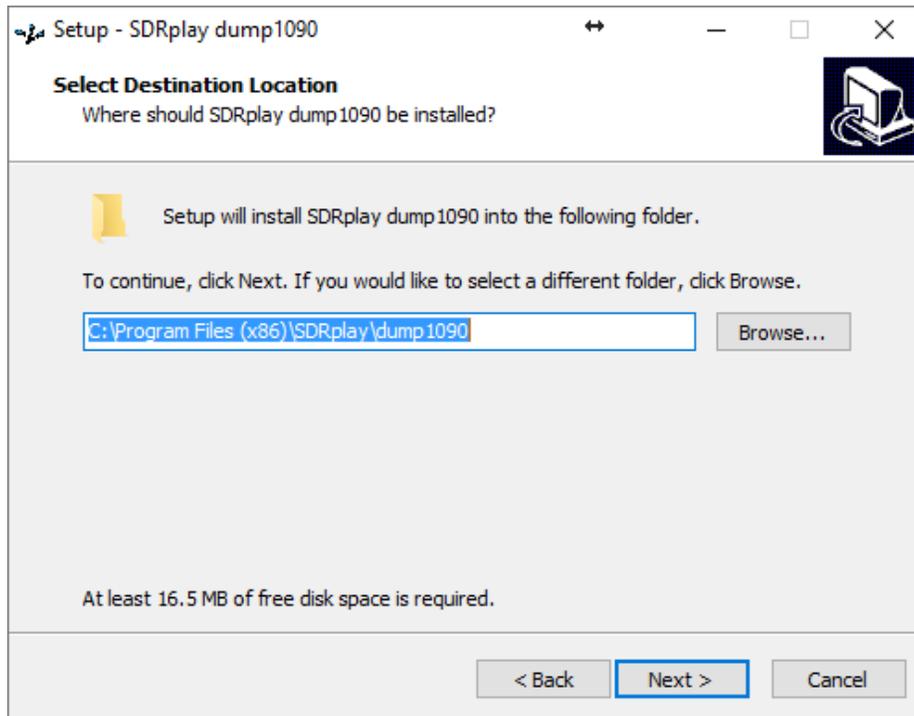
Please read and accept the license agreement.



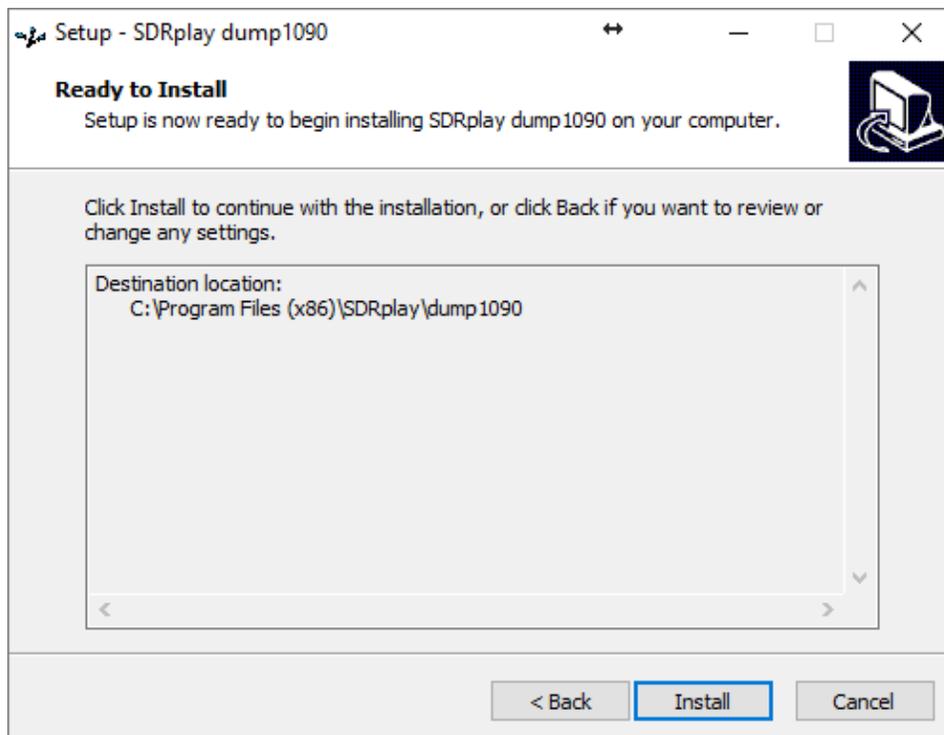
The next screen will display important information about these early releases. Read and then click Next.



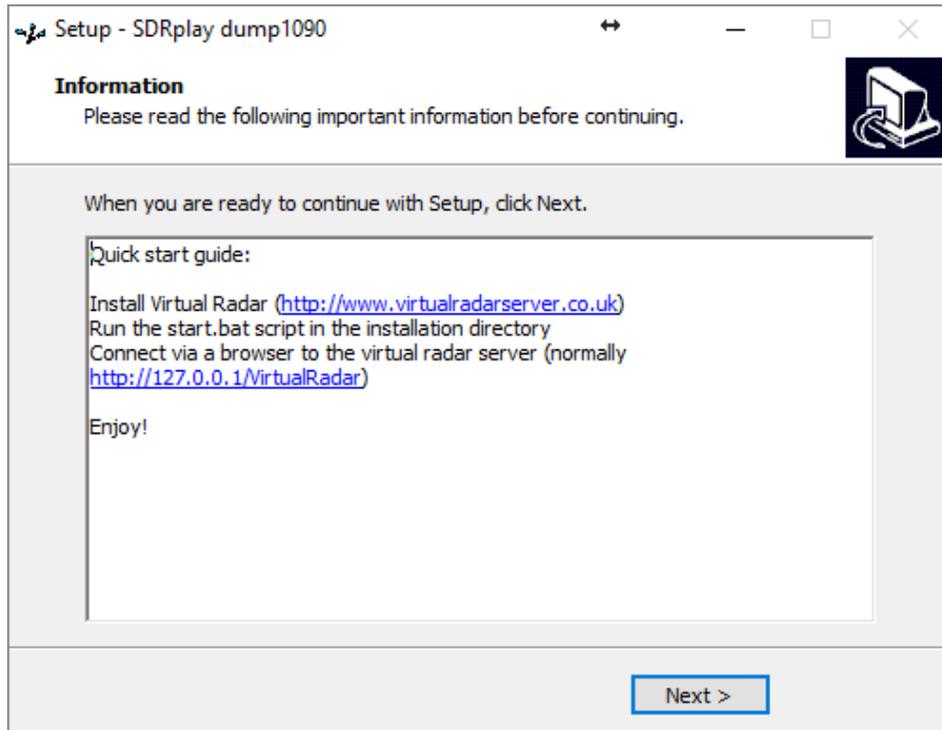
The next screen shows the installation directory. Check you have enough disk space and then click Next



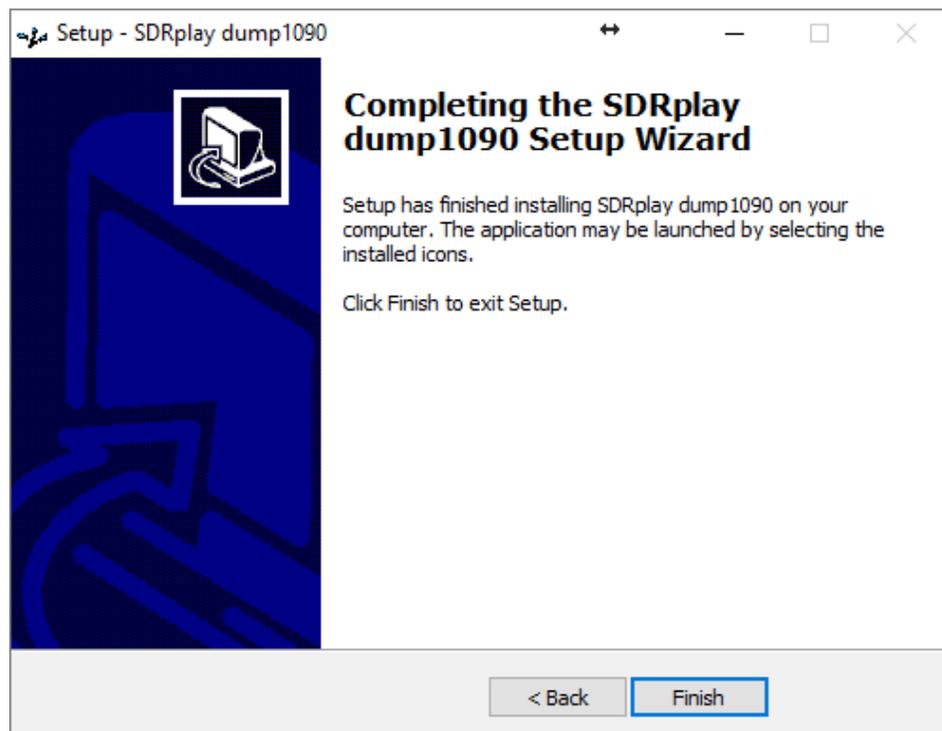
The next screen confirms where the software will be installed to. If correct, click Install.



After the software has installed, there will be some quick tips in the next screen, after you have reviewed these click Next.

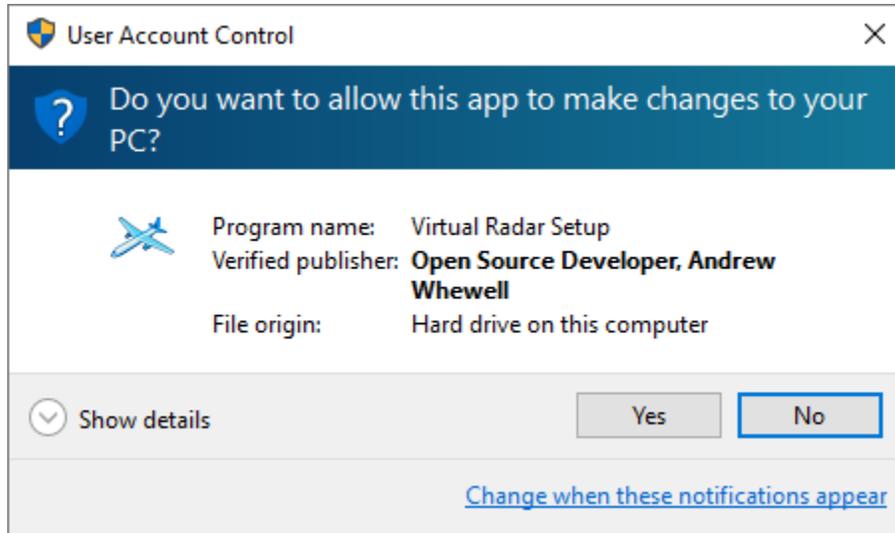


This completes the installation, clicking Finish will close the installer.

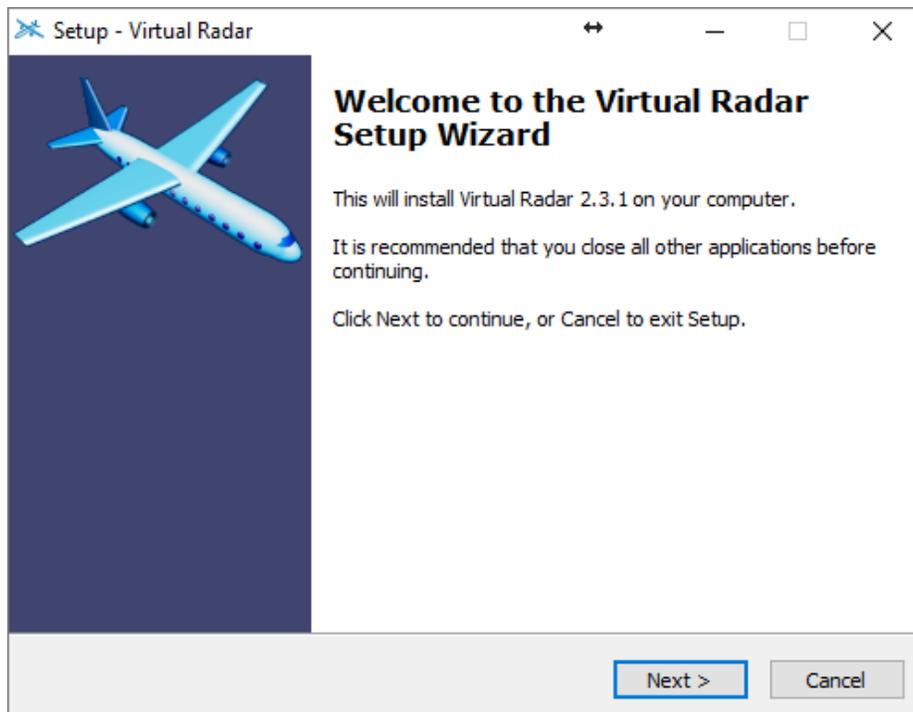


This software works well with the Virtual Radar Server software. Virtual Radar Server will collect the data from dump1090 and produce a clickable map that shows all of the aircraft found by dump1090 in real time. You can download it from here: <http://www.virtualradarserver.co.uk/Download.aspx>

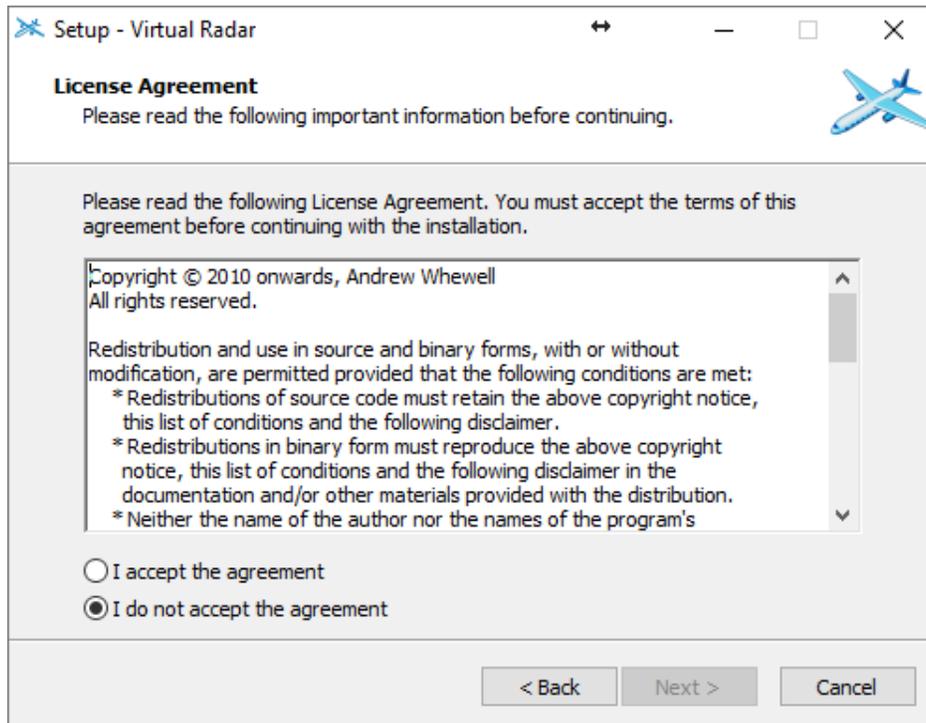
After downloading the software, run it to start the installation.



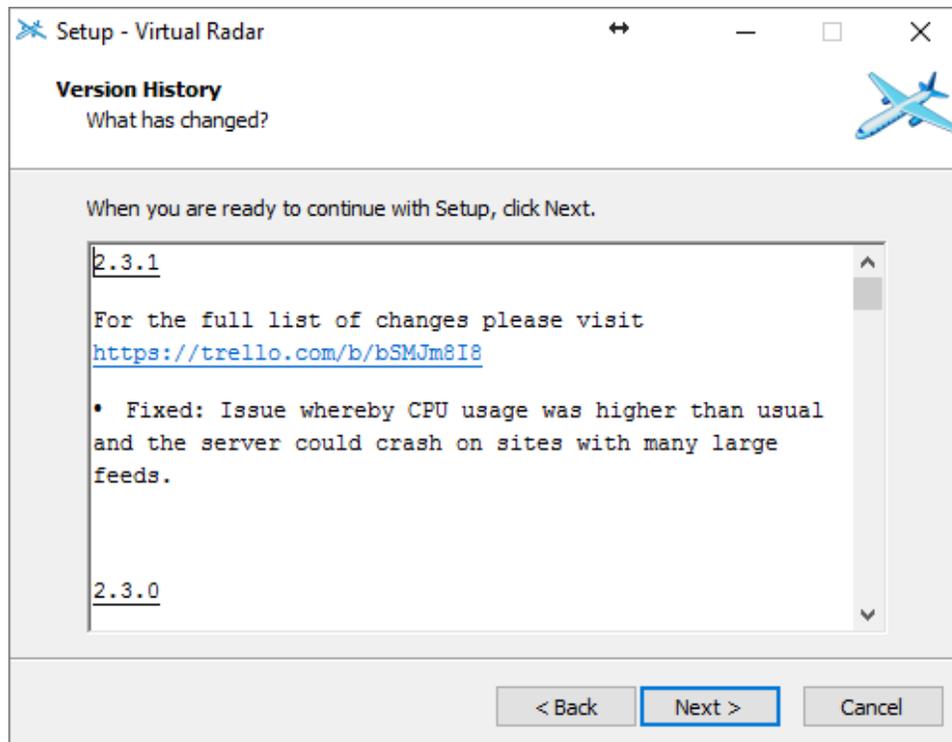
Click Next to continue past the welcome screen.



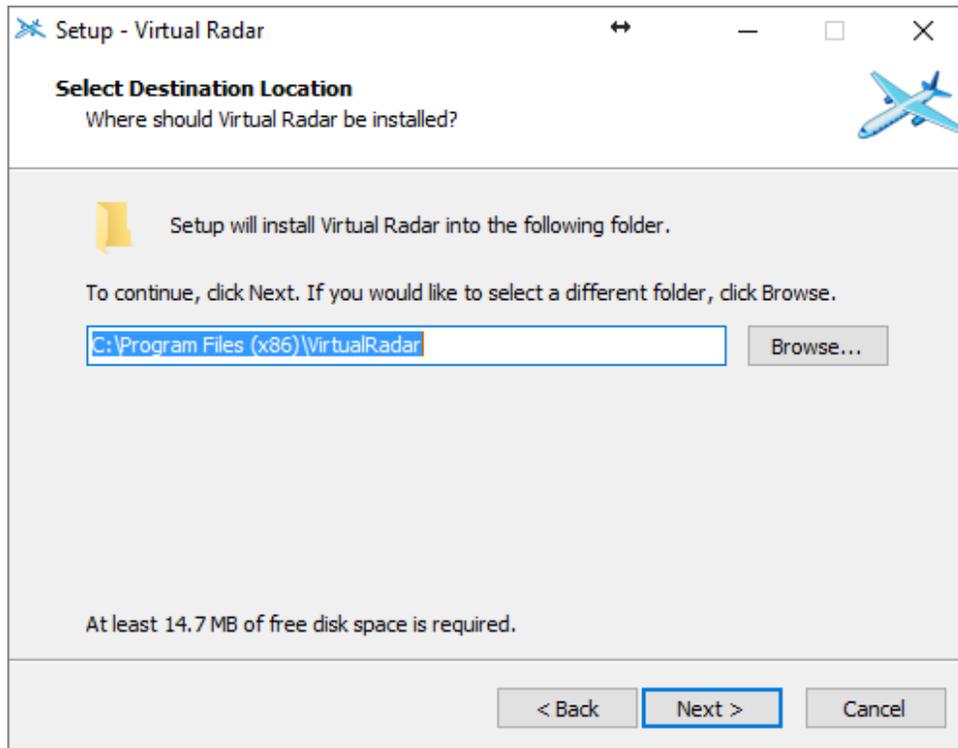
Review and accept the license agreement, then click Next.



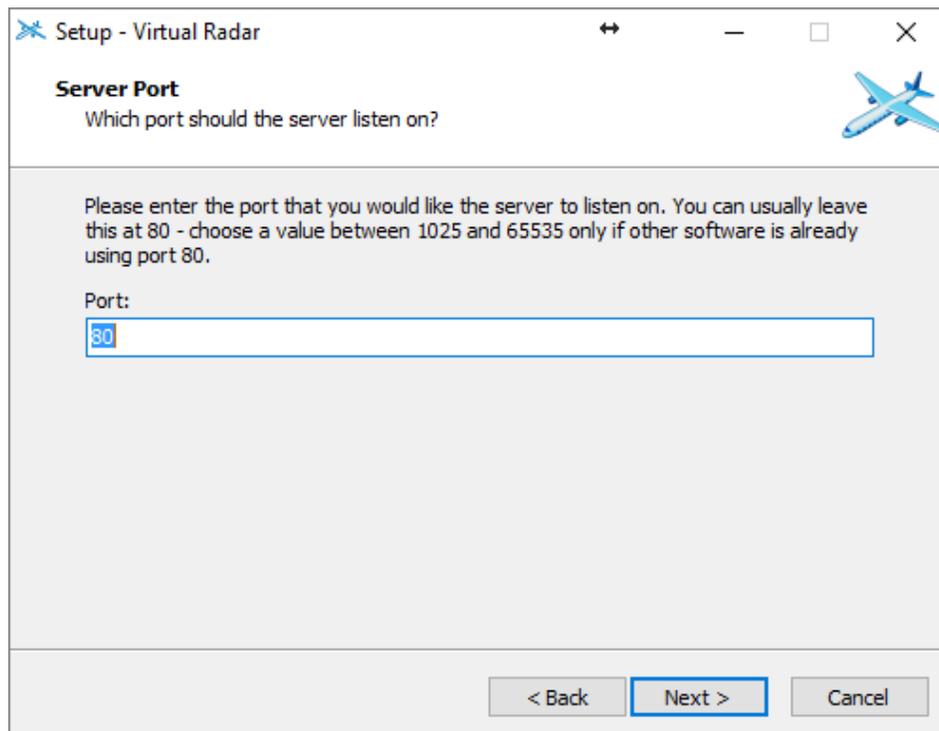
You can review the change log and then click Next to continue.



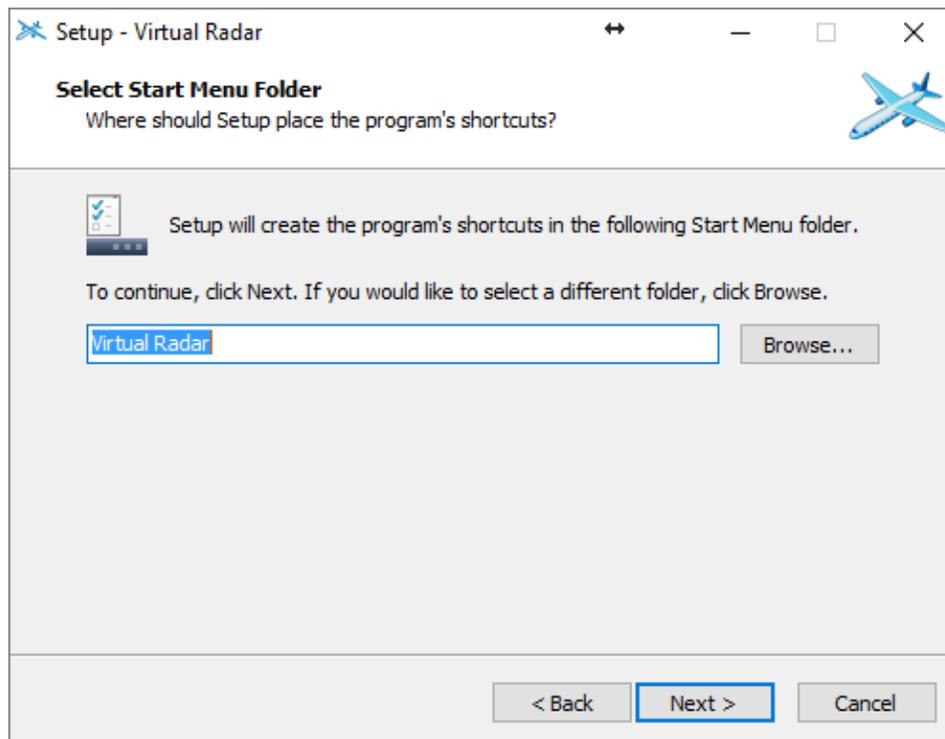
Review the installation directory and click Next



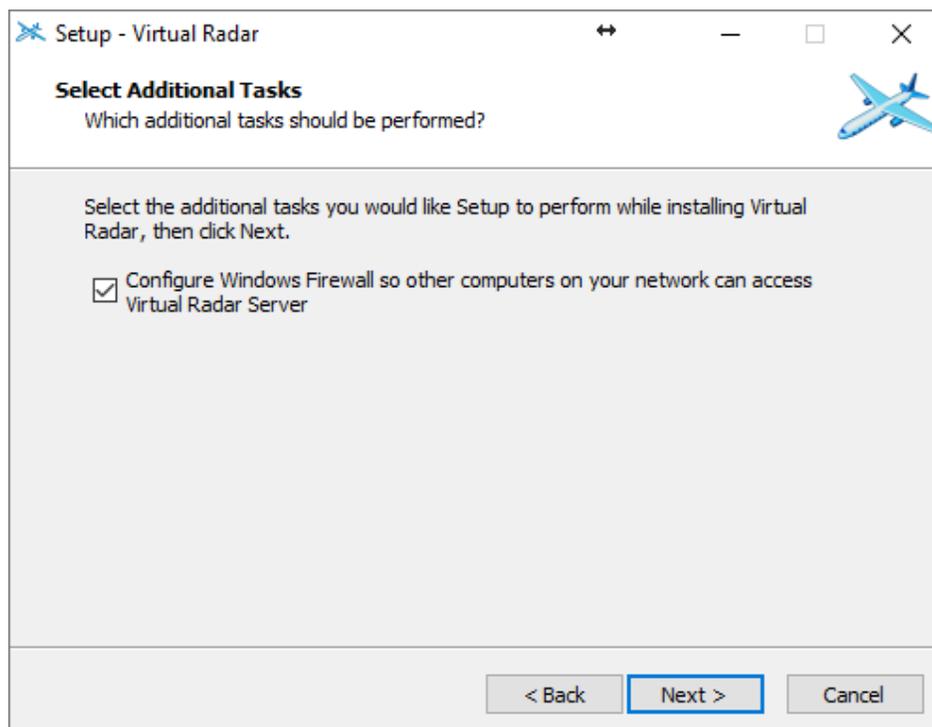
The next screen allows you to change the port number that the server listens on to receive web requests. You can normally leave this as the default (80) but if it conflicts with another web server you may have on your system, you can change it, then click Next.



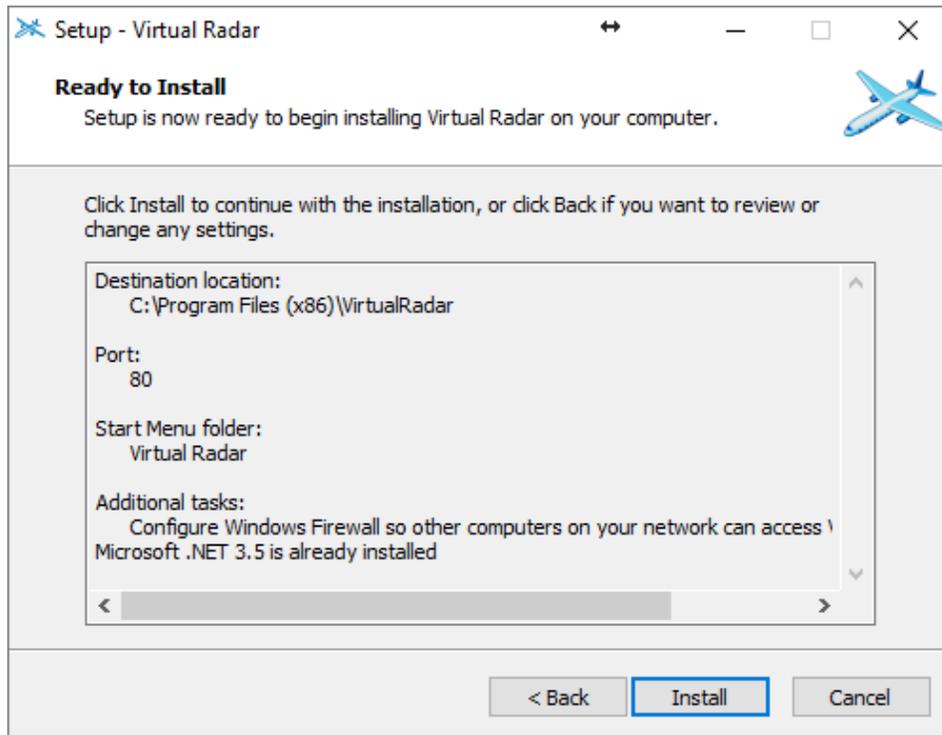
You can choose which folder to store the programs shortcuts or leave it as the default and click Next



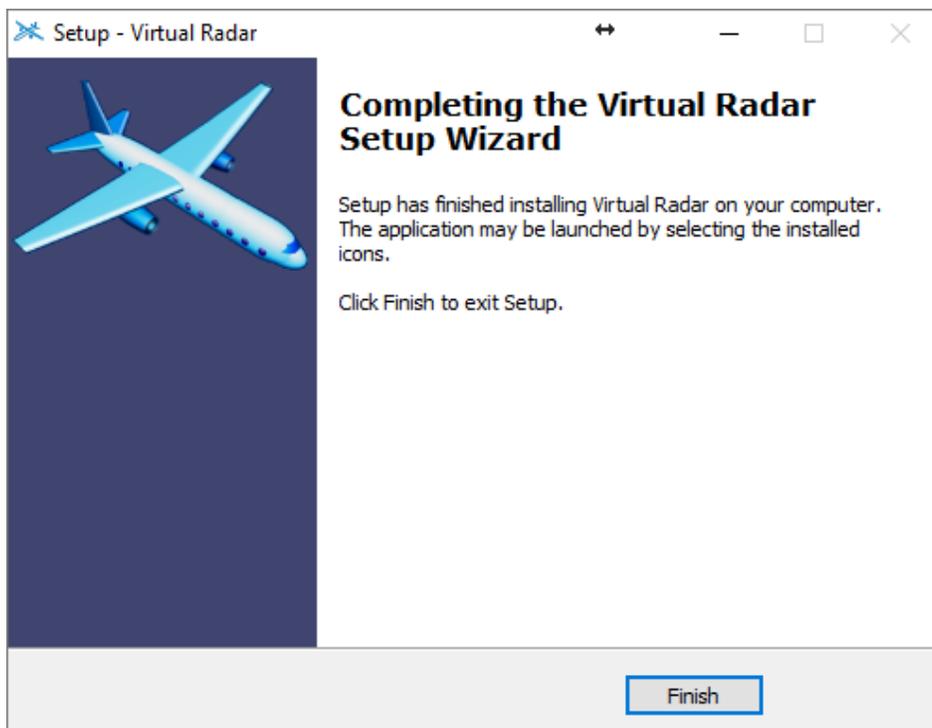
This screen allows you to automatically configure the firewall to allow remote connections. Review this information and then click Next once you have decided on the correct setting.



After reviewing the summary of what will be installed, click Install to begin.



After the software has installed, click Finish to close the installer.



2. Getting Started

The easiest way to get started is to click on Start dump1090 from the Stat Menu (under SDRplay/dump1090). This will start dump1090 with settings to output the received plane information to the network ports.

A receiver should be setup in Virtual Server with the following information:

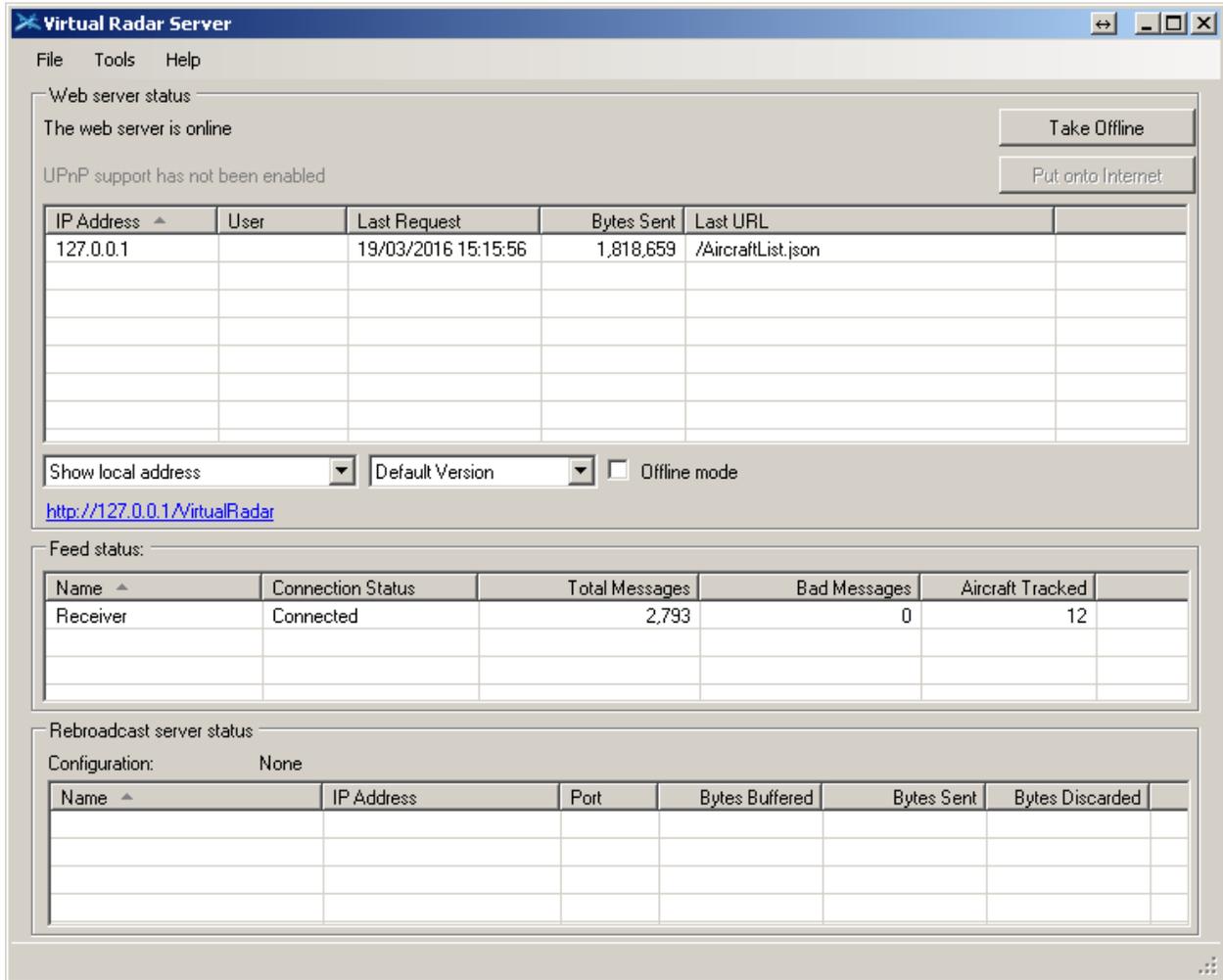
Format: Beast

IP: 127.0.0.1 (if dump1090 and virtual server running on the same machine) or set to the IP address of the machine running dump1090

Port: 30005 (this is the default output port for beast data)

Please note: there are more Start options from the menu, these are 2MHz mode (interactive or quiet) and 8MHz mode (interactive or quiet). Interactive will show the plane information as received but will require more CPU than the quiet mode that just outputs the data to the network port.

Whilst this is running, start Virtual Radar Server from the Start Menu. It should automatically connect to the dump1090 application and start to process incoming data.



Virtual Radar Server

File Tools Help

Web server status
The web server is online Take Offline

UPnP support has not been enabled Put onto Internet

IP Address ^	User	Last Request	Bytes Sent	Last URL
127.0.0.1		19/03/2016 15:15:56	1,818,659	/AircraftList.json

Show local address ▼ Default Version ▼ Offline mode

<http://127.0.0.1/VirtualRadar>

Feed status:

Name ^	Connection Status	Total Messages	Bad Messages	Aircraft Tracked
Receiver	Connected	2,793	0	12

Rebroadcast server status
Configuration: None

Name ^	IP Address	Port	Bytes Buffered	Bytes Sent	Bytes Discarded

You can now click on the link in blue inside the Virtual Radar window (shown in blue) and it will open up a browser window showing the aircraft being detected on a map.

You can change some of the command line options to try to improve the performance to capture more aircraft data. Below are some of the options that relate directly to the operation of the RSP.

3. RSP Command Line Options

- dev-sdrplay – Must be set for ANY RSP
- net – enable networking
- modeac – enable decoding of SSR modes 3/A & 3/C
- oversample – use the 8MHz demodulator (default: 2MHz demodulator)
- rsp-device-serNo <serNo> Used to select between multiple devices when more than one RSP device is present
- rsp2-antenna-portA Select Antenna Port A on RSP2 (default Antenna Port B)
- rspduo-tuner1 Select Tuner 1 on RSPduo (default Tuner 2 if Master or Single Tuner)
- rspduo-single Use Single Tuner mode for RSPduo if available (default Master/Slave mode)
- adsbMode Set SDRplay ADSB mode (default 1 for ZIF and 2 for LIF)
- enable-biasT Enable BiasT network on RSP2 Antenna Port B or RSP1A or RSPduo Tuner 2
- disable-broadcast-notch Disable Broadcast notch filter (RSP1A/RSP2/RSPduo)
- disable-dab-notch Disable DAB notch filter (RSP1A/RSPduo)
- interactive – display aircraft data in a table in the command prompt
- quiet – Disable output to the command prompt

For more information contact <http://www.sdrplay.com/support>

4. Legal Information

Dump1090 was written by Salvatore Sanfilippo antirez@gmail.com (2012) and is released under the following BSD three clause license.

Malcolm Robb support@attavionics.com (2014) made a number of improvements
SDRplay Limited info@sdrplay.com (2016) added RSP support

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