

ShipPlotter - Introduction

ShipPlotter displays information about ships that are within VHF range of your position using the Universal Automatic Identification System (AIS).

AIS is a system that ships use to communicate their positions to each other as part of the global maritime safety system. From December 2004, all ships over 300 tons must carry an AIS system which broadcasts information about the ship to any suitably equipped receiver.

AIS uses very short bursts of high speed data on two VHF channels in the marine band. The two frequencies used are 161.975 and 162.025 MHz. Using a low cost radio scanner tuned to one or other of these channels and **ShipPlotter** software running on your PC, you will be able to see a radar-like real-time chart of all the large ships manoeuvring in your area together with information about their destination, estimated time of arrival and the dimensions of each vessel.

Hardware requirements

The program requires a 16-bit sound card (which must be correctly installed in the PC running **ShipPlotter**) to digitize the audio signal from the radio scanner or communications receiver which must be frequency stable, be able to operate in narrow band FM and to tune to the appropriate VHF radio channels. For more details of the connection of the receiver to the PC consult this [tutorial](#).

The sound card must be capable of operation at a 48kbit sampling rate and of yielding a 8-bit mono result. **ShipPlotter** attempts to establish this mode of operation and will report an error if the mode is not supported by the sound card or if the soundcard is being used by another application.

The decoding of the AIS messages is a processor intensive operation. Best results will be obtained by using a high performance PC.

Note regarding dedicated AIS receiver

If you have a dedicated AIS receiver which delivers a serial data stream of demodulated messages in NMEA format with the prefix "AIVDM", ShipPlotter can interface to such a receiver via a serial port (or a USB port with a USB-serial adaptor) without needing a sound card.

Software requirements

ShipPlotter decodes the AIS message from ships that are within VHF radio coverage. It can display or save this information in several formats. The most satisfying way to display the information, is on a chart. **ShipPlotter** includes a very coarse map of the world but it can be used with any map or chart of you local area that you might already have, provided that you can scan the chart into a digital format. For details on how to digitize and calibrate your own charts, consult this [tutorial](#).

Menu Commands

[File menu](#)

[View menu](#)

[Process menu](#)

[Options menu](#)

[Calibration menu](#)

[Help menu](#)

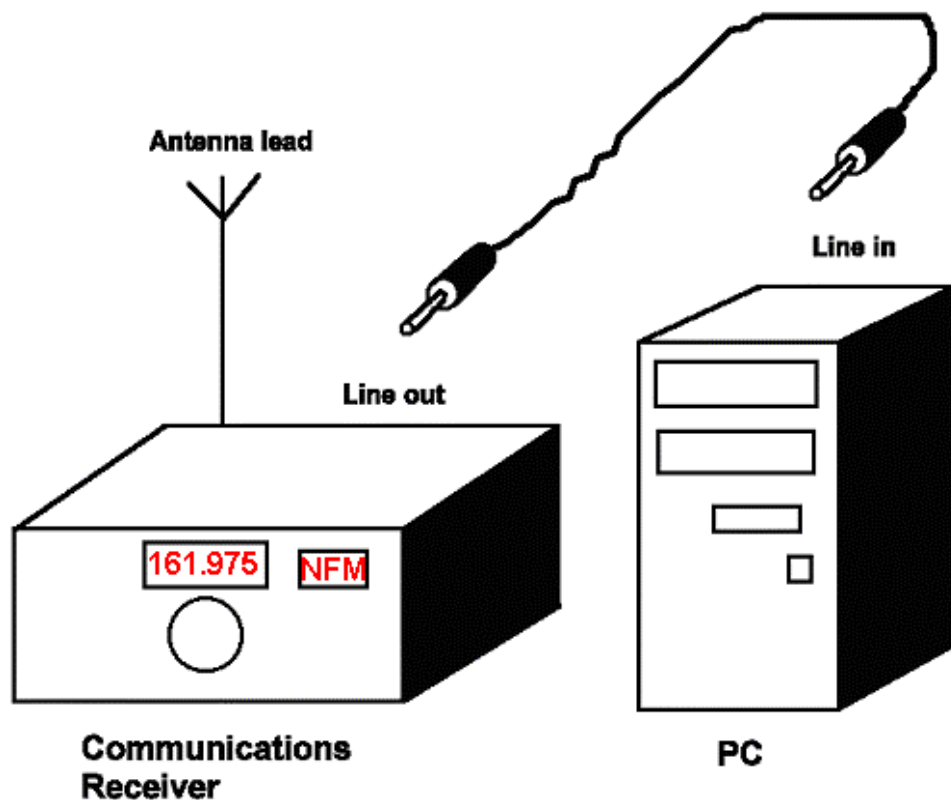
main_index

#K \$ **Connecting the receiver and the PC**

The program requires a 16-bit sound card (which must be correctly installed in the PC running **ShipPlotter**) to digitize the audio signal from the radio scanner or communications receiver which must be frequency stable, be able to operate in narrow band FM and to tune to the appropriate VHF radio channels.

The sound card must be capable of operation at a 48kbit sampling rate and of yielding a 8-bit mono result. **ShipPlotter** attempts to establish this mode of operation in the sound card and will report an error if the mode is not supported by the sound card or if the sound card is being used by another application.

The audio from the receiver should be connected to the sound card line-input socket with a suitable coaxial audio lead. You may have to address the question of mono and stereo jack plug connectors.



The sound mixer utility software, provided with the soundcard, should be used to select the line input (sometimes called aux input) for recording. The volume control (audio level) in the utility should be set at such a level that it avoids saturation of the audio circuitry (often indicated by a green/yellow/red bargraph in the utility).



tutorial

K Connecting the receiver and the PC

\$ System interconnection

Depending on the audio signal level emerging from the receiver, it may be necessary to adjust the volume control of the receiver to achieve a suitable signal level. If the receiver has a line-out connection, it may be preferable to use this rather than the speaker or headphones output since the level of this signal will be independent of the volume control setting on the receiver. The best results will be obtained if the connection is made to an output from a special discriminator tap. The WinRadio is an example of a receiver with a discriminator tap output and is ideally suited to this application.

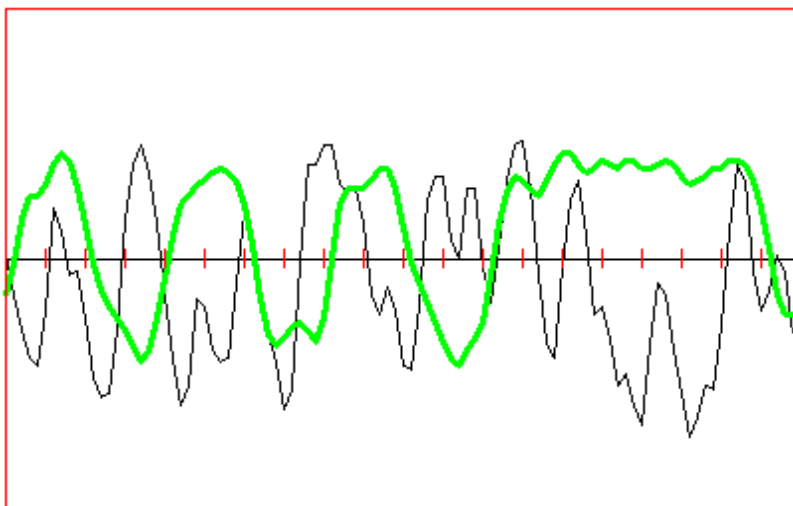
The receiver must be tuned to one of the two AIS channels 161.975 and 162.025 in FM mode with the squelch permanently open (continuous white noise sound). If you have a choice of WFM and FM modes, then use FM. If you have a choice of WFM and NFM modes, then use NFM mode. If you have a choice of WFM, FM and NFM modes, then use FM mode. Note that much of the AIS traffic uses an FM deviation characteristic of 25 kHz channels. This is rather wide for an NFM mode and results may not be 100%. Tuning is also very critical if your receiver bandwidth is narrower than is ideal. If you have small tuning steps, try a few kHz either side of the nominal frequencies to see if there is any improvement in the message rate.

When **ShipPlotter** is running, (after pressing the green "Start" button  on the toolbar), you can check the audio connection and level using the View..Signal option .

If there is no signal at all, use the Options..Audio to select the Line-In option and to set the volume control for the Line-In (and the overall volume control if there is one), to obtain a signal. If there is no Line-In option (sometimes called Aux), in the volume control dialog click on Options..Properties..Recording, check Line-In and click on OK.

The live signal trace, in black, should be a reasonable percentage of the height of the red box. If it is larger than the red box, turn down the receiver volume or use the Sound Mixer (Options..Audio) to adjust the volume on the Line In. If the signal is too small, use the same control options to increase the amplitude.

When the signal amplitude is correct, you should soon see a green trace superimposed on the black trace which shows an apparent HDLC header of a data burst.



The green pattern will be similar to that above with three cycles of a more or less smooth sinusoid, each cycle being four red tick marks long, followed by a period of high signal for 7 red tick marks.

If you do not see a pattern looking like this, first check the receiver tuning and mode and check that an adequate antenna is connected to the receiver and that you are within VHF range of a reasonable density of shipping. Bear in mind that the signal from more distant ships will probably be rather noisy.

Once you are seeing an adequate incidence of HDLC headers in the Signal view, you are ready to examine the messages in the other views.

Note regarding dedicated AIS receiver

If you have a dedicated AIS receiver which delivers a serial data stream of demodulated messages in NMEA format with the prefix “!AIVDM” or similar, ShipPlotter can interface to such a receiver via a serial port (or a USB port with a USB-serial adaptor) without needing a sound card.

In this case, only a serial data cable is required to connect the serial output of the receiver to an available serial port on the PC.

#K \$ Charts

To use a chart or map as the base for the graphic display in **ShipPlotter**, it must be in the correct format and it must also be calibrated so that the software correctly associates chart pixels with geographical coordinates.

ShipPlotter uses charts in the familiar BMP format. You must start by selecting one or more charts of the areas of interest, with an adequate level of detail.

Use a flatbed scanner (not supplied) and its associated software (not supplied) to scan the map or chart at an appropriate resolution. Before you can use the scanned (digitised) chart, there are a few simple steps that you need to take.

It is highly recommended that you use a conventional graphics editor program (eg PaintShopPro, PhotoShop, etc. - not supplied) to perform the following processes on your scanned chart.

- Resample the digitised chart to the minimum size in pixels that allows all detail, place names, etc to be clearly legible. There is a great temptation to digitise charts at an unnecessarily high resolution. Doing so results in very large graphics files, which slow the update of the display in **ShipPlotter**. Experiment with reduced resolution to see how small you can make the chart (in pixels) without prejudicing the readability.
- Rotate the digitised chart so that the writing is the correct way up. Depending on the shape of the chart and the size of your flatbed scanner, you may find it convenient to scan the chart on its side. To make the chart labelling legible, you should use a graphics program to rotate the image to be the correct way up (normally with North at the top).
- Reduce the number of colours. Your flatbed scanner may default to scanning at 24-bit colour. This is probably unnecessary and results in a larger image file than 8-bit colour. Experiment with your graphics editor to see if there is any loss of readability in reducing the number of colours to 256 (8-bit). This will reduce the file size by a factor of three and speed up the display in **ShipPlotter**.
- Save the digitised chart as a BMP file.
- Later versions of **ShipPlotter** also allow you to use JPG* files.

***Copyright notice** "This software is based in part on the work of the Independent JPEG Group".

Now that you have a BMP or JPG graphic file of the chart at the minimum acceptable resolution and colour depth with North at the top, you can proceed to calibrate it for use with the **ShipPlotter** program.

Calibrating the chart

To calibrate the digitised chart you load it into **ShipPlotter**, identify a number of geographical vertices on the chart and then save the calibration data.


- Load the chart into **ShipPlotter** by selecting **File..Load new chart**. Choose the BMP or JPG file that you have just created by digitising your chart. You will see a warning message that the chart is not yet calibrated. This means that the program did not

mapping
K map files: calibration
\$ Maps


encounter a calibration file with the same name in the same directory. The following steps will create such a calibration file.

- Explore the chart. When the chart is first displayed, it is scaled so that the whole chart is visible in the window. You can zoom into the chart by clicking on the Zoom In button



. You can move around the chart by left clicking anywhere in the window. If the chart does not move, select Options..Chart and uncheck the Auto centre option. You can zoom out by clicking on the Zoom Out  button.

- Calibrate the chart. Use the zooming and centring controls to find a mark on the chart whose geographical coordinates are precisely known. Most conveniently these will be geographical fiducials (the intersection of lines of latitude and longitude). On some charts it may be easier to use navigation aids whose geographical positions are precisely known, as the calibration marks, provided that there are sufficient of them scattered over the chart. With the mark visible in the window and at a scale where its position can be

precisely specified with the mouse cursor, click on the Calibrate button  and then left click on the chosen mark. A dialog will appear in which the X and Y pixel coordinates on which you clicked, will be displayed together with two edit boxes for the latitude and longitude of the mark. Be sure to enter the two values carefully using the specified format – a letter for N, S, E or W and then two groups of digits for degrees, minutes and decimals of a minute.

Repeat this process for several points around the chart. Ideally these calibration points should be well spaced around the chart and there should be at least four of them. Note that most GPS receivers default to coordinates in the WGS84 coordinate system. If you are lucky, your chart will have fiducials in these coordinates. If not, you will need to correct them for the difference between the coordinate system of the chart and WGS84. If the only calibration marks on the chart are in a rectangular grid system, eg UTM, then you will need to convert those coordinates to geographical coordinates in WGS84 before you enter the data into the dialog. Many mapping authorities provide utilities for performing such a conversion.

- Check the calibration. Select **Calibration..Display calibration points** and you will see the calibration marks that you have defined. Use the zooming and centring controls to ensure that they are precisely placed over the desired points on the chart. Select **Calibration..Display geo grid** and you will see a set of latitude/longitude intersections that should sit closely over the same intersections on the chart if the chart has such marks. These grid marks are calculated backwards from the calibration data and serve to confirm that the calibration data is good. If you have incorrectly entered the latitude and longitude of one or more of the calibration points, this will distort the calibration and you will see a gross failure of registration between the overlay and the chart. If this happens, check each calibration point in turn using the following procedure. With the calibration points displayed, right click on each red calibration mark. The dialog will reappear allowing you to check, and if necessary alter, the latitude and longitude of the calibration point. Repeat this to check each of the calibration points.

If you have made an error, for example in the click position, that cannot be corrected, then select **Calibration..Clear all calibration points** and then start again.

- Save the calibration. Select **Calibration..Save calibration data** and a file dialog will appear. The default file name will be same as the chart but with the extension (*.clb). Leave the default filename so that the calibration data will be loaded automatically the

next time the chart is loaded. *If you do not save the calibration data, all of your efforts will be lost when the program closes.*

When you have prepared your chart files (*.bmp) and their associated calibrations files (*.clb), you are ready to use them in **ShipPlotter**.

Technical note on chart calibration

The calibration marks are used in a linear regression to chart pixels to geographical coordinates. There is an implicit assumption that the chart projection is orthomorphic, and linear. Charts at high latitudes, or of large areas using conical projections, may not approximate to this assumption. In such cases the calibration method may result in local projection errors that may be unacceptable. The use of Mercator charts, or charts of a smaller geographical extent will generally ameliorate this effect.

#K \$ **File menu commands**

The File menu offers the following commands:

Open new Load a new chart or map.
chart
Exit Exits ShipPlotter.

menu_file
K files: managing
\$ File menu commands

#K \$ **Process menu commands**


The Process options deal with the processing of live or recorded audio to decode messages.

The Process menu offers the following commands:

<u>Start</u>	Start processing live audio.
<u>Stop</u>	Stop processing.
<u>Wave file</u>	Start processing a pre-recorded Wave file.
<u>Record</u>	Start recording a wave file for later study.
<u>Serial data</u>	Start processing serial data from a dedicated serial AIS receiver.
<u>Serial file</u>	Start processing serial data as above from a captured text file.
<u>Log file</u>	Start reviewing a recorded log file.

menu_process
K Processing
\$ Process menu commands

#K \$ **Process..Start command**

This command  starts the processing of live audio from the receiver.

You can select one of the [view modes](#) to see the messages that are being decoded.

Note that processing of the data is computationally very intensive and you should not expect to do other intensive tasks with your PC at the same time.

Automatic starting


ShipPlotter can be run from the command line with the argument '/start' in which case it will begin processing audio automatically.

HID_PROCESS_START

K Processing

\$ Process start command

#K \$ **Process..Record command**

This command  starts the recording of live audio from the receiver in a format that can be analysed later by **ShipPlotter**.

No demodulation or decoding of the data takes place during recording.

This option is useful for handling the situation where the processing power of the PC is insufficient to demodulate and decode the AIS messages in real time. Recording the data and then analyzing later from the wave file allows the processing to take as long as it requires without the real time constraint.


Obviously the times that are attached to the messages are not correct when processing a recording.

HID_PROCESS_RECORD

K Processing

\$ Process record command

#K \$ **Process..Wave file command**

This command  starts the processing of recorded audio from a wave file. Note that the wave file must have been recorded as 8 bit mono data sampled at 48k samples per second.

You can select one of the [view modes](#) to see the messages that are being decoded from the recorded data.


Note that processing of the data is computationally very intensive and you should not expect to do other intensive tasks with your PC at the same time.

HID_PROCESS_RECORDING

K Processing

\$ Process wave file command

#K \$ **Process..Stop command**

This option  stops the processing that is currently under way.

HID_PROCESS_STOP
K Processing
\$ Process stop command

#K \$ **Process..Serial data command**

This command starts processing data received via a serial port from a dedicated AIS receiver. Such data is not available from a conventional radio scanner that must use the sound card input to process the data.

A dedicated AIS receiver delivers demodulated messages in serial data format using the NMEA protocol with message types “!AIVDM” or similar.

The serial data *(if any) from the receiver will be processed until such time as the Stop option is selected. The chart, ship and message views can be used during processing. The Signal option is not meaningful if you are using a receiver with a serial data output.

Automatic starting

ShipPlotter can be run from the command line with the argument '/serial' in which case it will be processing serial input automatically.

HID_PROCESS_SERIALDATA
K Processing
\$ Process serial data command

#K \$ Process..Serial file command

This command starts processing data which has been captured from a serial port from a dedicated AIS receiver to a chosen text file. Such data is not available from a conventional radio scanner that must use the sound card input to process the data.

A dedicated AIS receiver delivers demodulated messages in serial data format using the NMEA protocol with message types “!AIVDM” or similar.

The data should be captured with another application (eg Hyperterm -> Programs..Accessories..Communications..Hyperterm) before ShipPlotter is run.

When this option is selected, you can choose the file (with the default extension *.txt) containing the captured data.

The serial data contained within the selected text file will be processed until the file is exhausted. The chart, ship and message views can be used during and after processing. The Signal option is not meaningful if you are using a receiver with a serial data output.

This process proceeds very much faster than real capture time so the effect is basically to present the final state of the vessels concerned.

HID_PROCESS_SERIALFILE

K Processing

\$ Process serial file command

#K \$ **Process..Log file command**

This command starts processing data which has been captured previously and sent to a log file. **ShipPlotter** does this automatically.

When this option is selected, you can choose the file (with the default extension *.log) containing the saved data.

The data contained within the selected log file will be processed until the file is exhausted. The chart and ship views can be used during and after processing. The Message View option is not meaningful because new messages are not created from the content of the log file. The Signal View option is not meaningful if you are using a receiver with a serial data output.

This process proceeds very much faster than real capture time so the effect is basically to show a high speed replay of the previous messages. It is useful to review activity if **ShipPlotter** has been left running overnight, for example.

Note that by default, **ShipPlotter** continues to append log data to the file 'shipplotter.log' and this file can get very long. If you want to review the recent activity, then you may find it useful to rename the log file from time to time to avoid the file becoming very long.

HID_PROCESS_LOGFILE_REPLAY

K Processing

\$ Process log file command

#K \$ Options menu commands

The Options menu offers the following commands:

Decoder Adjust the decoder options.

Chart..Load
raster chart Loads an existing chart or map (BMP format).

Chart..Load
vector chart Loads an existing chart or map (VEC format).

Centre..Cent
re now This option brings the current chart to the centre of the screen.

Centre..Auto
centre Toggle automatic centring of the chart to the median area of ship positions.

Centre..GPS Toggle automatic centring of the chart to the position reported by a locally-connected GPS receiver.

Zoom in Zoom in to the chart.

Zoom out Zoom out of the chart.

Customise Setup the various options for displaying ships on the chart.

Set quick
chart Define the current chart to be one of the Quick Charts.

Radar..North
up Select the radar display to have North at the top.

Radar..Head
up Select the radar display to have ships heading at the top.

Output..Mess
ages Toggle saving of decoded message data to a log file.

Output..hex Toggle saving of raw messages to a HEX file.

Output..Imag
e files Setup automatic saving of screen grab image files. Use this for inserting the current image into a web page.

menu_options

K Options

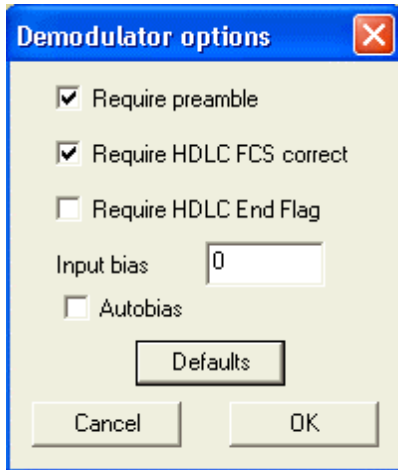
\$ Options menu commands

<u>Output..AVI files</u>	Setup saving AVI files of action on the chart. Use this to create a time lapse movie.
<u>Output..FTP setup</u>	Setup parameters for automatic FTP transfers of images.
<u>Output..FTP now</u>	Perform an FTP transfer of the current image now for test purposes.
<u>Output..NMEA A output</u>	Toggle the output of NMEA serial AIS data from the off-air decoded messages.
<u>Output..OziExplorer.Start</u>	Enable ship position output to a co-running OziExplorer program.
<u>Output..OziExplorer.Stop</u>	Disable ship position output to a co-running OziExplorer program..
<u>Input..GPS</u>	Toggle own position input via a serial port from a local GPS receiver in NMEA format.
<u>Input..GPS (TAIP)</u>	Toggle own position input via a serial port from a local GPS receiver in TAIP format.
<u>Directory..Log</u>	Select the default directory for save log, wave and AVI files.
<u>Directory..Chart</u>	Select the default directory for chart or map files.
<u>Directory..Image</u>	Select the directory for screen capture image files.
<u>Audio</u>	Select and adjust the audio source for processing.
<u>Audio Soundcard</u>	Select the sound card to be used for audio processing.
<u>Serial..AIS input</u>	Set up the serial port for receiving NMEA serial data from a dedicated AIS receiver.
<u>Serial..AIS output</u>	Set up the serial port for transmitting NMEA serial data to an AIS receiving device.
<u>Serial..GPS</u>	Set up the serial port for receiving NMEA positions from a local GPS receiver.
<u>Sharing..Enable</u>	Toggle the sharing of messages with other ShipPlotter users via the Internet.

<u>Sharing..Server</u>	Specify the server to use for sharing messages with other ShipPlotter users via the Internet.
<u>Sharing..Internet passive Sharing</u>	Start passive sharing over the Internet using a private sharing server.
<u>Sharing..Local passive Sharing</u>	Start local passive sharing with a local instance of ShipPlotter.
<u>Alert zone..Add</u>	Add one or more vertices to the current alert zone polygon.
<u>Alert zone..Clear</u>	Clear the current alert zone polygon.
<u>Alert zon..Load</u>	Load an alert zone polygon from file.
<u>Alert zon..Save</u>	Save the current alert zone polygon to a file.
<u>Purge</u>	Purge all ships from the chart and Ship view.

##K \$ Options..Decoder command

This option brings us the Decoder dialog.



The options presented in this dialog determine how the data decoder operates.

Require preamble

If this option is checked, the AIS messages must have a preamble in accordance with the AIS spec. With the option unchecked, the program simply looks for the HDLC start patterns regardless of the preamble. In this state, more ships will probably be decoded but the process is much more demanding and more random noise patterns will be interpreted as valid data. If you are attempting to decode data with a low-performance machine, you may find that some messages are lost because the process cannot keep up. Try both options to see which gives the most reliable decodes. The default condition is for this option to be enabled.

Require HDLC FCS correct

The messages transmitted by AIS equipped ships include a checksum. If this option is checked, only messages with a valid checksum will be displayed. If the option is unchecked, you will see messages even if they did not seem to be decoded correctly. Expect to see a lot of garbled messages in this mode. The default condition is for this option to be checked.

Require HDLC End Flag

The last part of the digital message is an end flag. If you want to discard every possible dubious message, check this too. In practice almost any message with a correct checksum is likely to be good even (about 1 in 64000 times) even if the end flag is corrupted. The default condition is for this option to be unchecked.

Input bias

```
# HID_OPTIONS_DECODER
```

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# HIDD_DECODERLG
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K Options
```

```
$ Options decoder command
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If the display in the Signal view is persistently offset from the centre line of the chart, putting a small non zero value into the Rx Bias may improve system performance. The default value is zero.

Autobias

If this option is checked, the mean signal level is determined from the preamble and is used in the demodulation of the rest of the message. This option may help with some receivers and soundcards, especially if there is some doubt about the frequency accuracy of the receiver. The default value is disabled.

Default button

The default button restores the default values to these options.

#K \$ **Options..Load Raster Chart command**

This command loads a new raster chart from a BMP graphic file. You must select the required file in the file dialog that appears.

The view mode will change to Chart mode when you load a new chart.

Note that in order to use a chart in **ShipPlotter**, it must have been calibrated as described in the [tutorial](#).

You can zoom in and out of the chart with the zoom buttons. You can also move around the chart by clicking on it, provided that you have not selected Auto centring or GPS centring (Options.Chart..Centre).

HID_OPTIONS_MAP_LOADMAP

K Options

\$ Options raster map command

#K \$ **Options..Load Vector Chart command**

This command loads a new vector chart from a VEC graphic file. You must select the required file in the file dialog that appears.

The view mode will change to Chart mode when you load a new chart.

Note that in order to use a chart in **ShipPlotter**, it must have been calibrated as described in the [tutorial](#).

You can zoom in and out of the chart with the zoom buttons. You can also move around the chart by clicking on it, provided that you have not selected Auto centring or GPS centring. (Options.Chart..Centre).

HID_OPTIONS_MAP_LOADVECTORMAP
K Options
\$ Options load vector map command

#K \$ **Options..Centre..Centre chart now command**

If this option is clicked in Chart mode, the current chart will be automatically brought to the centre.

HID_OPTIONS_CHART_CENTRE_CENTRECHARTNOW
K Options
\$ Options centre now command

#K \$ **Options..Centre..Auto Centre command**

If this option is checked, the centre point of the chart display, in Chart mode, will be automatically adjusted to the median position of the current ship positions.

If no position messages have been decoded, the chart will be displayed in an arbitrary position.

If this option is checked, you cannot move the around the chart by dragging it with the mouse button. If you want to do that, uncheck the option.

If you select Calibration..Add, Auto centring will be turned off.

HID_OPTIONS_MAP_AUTOCENTRE

K Options

\$ Options autocentre command

#K \$ **Options..Centre..GPS Centre command**

If this option is checked, the centre point of the chart display, in Chart mode, will be automatically adjusted to the current position reported by a local GPS receiver. This option is only enabled if Options..Input..GPS is enabled.

If this option is checked, you cannot move the around the chart by dragging it with the mouse button. If you want to do that, uncheck the option.

HID_OPTIONS_CHART_CENTRE_GPSCENTRE
K Options
\$ Options centre GPS command

#K \$ **Options..Centre..Ship Centre command**

If this option is checked, the centre point of the chart display, in Chart mode, will be automatically adjusted to the current position reported by the designated ship (the last ship that you right-clicked on). As the ship reports new positions, the chart position will change so that the ship remains in the centre of the screen.


If this option is checked, you cannot move the around the chart by dragging it with the mouse button. If you want to do that, uncheck the option.

HID_OPTIONS_CHART_CENTRE_SHIPCENTRE

K Options

\$ Options centre Ship command


#K \$ **Options..Zoom in command**

Use this option  to zoom into the chart. The displayed scale is increased by 1.4 times for each click so that the scale doubles for every two clicks.

You need to be in chart mode (View..Chart) to see anything happen.

HID_OPTIONS_MAP_ZOOMIN
K Options
\$ Options zoom in command

#K \$ **Options..Zoom out command**

Use this option  to zoom out of the chart. The displayed scale is decreased by 1.4 times for each click so that the scale halves for every two clicks.

You need to be in chart mode (View..Chart) to see anything happen.

HID_OPTIONS_MAP_ZOOMOUT
K Options
\$ Options zoom out command

#K \$ Options..Radar..Headup command

This command selects Head Up for the Radar View. If the range rings are centred on a designated ship or on a local GPS position (MyShip), then the radar display will be oriented so that the current heading (designated ship) or course (local GPS) is at the top of the display.

If the range rings are centred on Home, this option displays North Up by default.

HID_OPTIONS_RADAR_HEADUP

K Options

\$ Options radar headup command

#K \$ Options..Radar..North Up command

This command selects North Up for the Radar View. Regardless of the origin selected for the range rings, the radar display will be oriented so that North is at the top of the display.

HID_OPTIONS_RADAR_NORTHUP
K Options
\$ Options radar northup command

#K \$ **Options..Output..Log messages command**

If you check this option, all decoded messages will be sent to a file called ShipPlotter.log which will be saved in the current directory.

Note that **ShipPlotter** does not necessarily decode all possible message formats and so some messages may not be saved. If you want to study any un-decoded messages, choose Options..Output..Log hex messages.

HID_OPTIONS_OUTPUT_LOGMESSAGES

K Options

\$ Options log messages command

#K \$ Options..Output..Log hex messages command

If you check this option, all messages with a valid checksum will be sent to a file called ShipPlotter.hex which will be saved in the current directory. The data is stored as a series of hex bytes with no decoding of the message content.

If you want to save the messages in plain language, choose Options..Output..Log messages.

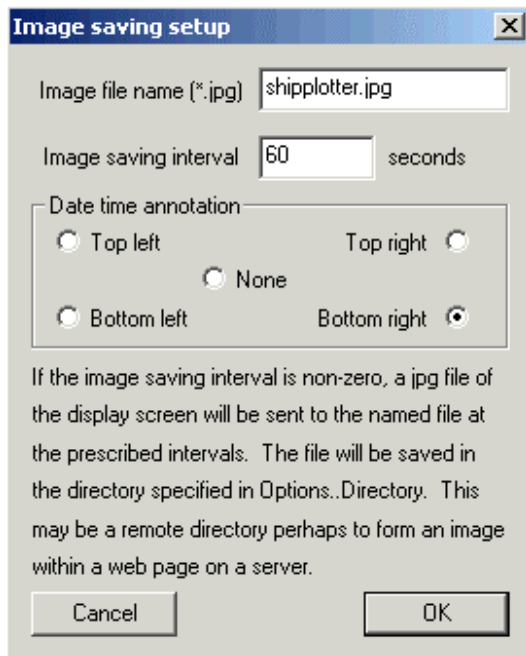
HID_OPTIONS_OUTPUT_LOGHEXMESSAGES

K Options

\$ Options log hex messages command

##K \$ Options..Output..Images

If you select this option, you can specify that **ShipPlotter** will save a screen capture (typically of the chart display) to a designated named file at regular intervals.



Choose the name of the file and the time interval (in seconds) between each saving operation.

The Data time annotation option allows you to include the current date and time (in UTC) in the corner of each image. You can choose in which corner the date time group will be displayed by clicking on the appropriate choice. If you do not wish to have the image annotated, check 'none'.

The image is saved to a directory defined in the Options..Directory..Images option.

You can use this feature to make a live web cast of your chart by setting the directory to a network address on the server where your web pages are hosted (assuming you have sufficient privileges to do so), and arranging the web page to invoke the named image. If not, you can use the FTP options to send the image to your server.

For example, you might include `` in the web page and send the image files to the same directory as the page sits on. If you make the web page auto-refresh at the same intervals as the images are downloaded, a user will always see the latest chart situation.

Be aware that the image size is the area of the window of ShipPlotter. If you are embedding the image in a web page, you will need to think carefully about how large you should make the window size to avoid very large download sizes and to match the overall design of the web page.

HID_OPTIONS_OUTPUT_IMAGES

HIDD_IMAGEDLG

K Options

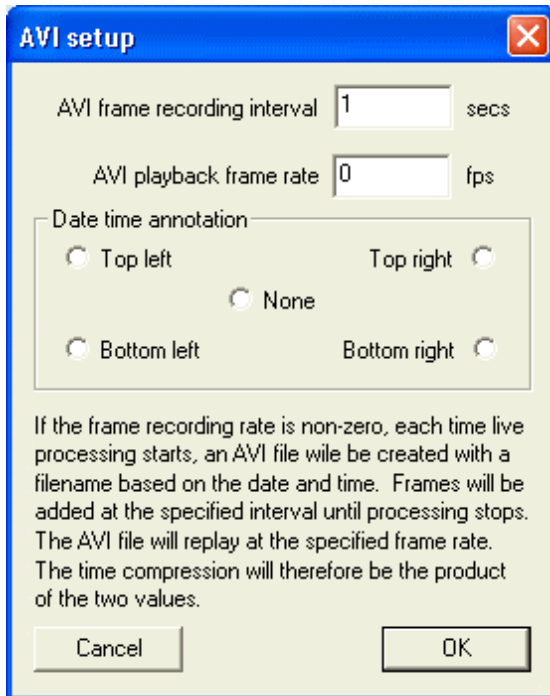
\$ Options output images command

If you need to use an FTP transfer to convey your image to a web server, consult the section on [Options..Output..FTP](#) for more details.

##K \$ Options..Output..AVI file

If you select this option, you can specify that **ShipPlotter** will save a succession of screen images to frames in an AVI file.

This option allows you to create a time lapse sequence in movie format



You can define both the recording rate (specified as the number of real-time seconds between successive frames) and the playback rate (the number of frames per second when the AVI movie is replayed).

Avoid making the recording interval too short. The recording of each frame takes a significant amount of time and if you try to save every couple of seconds, the real-time processing of signals will be severely curtailed. Generally, at most map scales, there is not much movement visible in less than a minute so consider making the recording interval around that time scale. You can choose any playback rate but be warned that for large image sizes, the data rate in playback may be impossibly high. If you save frames once per minute, and make the playback rate 1 fps, the time lapse speed up will still be 60 times (a ten knot ship will be going at 600 knots).

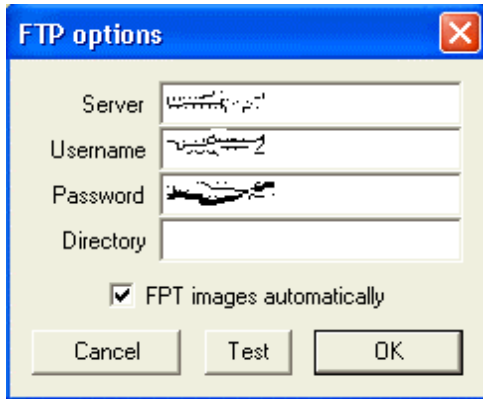
The Data time annotation option allows you to include the current date and time (in UTC) in the corner of each image. You can choose in which corner the date time group will be displayed by clicking on the appropriate choice. If you do not wish to have the image annotated, check 'none'.

```
# HID_OPTIONS_OUTPUT_AVI
# HIDD_AVIDLG
K Options
$ Options output AVI files command
```

###K \$ Options..Output..FTP

ShipPlotter is able to send the current screen image to a remote FTP server.

If you select **Options..Output..FTP setup**, this dialog will appear.



If you have access to a web server that allows you to upload files by FTP, you can enter the URL of the server, your username and your password into this dialog. Unless you have subdirectories accessible from the default directory into which your FTP login gives access, you **must leave the Directory field blank**.

If you check the 'FTP images automatically' option, then an FTP transfer will take place any time that an image is generated by the Options..Images setup. Note that even with the 'FTP images automatically' option checked, no FTP will take place unless automatic image saving is also enabled in the Options..Images dialog and a process is running.

You can click on the Test button, or on the Options..Output..FTP..Ftp now option, to initiate an immediate FTP transfer of the current image to the FTP server. Progress of the transfer will be displayed in the title bar of the application.

Hits for use on a web page

The size of the image that is transferred, is identical to the size of the client area of **ShipPlotter** as you have it displayed at the time of the image transfer. Accordingly, the size of the jpeg file will be rather large if you have the application maximised. If you want to embed the live screen image in a web page, using, for example, a line in the HTML for the web page like ``, have regard for the dimensions of the image vis-à-vis the dimensions of the web page and consider including the 'height=' and 'width=' elements in the `` tag to constrain the appearance of the image on the browser screen.

Known issues:

In the current version, the FTP transfer is a modal activity in the main application thread. Accordingly, the processing of the input data will be interrupted during the transfer to the FTP

```
# HIDD_FTPDLG
# HID_OPTIONS_OUTPUT_FTP
# HID_OPTIONS_OUTPUT_FTP_FTPNOW
K Options
$ Options output FTP images command
```

server. Depending on the response time of the server that you use, this may impact on the success of message capture during the transfer.

#K \$ **Chart centring button**

This button causes the current chart to be centred on the screen (if Chart View is selected).

HID_CENTREBUTTON

K Toolbar

\$ Centre button

#K \$ **Options..Directory..Chart command**

Choose this option to redefine the directory where chart files are expected to be found.

In the file dialog that opens, navigate to the required directory and click Save. No actual file name is required.

This is the directory that is searched if you enable automatic chart selection.

HID_OPTIONS_DIRECTORY_CHARTFILES

K Options

\$ Options directory chart command

#K \$ **Options..Directory..Images command**

Choose this option to redefine the directory where image files are to be stored.

ShipPlotter can be set up to save a screen grab at regular intervals and to save that screen grab as a JPEG image file in a designated directory. This option allows you to specify the directory.

One possible use of this option is to allow you to define a network directory on a remote web server (supposing that you have sufficient privileges). If the file name is chosen appropriately, it could be defined as an embedded image in a web page that you use to show your current chart display. If you make the web page auto refresh to correspond to the update rate of the screen grab, your web page visitors will see the real time situation.

In the file dialog that opens, navigate to the required directory and click Save. No actual file name is required.

HID_OPTIONS_DIRECTORY_IMAGEFILES

K Options

\$ Options directory images command

#K \$ **Options..Directory..Log files command**

Choose this option to redefine the directory where log files are to be stored.

ShipPlotter can be set up to save a log file of all decoded messages. This option allows you to specify the directory where this file is saved.

In the file dialog that opens, navigate to the required directory and click Save. No actual file name is required.

The database file 'shipinfo.txt' is also stored in this directory.

HID_OPTIONS_DIRECTORY
K Options
\$ Options directory log files command

#K \$ **Options..Audio..Mixer command**

Choose this option to bring up the Windows Mixer controls for your selected soundcard.

The content of this dialog depends on your particular sound card. Normally you should select the input entitled **Line In** or possibly **Aux**. You should also make sure that the volume associated with the chosen input is not at zero.

For complete information on how to set these parameters correctly, consult this [tutorial](#).

HID_OPTIONS_AUDIO

K Options

\$ Options audio command

#####K \$ Options..Audio Soundcard commands

If you have more than one sound card installed on your system, you can choose this option to select which soundcard you want to use. The menu pull-down will list any soundcards that it finds on your system. The program will always default to the Auto mode in which the system will allocate the sound card that is best able to support the audio mode that the program requires.

There are some caveats.

The use of multiple sound cards, especially if they share drivers because of common chip sets can lead to intractable problems. Although we try to help to resolve any problems in using **ShipPlotter**, problems resulting from the simultaneous use of two or more soundcards may be beyond our ability to help.

Running two instances of **ShipPlotter** to process different audio signals will aggravate the already heavy processing load that the program imposes on the machine.

Although you can run more than one instance of **ShipPlotter**, there is only one registry folder where the settings are stored. Accordingly, the settings in the registry will always reflect the situation of the last instance to close. If you have two instances and close one and then the other, it is the settings of the last one to close that will be saved and that will be restored next time the program opens. For that reason, to run two instances using different soundcards, you will always have to make the sound card selection manually when you start the two versions.

```
# HID_OPTIONS_AUDIO_SOUNDCARD_AUTO
# HID_OPTIONS_AUDIO_SOUNDCARD_CARD1
# HID_OPTIONS_AUDIO_SOUNDCARD_CARD2
# HID_OPTIONS_AUDIO_SOUNDCARD_CARD3
# HID_OPTIONS_AUDIO_SOUNDCARD_CARD4
K Options
$ Options audio soundcard command
```

#K \$ **Serial port setup dialog**

This dialog appears when you select one of the options for configuring a serial port for communication with an external device.



Select the serial communication port to which you have connected the serial cable from the device.

Enter the bit rate that the device uses to communicate.

Click OK.

HIDD_SERPORTDLG
K Options
\$ Options serial port setup

####K \$ **Options..Serial..NMEA input setup command**

Choose this option to configure one of the serial ports for reception from up to four dedicated AIS receivers.

This dialog appears.



Select the serial communication port to which you have connected the serial cable from the serial output of the dedicated AIS receiver. (Serial data input to **ShipPlotter** from the device.)

Enter the bit rate that the receiver uses to communicate.

Click OK.

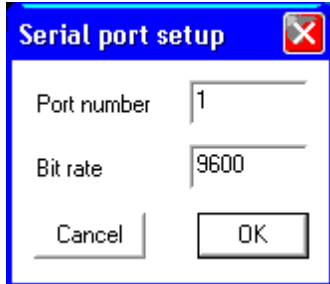
To disable this input, set the Port number to -1.

```
# HID_OPTIONS_SERIAL
# HID_OPTIONS_SERIALPORTS_NMEAAISINPUT_NMEAAISSERIALINPUT2
# HID_OPTIONS_SERIALPORTS_NMEAAISINPUT_NMEAAISSERIALINPUT3
# HID_OPTIONS_SERIALPORTS_NMEAAISINPUT_NMEAAISSERIALINPUT4
K Options
$ Options Serial input NMEA setup command
```

#K \$ **Options..Serial..NMEA output setup command**

Choose this option to configure the serial port for transmission of serial AIS data in NMEA format to a compatible device.

This dialog appears.



Select the serial communication port to which you have connected the serial cable to the AIS serial device. (Serial data output from **ShipPlotter** to the device.)

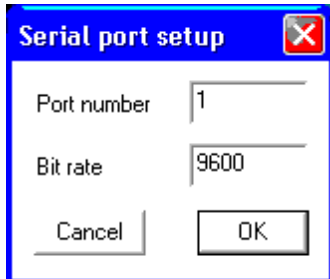
Enter the bit rate that the device uses to communicate.

Click OK.

HID_OPTIONS_OUTPUT_NMEA_SETUP
K Options
\$ Options Serial output NMEA setup command

#K \$ **Options..Serial GPS serial setup command**

Choose this option to configure the serial port for receiving serial data from a local GPS receiver.



Select the serial communication port to which you have connected the serial cable from the GPS receiver.

Enter the bit rate that the GPS receiver uses to communicate serially.

Click OK.

HID_OPTIONS_SERIALPORTS_GPSSERIALPORT

K Options

\$ Options serial command

#K \$ Options..Input GPS command

Choose this option to toggle reception of position data in NMEA format from a local GPS receiver connected via a serial port.

You must first have set up the serial port to be used by the GPS receiver before enabling this function.

ShipPlotter understands the '\$GPGLL', '\$GPGGA' and '\$GPVTG' sentences from a GPS receiver.

GPS serial data is only handled if AIS reception is in progress (processing either the audio signal or an AIS serial input). When a position or speed message is received from the GPS receiver, a dummy ship, with the MMSI number '999999999' and name 'My Ship' is updated with this information. This dummy ship, representing your position, is displayed in the Ship View and Chart View screens. The information is also shared if the Sharing option is enabled (and you are connected to the Internet). Note that the same MMSI will be used by other users with the same configuration so the information displayed on the chart may show somebody else's 'My Ship'. If you are in the happy position of being on a ship and having a live Internet connection, be aware of this possibility. Regardless of this, if you elect to have the chart centred on your own GPS position, this centring will not be affected by data received from the Sharing server.

Optionally, you can automatically centre the chart on the current GPS position by enabling Options..Chart..Centre..GPS.

HID_OPTIONS_INPUT_GPS

K Options

\$ Options Input GPS command

#K \$ **Options..Input GPS (TAIP) command**

Choose this option to toggle reception of position data in TAIP format from a local GPS receiver connected via a serial port.

You must first have set up the serial port to be used by the GPS receiver before enabling this function.

ShipPlotter processes only the '>RLN' sentences from a TAIP format GPS receiver.

GPS serial data is only handled if AIS reception is in progress (processing either the audio signal or an AIS serial input). When a position or speed message is received from the GPS receiver, a dummy ship, with the MMSI number '999999999' and name 'My Ship' is updated with this information. This dummy ship, representing your position, is displayed in the Ship View and Chart View screens. The information is also shared if the Sharing option is enabled (and you are connected to the Internet). Note that the same MMSI will be used by other users with the same configuration so the information displayed on the chart may show somebody else's 'My Ship'. If you are in the happy position of being on a ship and having a live Internet connection, be aware of this possibility. Regardless of this, if you elect to have the chart centred on your own GPS position, this centring will not be affected by data received from the Sharing server.

Optionally, you can automatically centre the chart on the current GPS position by enabling Options..Chart..Centre..GPS.

HID_OPTIONS_INPUT_GPSTAIP
K Options
\$ Options Input GPS command (TAIP)

##K \$ Options..Input..Setup My Ship command

Choose this option to define the name and MMSI number to be attached to 'My Ship' that is plotted at the position defined by locally supplied GPS source.

The name defaults to "My Ship" and the MMSI number to 999999999.

The Ship name must be less than 20 characters and must consist of letters only. The MMSI number must lie between 999999000 and 999999999 to avoid confusion with real MMSI numbers.

The Ship Type can be selected from 100 predefined types.

The Destination can be any string up to 20 characters and the ETA can be any string up to 11 characters.

```
# HIDD_MYSHIPDIALOG
# HID_OPTIONS_INPUT_SETUPMYSHIP
K Options
$ Options Input Setup My Ship command
```

#K \$ **Options..Output NMEA command**

Choose this option to toggle transmission of ship message data to a suitable AIS device.

You must first have [set up the serial port](#) to be used by the device before enabling this function.

ShipPlotter sends demodulated AIS messages in NMEA format to the selected serial port. If you have a device that can accept serial data from a dedicated serial-output AIS receiver, it should also work with **ShipPlotter** demodulating signals from a conventional receiver.

HID_OPTIONS_OUTPUT_NMEA_ENABLE

K Options

\$ Options Output NMEA command

#K \$ **Options..Output..OziExplorer..Start command**

Choose this option to start transmission of ship positions to a co-running instance of the *OziExplorer* mapping program.

This function will have no effect if you do not have a registered copy of *OziExplorer* or it is not running.

When you are processing live messages (from audio or a serial AIS source), the ship positions will be sent to *OziExplorer* once per minute and plotted on the current *OziExplorer* map as 'Map Features' (*Ozi Explorer* terminology). The name and position of the ships will appear as tooltips if you hover over the ship icon on the *OziExplorer* screen.

Notes

The API that *OziExplorer* provides has some limitations.

ShipPlotter passes to *OziExplorer* a set of 8 symbols showing ships proceeding N, NE, E, SE, S, SW, W, and NW. Therefore the precision of the directional display of the ship icon is less than in the **ShipPlotter** native chart display.

Unlike **ShipPlotter**, no wake history is available on the *OziExplorer* screen.

Unlike **ShipPlotter**, no predicted track is available on the *OziExplorer* screen.

The *OziExplorer* screen is updated once per minute – much more slowly than the **ShipPlotter** screen.

The ships are shown as 'Map Features' in *Ozi Explorer*. The current API does not permit Map Features to be selectively deleted. Accordingly, at each refresh, all Map Features are deleted and the ship icons are replotted. This means that if you have some user-added Map Features, they will disappear when **ShipPlotter** controls the *OziExplorer* screen.

```
# HID_OPTIONS_OUTPUT_OZIEXPLORER_START
K Options
$ Options Output OziExplorer start command
```

#K \$ **Options..Output..OziExplorer..Stop command**

Choose this option to stop transmission of ship positions to a co-running instance of the *OziExplorer* mapping program.

HID_OPTIONS_OUTPUT_OZIEXPLORER_STOP
K Options
\$ Options Output OziExplorer stop command

#K \$ **Options..Output..Ship Info command**

Choose this option to open a new window showing the current list of ships in the database. You can print the list from the pop-up window or you can save the file to some other archive.

HID_OPTIONS_OUTPUT_SHIPINFO
K Options
\$ Options Output Ship Info command

#K \$ **Options..Sharing..Enable command**

This option toggles the sharing of messages that you receive with other users of **ShipPlotter** via the Internet. You must be connected to the Internet for this option to work.

If the option is enabled, when you are processing live messages, every 60 seconds the latest message for every ship that you have received in the last minute or so, will be transmitted to our server. Your messages will update the server database which is indexed by ship MMSI. In return, the contents of the server database will be returned to you and will automatically update your local ShipPlotter database with the latest position report data from ships that you may not have received yourself. These other messages from ships will display on your chart if they comply with the conditionality (eg range from your location) that you have applied.

Automatic start

You can run ShipPlotter from the command line. If you include the argument '/share' then sharing will start automatically when the program is run. Normally you would include this argument along with either the '/start' or '/serial' command line arguments.

Note

This version transfers the information to our server in the main application thread. Accordingly, if you enable this option, there will be a period of a second or so each minute, when you may miss messages. For various reasons, this option should be considered to be experimental.

Specific warning

The system that is implemented in this version, allows any registered user to update messages to the COAA server database. There is no data quality control – there is a tacit assumption that people are using this option responsibly. Users may or may not have set their PC clocks and time zones correctly, for example. In such a case, the time tags on the messages will be wrong and a message presumed to be the latest may, in fact, be an earlier one. They may also have edited the ship names in their database to read incorrectly. So, when your local **ShipPlotter** database is updated, you are receiving ship data from other users that *may* overwrite your local data with wrong or questionable data. The parsing of the ship data by the server and the formatting of the data sent back from the server prevents any harmful effects to your computer or to any data that is not part of **ShipPlotter**. However, it *is* possible that your local **ShipPlotter** database may become corrupted if people choose abuse the system. This sharing method is experimental and may be withdrawn at any time without notice for any reason including but not limited to abuse, security concerns, excessive server loading.

General warning – spyware – privacy statement

The sharing system that is implemented in this version transmits limited information from your computer to our server and back again. If you are concerned about computer security or spyware you should read and understand the following statement.

COAA warrants that if you do **not** check the Sharing option, then no connection is ever made to the Internet, the COAA server or to any other server for any purpose whatsoever with the sole exception of the ITU name server as explained in the [Auto Look Up option](#).

```
# HID_OPTIONS_SHARE
K Options
$ Options share command
```


COAA further warrants that if you **do** check the sharing option, then the only connection that is ever made is to the COAA server and the only data that is ever transmitted to the server is the data pertaining to AIS messages that have been received by you in the last minute or so *together with your registration number which is included to facilitate detection of abuse*. The registration number is a four or five digit number which is unique to a registered user and would allow us to identify any abuser of the system if such took place. The number does not encode any other information and no personal or any other data is transmitted along with the ship data.

The author of ShipPlotter has been a Chartered Member of the British Computer Society, Europe's largest professional body for Information Technology Practitioners, continuously for thirty years or more and as such has signed up to the professional code of conduct of that Society. To engage in techniques such as spyware would certainly result in the revoking of Chartered status which the author has enjoyed for thirty years or more. COAA is a registered business in the European Union where privacy legislation makes it a serious offence to attempt to obtain personal information using techniques such as Spyware. You must make your own judgement about the security of using this option, but the above facts should serve to reassure you.

##K \$ **Options..Sharing..Server** command

This option allows you to select the server and script that is accessed when sharing of messages that you receive, with other users of **ShipPlotter** via the Internet.

The default server is www.coaa.co.uk
The default script that is run is shipinfo.php.

You can specify two different servers and either or both can be selected as the active server. This information is preserved from session to session.

Private sharing

If you want to set up a private sharing system, you require a hosting facility that includes support for PHP and MySQL. You will then need to use the **Options..Sharing.:Server** command to change the server name from the default, to the domain where you will place the script described below.

First you must create a table called 'shipinfo' within your database on your MySQL server, with the following fields.

```
CREATE TABLE `shipinfo` (  
  `mmsi` int(11) NOT NULL default '0',  
  `mtime` int(11) NOT NULL default '0',  
  `status` int(11) NOT NULL default '0',  
  `type` int(11) NOT NULL default '0',  
  `lat` float NOT NULL default '0',  
  `lon` float NOT NULL default '0',  
  `speed` float NOT NULL default '0',  
  `course` float NOT NULL default '0',  
  `heading` int(11) NOT NULL default '0',  
  `draft` float NOT NULL default '0',  
  `width` int(11) NOT NULL default '0',  
  `length` int(11) NOT NULL default '0',  
  `name` varchar(20) NOT NULL default "",  
  `call` varchar(7) NOT NULL default "",  
  `dest` varchar(20) NOT NULL default "",  
  `eta` varchar(11) NOT NULL default "",  
  `reg` int(11) NOT NULL default '0',  
  `imo` int(11) NOT NULL default '0'  
) TYPE=MyISAM;
```

Edit the example script file called 'shipinfoexample.php', which you will find in the C:\Program Files\COAA\ShipPlotter\ directory, by inserting your own username, password and hostpath (or 'localhost') and then copy the script onto your server and rename it as 'shipinfo.php'.

With the script (now called 'shipinfo.php') on the server pointed to by the **Options..Sharing..Server** command, and a table (called 'shipinfo') on a MySQL database accessible with the access options that you have edited into shipinfo.php, you will now be able to share with any other user who puts the same server details into their copy of ShipPlotter.

```
# HIDD_SHARESERVERDLG  
# HID_OPTIONS_SHARING_SERVER  
K Options  
$ Options share server command
```

To keep the sharing private, you would obviously not disseminate the host details.

The **reg** field is the registration number of the user. If you wanted to impose a modest level of security, you could add a test in the script, that the reg number comes from an authorised user. The registration can be read from the Help..About box.

#K \$ **Options..Sharing..Internet Passive Sharing command**

This option allows you to operate passive sharing (receive-only sharing) without processing audio or serial input.

This option is only enabled if you have implemented Private Sharing with your own server. It is not available for the default sharing server.

HID_PROCESS_SHARINGXONLY

K Options

\$ Options share internet passive sharing command

#K \$ **Options..Sharing..Local Passive Sharing command**

This option allows you to operate passive sharing locally from another instance of **ShipPlotter**. Using this option, you can have one instance of **ShipPlotter** doing the processor-intensive demodulation and decoding of the AIS signals and a number of other copies of **ShipPlotter** displaying the same data in various formats, charts, scales etc.

No server is required for this option, simply start one instance of **ShipPlotter** and set it to decode the off-air signals. Then start a second (or subsequent) instance of **ShipPlotter** and select the Options..Sharing..Local Passive Sharing option. You can then choose different views or different charts from the first instance and, with minimum processor demands, the position and static messages received by the first instance will also be displayed by the second instance.

Log files must be enabled

Local passive sharing works by monitoring the log file generated by the master instance of **ShipPlotter**. Accordingly, it is a prerequisite that the master instance of **ShipPlotter** has the log file enabled. If not, then the passive sharing instance(s) will see nothing. Note that you can perform local passive sharing over a LAN or even a WAN – it does not have to be on the same machine. Simply define the log file directory to be the log file directory that is used by the master instance and, provided that the passive sharing instance can access files in that directory over the LAN or WAN, then it will display the messages decoded by the master instance.

Important note

Both instances are able to change settings of the program. While the two instances are still running, they can utilize different settings of things like display options for ship type colours, labelling, etc. However, when either instance closes, that instance's settings are saved to a common place and so, if the two instances are using different settings, the settings that will be restored the next time an instance is opened will be the settings of the last instance to close down. If you understand that, you will not be surprised by how the program works. If you do not recognise how it happens, you may be puzzled by the way settings are changed.

```
# HID_OPTIONS_SHARING_LOCALPASSIVESHARING
K Options
$ Options share local passive sharing command
```

#K \$ Options..Alert Zone..Add

Use this option to add one or more vertices to the current Alert Zone polygon. Once you have selected this option, each time you click on the chart, you will add a new point to the polygon defining the Alert Zone. Note that to stop adding vertices, you must revisit the Options..Alert Zone..Add to reset the option. If you forget to do this, every click will add another vertex. If you get in a muddle, use Options..Alert Zone..Clear and start again.

Note that to define the polygon, you must click on the vertices in a systematic way, either clockwise or anticlockwise. You cannot insert vertices in an arbitrary order. You can create as many Alert Zones as you wish, saving each to a uniquely-named file, but only one Alert Zone can be active at any one time. An Alert Zone polygon can consist of up to 99 points.

Note that having defined the Alert Zone, you still need to arm the alert zone option in the Options..Chart..Customise dialog.

ShipPlotter can be configured to issue an audible warning whenever a ship enters an area, called an **Alert Zone**, that you can define.

An Alert Zone is defined by a series of points (latitudes and longitudes) which are displayed over any chart (or off it) as a red polygonal shape. If the option is enabled, then any time that a ship position report indicates that the ship is within the red zone, an audible warning will sound and a warning message will appear at the top of any window.

You can define an alert zone manually; you can save an Alert Zone to a file; you can load an Alert Zone from a file and you can clear an Alert Zone.

The Alert Zone may be defined and displayed but it will only trigger the alarm if it is enabled in the Options..Chart..Customise dialog which is invoked with the spanner toolbar button.

HID_DETECTION_ADD
K Options
\$ Options Alert Add command

#K \$ Options..Alert Zone..Clear

Use this to clear the current alert zone polygon definition. The alert zone option in the Options..Chart..Customise will also be disabled.

ShipPlotter can be configured to issue an audible warning whenever a ship enters an area, called an **Alert Zone**, that you can define.

An Alert Zone is defined by a series of points (latitudes and longitudes) which are displayed over any chart (or off it) as a red polygonal shape. If the option is enabled, then any time that a ship position report indicates that the ship is within the red zone, an audible warning will sound and a warning message will appear at the top of any window.

You can define an alert zone manually; you can save an Alert Zone to a file; you can load an Alert Zone from a file and you can clear an Alert Zone.

The Alert Zone may be defined and displayed but it will only trigger the alarm if it is enabled in the Options..Chart..Customise dialog which is invoked with the spanner toolbar button.

HID_DETECTION_CLEAR
K Options
\$ Options Alert Clear command

#K \$ **Options..Alert Zone..Load**

Use this option to load an Alert Zone polygon from a file that you have previously saved from the program.

ShipPlotter can be configured to issue an audible warning whenever a ship enters an area, called an **Alert Zone**, that you can define.

An Alert Zone is defined by a series of points (latitudes and longitudes) which are displayed over any chart (or off it) as a red polygonal shape. If the option is enabled, then any time that a ship position report indicates that the ship is within the red zone, an audible warning will sound and a warning message will appear at the top of any window.

You can define an alert zone manually; you can save an Alert Zone to a file; you can load an Alert Zone from a file and you can clear an Alert Zone.

The Alert Zone may be defined and displayed but it will only trigger the alarm if it is enabled in the Options..Chart..Customise dialog which is invoked with the spanner toolbar button.

HID_DETECTION_LOAD
K Options
\$ Options Alert Load command

#K \$ **Options..Alert Zone..Save**

Use this option to save the current Alert Zone polygon to a file that you can subsequently reload.

ShipPlotter can be configured to issue an audible warning whenever a ship enters an area, called an **Alert Zone**, that you can define.

An Alert Zone is defined by a series of points (latitudes and longitudes) which are displayed over any chart (or off it) as a red polygonal shape. If the option is enabled, then any time that a ship position report indicates that the ship is within the red zone, an audible warning will sound and a warning message will appear at the top of any window.

You can define an alert zone manually; you can save an Alert Zone to a file; you can load an Alert Zone from a file and you can clear an Alert Zone.

The Alert Zone may be defined and displayed but it will only trigger the alarm if it is enabled in the Options..Chart..Customise dialog which is invoked with the spanner toolbar button.

HID_DETECTION_SAVE
K Options
\$ Options Alert Save command

##K \$ Options..Alert Shell command

This command opens a dialog in which you can define four different commands to be executed by your system when an alert occurs.

The categories are:

Alert on proximity to the reference position. This option is defined and enabled in the Options..Chart..Customise dialog.

Alert on a new MMSI (not previously received). This option is enabled in the Options..Chart..Customise dialog.

Alert on a listed MMSI. The listed MMSIs are defined and the option is enabled in the Options..Chart..Customise dialog.

Alert on a position report from within an Alert Zone. This option is enabled in the Options..Chart..Customise dialog and the zone is defined with the Options..Alert..Add command.

When one of these alerts occurs, provided it is enabled, the corresponding command will be executed. As a useful adjunct, ShipPlotter creates a text file called alertmessage.txt that contains a text description of the nature of the alert including the MMSI number of the ship involved.

The default shell commands are a set of batch files that invoke the BLAT.EXE utility that automatically sends an email to a specified email address (specified within the batch file), using a mail server that has previously been defined using the batch file blatinstaller.bat. Each of the predefined batch files makes use of the alertmessage.bat message that was described above.

For more information on customising BLAT.EXE visit www.blat.net

```
# HID_OPTIONS_SHELL
# HIDD_SHELLDLG
K Options
$ Options Alert Shell command
```

#K \$ **Options..Purge command**

Use this option to clear all messages from the database.

This removes all ships from the Chart View and from the Ship View but leaves all the static information (names etc) in the database.

An “Are you sure?” dialog appears before this command takes effect.

HID_OPTIONS_PURGE

K Options

\$ Options Purge command

###K \$ Options..Chart..Customise

Choose this option to configure the display of data on the chart.

Plotted information

Predicted track: 12 min black

Wake history: 12 minutes

Grey ships after: 3 minutes

Omit ships after: 5 minutes

Omit ships below: 0 knots

Omit ships beyond: 10000 nm

Scrap ships after: 999 hours

Range rings:

- None
- Screen centred
- Ship centred
- Home centred
- GPS centred

Radius (nm): Min 5, Step 5, Max 40

Home latitude: N37 11 24

Home longitude: W08 35 60

Ship plotting by status:

- under way
- anchored
- no command
- restr.manv
- draft limit
- moored

Ship plotting by type:

- Cargo ship
- Cargo ship A
- Cargo ship B
- Cargo ship C
- Cargo ship D
- Cargo ship (5)
- Cargo ship (6)
- Cargo ship (7)
- Cargo ship (8)

Chart centring:

- Automatic
- GPS centring
- Ship centred
- Manual

Audible alert on any ship...:

within 0 nm of ref. position

that is new to us

with a listed MMSI number

within the current alert zone

Leave a permanent trail

Ship labels:

Size (pt): 10

Lower case black

Bk opaque white

ISO code ITU code

Cancel OK

Predicted track..minutes

This value determines whether and by how much, the current position of the ship is extrapolated. The prediction line is based on the reported course-over-the-ground, which may differ from the reported heading. If you do not want to see the prediction lines, set this value to zero. The button alongside the predicted track selects the colour to be used for the vector on the chart.

Wake history..minutes

This value determines how many previous position reports are plotted as a blue wake behind the ship. The maximum is twelve minutes and ten reports. Previous positions from before the specified timeout will not be plotted. Regardless of the timeout, not more than ten previous positions will be plotted. If you do not want to see the path history, set this value to zero. Note that the length of the wake on the chart depends on the scale of the chart, the speed of the vessel and the frequency of position reports. If the chart covers a large area, the ship is reporting frequently and moving slowly, not all of the position reports will be included in the wake history. They are selectively saved to attempt to make the ten history positions span the specified wake time.

```
# HIDD_COLOURDLG
# HID_OPTIONS_CHART_SYMBOLS
# HIDD_PLOTDLG
K Options
$ Options - Chart - Customise
```

Grey ships after..minutes

This value sets the time after which a ship report is greyed out. If a report is not received from the ship for more than this time, the ship symbol and its associated wake, will be plotted in pale grey.

Omit ships after..minutes

This value sets the time after which a ship report is not plotted at all. If a report is not received from the ship for more than this time, the ship remains in the Ship View but it is not plotted on the chart.

Omit ships below..knots

This value allows you to exclude slow moving vessels from the chart. Use this option with a very small value to exclude vessels that are moored or anchored but whose status is still "Under way". To show all ships, regardless of speed, set this value to zero.

Omit ships beyond..nm

This value allows you to omit ships beyond a certain range of the defined Home location. Use this to avoid unreliable intermittent plots of very distant ships. To include all ships, set this to a large value.

Scrap ships after .. hours

This value enables **ShipPlotter** to discard all data about a ship (including the static information – ship's name etc) after the specified number of hours have elapsed without a report being received. The value 999 hours is a dummy value meaning "Never discard the ship's data".

Range rings

These options control the plotting of concentric range rings on the chart. You can select to have no range rings or to centre them on a specified location (eg your own location), or to centre them on the screen regardless, or to centre them on the currently designated ship, or to centre them on your home location, or to centre them on your current GPS position.

You can choose at what intervals (in nautical miles) the rings are plotted and what minimum and maximum radius should be plotted.

Specify your own Home Location in degrees, minutes, and decimals of a minute of latitude and longitude with the quadrant specifiers in capitals preceding the degrees. Eg "N37 11 40" and "W8 36 0".

The GPS position is only meaningful if you have a GPS receiver connected and you have configured the serial port and enabled GPS reception.

The range of a ship which is displayed in the Ship View screen and the Ship Info dialog is from whichever of these optional origins is specified for the range rings.

You can also choose the colour of the range rings by pressing the button in that field.

Ship Plotting by Status

The section labelled **Ship Plotting by Status** enables you to include or exclude ships on the chart, on the basis of the current status as reported in the position message. The default is to

display and label all statuses and to colour the ship symbols according to type. Note that all position messages report the status field but it is manually entered by the crew so it is not uncommon for an obviously moored ship to report "Under way" or vice versa.

When you select one of the statuses in the list box, the plotted, labelled, and colour buttons will show the current plotting parameters for that status. If you click on the "plotted" or "labelled" buttons, the corresponding condition relating to the currently highlighted status is altered. By selecting each status in turn, you can enable or disable plotting or labelling of ships of each status.

The default for the colour of each ship symbol is to plot a specific colour for each type of ship (see the next paragraph for more details). If you uncheck the "by type" checkbox for the currently highlighted status, the colour used for ships of that status (eg "moored") is defined by the colour button to the left of the check box. If you check the "by type" checkbox, then the colour button has no effect because the symbol colour is determined by the type of ship (see below) and not by the status of the ship.

Ship Plotting by types

The section labelled **Ship Plotting by types** enables you to include or exclude ships on the chart, based on their type as reported in the static message. The default is to display all types. Note that static messages are transmitted less often than position messages so the ship type will default to 'unspecified' until a static message is received.

The list box displays all the ship types. You can highlight one or more types to see, on the buttons to the side of the box, whether they are plotted and labelled and in what colour. You can change the plotting, labelling and colour of any single or group of highlighted ships by pressing the appropriate buttons to the right. The 'select all' and 'select none' buttons speeds up actions that are to be applied to all types.

To change the colour of the ship icon for the selected type or types, click on the colour button and select the new colour in the dialog that pops up.

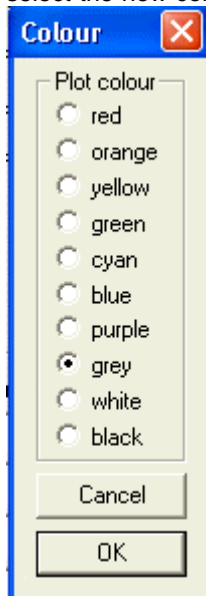


Chart centring

This set of options determined how the chart is centred on the screen. The options are:

- centre the chart automatically on the centre of gravity of all ship positions;
- centre the chart on the position reported by a local GPS receiver;
- centre the chart manually.

These options mirror the settings in the Options..Chart..Centre menu.

Ship Labels

The number entered under **Size(pt)** determines the size of the text label for each vessel on the chart. The units are points (0.01 inches). Note that the Date Time annotation of saved images or AVI files uses the same font size as you select here.

The option **Lower case** determines whether the ship name is rendered in lower case on the chart. It displays all upper case character if this option is unchecked. The colour button beside that option defines the colour used for the label text.

The option **Opaque** determines whether or not the ship labels obliterate what is behind them, or simply writes over the existing features. Choose whichever option gives you the display appearance that you prefer. The colour button beside that option defines the colour used for the background of any text if you choose the opaque option.

The choice **ISO/ITU** determines what abbreviations on the chart label are used for the country of registration, when the ship name is not available. The ISO option is a two letter code that is also used for Internet domains (eg United Kingdom = **UK**). The ITU option is, in most cases, a three letter code (eg Canada = **CAN**) but there are some exceptions. For example, in the ITU code, the United Kingdom is simply **G**. If you have your own personal preference, you can edit either or both of the text files **mid_cc.txt** and **mid_ccc.txt** in the application directory to show two letter or three letter codes respectively but be sure to preserve the fixed formatting of the two files.

Alert on any ship within..nm of the reference position

If you put a non zero value into this field, the audible warning will sound (once) if a ship is within the specified number of nautical miles of the reference point (which may be the home location, the designated ship, or the gps position of 'my ship'. A red warning will appear at the top of the window and will stay there until the warning is acknowledged by clicking on it. If the proximity hazard is still present, the warning sound will repeat. You can stop the warning by reducing the 'Ship within' distance.

Alert on any ship that is unknown to us

If you check this option, an audible alert sounds whenever a message is received from a vessel that has not previously reported. Note that ships that are in the database from a previous session are not regarded as new ships.

Alert on the ship with MMSI number..

If you put a number in here, an audible warning will sound if a message is received from the associated ship. Note that to avoid persistent alerts, the number in this field is reset to zero (no alert) when such a message is received. To reinstate the alert for the vessel, insert the number in this field once more.

Alert on any ship within the current alert zone.

If you check this option and if you have an alert zone defined (See Options..Alert..Add), then an audible alert and a warning message will occur whenever a ship reports a position which is inside the polygon.

Leave a permanent trail

If this option is checked, ship positions are recorded by a black dot which remains on the chart until such time as the chart is reloaded. This is independent of the dynamic wake plotting options. The trail only shows on parts of the display that correspond to the source chart; it does not record on any parts of the display that are off the edges of the current chart.

OK

When you have made your selection, click OK.

Note that these options provide you with many ways to plot absolutely nothing. Pay attention to the options that you choose to ensure that the chart is interesting.

#####K \$ **Options..Chart..Set Quick Chart**

ShipPlotter provides you with eight buttons on the toolbar that invoke charts in a single click.



Initially these buttons are greyed out but you can define each button to be a specific chart of your own choosing by selecting Options..Chart..Set Quick 'n' to make the current chart (which must have been loaded) to be the chart corresponding to the Quick Chart button 'n'.

You can change the definitions at any time by loading a different chart and then revisiting this option.

```
# HID_OPTIONS_CHART_SETQUICK_CHART1
# HID_QUICK1
# HID_OPTIONS_CHART_SETQUICK_CHART2
# HID_QUICK2
# HID_OPTIONS_CHART_SETQUICK_CHART3
# HID_QUICK3
# HID_OPTIONS_CHART_SETQUICK_CHART4
# HID_QUICK4
# HID_OPTIONS_CHART_SETQUICK_CHART5
# HID_QUICK5
# HID_OPTIONS_CHART_SETQUICK_CHART6
# HID_QUICK6
# HID_OPTIONS_CHART_SETQUICK_CHART7
# HID_QUICK7
# HID_OPTIONS_CHART_SETQUICK_CHART8
# HID_QUICK8
K Options
$ Options – Chart – Quick charts
```

#K \$ Calibration menu commands

The commands are for you to use when you need to calibrate a chart or map.

For more information on calibrating charts, see this [tutorial](#).

The Calibration menu offers the following commands:

<u>Add</u>	Adds a new calibration point to the current chart.
<u>Save</u>	Saves the current calibration data
<u>Clear</u>	Clear all calibration data for the current chart.
<u>Display</u>	Display the current calibration points for this chart.
<u>Show grid</u>	Display a geographical grid to check the calibration of the chart.

menu_calibration

K Calibration

\$ Calibration menu commands

#K \$ **Calibration..Display command**

Choose this option to superimpose red target symbols on the current chart to show where the calibration points are situated.

You may need to click around the chart or zoom out to see them.

Obviously you will see nothing if you are not in chart mode or if the chart has no calibration points.


For more information on calibrating charts, see this [tutorial](#).

HID_CALIBRATION_DISPLAYCALIBRATIONPOINTS

K Calibration

\$ Calibration display command

#K \$ **Calibration..Add command**

Use this option  to define a new calibration point.

When the red target toolbar button is depressed, the next mouse click over the area of the chart is taken to be a definition of a calibration point. Be careful to click in exactly the right spot because you cannot delete individual calibration points.

Selecting this option turns off Autocentring if it was previously enabled.

For more information on calibrating charts, see this [tutorial](#).

HID_CALIBRATION_ADDCALIBRATIONPOINT
K Calibration
\$ Calibration add command

#K \$ **Calibration..Save command**

Use this option to save the calibration data that you have generated for the current chart.

If you do not save the information, you will lose the work that you have done in calibrating the chart for use with **ShipPlotter**.

The calibration file must have the same prefix as the associated map file, a [.bmp] file, but with the extension [.clb]. The file dialog that opens will offer the correct name as the default.

For more information on calibrating charts, see this [tutorial](#).

HID_CALIBRATION_SAVECALIBRATIONDATA
K Calibration
\$ Calibration save command

#K \$ **Calibration..Show grid command**

Use this option to display a geographical grid over the current chart.

This option is useful for verifying the quality of the calibration. Ideally the red crosses will lie directly over the corresponding fiducial marks on the chart.

The number of fiducial marks is chosen to suit the scale of the map. They are plotted at 1 minute, 10 minutes, 1 degree or 10 degrees intervals according to the map area displayed.

For more information on calibrating charts, see this [tutorial](#).

HID_CALIBRATION_SHOWGEOGRID

K Calibration

\$ Calibration save command

#K \$ **Calibration..Clear command**

Use this command to delete all calibration points for the current chart. If you get in a muddle doing calibration, this command is your friend.

Once the calibration points are cleared, you can proceed to calibrate the chart once again.

For more information on calibrating charts, see this [tutorial](#).

HID_CALIBRATION_CLEARCALIBRATION
K Calibration
\$ Calibration clear command

#View menu commands


The View options determine what you see on the screen.

The View menu offers the following commands:

<u>Toolbar</u>	Shows or hides the toolbar.
<u>Status Bar</u>	Shows or hides the status bar.
<u>Radar</u>	Display the message information as a radar display.
<u>Chart</u>	Display the message information over the current chart or map.
<u>Ships</u>	Show information about all received ships.
<u>Messages</u>	Show all decoded messages.
<u>Signal</u>	Display the raw digital signal (diagnostic mode).
<u>Log</u>	Open today's log file in a Notepad window.

menu_view

#View..Ships command

Use this option  to display a line of data about every ship whose AIS messages have been received.

The data includes the MMSI number of the ship, the name, destination, eta, position, course, speed and overall dimensions of the vessel. It also includes the range from the current reference point which you can change in the Options..Chart..Customise dialog.

Depending on which types of message have been received, some of this information may not be available.

The entry for each ship will be updated with the latest position course and speed as subsequent messages are received from the same ship.

Typically the messages that describe the position of the ship are sent more frequently than messages that give the full name, destination etc. of the ship. Until the full name of the ship is received, the position of the ship is identified by the MMSI number of the ship, in place of its name. If you want to force **ShipPlotter** to use the full name of the ship, even before that information is included in a received message, you can create a file called *shipnames.txt* which should consist of a series of MMSI numbers followed by a space, followed by the full name of the ship. Place this file in the log directory for **ShipPlotter**. If this file is found, then when a message is received from a ship for the first time, this file will be scanned to see if the MMSI is found. If so, the full name obtained from the file will be used on the chart. If this file is very long, it may interfere with processing messages in real time as **ShipPlotter** scans the file for each new ship.

This view includes a vertical scroll bar so that you can scroll through more than a screen full of ships.

Colour codes

Each line in the display is colour coded to show the status of the ship in the chart display.

Blue text denotes that the ship has a current report and is displayed.

Grey text denotes that the ship has not reported for the Grey timeout time and is displayed in grey on the chart.

Black text denotes that the ship has not reported for the Omit timeout time and is not displayed on the chart.

Green text denotes that the ship has been selected for unconditional display and will be displayed on the chart regardless of timeouts.

Red text denotes that the ship has been set to be never displayed and will not appear on the chart.

Mouse clicks

If you click and drag in the Chart View, and provided that you have not enabled Auto centring, Ship centring or GPS centring, the chart will move around as you drag it.

If you left click on a specific ship in the Ship View, and provided that Auto centring is not turned on, the display will change to the Chart View with the chosen ship centred in the chart. If you have enabled automatic chart selection in the Options..Chart submenu, the display will change to the chart covering the area of the ship that has the largest possible scale. If you have not selected that option, the ship will appear over the last selected chart. If the ship is not on the

HID_VIEW_SHIPS

chart, you will see the ship in 'empty space'. If you have automatic chart selection enabled, and the ship is in a position that is not covered by any chart in the designated chart directory, the display will revert to the Radar display with the designated ship in the centre. Ship-centred range rings will be automatically enabled to ensure this occurs.


If you right click on a specific ship in the Ship View or Chart View, the Ship Info dialog will open for that ship. That ship will also become the designated ship for the Ship-centred and Automatic charts selection options. To undesignate a ship for these purposes, right click on the ship a second time.

If you left click on one of the column headings in Ship View, the list of ships will be sorted in ascending order of that property. If you right click on a column heading in Ship View, the list of ships will be sorted in descending order of that property.

When the program exits, a file called *shipinfo.txt* is created with the static information for each ship (where available). When the program restarts, this file is reloaded so that ship names etc are restored from one session to the next. This process is completely automatic and transparent to the user. The file is also saved automatically at intervals when processing incoming messages. In this way, the recent data is preserved even in the event of an unexpected interruption of the program.

Note that the option in Options..Chart..Customise entitled 'Scrap ship after' causes a ship to be deleted from the database (including all the static information like names etc.) after that time period. This elapsed time includes time when **ShipPlotter** is not running. Accordingly, if you set the Scrap time to be 24 hours and you restart **ShipPlotter** a day later, you should expect all of the static information to disappear as soon as the process starts. If this happens unintentionally, you can recover it by re-processing the log file.

#View..Signal command

Use this option  to display the raw digital signal from the receiver in a graphical way.

It is intended to be used only as part of the setup process and is not useful once the system is working.

For more information on setting up the system, see this [tutorial](#).


HID_VIEW_SIGNAL

#View..Log command


Use this option to display today's log file in a Notepad window.

HID_VIEW_LOGFILE

#View..Chart command

Use this option  to show the position of ships superimposed on the currently selected chart.

Only the latest position from each ship is displayed. If the name of the vessel is known (from the appropriate message type), then that is displayed. If the name of the ship has not been received, the MMSI number of the ship is shown together with the country of registration.

You can zoom in and out of the chart with the zoom buttons .

At each zoom scale, the program plots a series of concentric rings around the centre of the chart at 5 nautical mile intervals from 5 to 50 nm. The odd 5s are plotted with a dashed black line and the 10s are plotted with a solid black line.

You can move around the chart by left clicking on the chart and dragging it to the position that you want. Note that this latter function is only available if you have not enabled Autocentring of the chart (Options..Chart..Autocentre). If you have enabled autocentring, the chart is automatically positioned around the median of the received positions and clicking on the chart has no effect.

The information shown on the chart can be customised with the Options..Chart..Customise command.

For live data, ships that have reported within the last Grey timeout time are plotted in blue. Ships that have not reported for the Grey timeout time are plotted in grey. Ships that have not reported for the Omit timeout time are not plotted although the data remains in the various log files and the View..Ship screen.


If a ship is moving, the last four positions are plotted behind the ship as a series of blue wake bubbles. Note that depending on the scale of the chart and the speed of the vessel, these bubbles may not be visible. The projected position in ten minutes time (based on the present course and speed) is indicated by a single line extension to the ship symbol. The tip of the line is the projected position of the ship.

If you right click close to one of the ship symbols, a dialog will pop up that shows all the information available about the nearest ship. The data includes the MMSI number of the ship, the name, destination, eta, position, course, speed and overall dimensions of the vessel. Depending on which types of message have been received, some of this information may not be available. In the pop-up dialog there is a search button. If your PC is connected to the Internet, you can click on this button to initiate a search on the ITU web site for further details of the vessel based on the MMSI number. The browser window that opens will have the details of the vessel (if available) at the very bottom of the form that returns.

When you right click on a ship, it becomes the designated ship for the purposes of automatic chart centring, automatic chart selection and ship-centred range rings. If you right click again on the same designated ship, the designation will be removed and there will be no designated ship for those options.

HID_VIEW_MAP

#View..Radar command

Use this option  to show the position of ships on a radar-like display.

This is broadly similar to the Chart View except that no chart information is shown nor needed. The display is always centred on the origin of the range rings. This can be selected with the Options..Chart..Customise dialog. It can be a fixed position (Home), a designated ship, or the current position indicated by a locally connected GPS receiver ("MyShip").

In addition to the default orientation of Chart View (chart up), the Radar View can show either North Up (North at the top of the chart) or Head Up (own heading at the top of the chart). In the case of Home-centred charts, both options yield North Up (because Home has no intrinsic heading). In the case of a Radar View being centred on a designated ship, the Head Up refers to the current heading of the designated ship. In the case of the Radar View being centred on the local GPS position, the Head Up refers to the current course reported by the GPS.

Only the latest position from each ship is displayed. If the name of the vessel is known (from the appropriate message type), then that is displayed. If the name of the ship has not been received, the MMSI number of the ship is shown together with the country of registration.

You can zoom in and out of the display with the zoom buttons .

At each zoom scale, the program plots a series of concentric rings around the centre of the chart at intervals defined in the Options..Chart..Customise dialog. The odd 5s are plotted with a dashed black line and the 10s are plotted with a solid black line.

The information shown on the display can be customised with the Options..Chart..Customise command.

For live data, ships that have reported within the last Grey timeout time are plotted in blue. Ships that have not reported for the Grey timeout time are plotted in grey. Ships that have not reported for the Omit timeout time are not plotted although the data remains in the various log files and the View..Ship screen.

If a ship is moving, the recent positions are plotted behind the ship as a series of blue wake bubbles. Note that depending on the scale of the chart and the speed of the vessel, these bubbles may not be visible. The projected position in ten minutes time (based on the present course and speed) is indicated by a single line extension to the ship symbol. The tip of the line is the projected position of the ship.


If you right click close to one of the ship symbols, a dialog will pop up that shows all the information available about the nearest ship. The data includes the MMSI number of the ship, the name, destination, eta, position, course, speed and overall dimensions of the vessel. Depending on which types of message have been received, some of this information may not be available. In the pop-up dialog there is a search button. If your PC is connected to the Internet, you can click on this button to initiate a search on the ITU web site for further details of the vessel based on the MMSI number. The browser window that opens will have the details of the vessel (if available) at the very bottom of the form that returns.

When you right click on a ship, it becomes the designated ship for the purposes of automatic chart centring, automatic chart selection and ship-centred range rings. If you right click again on

HID_VIEW_RADAR

the same designated ship, the designation will be removed and there will be no designated ship for those options.

#View..Messages command

Use this option  to display all the decoded AIS messages as they are received. The latest message is always at the top of the list.

Note that only messages types that **ShipPlotter** decodes are displayed. Certain rarer message types are not decoded in the current version.

HID_VIEW_MESSAGES

##Ship Info dialog

This dialog opens when you right click on a ship displayed on the View..Chart screen or right click on a ship displayed in the View..Ship screen.

Ship mmsi	417222284	Lookup
Ship name	MERCYS YALA	
Call sign	4QZX	
Registration	unknown	
Status	under way	
Destination	HAMBURG	
Eta at dest.	Dec03 18:00	
Latitude	50°21.94N	
Longitude	0° 7.11E	
Heading	078°	
Course	74.3°	
Speed	9.1kts	
Length	91m	
Width	13m	
Draught	3.8m	
Type	Cargo ship	
Range	31.6nm (23.1nm@16:40:13UT)	
Bearing	208°T	
Datetime	2005-03-10 14:18:42	

Plot this ship

Never

Conditionally

Always

Auto lookup

Edit

OK

Depending on whether or not both Position Reports and Static Reports have been received from the chosen ship, some of the information may be missing.

The range and bearing are with respect to the current origin of the range rings. Note that in the case of the range rings being centred on a dynamic position (designated ship or local GPS – MyShip), the range refers to the great circle distance between the most recent positions for the origin and the selected ship. Since these positions may not refer to the same instant of time, the range should be interpreted conservatively.

Beside the range value is the distance and time of the projected nearest approach of the selected vessel to the current origin. This distance and time is based on the positions, speeds and reporting times of the current origin and the selected ship. Obviously this assumes that the course and speed of both remain the same. If the time of nearest approach has already passed, the remark 'retreating' replaces the projected nearest approach data.

```
# HIDD_SHIPSTATICDLG
# HIDD_SHIPINFODLG
```

Plot options

You can change the plot status of the ship with the three options at the bottom of the dialog. The 'Never' and 'Always' options are self explanatory. The 'Conditional' option means that plotting of the ship will depend on how recently the ship has reported and the conditions specified in the Options..Chart..Customise with respect to timeouts, speed, range and status of the ship.

Look up

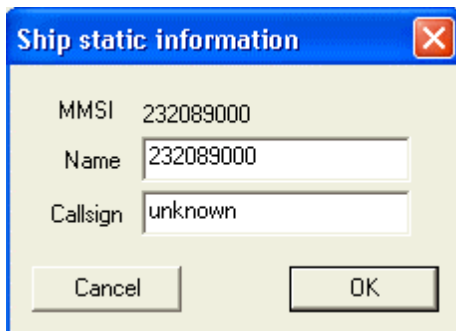
At the top right of the dialog there is a Look-up button. If your PC is connected to the Internet, you can click on this button to initiate a search on the ITU web site for further details of the vessel based on the MMSI number. The browser window that opens will have the details of the vessel (if available) at the very bottom of the form that returns.

Auto Look up

Like the **Look Up** button, you can click on this button to initiate a search on the ITU web site for further details of the vessel based on the MMSI number. Unlike the other option, this button automatically updates the ship name and callsign if that information is available on the ITU website. Note that this option parses the web page from the ITU looking for a specific format. If the ITU should happen to change the format of its query response web page, this button will cease working.

Edit

In the lower right corner of the dialog is a button labelled 'Edit'. If you click on the 'Edit' button, a new dialog opens.



MMSI	232089000
Name	232089000
Callsign	unknown

Buttons: Cancel, OK

This dialog allows you to enter the name and callsign of ships from which this information has not been received. You may wish to use this to update the database from the lookup page.


#Help menu commands

The Help menu offers the following commands, which provide you assistance with this application:

<u>Help</u>	Offers you an index to topics on which you can get help.
<u>Topics</u>	
<u>About</u>	Displays the version number of this application.

menu_help

#K \$ **File..Load command (File menu)**

Use this command  to load a new chart background for **ShipPlotter**.

Charts or maps are BMP files and they must be accompanied by a CLB calibration file.

For information on preparing charts for **ShipPlotter**, consult this [tutorial](#).

HID_FILE_OPEN
K files: managing
\$ File Open command

#File Open dialog box

The following options allow you to specify which file to open:

File Name

Type or select the filename you want to open. This box lists files with the extension you select in the List Files of Type box.

List Files of Type

Select the type of file you want to open:

Drives

Select the drive in which ShipPlotter stores the file that you want to open.

Directories

Select the directory in which ShipPlotter stores the file that you want to open.

Network...

Choose this button to connect to a network location, assigning it a new drive letter.

AFX_HIDD_FILEOPEN

#K \$ **Exit command (File menu)**

Use this command to end your ShipPlotter session. You can also use the Close command on the application Control menu. ShipPlotter prompts you to save documents with unsaved changes.

Shortcuts

- Mouse: Double-click the application's Control menu button.
{bmc appexit.bmp}
- Keys: ALT+F4

HID_APP_EXIT
K exit
\$ File Exit command

#K \$ **Toolbar**
{bml hlptbar.bmp}

The toolbar is displayed across the top of the application window, below the menu bar. The toolbar provides quick mouse access to many tools used in ShipPlotter,

To hide or display the Toolbar, choose Toolbar from the View menu (ALT, V, T).

Click **To**

{bmc filenew.bmp} Open a new map.

AFX_HIDW_TOOLBAR
K toolbar
\$ toolbar

#K \$ **Status Bar command (View menu)**

Use this command to display and hide the Status Bar, which describes the action to be executed by the selected menu item or depressed toolbar button, and keyboard latch state. A check mark appears next to the menu item when the Status Bar is displayed.

See Status Bar for help on using the status bar.

HID_VIEW_STATUS_BAR

K status bar

\$ View Status Bar Command

#K \$**Status Bar**
{bml hlp sbar.bmp}

The status bar is displayed at the bottom of the ShipPlotter window. To display or hide the status bar, use the Status Bar command in the View menu.

The left area of the status bar describes actions of menu items as you use the arrow keys to navigate through menus. This area similarly shows messages that describe the actions of toolbar buttons as you depress them, before releasing them. If after viewing the description of the toolbar button command you wish not to execute the command, then release the mouse button while the pointer is off the toolbar button.

The right areas of the status bar indicate which of the following keys are latched down:

Indicator	Description
CAP	The Caps Lock key is latched down.
NUM	The Num Lock key is latched down.
SCRL	The Scroll Lock key is latched down.

AFX_HIDW_STATUS_BAR
K status bar
\$ status bar

#Using Help command (Help menu)

Use this command for instructions about using Help.

HID_HELP_USING

#About command (Help menu)

Use this command to display the copyright notice and version number of your copy of ShipPlotter.

HID_APP_ABOUT

#\$ Context Help command
{bml curhelp.bmp}

Use the Context Help command to obtain help on some portion of ShipPlotter. When you choose the Toolbar's Context Help button, the mouse pointer will change to an arrow and question mark. Then click somewhere in the ShipPlotter window, such as another Toolbar button. The Help topic will be shown for the item you clicked.

Shortcut

Keys: SHIFT+F1

#Title Bar

The title bar is located along the top of a window. It contains the name of the application and document.

To move the window, drag the title bar. Note: You can also move dialog boxes by dragging their title bars.

A title bar may contain the following elements:

{bmc bullet.bmp}	Application Control-menu button
{bmc bullet.bmp}	Document Control-menu button
{bmc bullet.bmp}	Maximize button
{bmc bullet.bmp}	Minimize button
{bmc bullet.bmp}	Name of the application
{bmc bullet.bmp}	Name of the document
{bmc bullet.bmp}	Restore button

HID_HT_CAPTION

#Size command (System menu)

Use this command to display a four-headed arrow so you can size the active window with the arrow keys.

```
{bml curarw4.bmp}
```

After the pointer changes to the four-headed arrow:

1. Press one of the DIRECTION keys (left, right, up, or down arrow key) to move the pointer to the border you want to move.
2. Press a DIRECTION key to move the border.
3. Press ENTER when the window is the size you want.

Note: This command is unavailable if you maximize the window.

Shortcut

Mouse: Drag the size bars at the corners or edges of the window.

```
# HID_SC_SIZE
```

#Move command (Control menu)

Use this command to display a four-headed arrow so you can move the active window or dialog box with the arrow keys.

{bmc curarw4.bmp}

Note: This command is unavailable if you maximize the window.

Shortcut

Keys: CTRL+F7

HID_SC_MOVE

#\$ Minimize command (application Control menu)

Use this command to reduce the ShipPlotter window to an icon.

Shortcut

Mouse: Click the minimize icon {bmc scmin.bmp} on the title bar.
Keys: ALT+F9

HID_SC_MINIMIZE
\$ System Minimize Command

#Maximize command (System menu)

Use this command to enlarge the active window to fill the available space.

Shortcut

- Mouse: Click the maximize icon {bmc scmax.bmp} on the title bar; or double-click the title bar.
- Keys: CTRL+F10 enlarges a document window.

HID_SC_MAXIMIZE

#Close command (Control menus)

Use this command to close the active window or dialog box.

Double-clicking a Control-menu box is the same as choosing the Close command.
{bml appexit.bmp}

Note: If you have multiple windows open for a single document, the Close command on the document Control menu closes only one window at a time. You can close all windows at once with the Close command on the File menu.

Shortcuts

Keys: CTRL+F4 closes a document window
 ALT+F4 closes the <<YourType>> window or dialog box

HID_SC_CLOSE

#Restore command (Control menu)

Use this command to return the active window to its size and position before you chose the Maximize or Minimize command.

HID_SC_RESTORE

#Switch to command (application Control menu)

Use this command to display a list of all open applications. Use this "Task List" to switch to or close an application on the list.

Shortcut

Keys: CTRL+ESC

Dialog Box Options

When you choose the Switch To command, you will be presented with a dialog box with the following options:

Task List

Select the application you want to switch to or close.

Switch To

Makes the selected application active.

End Task

Closes the selected application.

Cancel

Closes the Task List box.

Cascade

Arranges open applications so they overlap and you can see each title bar. This option does not affect applications reduced to icons.

Tile

Arranges open applications into windows that do not overlap. This option does not affect applications reduced to icons.

Arrange Icons

Arranges the icons of all minimized applications across the bottom of the screen.

HID_SC_TASKLIST

#No Help Available

No help is available for this area of the window.

HID_HT_NOWHERE

No Help Available

No help is available for this message box.

<< If you wish to author help specific to each message box prompt, then remove the AFX_HIDP_xxx values from the [ALIAS] section of your .HPJ file, and author a topic for each AFX_HIDP_xxx value. For example, AFX_HIDP_INVALID_FILENAME is the help topic for the Invalid Filename message box. >>

AFX_HIDP_default