

Yacht Devices

User Manual

YDVR Converter Software

Software version
1.80

2026

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Web: <http://www.yachtd.com/>

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1. Introduction

This manual explains how to install, configure and use YDVR Converter (referred to below as the converter or the program). It converts Voyage Recorder .DAT files to GPX, CSV (spreadsheet), ODT (OpenDocument Text), XML and other formats (see pages 7-8). It also creates binary CAN logs that Voyage Recorder can play back onto a physical CAN network.



Voyage Recorder stores data from a vessel's onboard network on a MicroSD card. A typical cruising yacht's network carries position, course, speed, depth, water temperature, log and wind data, plus AIS information about nearby vessels. Engine, tank and battery data may also be available. Voyage Recorder saves all network data without analysing it; YDVR Converter performs the analysis later.

Figure 1. Voyage Recorder

Voyage Recorder YDVR-04 also records audio from a VHF line output or microphone amplifier. This lets you reconstruct a voyage in detail: view your track and nearby AIS tracks, and listen to VHF conversations or forecasts recorded at a particular place or time.

Voyage Recorder supports NMEA 2000 networks, including Raymarine SeaTalk NG, Simrad SimNet, Furuno CAN and Garmin NMEA 2000. For details, visit www.yachtd.com.

2. Program installation

YDVR Converter 1.80 is free of charge. The current version supports:

- Windows 10 version 1809 or later, or Windows 11 (64-bit x86).
- Linux on x86_64: Ubuntu 22.04 or a compatible system with glibc 2.35 or later, X11 or XWayland, and the required system libraries.
- macOS 13 or later, on Intel Macs and Apple silicon (universal application).

Versions for older operating systems are available at www.yachtd.com.

Extract the archive for your operating system to a folder on your computer or a USB drive. The included “Test” folder contains sample recordings.



Linux

If necessary, enable “Allow executing file as program” in the file properties, or run `chmod +x YDVRConv`. The system’s X11/XCB, xkbcommon, DBus and standard runtime libraries must be installed.



macOS

Open the supplied DMG in Finder and drag YDVRConv to Applications. The current build uses an ad-hoc signature and is not notarised.



Windows

Run YDVRConv.exe from the extracted folder. No separate Visual C++ Redistributable is required.

3. Using the program

The program uses a step-by-step wizard. Read the introduction and click “Next”. In step two, use “Add files...” to select Voyage Recorder .DAT files. You can select several files; they are sorted automatically by the time of their last record, shown in your PC’s local time zone. “Add folders...” adds files from a folder and its immediate subfolders.

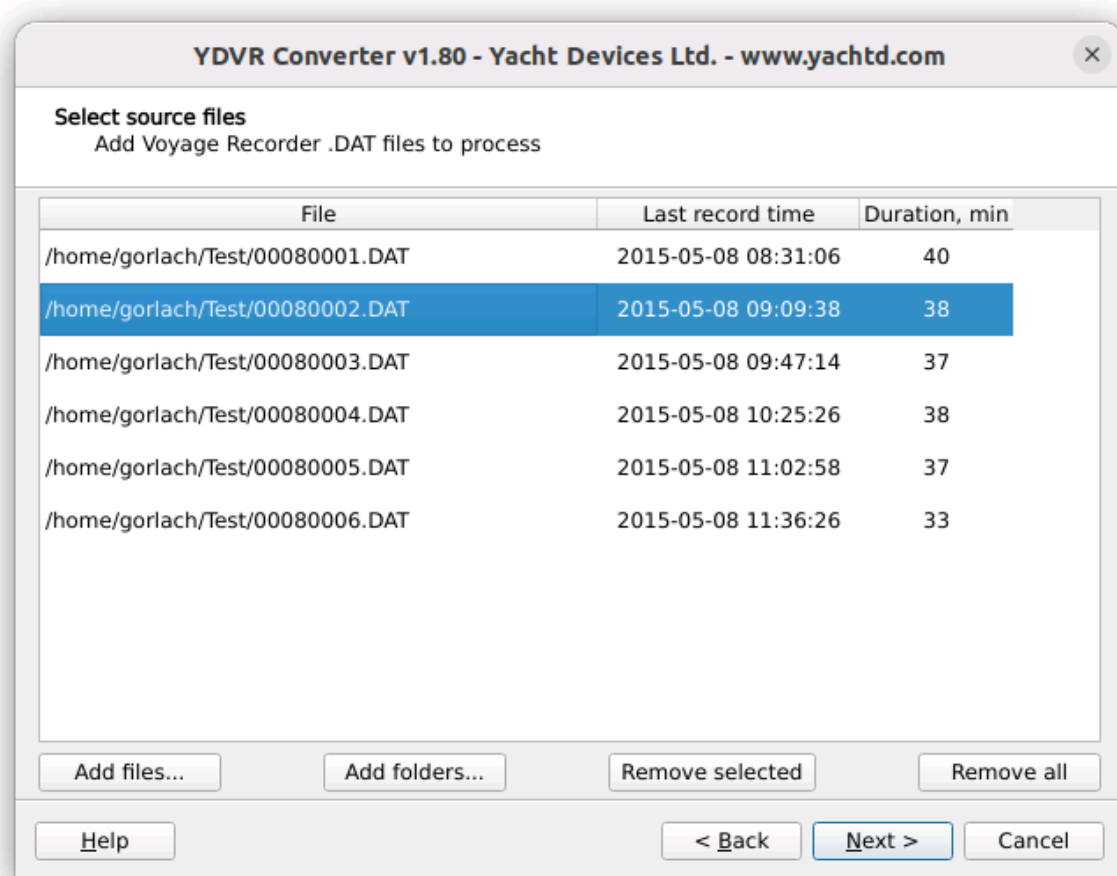


Figure 2. Second step

There are examples of Voyage Recorder .DAT files in the “Test” folder of the program’s archive. You can use them to get acquainted with the program.

To remove files, select them in the source list and click “Remove selected”.

In the third step, you should select the type of output file (see Figure 3).

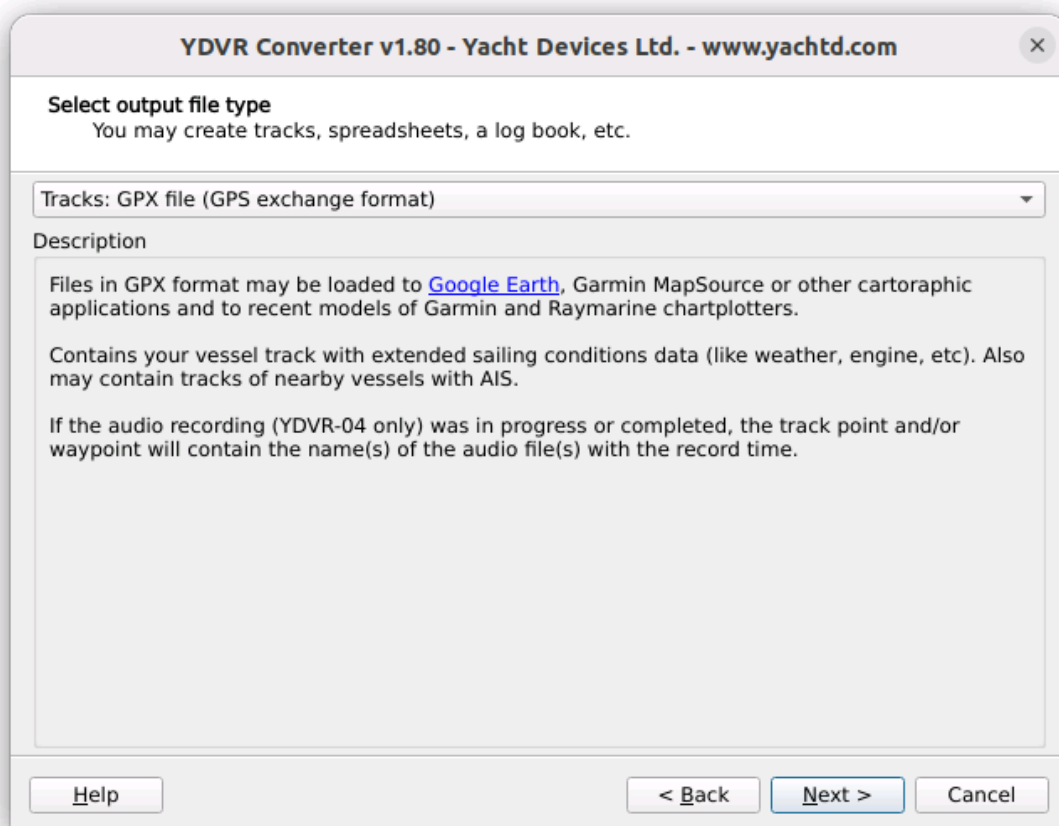


Figure 3. Output file types

1. GPX (GPS Exchange Format). Open these files in mapping software such as Google Earth or Garmin MapSource, or import them into compatible chart plotters. They contain your vessel's track and additional data such as weather and engine status, and can include nearby AIS tracks. Track points and waypoints can also contain audio filenames and recording times.
2. CSV (comma-separated values). Open these files in Microsoft Excel, LibreOffice Calc or another spreadsheet application to create wind roses, speed charts or depth graphs. Audio filenames and recording times are included when available.
3. Logbooks in .ODT (OpenDocument Text) format. Open them in Microsoft Word, LibreOffice Writer or another word processor. You can create your own templates (see 4.3 and Appendix B).
4. OpenSkipper .XML format. OpenSkipper displays NMEA 2000 recordings on virtual gauges and decodes messages in its log viewer. This open-source Windows application is available at <http://openskipper.org>.

5. CanBoat / Signal K .LOG format. This contains raw NMEA 2000 data. Marine electronics specialists can use the CanBoat analyser to convert it to a readable form. See <http://signalk.org/> and <https://github.com/canboat>.

6. CAN log (see also 5.4). This open binary format stores CAN frames independently of higher-level protocols such as NMEA 2000 or J1939. Voyage Recorder can play these files onto a physical CAN bus. The free CAN Log Viewer displays and converts them; its manual describes the format: www.yachtd.com/products/can_view.html.

7. NMEA 2000 Devices List (CSV). Lists devices, including model and manufacturer, serial number, network address and any previous addresses, transmitted PGNs, message counts and other information.

Click “Next” to configure the output file in step four (Figure 4).

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Output file settings
Choose the name and other settings

Output file name:

Time interval between points or records:

☐ Process all available data in source files
☒ Process the data in specified time range only

Start: End:

Preferred units (when applicable):

- speed: ☒ knots ☐ m/s ☐ mph	- temperature: ☒ °C ☐ °F
- depth: ☒ feet ☐ meters	- pressure: ☒ kPa ☐ PSI
- distance: ☒ nm ☐ km	- volume: ☒ liters ☐ US gallons

Figure 4. Step four: configuring the output file

GPX files contain a sequence of GPS points; CSV files and logbooks contain records. The program analyses NMEA 2000 messages to generate points or records at the interval selected in this step. Shorter intervals produce larger files. This setting does not apply to OpenSkipper, CanBoat / Signal K or CAN logs.

You may also specify the time range of data processing on this page for the following reasons:

- align logbook records to round times, such as the start of an hour;
- skip GPS initialisation, when chart plotters may transmit invalid dates or times.

The XML schema or logbook template may override the units selected on this page.

For most types of output files, an additional page with settings is shown before you are able to review the settings and run a conversion job. These settings are described in the next chapter.

4. Conversion settings

This chapter describes specific settings for different output file types.

4.1 GPX settings

The output contains geographical points forming the vessel's track, generated at equal time intervals. Additional voyage data, such as wind speed or depth, are attached as text comments or XML elements, depending on the selected schema.

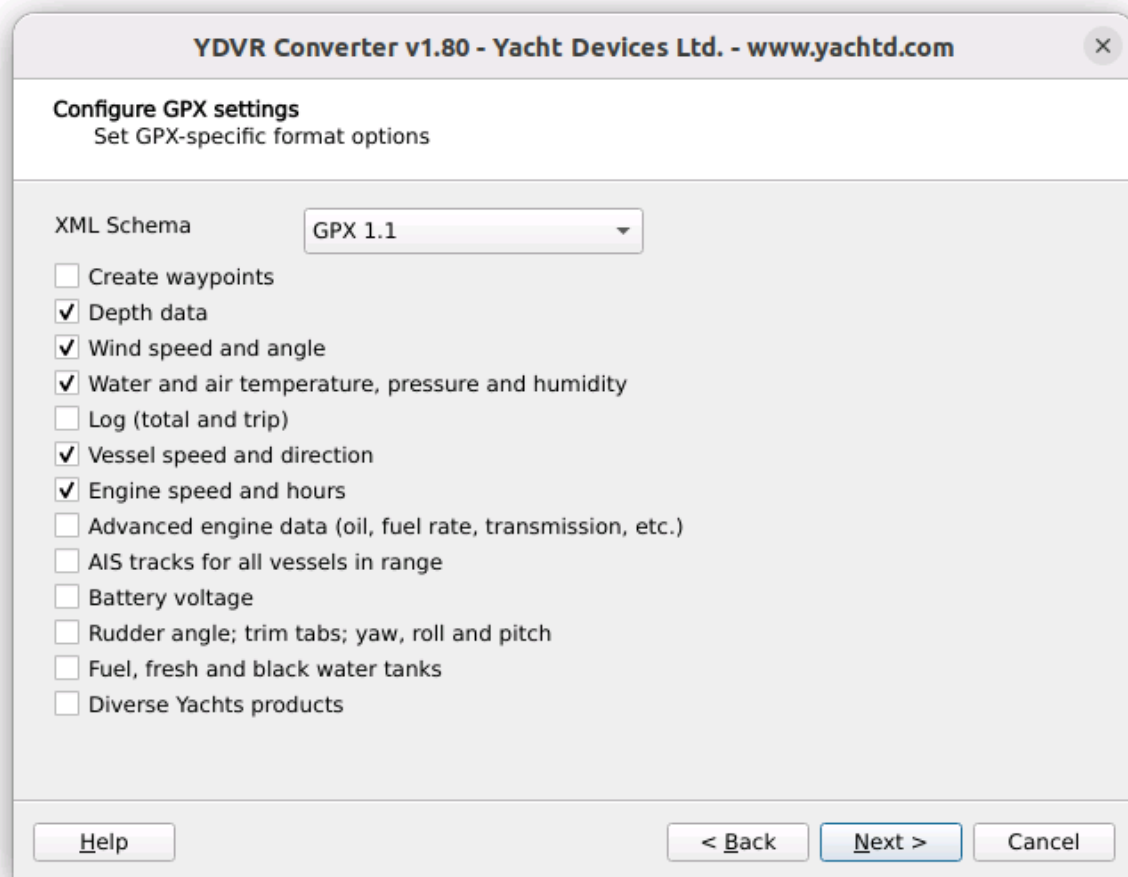


Figure 5. GPX format settings

XML Schema

You can select one of the following four options for GPX output files:

- 1) GPX 1.1. The most widely supported option. Additional sailing data are stored as text notes for each point. Depth is also stored in the <ele> XML element.
- 2) Yacht Devices. Our GPX extension stores additional data in XML elements.
- 3) Garmin V3. Stores water depth and temperature in XML elements using Garmin's schema, for compatible software and devices. Other additional data are stored as text notes.
- 4) Raymarine. Stores water depth and temperature in XML elements using Raymarine's schema, for compatible software and devices. Other additional data are stored as text notes.

Create waypoints

The program adds sailing data and associated audio filenames as track-point comments. Some applications cannot display these comments. Enable this option to create a waypoint for each track point; waypoint comments are supported by more applications.

Depth information

Add depth to additional data, taking into account the sensor offset. The program calculates maximum (MAX) and minimum (MIN) depths for the interval between points.

Wind speed and angle

Add the following to additional data:

- TWS: true wind speed
- TWD: true wind direction, relative to true north
- TWA: true wind angle, relative to the vessel's centreline
- AWS: apparent wind speed
- AWA: apparent wind angle, relative to the vessel's centreline

An anemometer measures apparent wind. In marine use, true wind is commonly calculated relative to the water. If true wind is not supplied by the network, the converter can calculate it from apparent wind, heading and speed through water.

The program calculates the median (MED), arithmetic mean (AVG), maximum (MAX) and minimum (MIN) for each interval between points.

Roll and pitch can cause apparent wind angle (AWA) and similar values to vary greatly. A single instantaneous value is therefore not a reliable indication of wind direction; use MED or AVG.

Water and air temperature, atmospheric pressure

Include water and air temperature, pressure and available inside/outside humidity. This also includes saloon, fridge and freezer temperatures. The program calculates interval maxima (MAX) and minima (MIN). Atmospheric pressure is always shown in mbar (equivalent to hPa); the selected pressure units apply only to engine data, such as boost and oil pressure.

Log (total and trip)

Add total and trip log data to additional data.

Vessel speed and direction

Add heading data from the magnetic compass (recalculated to true degrees), speed through water (STW) from the log, speed over ground (SOG) and course over ground (COG) to additional data. The program calculates maximum (MAX) and minimum (MIN) values for the interval between points.

Engine speed and hours

Include engine hours and RPM, with interval maxima and minima. Up to eight engines are supported, identified by Engine Instance rather than CAN address. The first eight distinct instances encountered are used, including generator instances such as 192 and 193.

Advanced engine data

Include engine load, fuel rate, boost pressure, exhaust temperature, and coolant, engine-oil and transmission-oil temperatures and pressures, with interval maxima and minima. The same eight Engine Instances are used. Transmission data from another CAN address are matched by instance.

AIS tracks for all vessels in range

Create tracks for nearby AIS vessels, named by vessel name or, if unavailable, MMSI. Your own track is named “My Vessel Track”. An additional track based on your vessel’s AIS messages is named using its MMSI or vessel name.

If the points/record interval for your track (see the previous chapter) is smaller than 15 seconds, all AIS points will be added to the AIS tracks (up to six points per minute for a vessel). This can cause the output file to be huge and some programs may have difficulty displaying it.

For intervals from 15 seconds to one minute, AIS tracks use the same interval as your own track. For intervals up to five minutes, AIS points are at least two minutes apart. For longer intervals, they are at least five minutes apart.

Service battery voltage

Include service battery voltage (battery instance 0). If standard battery-voltage messages are absent, the program tries Raymarine service messages. Interval maxima (MAX) and minima (MIN) are also calculated.

Rudder angle; yaw, roll and pitch

Include rudder angles (up to two rudders) and the vessel’s yaw, roll and pitch in degrees. For yaw and roll, the angular origin is the starboard direction; for pitch, it is the upward direction.

Fuel, fresh and black water tanks

Include fluid levels for two tanks of each type, with instances 0 and 1. CSV files show these values as percentages.

Diverse Yachts products

Diverse Yachts Hybrid Loadcell Amplifier (HLA) and CAN Load Amplifier (CLA) products report loads on backstays, boom vang, mainsheets and other standing or running rigging. All fifty available data types are supported.

4.2 CSV settings

Each CSV row contains a timestamp, coordinates and additional sailing data. Values are separated by semicolons or commas.

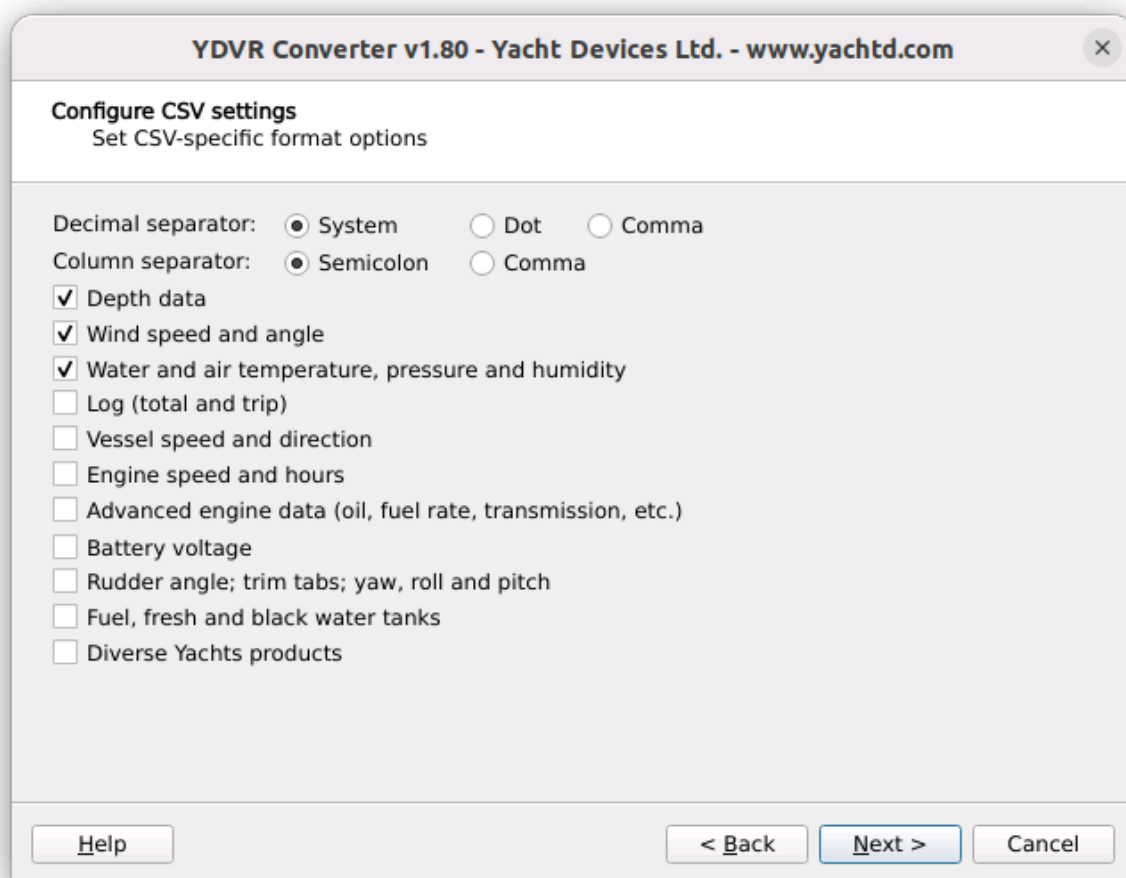


Figure 6. CSV format settings

The type of decimal separator may depend on your operating system's settings (dot or comma), or you can choose it.

Other settings match the GPX settings (see 4.1), except that CSV has no “Create waypoints” or “AIS tracks for all vessels in range” options.

4.3 Logbook settings

A logbook is an editable, printable document in ODT (OpenDocument Text) format. It can be opened in Microsoft Word, LibreOffice Writer and other word processors.

The logbook is generated from an ODT template containing record macros (Appendix B). The program replaces these with values. For example, Ho and Mo give the hour and minute of the first record; X1 and W1 give the latitude and longitude degrees of the second record.

A template supports up to 20 records, counted using consecutive hour macros Ho-H9 and HA-HJ. The last character is the record index in base 20. When the template is full, the program calculates totals, including the distance between the first and last positions (XDRUN), and appends the completed template to the output. It then starts a new copy, increments XXPN (starting at 1), and fills header macros such as XDATE with the date of the first record in that copy.

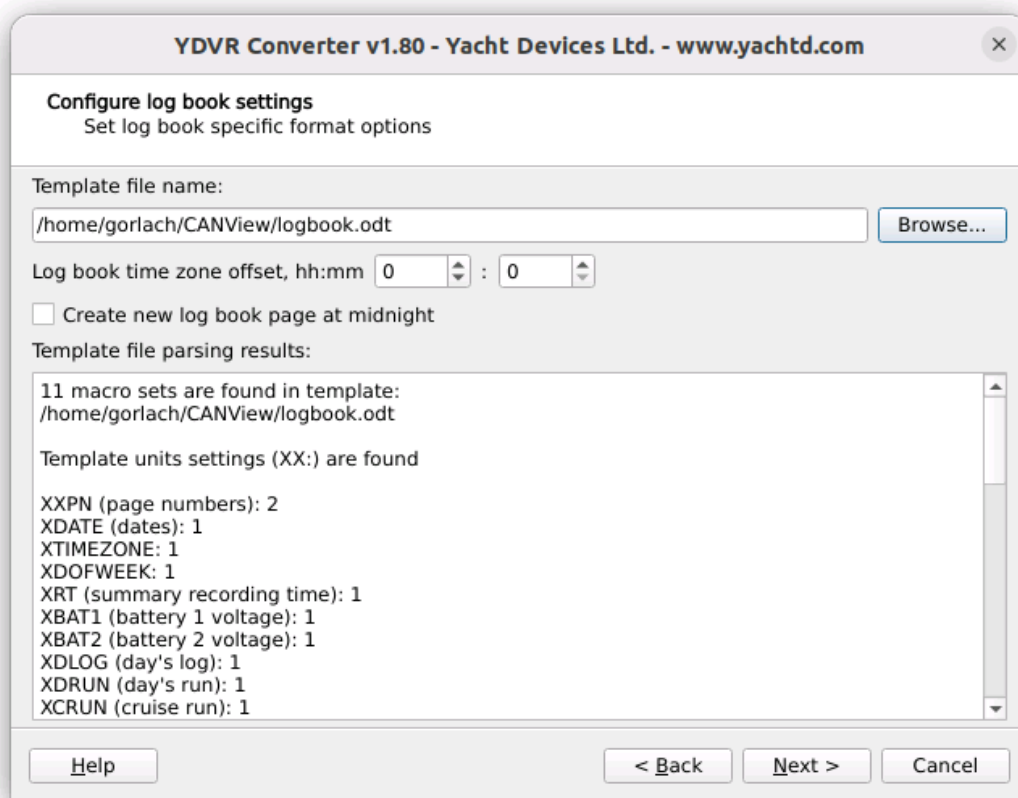


Figure 7. Logbook settings

5. Examples of using output files

This chapter gives practical examples of using the output files.

5.1 GPX file in Google Earth

This example uses Google Earth to display a GPX file. Its handling of GPX has some limitations, described below.

The screenshot shows a GPX file generated with all options enabled from “Test\Bornholm” in the program archive. On the left are waypoints for your vessel and tracks for your vessel and nearby AIS vessels. Click a vessel’s name to display its information (“BBS SURF” in this example).

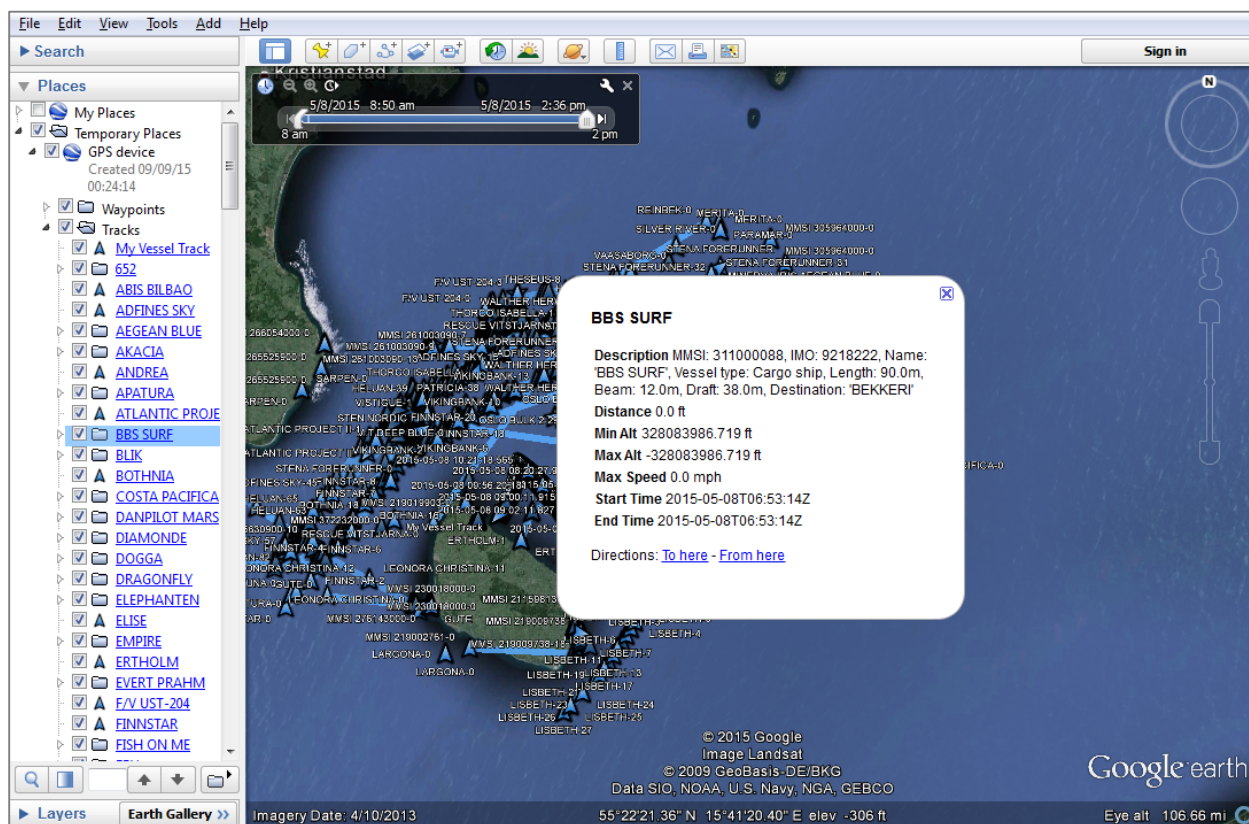


Figure 9. Viewing AIS vessel data

Click the checkbox beside the Tracks folder to hide all tracks. Find the folder with the name “My Vessel Track” in the list of tracks and click on it to show only your vessel’s track. Note that in the list there are two elements with the name “My Vessel Track” (that is a feature of Google Earth). You should select the one that has the folder sign.

Using a time scale, you can simulate the movement of your vessel, and by clicking on a point, you can display coordinates, headings, and the speed calculated by Google Earth.

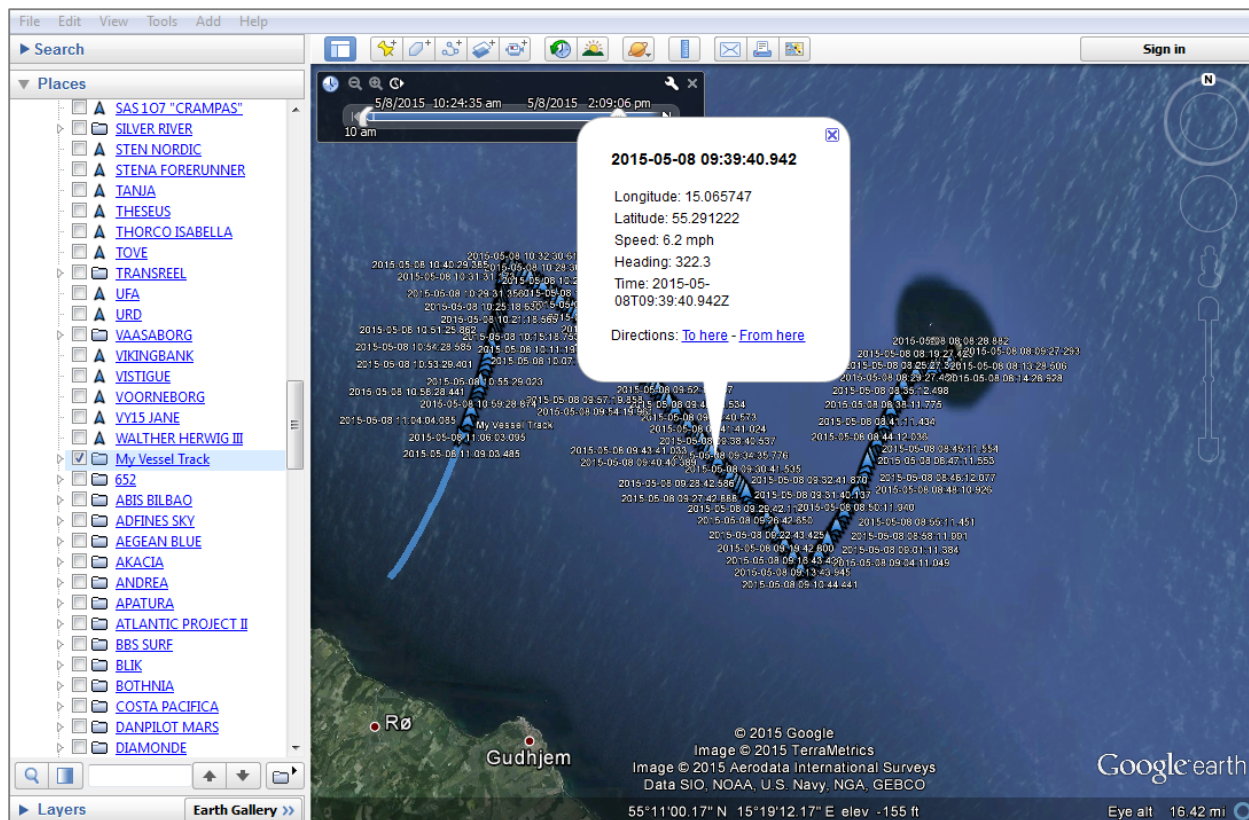


Figure 10. Viewing data calculated by Google Earth

Google Earth does not display track-point comments. To see additional sailing data, enable “Waypoints” and click a flag icon (Figure 11 on the next page). Click a triangular track-point icon to see data calculated by Google Earth (Figure 10).

If you want to see additional sailing data only, you can hide the track points using a time scale. If you want only to see data calculated by Google Earth, you may turn off the display of the “Waypoints” folder.

Note that for any additional data, the first value is always a momentary value at a given point. Because of wave action (roll and pitch), the information is not always accurate for

data such as AWA (apparent wind angle) or heading. To assess wind conditions, use the median (MED) or average (AVG).

Angular sectors run clockwise, so MIN may be numerically greater than MAX. For example, TWD values MIN=350 and MAX=20 describe a 30-degree sector crossing north. MIN=20 and MAX=350 describe a 330-degree sector.

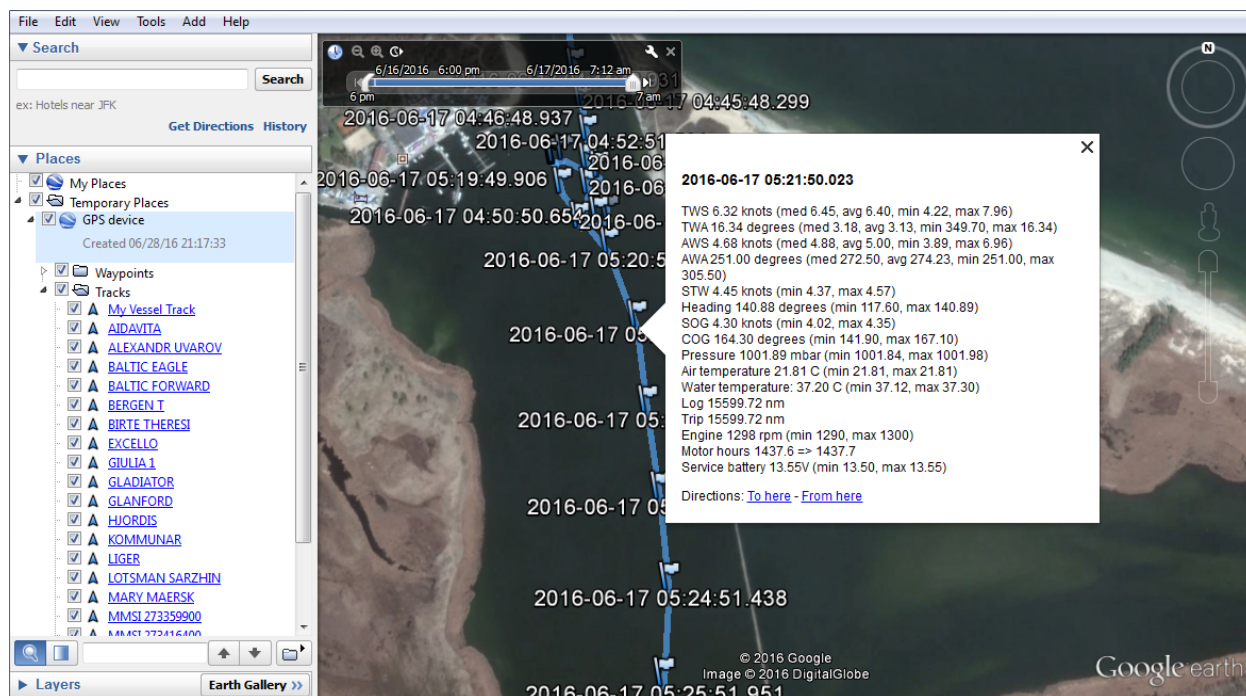


Figure 11. Viewing additional sailing data

In the supplied test data, true wind direction changes on each tack because the test vessel's anemometer was not calibrated correctly.

5.2 CSV file in a spreadsheet

This example uses LibreOffice Calc. Bornholm.csv is included in the “Test” folder of the program archive. You can also generate it from the data in “Test\Bornholm”.

Open the file in LibreOffice Calc. In the text import wizard, choose a semicolon as the separator, ASCII encoding and “Date (YMD)” for the first column.

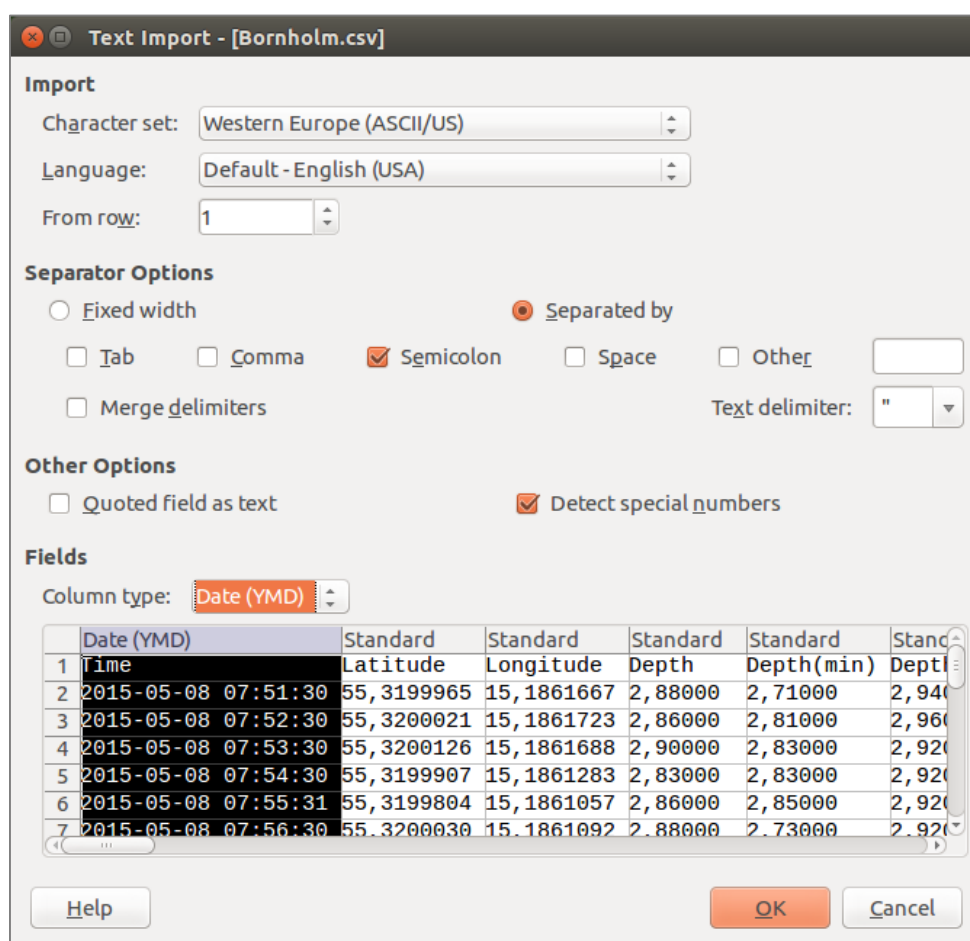


Figure 12. Text import wizard of LibreOffice Calc

Coordinates have seven decimal places; other values have five. Bornholm.csv uses decimal commas. If Calc expects a decimal point, it may interpret these numbers as text.

If necessary, regenerate Bornholm.csv with the decimal separator required by your spreadsheet. The converter can use the operating system's setting or your explicit choice (see 4.2).

	A	B	C	D	E	F	G	H	I	J	K	L	M
	Time	Latitude	Longitude	Depth	Depth(min)	Depth(max)	TWS	TWS(med)	TWS(avg)	TWS(min)	TWS(max)	TWA	TWA(med)
2	05/08/15 07:51 AM	55.3199965	15.1861667	2.88	2.71	2.94	9.7581	9.66091	9.14118	3.47948	14.73434	324.254	257.25805
3	05/08/15 07:52 AM	55.3200021	15.1861723	2.86	2.81	2.96	10.74946	9.15551	9.02934	5.48164	12.24622	298.78603	260.7932
4	05/08/15 07:53 AM	55.3200126	15.1861688	2.9	2.83	2.92	9.95248	9.85529	9.52313	3.98488	12.84881	180.01761	257.21508
5	05/08/15 07:54 AM	55.3199907	15.1861283	2.83	2.83	2.92	6.57019	7.26998	7.37255	2.58531	11.35205	357.46264	262.46051
6	05/08/15 07:55 AM	55.3199804	15.1861057	2.86	2.85	2.92	11.76026	7.07559	7.64649	5.77322	11.85745	274.28063	262.28289
7	05/08/15 07:56 AM	55.3200035	15.1861092	2.88	2.73	2.92	8.16415	9.95248	9.59027	4.27646	12.75162	188.37706	260.27181
8	05/08/15 07:57 AM	55.3199785	15.1860854	2.88	2.83	2.94	8.66955	8.35853	8.21712	4.97624	11.35205	232.22552	257.93987
9	05/08/15 07:58 AM	55.319984	15.1861201	2.88	2.85	2.94	10.16631	9.05832	8.80539	5.67603	10.84665	219.77515	259.1173
10	05/08/15 07:59 AM	55.3199851	15.1861255	2.92	2.85	2.94	9.46652	9.66091	9.65026	6.86177	11.76026	287.19509	262.15684
11	05/08/15 08:00 AM	55.3200132	15.1861412	2.92	2.88	2.96	7.87257	8.45572	7.67459	1.38013	12.14903	205.54861	258.59877
12	05/08/15 08:01 AM	55.3200035	15.1861169	2.92	2.85	2.96	6.27862	9.85529	9.38528	4.37365	12.14903	190.57722	255.07508
13	05/08/15 08:02 AM	55.3200108	15.1860884	2.94	2.79	2.96	10.16631	9.66091	9.63721	6.66739	12.55724	239.4276	259.56707
14	05/08/15 08:03 AM	55.3200254	15.1860866	2.88	2.83	2.94	8.16415	8.66955	8.61549	4.56803	11.95464	229.09717	260.95363
15	05/08/15 08:04 AM	55.3200728	15.1861154	2.85	2.81	2.94	9.56371	9.56371	9.77758	6.473	13.5486	279.51173	253.02103
16	05/08/15 08:05 AM	55.3200098	15.1861226	2.88	2.85	2.98	10.45788	9.7581	9.86506	7.26998	12.46004	284.14696	255.84284
17	05/08/15 08:06 AM	55.3199976	15.1860849	3.76	2.77	3.84	10.18841	8.06695	9.08427	4.97624	16.95293	217.69215	252.80617
18	05/08/15 08:07 AM	55.3197435	15.186023	5.3	3.63	5.3	11.71091	10.55508	10.33901	6.80676	12.45054	309.82662	256.61634
19	05/08/15 08:08 AM	55.3187906	15.1860217	4.87	4.68	7.83	13.52313	12.76029	12.60547	9.47075	14.9197	305.6087	286.01802
20	05/08/15 08:09 AM	55.3176921	15.1852505	20.1	3.97	20.66	10.41371	11.81061	12.20634	7.76645	20.2995	303.0448	247.21107
21	05/08/15 08:10 AM	55.3173807	15.1834219	32.85	21.03	32.85	12.08785	12.70045	12.88788	9.21567	18.64233	196.06477	222.79983
22	05/08/15 08:11 AM	55.3171815	15.1816659	39.31	32.85	39.31	11.77807	13.05512	13.16792	10.77959	17.23944	206.85803	223.12231
23	05/08/15 08:12 AM	55.3169469	15.180095	43.93	39.43	43.93	13.75559	13.37974	13.36038	9.68213	17.9856	253.33491	223.41248

Figure 13. The Bornholm.csv file loaded into LibreOffice Calc

To display coordinates in degrees and minutes, insert a column (“Lat DD MM.mmm” in Figure 14 on the next page) and enter this formula in C2:

```
=CONCATENATE(TEXT(ROUNDDOWN(B2),"0")," ",TEXT((B2-ROUNDDOWN(B2))*60,"00.000"))
```

It is easy to plot a chart (see Figure 15 on the next page) and create diagrams using imported data, and they can serve as great visual aids when you discuss your journey later.

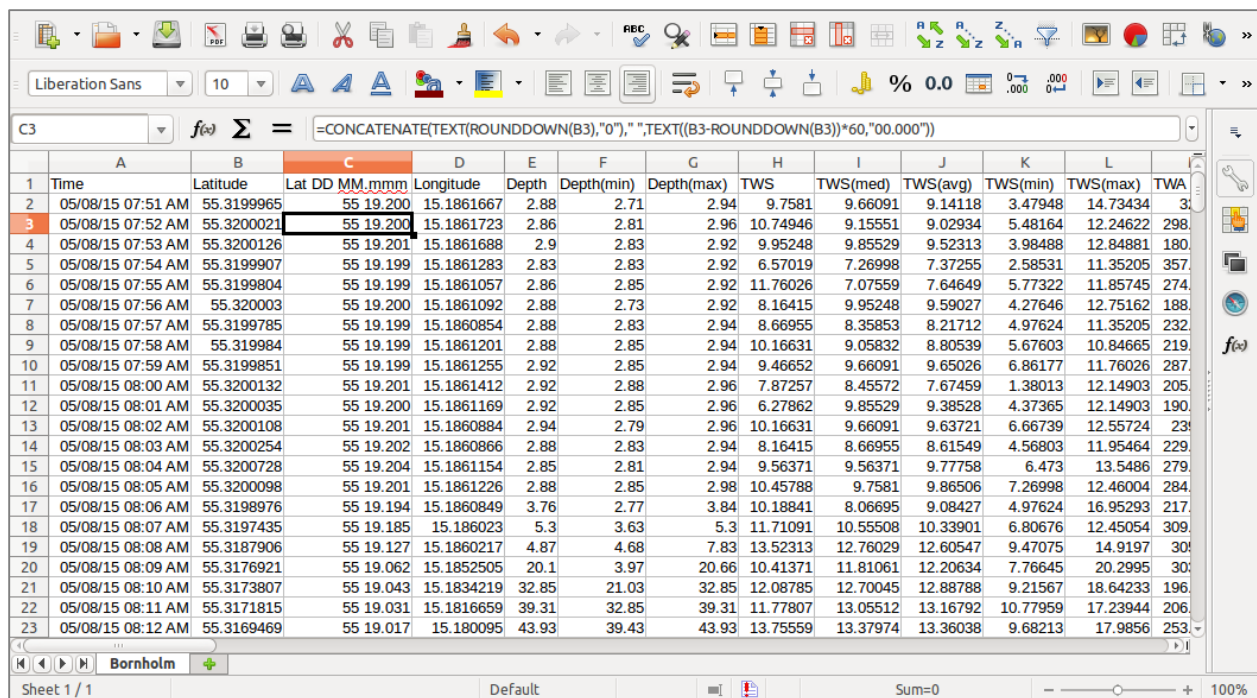


Figure 14. Coordinates displayed in degrees and minutes

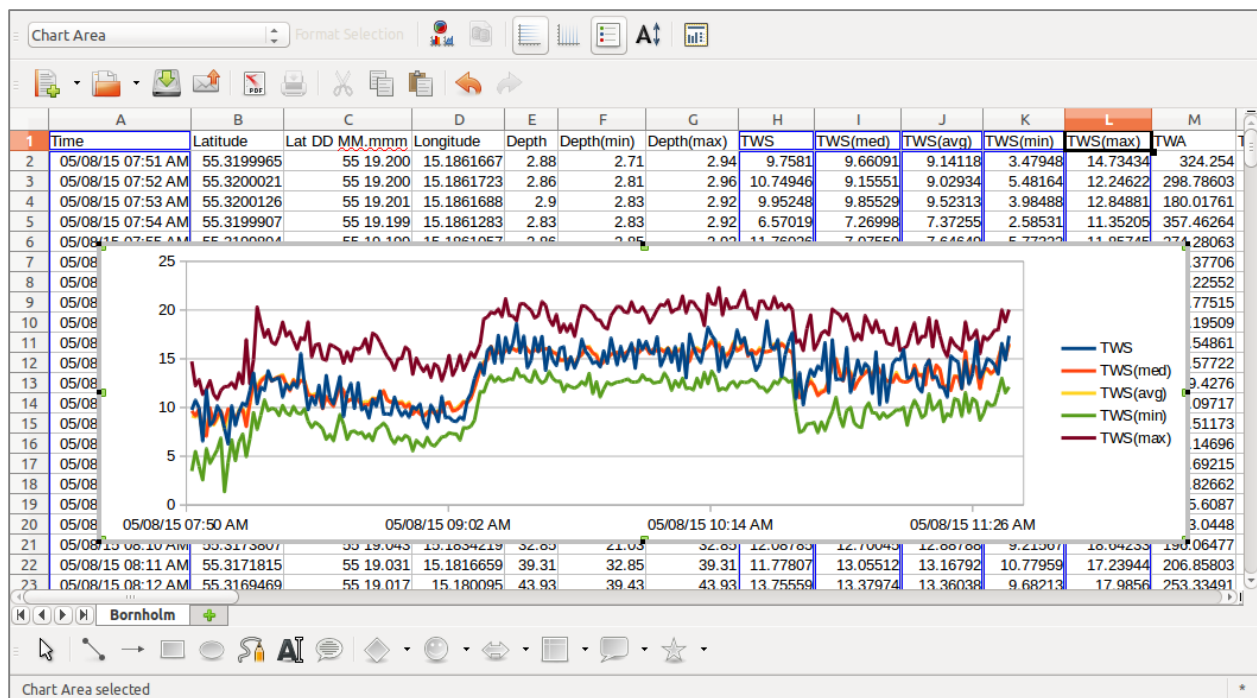


Figure 15. Graph with true wind speed (TWS) values

5.3 XML file in OpenSkipper

OpenSkipper is open-source Windows software available at <http://openskipper.org>. Use it to view NMEA 2000 data recorded by Voyage Recorder.

Convert a Voyage Recorder .DAT file to OpenSkipper .XML format; sample files are provided in “Test”. In OpenSkipper, select “View log...” from the “File” menu and load the XML file.

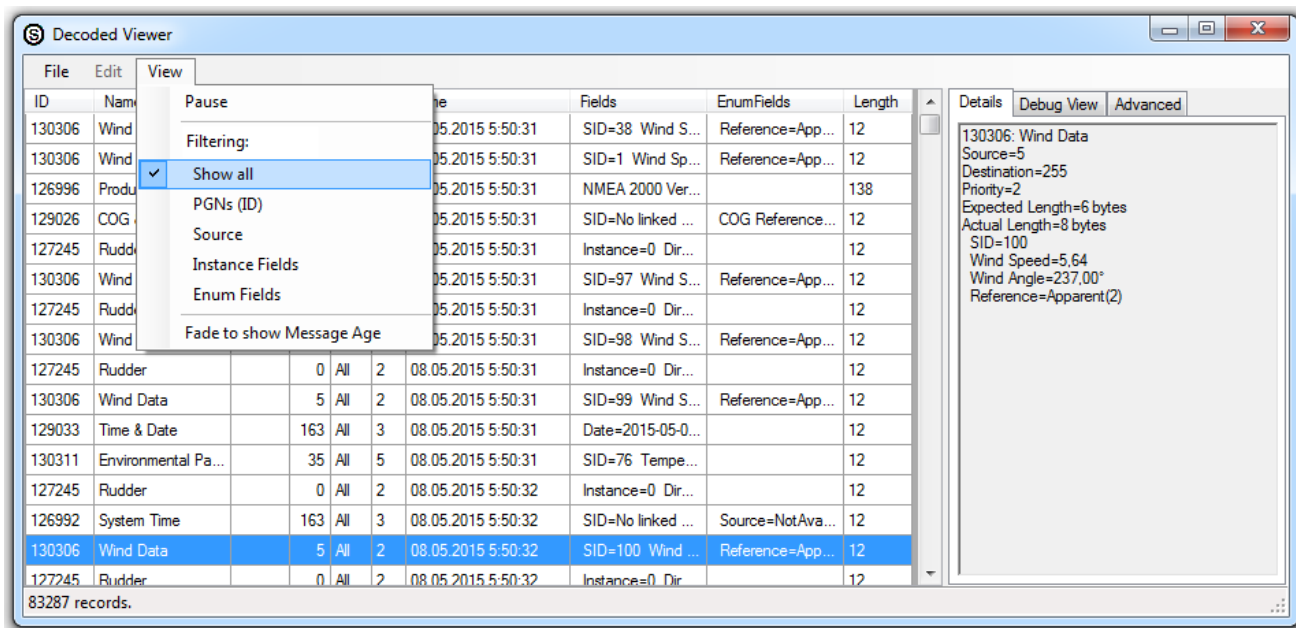


Figure 16. XML file in OpenSkipper

Select “Show all” in the log viewer’s “View” menu to display the message sequence. Click the “Time” column heading to sort it chronologically.

5.4 CAN file in CAN Log Viewer

CAN Log Viewer is another free Yacht Devices application for Windows, Linux and macOS. It plays CAN recordings in real time, displays CAN frames, provides NMEA 2000 and J1939 data viewers, and lists NMEA 2000 devices and their properties.

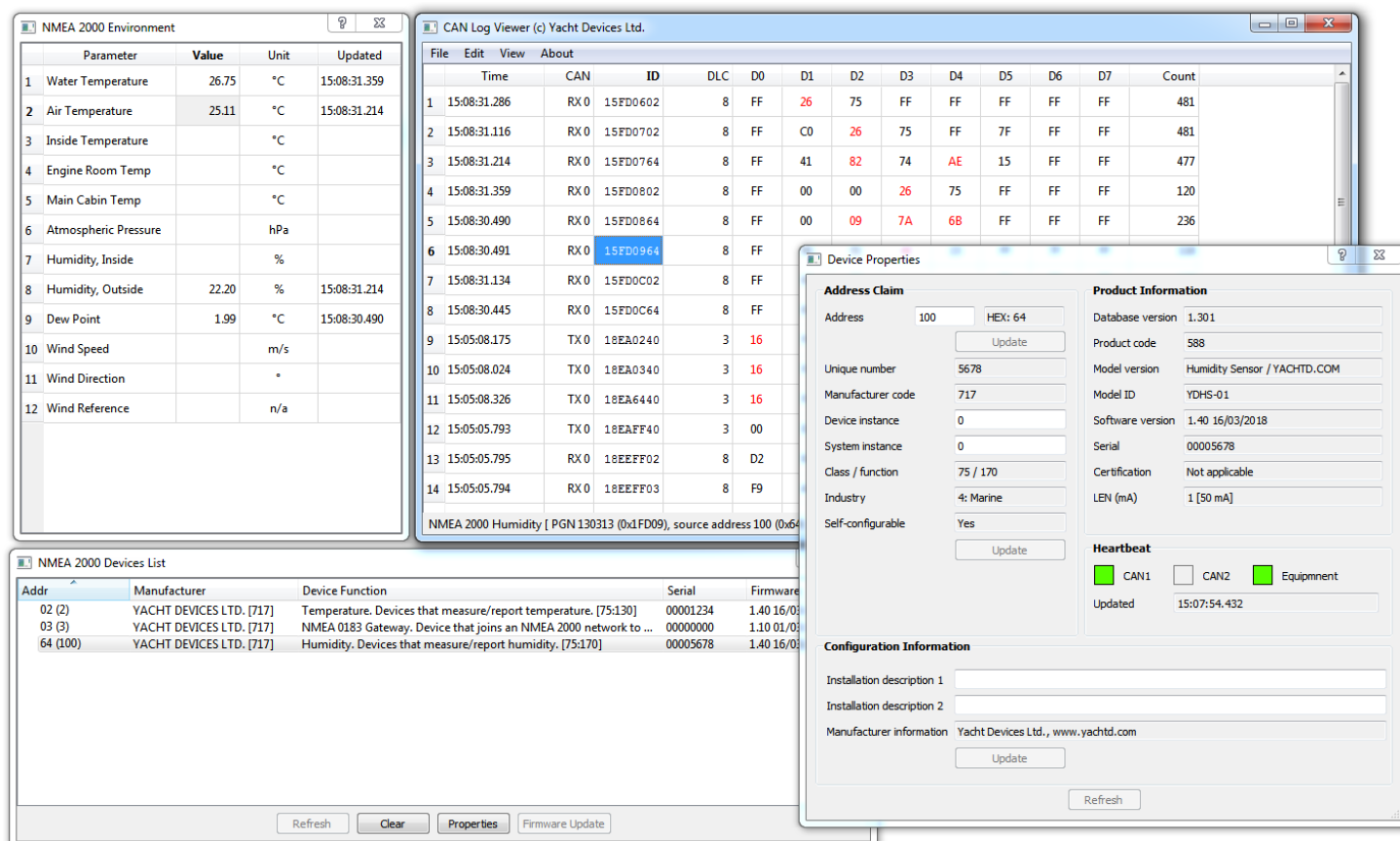


Figure 17. CAN Log Viewer software

Convert .DAT files to .CAN with YDVR Converter, then select “Open...” in CAN Log Viewer’s “File” menu. CAN Log Viewer can also convert .CAN back to .DAT. Select “Stop” in the “File” menu to pause playback.

6. Voyage Recorder file format (.DAT)

The Voyage Recorder file format is free for any type of legal use. The file format is described in the Voyage Recorder manual.

7. Advanced data filtering

The program can filter NMEA 2000 messages by their 29-bit identifiers before processing. Filters are configured in the optional filters.ini file. Place it beside the executable, or in the user configuration folder. Configuring filters requires knowledge of NMEA 2000.

To activate filters, the “filtering mode” should be selected in the INI file:

```
FILTER_MODE=ALLOW
```

or

```
FILTER_MODE=BLOCK
```

In the first case, YDVR Converter processes matched messages only. In the second case, the application skips matched messages.

Each filter has a value and a mask. Define up to 100 filters, each with a unique number from 1 to 100.

A zero bit in the mask excludes that bit from comparison. Filter and mask values are hexadecimal. To block PGN 0x1F50B (“Water Depth”) and all messages from NMEA 2000 address 0x40, use these settings in filters.ini:

```
; Activate filters and select the mode
```

```
FILTER_MODE=BLOCK
```

```
; Block the message with PGN 0x1F50B
```

```
FILTER_1=01F50B00
```

```
MASK_1=01FFFF00
```

```
; Block all messages from device with 0x40 NMEA 2000 address
```

```
FILTER_2=00000040
```

```
MASK_2=000000FF
```

The filters.ini file is reloaded for each conversion. You do not need to restart the program after editing it.

The filter mode and the number of loaded filters are shown in the “Final check” wizard step.

8. Repairing DAT files

Each DAT file ends with a service record containing its final timestamp and duration. Voyage Recorder synchronises its internal clock using network “System Time” messages, usually from a GPS receiver or chart plotter. YDVR Converter uses the service record to sort files chronologically.

After starting, a chart plotter or GPS receiver searches for satellites. Before it acquires a fix, it may provide no valid time or send a default value such as 2000-01-01 00:00:00. If the boat is still in the marina, you may not need these recordings.

YDVR Converter can reconstruct a timeline when valid time data follow invalid data within the same file. It cannot use a separate file’s data to repair that timeline unless the files are joined first.

For example, you have files 1.DAT, 2.DAT and 3.DAT, where the first two contain incorrect time data or no time data at all. In this case, you can join these files with the following command line:

```
YDVRConv /join 1.DAT 2.DAT 3.DAT OUTPUT.DAT
```

In most cases, YDVR Converter will be able to restore the true timeline in the output file.

File-system errors may introduce corrupt data. The converter can detect and skip these data, although processing takes longer. Start it with:

```
YDVRConv /repair
```

and convert the files to OpenSkipper XML. The program creates repaired copies with an R suffix for files that need repair, for example 1.R.DAT from 1.DAT.

Voyage Recorder firmware up to version 1.20 has a bug that can produce incorrect dates or times when several GPS sources are present. To repair these files, start the converter with the following option and convert them to OpenSkipper XML:

```
YDVRConv /fixdate
```

This option forces the service record to be updated in every file. Repaired copies have an R suffix, for example 1.R.DAT. Processing may take a long time.

APPENDIX A. Abbreviations and acronyms

AIS — Automatic identification system

AVG — Average or arithmetic mean

AWA — Apparent wind angle (relative to the vessel's centerline)

AWS — Apparent wind speed

CAN — Controller area network

COG — Course over ground

CSV — Comma Separated Values

GPS — Global positioning system

GPX — GPS exchange file format

MAX — Maximum

MED - Median, the middle value of a sorted data set

MIN — Minimum

MMSI — Maritime mobile service identity

NMEA — National Marine Electronics Association

RPM — Revolutions per minute

SOG — Speed over ground

STW — Speed through water

TWA — True wind angle (relative to the vessel's centerline)

TWD - True wind direction (relative to true north)

TWS — True wind speed

XML — Extensible markup language

YMD — Year, month, day (order in date/time)

APPENDIX B. Logbook macros

Macro	Type*	Description
Hn	Record macro	Hour of record time; also used to count template records.
Mn	Record macro	Minute of record time.
Xn	Record macro	Latitude degrees.
Yn	Record macro	Latitude minutes.
YKn	Record macro	Thousandths of a minute of latitude.
Wn	Record macro	Longitude degrees.
Zn	Record macro	Longitude minutes.
ZKn	Record macro	Thousandths of a minute of longitude.
XAUFn	Record macro	Name and duration (min:sec) of the first audio file in the interval. “F” marks a completed recording.
XAULn	Record macro	Name and duration (min:sec) of the last audio file in the interval. “F” marks a completed recording.
XCOGn	Record macro	COG (see Appendix A for abbreviations), degrees.
XSOGn	Record macro	SOG, in the selected speed units.
XSTWn	Record macro	STW, in the selected speed units.
XHGn	Record macro	Heading, true degrees.
XRPMn	Record macro	RPM of the first detected Engine Instance.
XLOGn	Record macro	Total log.
XWAn	Record macro	Apparent wind angle (AWA), degrees.
XWKn	Record macro	Apparent wind speed (AWS).
XWDn	Record macro	True wind direction (TWD), degrees.
XWTn	Record macro	True wind angle (received or calculated), degrees.
XWSn	Record macro	True wind speed (TWS).
XHPn	Record macro	Atmospheric pressure (mbar / hPa).
XHIn	Record macro	Air relative humidity, inside [saloon, cabin] (%).
XHOn	Record macro	Air relative humidity, outside [the boat] (%).
XXPN	Special macro	Template number, starting at 1.
XX:KFN	Special macro	Unit settings (see 4.3); replaced by an empty string.
XDATE	Header macro	Full date (YYYY-MM-DD) of the first record.
XTIMEZONE	Header macro	Time zone of logbook.
XDOFWEEK	Header macro	Day of the week of the first record (e.g. Monday).
XRT	Total macro	Time (HH:MM) of totals calculation.
XBAT1	Total macro	Voltage of service battery at XRT time.
XBAT2	Total macro	Voltage of engine battery (not implemented).
XDLOG	Total macro	Day’s log: difference between the last and first log values in the template**.
XDRUN	Total macro	Day’s run: shortest distance between the last and first positions in the template**.
XCRUN	Total macro	Cruise run: sum of XDRUN values, including this one.

Continued

Macro	Type*	Description
TFUE	Total macro	Total fuel in tanks with instances 0 and 1. Shown in litres when tank capacity is available, otherwise as a percentage (L or % follows the value).
TWF1	Total macro	Fresh water in tank instance 0, in litres when capacity is available, otherwise as a percentage (L or % follows the value).
TWF2	Total macro	Fresh water in tank instance 1, in litres when capacity is available, otherwise as a percentage (L or % follows the value).
EMH	Header macro	Engine hours at the first record, or when first available in the template's time interval.
ETM	Header macro	Time associated with EMH macro.
TMH	Total macro	Engine hours at the last record in the template.
DHM	Total macro	Engine running time during the voyage.

* The final character n is a record index from 0 to 19 in base 20. A template supports up to 20 records: H0-H9 and HA-HJ. Special, header and total macros have no record index. Engine macros use the first Engine Instance encountered.

** This value is calculated using the last record from the previous template with the exception of the first template, where the first record of the template itself is used.