

SOFTWARE

Open CPN

Chart plotter and GPS Navigation Software

Abstract

This document is the Software User Manual with instructions on how to install and use the OpenCPN software on a Windows system. This manual will also explain how to connect to the XB-8000 AIS unit, and how they work together. Finally, it will indicate how to install new charts, as well as some examples of where to acquire them.

The OpenCPN software, the charts and the plugins explained in this manual cannot be used as a main source to navigate or plan travel. They can be used as support for the approved equipment, but never to replace it.

To view the tutorial videos associated with this manual please use the following urls;

Video 1: <https://www.youtube.com/watch?v=JkY9WhF6u0s>

Video 2: https://www.youtube.com/watch?v=6_q4fpj4_4M&feature=youtu.be

Disclaimer

This document is intended solely for information purposes and should not to be construed, under any circumstances, by implication or otherwise, as an endorsement of, or a solicitation to use/purchase, any of the software or products named herein.

The Information used to produce this guide has been obtained from sources believed to be reliable, but is in no way guaranteed. Any individual choosing to follow the information provided by this guide acknowledges that they do so at their own risk. No liability for any injury to person or damage to property resulting from following the information in this guide will reside with the authors and publishers of this document. Please also note that the open-source software package OpenCPN should not, under any circumstance, be used for navigation purposes.

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Chapter 1

Introduction

1.1 Applicability

This software user manual applies to the OpenCPN software, version 4.0.0 on a Windows platform.

1.2 How to use this document

- Chapter 2 contains step by step explanations that enable users to install the software, use it and connect to a XB-8000 AIS system easily and quickly.
- Chapter 3 gives information about some available plugins and how to use them with the equipment.
- Chapter 4 gives valuable information with the description of some targets from the AIS signal.

1.3 Related documents

There is further information about this software on the following webpage:

http://opencpn.org/ocpn/opencpn_manual

You can find further information about the XB-8000 AIS Transponder at the following webpage:

<http://www.vespermarine.com/transponders/xb8000-ais-transponder.html/>

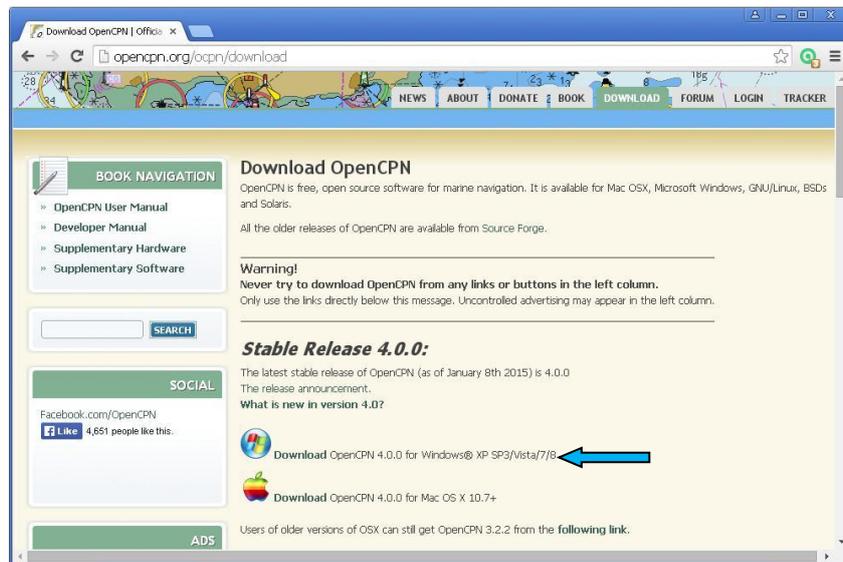
Chapter 2

Tutorial

2.1 Downloading the software

To download the software, you should go to the website: <http://opencpn.org/ocpn/download>

The webpage shown below will appear telling the user where to click to download the correct options depending of their operating system (in this case Windows).



The next thing to do is to save this file on our computer.



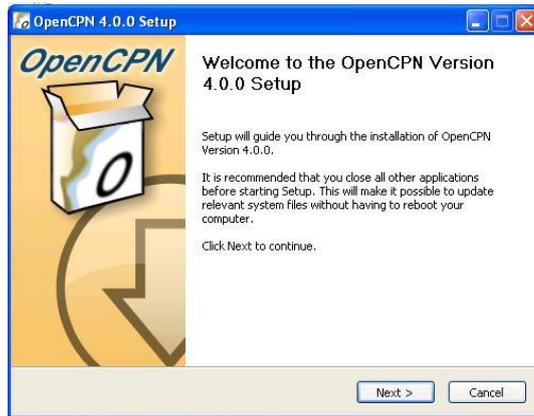
Careful! Some antivirus software could detect this file as a malware file. In this case, you have to tell the system that the file poses no risk to your system.

2.2 Installing the software

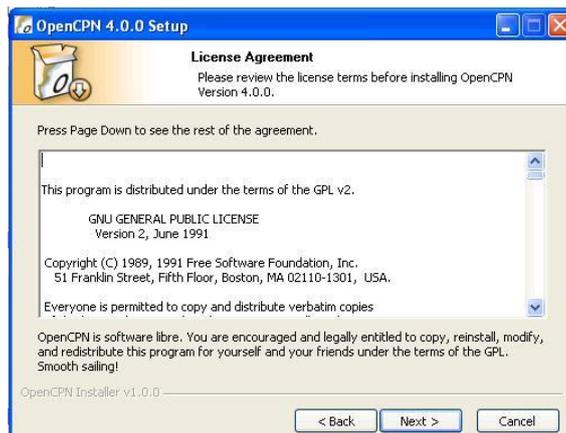
Once you have downloaded the '*.exe' file, you can proceed to install the software by double clicking on the *.exe file. When you execute the '*.exe' file, the window shown below will pop up asking you to choose the language you prefer.



The installation procedure will begin by showing the next message:



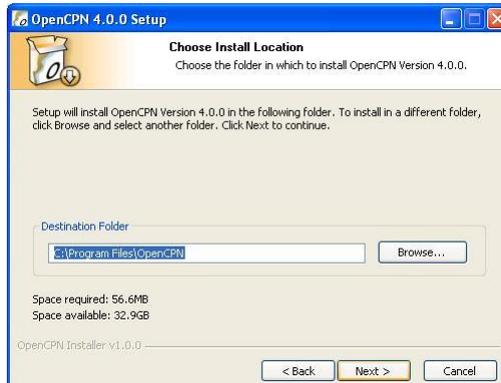
In the next window, you will be asked about the license agreement. You must accept the terms if we want to proceed.



Now you will be asked about shortcuts to run your program or OpenCPN configuration settings. Once you have selected the options that you desire (if you are not an advanced user, just tick each box), press 'Next'.



Next, you need to select the folder in which you want to install the OpenCPN. Once we have done that, press 'Next'.



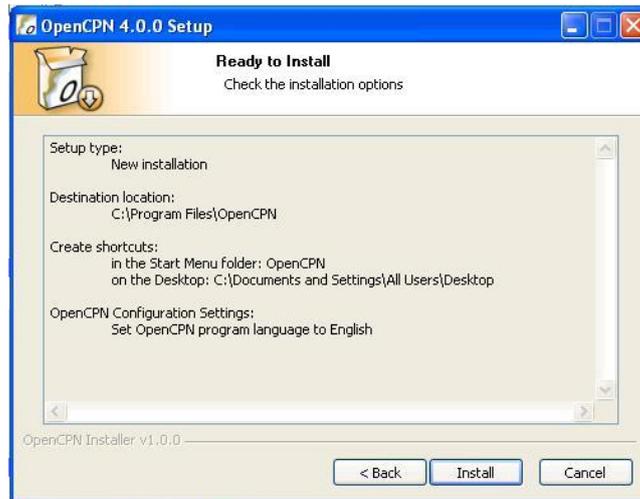
The next window that will appear asks which folder you would like to create the program's shortcuts (this window won't appear if we haven't selected to create any shortcut).



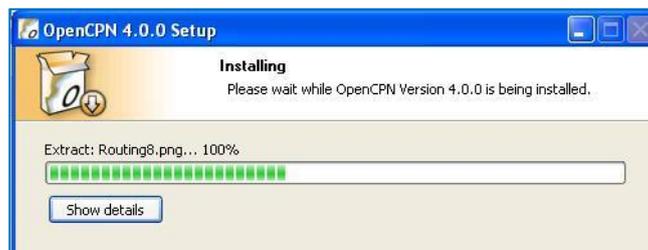
In the next step, the installation program will ask if you want to add a chart directory (that is because the program comes without any pre-installed charts). It makes no difference if you decide to do that now or later.



The following window shows you all the installation options you have selected. Once you have checked that you are ready to proceed, press the button ‘Install’.

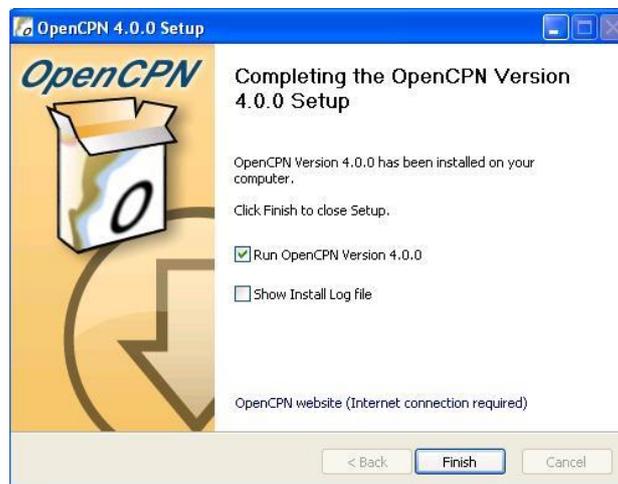


You can see the progress of the installation on the process bar.



If everything proceeds correctly, you should see the bar fill completely.

On the next window, you can see the message telling you that the software has been installed. The program asks whether we want to run the program when the installation finishes or not.



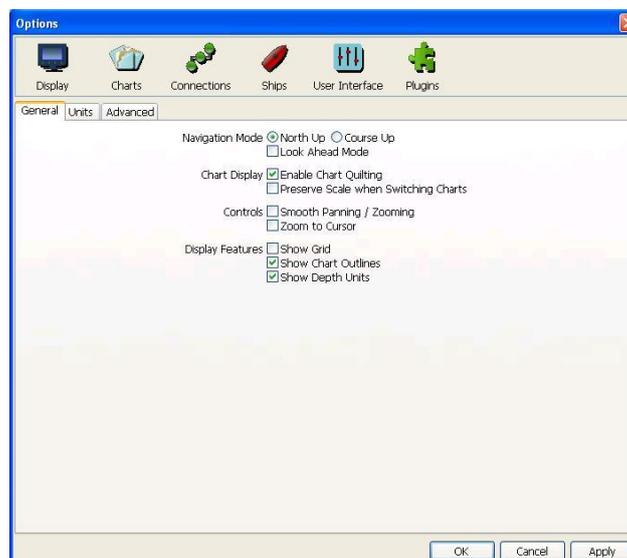
If you decide not to run the program, the installation will finish after clicking on the 'Finish' button. If not, the program automatically starts showing the message below (this will also happen when the software runs for the first time). The window indicates that this software can only be used as extra information, and in no case for navigation. The users should only use approved paper charts and approved methods of navigation.



After reading this, you can press 'OK', which will lead to the OpenCPN software environment. If you haven't installed any chart during the installation process, the next message will appear on your screen. Otherwise, the program will start directly.



After clicking 'OK' on the last window, the program will send you to the options menu, where you install your charts (see the installing charts **chapter 2.3**).



You are now ready to use the software.

2.2.1 Installing a better resolution worldwide background map

The Open CPN comes without charts and only with one basic worldwide map. You can download a better background map. However, this will take more computer memory, which means that the program may run a little bit, but not noticeably, slower. It is highly recommended that this improved background chart be installed.

The first thing to do is to download the file found at the address below:

http://opencpn.org/ocpn/chart_sources

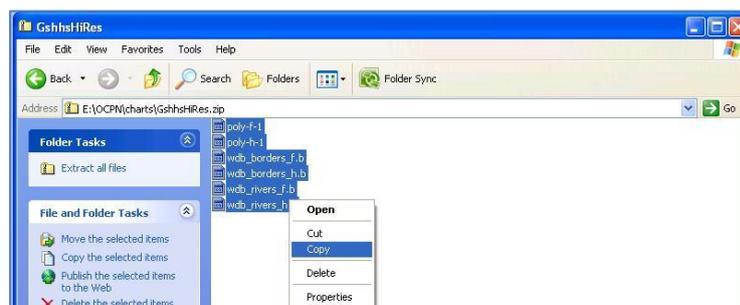
On this webpage, you need to click on the word 'here', which can be seen inside the red circle on the image below.



Once you have clicked on that, the browser will ask you to download and save a 'zip' file. You have to accept and save the file on your computer (there is an image below showing the file, but this may have a different appearance depending on the operating system used).



Next, you need to unzip the file and copy the six files found inside.



These must be placed in the folder named 'gshhs' found in the installation directory (which in Windows is normally .../Program Files/OpenCPN/gshhs).

The next time that you start OpenCPN, you will use the more detailed worldwide background map.

2.3 Installing charts

The OpenCPN supported chart formats are:

- Raster charts:
 - **BSB** versions 1,2 and 3, with chart files ending in '*.kap'
 - **BSB** version 4, with chart files ending in '*.cap'
 - **nv-charts** , with chart files ending in '*.eap'
 - **NOS/GEO** version 1, with chart files ending in '*.nos' and '*.geo'
- Vector charts
 - **S57 ENC** charts, with chart files ending in '*.000'
 - **Inland ENCs**, OpenCPN supports the international Inland ENC standard (S57 based)
 - **S63 Encrypted ENC** charts, with chart files ending in '*.os63'
 - **CM93** version 2.

To install new charts, the first thing to do is to start the OpenCPN programme. Once there, click on the options button in the top bar.



Options icon

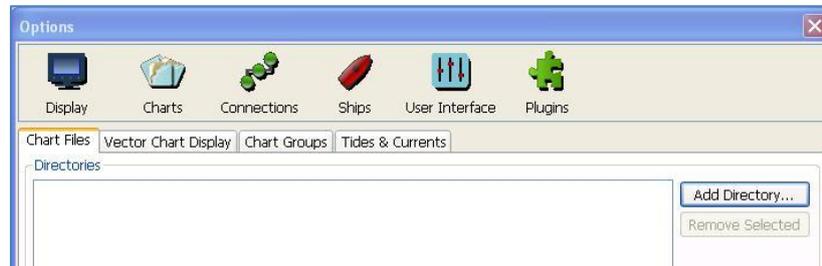
The Option menu will appear. When performing this action for first time, it is recommended that the following boxes be ticked:

- Show chart outlines: it will show the edge of the charts that you have installed. It would be very useful to know in which zones we have charts installed and which not.
- Show Grid: It will show the coordinates axis, making it easier to know the position of each object.

You can see those options selected on the next page image.



Next, click the tab 'Charts'. Inside 'Charts' select the tab 'Chart Files'.



When you click on 'Add Directory...', a new window will appear. In this window you have to find and select the folder in which your charts are kept. The image below is just an example of how this window might appear, as it may differ slightly depending upon the operating system used.



After selecting the folder, you can see that the chart directory has been added to the box 'Directories'.

Finally, press 'Apply', and the program will upload your new chart/charts, which are now ready to use. Once you have finished with the option menu, press 'OK', and the dialogue box closes.

2.3.1 VisitMyHarbour nautical charts

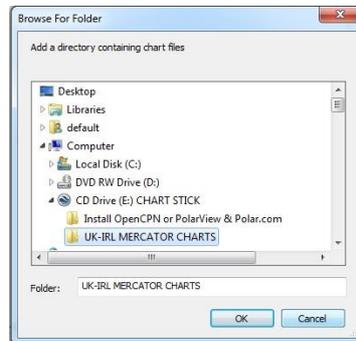
If you don't have any charts, there is a good website in which to find charts for your software:

<http://www.visitmyharbour.com/charts-for-opencpn.asp>

Charts bought for OpenCPN at this site always come loaded on a USB memory stick. With this system, the memory stick must be plugged in while the charts are in use, so we highly recommend in this case that you connect to the XB-8000 by WIFI (if the equipment that you use has this option). Otherwise, you will need two USB connections: one for the charts, and another for the XB-8000.

Charts for the UK and Ireland can be purchased from £39.50. Multiple packages are available with different options.

Once you have purchased the charts, you only have to plug them into the equipment (PC, tablet etc.) that you will use. The memory stick will ask you to accept the conditions to proceed, after which it will be unblocked and ready to use. You can then install the charts in the OpenCPN software (see the **chapter 2.3**) by selecting the following file:



2.3.2 Antares charts (West coast of Scotland)

If you don't have any charts and require charts from the West of Scotland, a good and cheap option exists. The package comes with a background map and several small detailed maps from different locations. Two formats are available: a CD ROM or a USB memory stick, both of which are used to install the charts on your system. These can be ordered for £12 to £15, depending on the option chosen.

You can find all the information and order the charts at the address below:

<http://www.antareshcharts.co.uk/>

Once you receive the charts, you need to follow the instructions provided and install them in the OpenCPN software (see **chapter 2.3**).

2.4 Connecting NMEA device (XB-8000)

In order to be able to see your position and receive more data from other sources, the OpenCPN receives the signal from equipment such as GPS and AIS systems etc. The only requirement is that the system to which you connect must use NMEA data protocols.

Next, we will explain how to connect external equipment to your software. We have chosen as an example the XB-8000 AIS transponder.

Connection can be achieved in two ways: by USB or WIFI.

- By USB:

First, you must turn ON your AIS equipment and connect it with your computer. The equipment should be recognized and the drivers installed automatically (this is true as long as your equipment has an internet connection at the time). If there is a problem with the USB drivers, you can always download them and install them manually. The drivers can usually be found on the manufacturers' website. In this case you will find them at the following link:

<http://www.vespermarine.com/support/usbdrivers/>

Once the drivers have been downloaded, we can install them on the computer that is going to run OpenCPN. Next, you can connect the AIS system to your computer and it should work.

One way to check this is to open the Control panel from your computer.



In this window you can open the 'System' icon. This will lead to another window, where you select the 'Hardware' tab. Of all the options shown, click on 'Device Manager'. This is shown on the next page.



In the window device manager you could check 'Ports (COM&LPT)'. In this field you should see your connection by USB and the name of the port used. In the example below the port is COM11, but this could differ depending of the equipment.

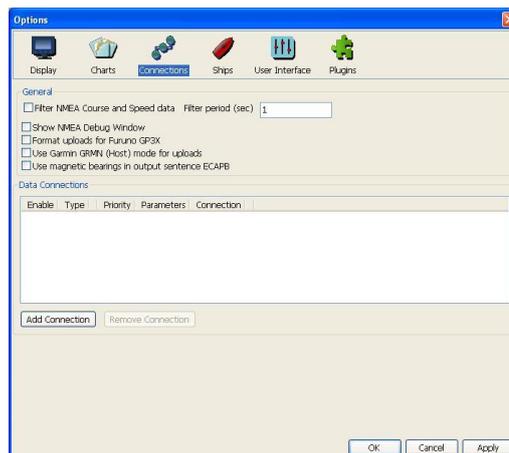


The next step is to open OpenCPN. Once there, open the menu 'Options', clicking the icon on the Toolbar.

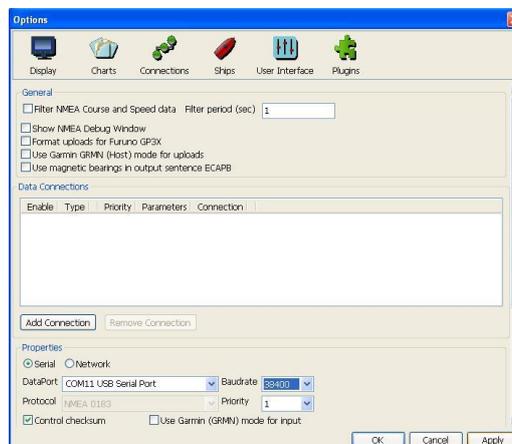


Options icon

This time, click on the tab 'Connections' and the menu shown below will appear.



Click on 'Add Connection', and the next box will appear on the menu.



The connection can be made by serial port (USB connector) or by network (which means by internet using WIFI).

In this case, the serial option has been chosen. Open the 'Dataport' menu, where you should find the input for your device. The protocol should say NMEA0183.

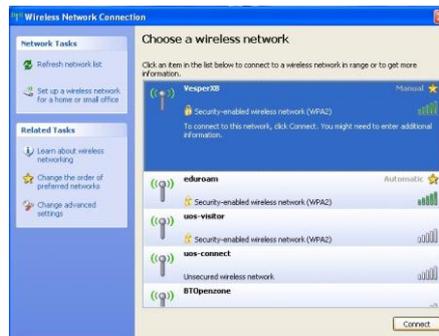
Important: do not forget to change the Baudrate to 38400.

Now click on 'Apply' to establish the connection.

- By WIFI:

To connect the systems, you must first connect your computer via WIFI from your XB-8000 AIS transponder. Again, the windows may change depending of the Operating System that you are running on your computer.

The first step is to ask the computer to show you all the wireless networks available.



Choose the VesperXB network, and click on 'Connect'.

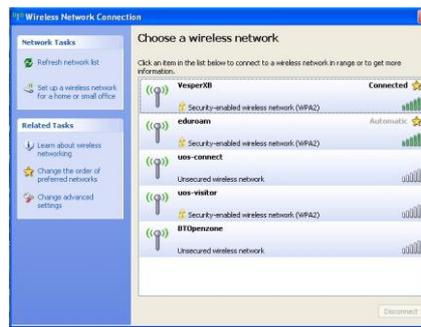
The computer will ask you to insert the password to join that network. This password is written in the Vesper manual; alternatively, if you have already changed the password for security reasons, use the new password that you have established.



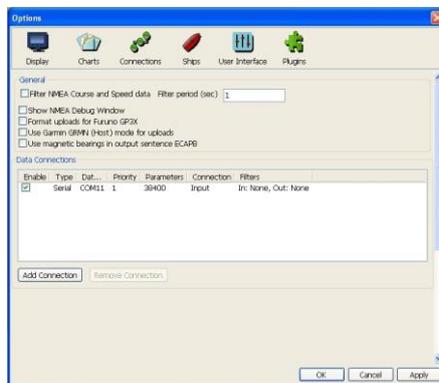
Once you press 'Connect', a new window will appear telling us that the system is trying to connect.



If you have input the correct password, the system will show you the message below.

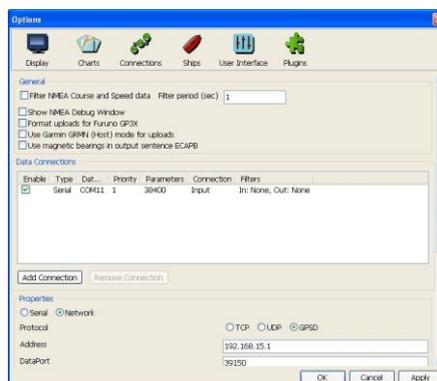


Now that your computer has joined your AIS network successfully, you can proceed to opening OpenCPN. You need to go to the Options menu (pressing the icon on the tool bar on top).



Options icon

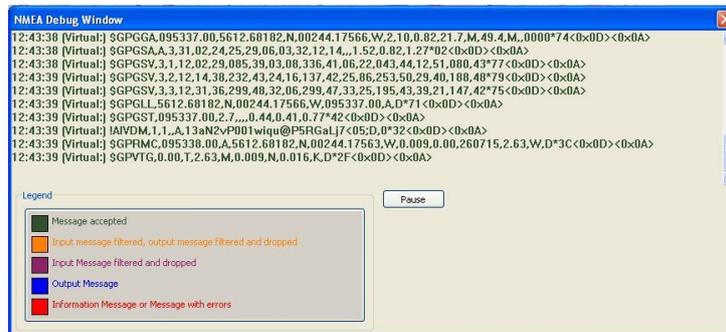
You will then click "Add Connection" and new options will appear. Fill in the Address and DataPort fields . All this information is available in the XB-8000 manual.



Once you have input all the information, click on 'Apply' and the connection will be established.

- Testing the communication between the AIS system and the OpenCPN (you can perform this operation for both USB and WIFI connections):

One easy way to check that your system is correctly connected is to activate the NMEA Debug Window. In order to do that, you need only tick in the in the box that says ‘Show NMEA Debug Window’. When we go back to the main screen, a new window will appear showing you the NMEA data movement.



Another indicator that you need to check is the one on the top right corner in the main screen.

you can see two elements on this indicator.



The one on the left shows you where the North orientation is (here it is blue because the orientation on the map is always North on the top). If the arrow were red it would mean that the chart is in course up mode.

The one on the right is showing you the GPS signal strength. In this example it indicates that there is no signal at all.

If you have connected your equipment correctly followed all instructions outline above, the image that you should see is the one shown below:



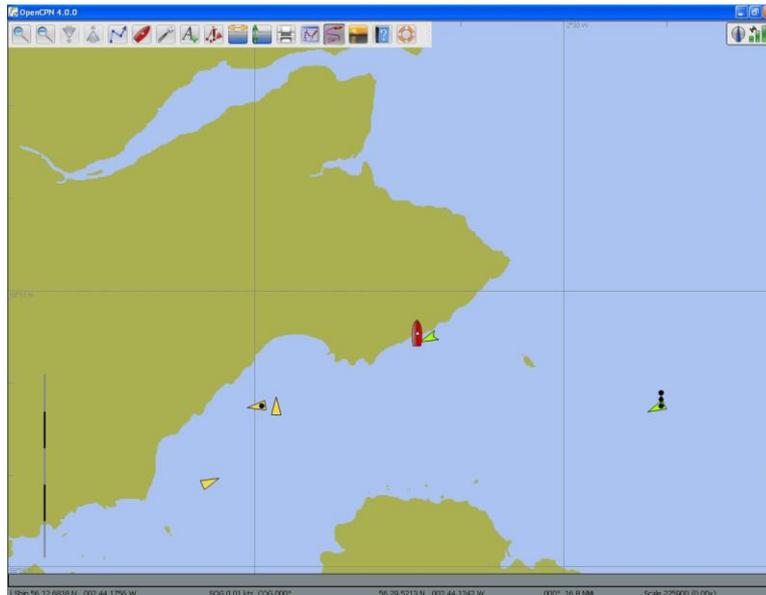
On the image to the left you can see that it's now showing that the GPS signal is strong and correct.

All these steps only need to be performed once. The next time that you connect both pieces of equipment, the connection between them will occur automatically.

2.5 Using OpenCPN for the first time

For new users, this chapter will show you how to start using the software showing some of the basic options in OpenCPN.

When you start OpenCPN for the first time, you will need to configure your GPS system (see **chapter 2.4**). You could install some charts (see **chapter 2.3**). Once you have done all of this, you can take a good look at the main screen.



On the top right you can see two symbols showing you the North direction and the GPS signal strength (both were explained in **chapter 2.4**).

On the bottom of your window you can see (starting from the left): the position of your vessel in coordinates; your velocity in knots (SOG → Speed Over Ground) and direction in degrees (COG → Course Over Ground); the position in coordinates of the cursor; the course that your vessel should follow to the cursor based on your position and your distance from it in nautical miles; and finally the scale of the image that you are seeing.

On the top of the main screen you will find the menu bar with the following menu names and applications:



Zoom In (+) → will zoom the chart in for more detail (larger scale)



Zoom Out (-) → will zoom the chart out to see a bigger area (smaller scale)

Also if you have a mouse with a scroll wheel, you can use it to quickly zoom in or out. You can also use the + and – keys on your keyboard.



Shift to larger scale chart (F7) → you can use this option when you are in a zone where more than one chart is active. Clicking this button will make the software shift to a chart with larger scale. You can also use F7 on your keyboard.

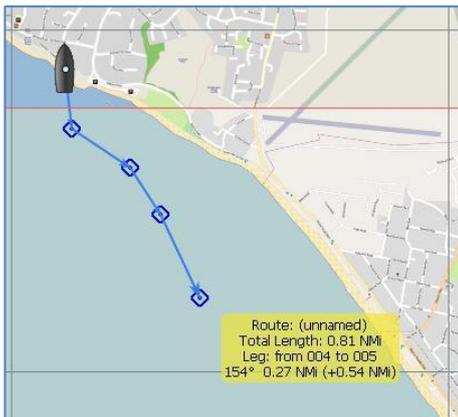


Shift to smaller scale chart (F8) → you can use this option when you are in a zone where more than one chart is active. Clicking this button will make

the software shift to a chart with smaller scale. You can also use F8 on your keyboard.

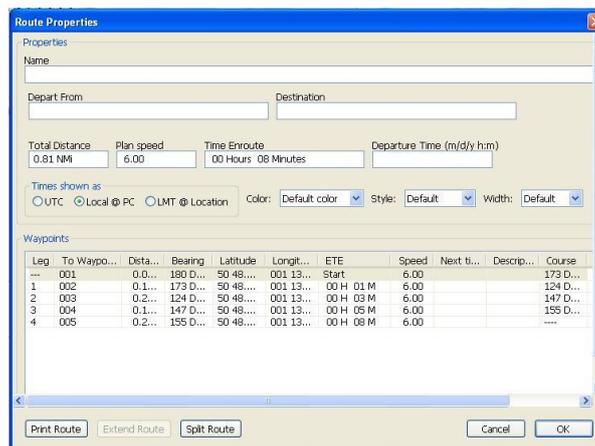


Create route (Ctrl+R) → Clicking on this button you can create a new route. The first click on the map will be the origin point; you can add more waypoints on your route by clicking on the map as many times as you want. When you want to finish your route you have to click on the right button of the mouse and select the option 'End route', or by pressing 'Esc' on your keyboard. You can find below an example of a new route.



Once you have created a new route, if you pass the mouse over it you can see a message telling you the name of your route, the total length, which leg you are checking, the course of that leg and the length of that leg.

If you press the right button of the mouse and select properties, you can change some properties of your new route.



You can specify the name of your route, the origin of your route and the destination. You can see the total distance and if you specify the velocity that you are planning to travel, the software will give you the total time inside the Time Enroute cell. You can even specify which day you are planning to make this trip and at what time. You can tell the software to show you the time and you can even specify the unit of that time: UTC (coordinated universal time), local @ PC (the time from the PC that you are using) or LMT @ location (local mean time). You can also change the colour of the tracks, the style

or the width. You can print your route or Split the route into more than one if you are planning to make the trip on multiple days.



Auto Follow (F2) → This icon will allow you to fix your boat in the middle of the screen, so when you zoom in or out your boat will always remain in the centre of the screen.



Options → This icon will open the options menu, where you can choose several different options (see **chapter 2.6**).



Show ENC text (T) → This button only works for the text messages in the vector charts



Show/Hide AIS targets → Through this icon you receive valuable information, but it can be disabled.



This icon means that the AIS is working but there are no targets of interest



This icon means that the AIS is working and receiving at least one AIS signal



This icon means that the AIS is working and receiving at least one AIS signal but this/these was/were suppressed by you



This icon means that the AIS is working and an alarm has been activated from a CPA calculation



This icon means that the AIS is disabled



Currents → Show or hide currents on the chart



Tides → Show or hide tides on the chart



Print chart → Print your current view



Route & Mark manager → This tool is very useful because you can save (in a GPX file) or import tracks, routes or waypoints. You can store the data and show them again on the screen when you want.



Enable Tracking → This allows you to see the different tracks of all the ships on the screen but they won't be stored. Once you press this button again all of them will disappear. If you want to store one track you have to click the right button over the AIS signal and choose the option 'Target Query'; inside this new window you can choose to 'Record Track'. After this action, the track will be available until you decide that it needs to be deleted.



Change colour scheme (F5) → Adjust screen brightness for Dawn/Dusk and Night



About OpenCPN → Clicking this icon allows you to obtain information about this software



Drop MOB marker (Ctrl+space) → This icon always will be always located on the right edge for safety measures. This will create a MOB waypoint (Man Over Board), so you can store quickly and easily the exact location when the event occurred.

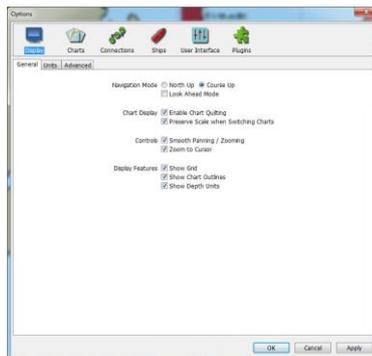
2.6 The Option Menu

You will explain some of the more important actions in the Options menu. If further information is required this can be found on the following webpage:

http://opencpn.org/ocpn/setting_options

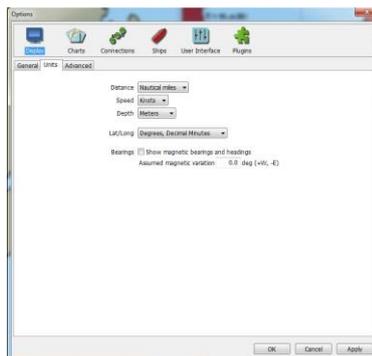
On the **Display** zone we find:

- The general tab



- **Navigation mode:**
 - North up** (with North always at the top of the chart)
 - Course up** (the direction of your boat is always at the top of the chart)
- **Look ahead mode:** the vessel will be placed off centre so that you have a better view of what is happening in front of the vessel than in the back.
- **Enable chart Quilting:** the screen shows several charts seamlessly stitched together.
- **Preserve scale when switching charts:** OpenCPN will normally show you the natural scale of the new chart when you switch charts. If this box is ticked, the software will try to keep the same scale as the old chart (approximately).
- **Controls:**
 - Smooth panning/zooming** (this makes the zoom action smoother)
 - Zoom to cursor** (usually the zoom action is using the centre of the screen as a centre point, but with this box ticked the software will use the cursor as a centre point from which to zoom)
- **Display features:**
 - show grid** (activate a latitude and longitude layer on the screen; this only works in North up mode)
 - Show charts outlines** (the borders of the available charts are shown)
 - Show depth units** (shows the charts depth units on the screen in embossed letters in the upper right corner)

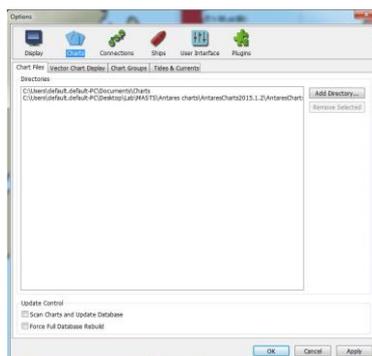
- The **Units** tab



- **Distance:** you can choose which unit you want to use for distance.
- **Speed:** you can choose which unit you want to use for speed.
- **Depth:** you can choose which unit you want to use for depth.
- **Lat/Long:** you can choose the units for the latitude and longitude layers. This is usually in degrees-minutes-seconds.

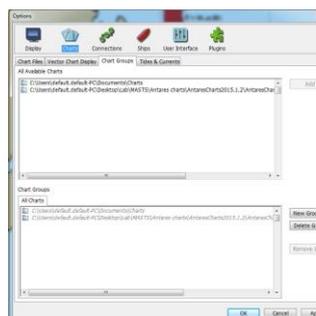
On the **Charts** zone you find:

- Chart Files tab

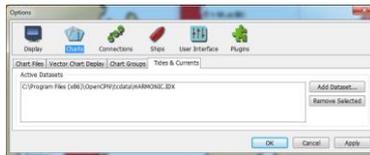


- **Add directory:** you can use this to add new charts to your software.
- **Remove selected:** you can select the charts that are no longer needed. To implement the changes you must press 'Apply' or 'OK'.
- **Scan charts and update database:** you can use this option when you have made changes in the files that you have already installed in the program.
- **Force full database Rebuild:** This option is used when you have fixed some errors on the charts that have previously been installed. The software will see the same filename but it still replaces the chart with the new version.

- Chart groups tab

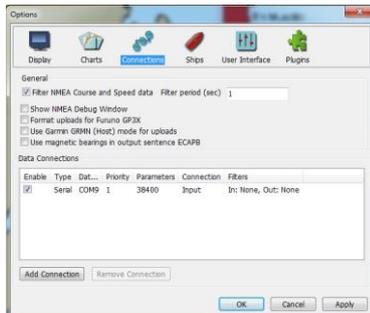


- This option is quite useful because in the upper window you can see the group of charts that you have installed. So to make the use of the software easier you can create new groups in a way that you can join them in zones, themes, etc. If you create one group and you don't put any charts in it, OpenCPN will show you only the background worldwide map. Once you have created the different groups, you can select them on the main screen using the right button of the mouse and selecting 'Chart groups'.
- Tides & currents tab



- OpenCPN comes with a very basic file of currents and charts. You can add new files like you can do with charts.

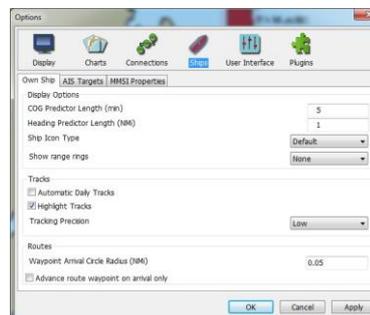
In the **Connections** zone you find:



- In this area you can add or remove a connection. How to use this section is explained in **chapter 2.4** in detail.

On the **Ships** zone:

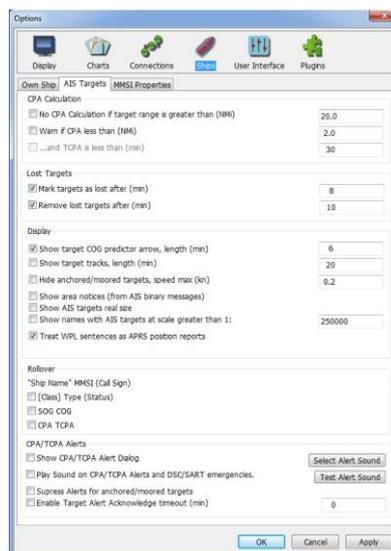
- The own ship tab



- **COG predictor length (min)**: this is a red line that you will see on front of your vessel with a small square on the edge. This indicates the position that we would reach following the same course with the same speed with the time specified in the box.
- **Heading predictor length (NMi)**: If a heading sensor is available and outputs and NMEA data stream, this is shown as a finer line with shorter dashes ending in an open small circle. The unit comes in Nautical miles.

- **Ship icon type:** You can choose to use the icon that comes with OpenCPN (by default), or a new icon installed by you, or a Real scale bitmap or Real scale vector. For the latter two options, the software will ask you to specify some details. These are all quite clear without explanation, with the exception of the last point in the list: the ‘minimum screen size’. As the name implies, this is the minimum size of the own ship icon on the screen (the default is set to 1 mm).
- **Show radar rings:** this option is very useful because you can create a safe zone around your vessel, and you can specify the number of the rings and the distance between them.
- **Automatic daily tracks:** this option ensures that the tracks collected in a single day are stored as a single track (which can be divided into two or more later).
- **Highlight tracks:** this option reminds us that if you are planning to follow a track, there is always a tolerance that you have to keep in mind, due to the signal from the GPS and the charts.
- **Tracking precision:** changing this parameter affects the size of data that is going to be saved. OpenCPN uses a dynamic system of storage which checks if the course has changed or not before storing a new waypoint (example: if there is a straight track, OpenCPN will only store the start and end points).
- **Routes: Waypoint arrival circle radius** (in this option we are specifying the distance at which you want to be alerted before the next waypoint, when the course has to change. This option works, of course, following a track with the autopilot option activated).
Advance route waypoint on arrival only (with this option selected, if you have deviated from your planned route, skipping one or more waypoints, the software will indicate the next leg of the scheduled trajectory from the next waypoint you approach on the original route)

- AIS targets



- **CPA Calculation: No CPA calculation if target range is greater than (NMi)** (with this

option you can discard all vessels that you think are far enough away that they aren't a potential risk; OpenCPN then doesn't have to calculate the CPA for these, making the software run faster).

Warn if CPA is less than (NMI) (with this box ticked you can indicate the distance at which you want to receive a warning when you have a vessel close by)

...and TCPA is less than (min) (this box is only available to use when the one shown below is active; this parameter specifies that the alarm is going to show only if the other vessel is within distance and the collision would be inside of the time that you specify)

- **Lost targets: Mark target as lost after (min)** (if the system hasn't received a signal from a vessel for more than this time, the software will produce a crossed line over that target)
 - Remove lost targets after (min)** (the targets without response will be removed after the time stipulated in this box)
- **Display: Show target COG predictor arrow, length (min)** (This is the same action that you have in the own ship menu but applied to other AIS signals)
 - Show target tracks, length (min)** (When this box is ticked, all the vessel will be tracked and you will see a track from each vessel up to the time that you have specified. This option is very useful in indicating the intentions of each vessel)
 - Hide anchored/moored targets, speed max (Kn)** (a target won't be displayed if the speed is less than that which you have specified in the box)
 - Show area notices (from AIS binary messages)** (this option is still in the experimental stage, so you would receive messages with alerts of possible hazards or events)
 - Show AIS targets real size** (this option will show us a shape with the real size of the target, but only if they are transmitting this information via AIS)
 - Show names with AIS targets at scale greater than 1:** (the names of the targets will be visible when the scale is greater than that which you have specified)
- **Rollover:** ticking the boxes below activates the information that you will get when the cursor is placed on top of an AIS target.
- **CPA/TCPA alerts: Show CPA/TCPA Alert dialog** (shows a dialog on the screen when an alarm is triggered)
 - Play sound on CPA/TCPA Alert dialog and DSC/SART emergencies** (sounds an alarm when an alarm is triggered)
 - Suppress alerts for anchored/moored targets** (no explication required)
 - Enable target alert Acknowledge timeout (min)** (the time at which the alarm is going to sound again after the time that you have set up, if the hazard still exists)
- MMSI properties
 - You can input a particular MMSI code and the software will try to track this target when possible.

On the **User interface** zone:

- **Language:** you can change the language of the software.
- **Toolbar and window style:** You can change the appearance of your toolbar and the window.
- **Fonts:** you can choose which font you want to use.
- **Interface options:**
 - Show Status bar** (This is the bar at the bottom of the screen with the coordinate information, scale, etc. If you decide not to use it, you can gain more screen space)
 - Show Menu bar** (show/hide the Menu bar. This has the Navigate, View, AIS, Tools and Help options)
 - Show Chart bar** (This is the bar at the bottom that shows how many charts the software can use to show us that spot; you can even choose which one you want to use)
 - Show compass/GPS Status Window** (the small icon found on the top and the right)
 - Play ship bells** (every half an hour a sound of bells will be played)
 - Enable Touchscreen/Tablet Interface** (to use only on tablets)
 - Enable responsive graphics interface** (this option is meant for tablets, which is going to resize the icons and options to make them easier to use it on that system)

The **Plugins** zone:

- You see all the plugins that your software has already installed. You can activate or deactivate in this zone.

Chapter 3

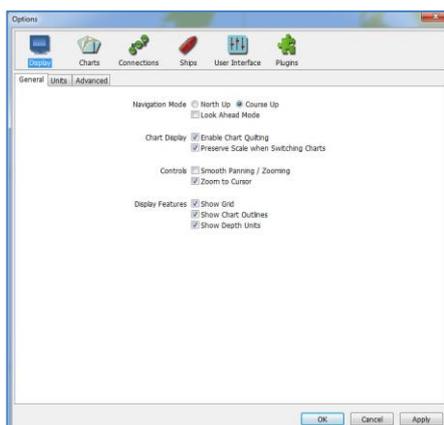
Plugins

A plugin is a new action that you can install in your software to upgrade it in a way that will give us more options, additional information, extras in visualization, etc. All the plugins for this software can be found at the link shown below:

<http://opencpn.org/ocpn/downloadplugins>

To proceed, you only have to download the plugins onto your system and execute them.

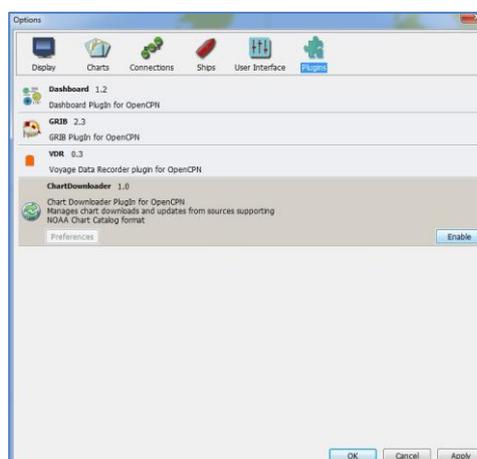
The next step is to start the program OpenCPN. Once the program is opened you should click on the ‘options’ icon and the Options menu will appear.



Options icon

In this menu you click on the tab ‘Plugins’. Now the Options window will show us the plugins that you have installed in the program (the program comes with two plugins already installed: Grib Weather and Dashboard). You can activate the plugin that you desire simply by selecting it from the list; a button with the option ‘Enable’ will appear.

This is shown in the image on the next page.



You just have to click on that button. When you have finished activating all the plugins that you wanted, you must remember to click on the button ‘Apply’ to confirm the changes. This will allow us to find these options available when you come back to the main screen.

As usual, to exit from the Options menu you click on ‘OK’.

3.1 Dashboard

This Plugin is already installed but not activated in OpenCPN. This will appear as a window with your actual position, Compass and the status of the GPS signal.

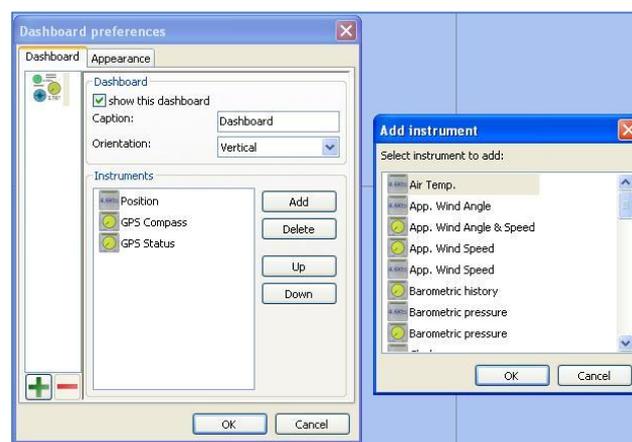
If you activate this plugin, a new icon will appear in the Toolbar.



Clicking on this, you will make the window shown below appear.



You can add more instruments to visualise (if you have more connected) by clicking with the right mouse button, at which point the window ‘Dashboard preferences’ will appear. In this window, you must select the dashboard that you want to configure, and click ‘Add’. A new window will appear with some options from which to choose. An example of these windows is shown on the next page.



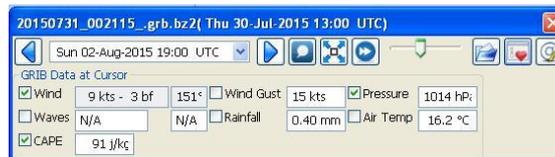
3.2 Grib Weather Plugin

This plugin is already installed but not activated in OpenCPN. This is a plugin that will allow us to show and work with Grib weather files in OpenCPN. It should be noted that this material can only be used as additional information, but should never be used as a base to plan your trips. Official weather sources cannot be replaced by this plugin.

Once you activate this plugin, a new icon will appear on the Toolbar.



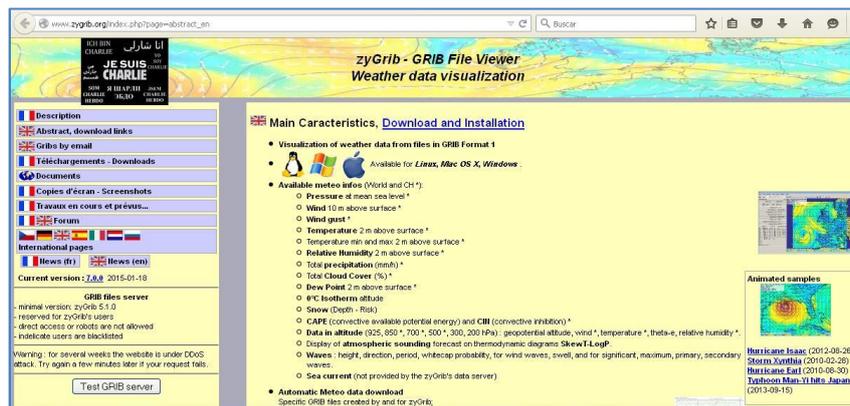
If you click on this icon a new window will appear:



You can get Grib files using free software called ZyGrib. It can be found at the following website:

http://www.zygrib.org/index.php?page=abstract_en

Once you are on this webpage, you click on 'Download and installation'.



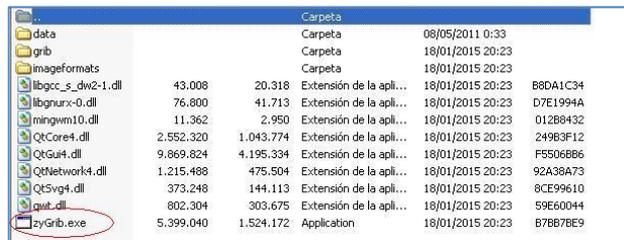
After performing this action, the following window will appear. You will select the Windows version.



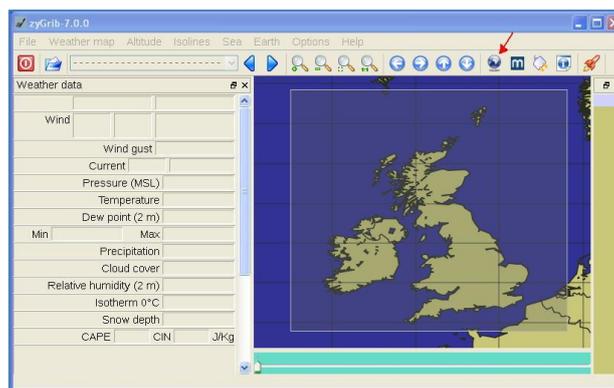
Next, you can choose between two options. Both are the same software, with the only difference being the resolution of the maps.



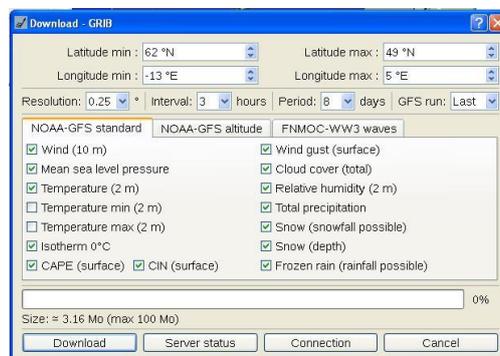
After downloading the '*.zip' file, you simply have to unzip and open it by clicking on the '*.exe' file.



The ZyGrib will be open, as shown in the next window. To get a Grib file, you need to select the zone in which you are interested, and click on the world globe icon.



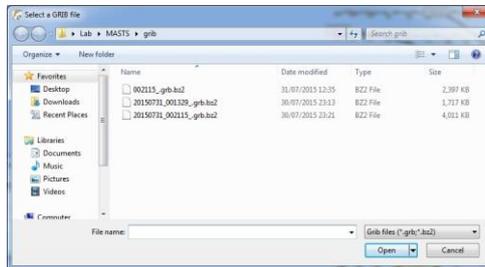
A new dialogue box will be displayed in which you can choose the different options for your Grib file. The more options are chosen, the bigger the file will be. Once you have specified the file to create, you will click on 'Download' and store the file in a folder in your computer for subsequent use by OpenCPN. This window is shown on the next page.



The next step is to click on the open file icon in the Grib weather plugin window.



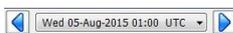
You will choose your Grib file and click “Open”.



Once you open the file, you will see a weather map on the OpenCPN screen.



When you place the cursor on top of a point in the image, you will be able to read the information in the Grib window. Some of the main actions are going to be explained next:



You can move through the different images one at the time using the arrows, or you can choose the exact date and time of the image that you want to display by opening the dialogue box.



Clicking on the Play button, you can see a sequence of images from your file.



Clicking on the zoom button, the weather image will be placed at the centre of your screen.



Clicking on the Now button will show the image with the current date and time (if available inside the file)



Clicking on Settings, a new window will open where you can change units and display options.

Further information can be found at the following address:

http://opencpn.org/opcn/grib_weather_plugin

3.3 Voyage Data Recorder Plugin (VDR)

Installing this plugin will allow us to save and play NMEA files. You could use this option to watch your previously saved trips, to save data for safety measures, or just to save the trip so that you can take a look at it if you someday want to redo the trip.

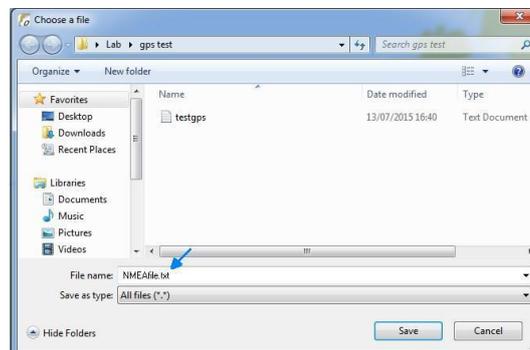
When it's recording the AIS NMEA data, the system is saving your information and all the information from the traffic that is occurring around that time.

To activate this plugin, you simply follow the instructions that were outlined at the beginning of this chapter.

If you have installed and activated this plugin correctly when you open OpenCPN, you should be able to see two new icons on the top bar:



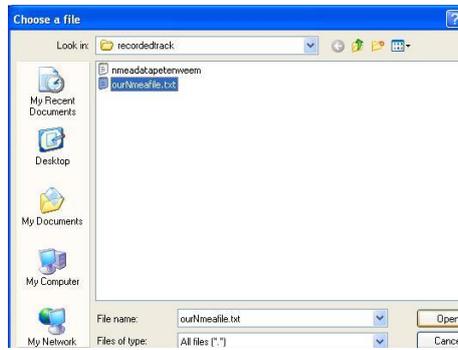
The left button is used to save all the AIS NMEA data that the software is receiving. To use it, you only have to click on it and a window asking in what location you want to store your new file will appear. You can choose any name, but it needs to be saved with a '.txt' file extension (yourNmeafile.txt). This is shown in the image on next page.



Once you have clicked on 'Save', the program is recording all the NMEA data that it's receiving. You can check that this action is really running if you take a look at the Record icon, which looks as though it is being pressed down.

When you want to stop recording the data, you click on the 'Record' button again and the recording will stop.

Now the file is ready to be played when you need it. You can play the file by clicking on the 'Play' button. A window will appear asking us to choose the file that you want to play.



Once you have chosen the file and clicked 'Open', you are able to watch your recorded information. A new window will appear to show us the progress of the file, with a bar above allowing us to change the velocity of the events.



During the playing you can still check the information of the different vessels, the distance between them, positions, etc. You'll be able to use all the different options as though the image were on real time.

To stop playing, you only have to press the 'Play' button again.

With this plugin, it is even possible to play and record at the same time! If you decide to play a file in the middle of a recording event, you can play it and in the meantime the program will keep recording all the information received from the NMEA data connection.

Chapter 4

Glossary

A description for the more important AIS symbols are explained below.

	An active AIS START and is a distress call equal to a 'MAYDAY' transmission
	This icon will be displayed when testing an AIS-SART device
	This icon means that there is an aircraft participating in search and rescue
	Potential danger
	No danger. Not identified (static voyage data not received)
	No danger. Not identified (name from cached data)
	No danger. Identified
	Lost target
	Position is unavailable. The software is showing the last position.
	Vessel not under command
	Vessel restricted in ability to manoeuvre
	Vessel constrained by draft
	Vessel aground
	Vessel engaged in fishing

More icons on the next page.

	High speed crafts. This includes Hydrofoils, Hovercrafts and low flying crafts utilising the ground effect.
	Anchored or moored. You cannot trust this icon because the action is set manually on the transmitting ship
	This indicate that the vessel is turning to port



The V-Shape stern indicates a Class B target. These are designed for small commercial boats, fishing boats and pleasure crafts



Targets is complying with the Euro AIS Inland specification



The “Blue Flag” signal, commonly seen on inland waters, indicates that the vessel requests a ‘stbd-stbd’ passage or crossing. This Blue signal is manually switched on/off, by the target.



Aton, Aid to navigation, for example a Lighthouse or a Buoy transmitting an AIS signal.



Aton, Aid to navigation, which is off its supposed position.



Virtual Aton, Virtual Aid to navigation, not a real marker. For example, a new wreck.



Virtual Aton, off position. Actually seen in the wild, but may be a user config error.



AIS Base Station



DSC station. Only the DSC message received



DSC station. DSC and DSE messages received



DSC station transmitting a distress signal. Treat this as a “Mayday” call



GpsGate Buddy target



ARPA target



APRS target