ChartWorld
Navigation Experts

eGlobe G2

User's Guide

Software Version 2.1.0.x
Document revision 2.0.3

August 2020

ChartWorld International Ltd, Limassol, Cyprus

ChartWorld International Ltd
3 Thalia Street
Omonia
3011 Limassol
Cyprus
Phone +35 725 248930
Fax +35 725 248931

ChartWorld GmbH
Atlantic Haus
Zirkusweg 1
D-20359 Hamburg
Germany
Phone +49 40 853 58 69 40
Fax +49 40 853 58 69 49

ChartWorld Asia Pacific Pte Ltd
15 Jalan Kilang Barat
Frontech Centre 07-05
159357 Singapore
Singapore
Phone +65 6513 3500

ChartWorld Japan K.K.
Level 1 Yusen Building
2-3-2 Marunouchi
Chiyoda-ku, Tokyo 100-0005
Japan
Phone +81 355338803

www.chartworld.com

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Preface

This *User's Guide* describes the use of the eGlobe G2 ECDIS. eGlobe G2 is designed to combine both an easily operated and multifunctional ECDIS as well as an overall coverage of services provided out of one hand. This includes charts, Kernel software, human-machine Interface, hardware, training, consultancy and customer support. Most important, eGlobe G2 complies with the latest standards for ECDIS operation and offers the crew on board a high level of flexibility due to multi-functional route management.

eGlobe G2 works with different combinations of hardware. This can be either a touchscreen unit, or non-touchscreen in combination with a hardware keyboard (incl. trackball).

The operational geographical area of eGlobe G2 is not limited from 85° N to 85° S. Due to an automatic change from Mercator to stereographic projection eGlobe G2 can also be operated in latitudes higher than 85°.

The documentation corresponds to the respective software version. Nevertheless, occasionally the software may differ from the functionality described due to technical reasons.

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1 Introduction

1.1 Conventions Used in this Document

Calibri font is used for:

- plain text in this document

Italic font is used for:

- program and component names
- function names

Boldface is used for:

- headlines

Underline is used for:

- cross references

Note:

Displays important information which should not be ignored.

1.2 Use of Colours in eGlobe G2

In general the use of colours in eGlobe G2 is in accordance with the following regulations:

- Red signals an alarm (e.g. out of XTD).
- Yellowish orange indicates invalid data and warnings (e.g. label information for sensor data invalid, dangers resulting from a route check).
- Yellow indicates caution condition and important information (e.g. chart collection not up to date, areas detected in Planning Mode, low integrity of positioning data).
- Orange signals important information.
- Grey state unknown (for planned and unchecked routes).
- Blue indicates active buttons for tasks or tools.

1.2.1 Use of Colours in the Task Bar

Apart from the standard grey the buttons in the Task Bar can adopt four different colours.

Yellow indicates information, e.g. chart updates are available/ chart collection is not up to date.



Blue indicates that the button is active.



Orange Alert button signals an active warning (flashing if not acknowledged, steady if acknowledged).*



Red Alert button signals an active alarm (flashing if not acknowledged, steady if acknowledged).*



* See chapter Alerts and Indications for a detailed description.

1.3 eSecure

For interested customers ChartWorld offers an additional safety feature called eSecure. However, please note that this feature must be ordered separately and incurs additional costs.

Basically, it consists of two protected USB ports which are also called *CW Gateway*.





The *CW Gateway* was developed to implement the IEC 61162-460 standard to ensure higher safety and security for the navigational equipment and to improve network integrity. It consists of two protected USB ports (see marks in the figures above).

- The USB1 port (marked red) is for handling NTFS formatted USB sticks as well as CD-ROM drives. It is a read-only USB port. So, it is not possible to save anything onto a USB stick via the USB1 port.
- The USB2 port (marked green) is for handling FAT32 formatted USB sticks. It is a read and write USB port. So, you can read and save files via the USB2 port.

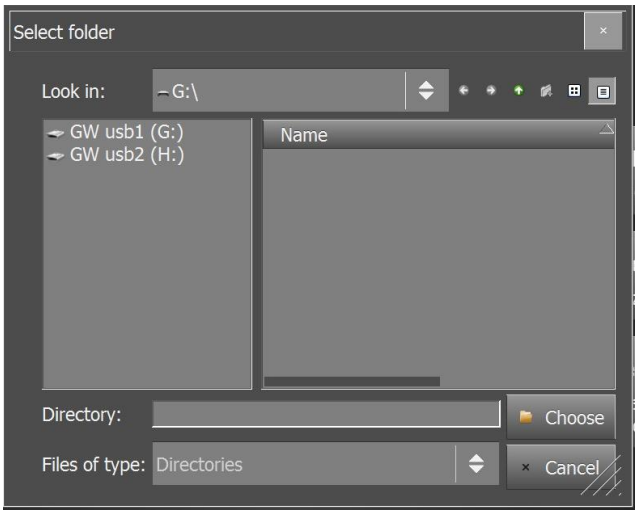
Note:

Devices connected to the USB2 port will only function provided another device is connected to USB1, and vice versa.

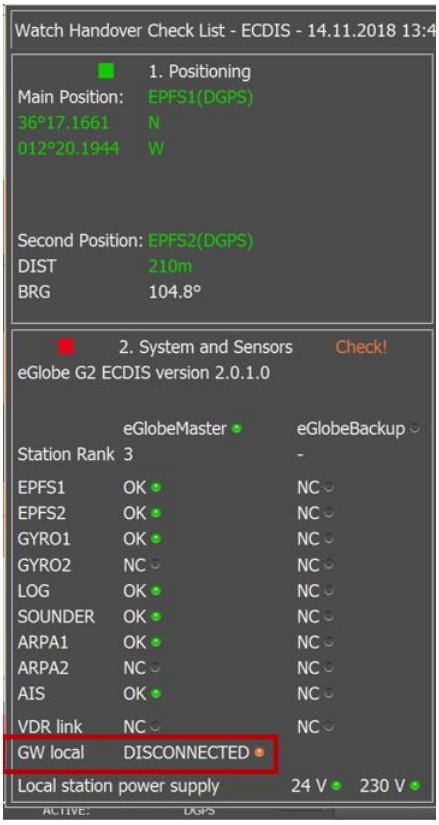
Practical advice: If you need to save some files from the ECDIS you can use the Base Media USB and connect it to the USB1 port, if you then connect another USB to the USB2 port you are able to save these files.

The same applies if you want to update the Base Media. In that case you must also connect a USB device to the USB2 port to enable port USB1.

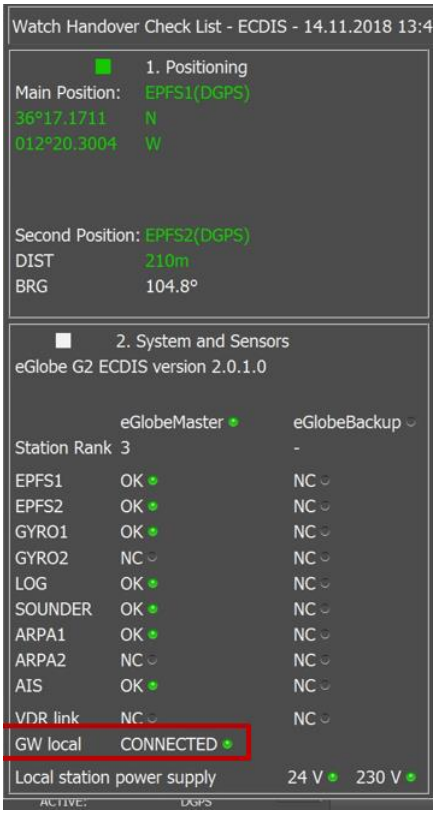
When loading data from media via the Chart Loader (see Loading Data from Media) and using eSecure you see with the CW Gateway you can only chose between USB1 and USB2 now.



The information whether eSecure is active and CW Gateway is connected or disconnected is displayed in the Watch Handover Check List, column 2 (see figures below).



GW locally disconnected



GW locally connected

2 Graphical User Interface GUI

Properly used, eGlobe G2 fosters safety in navigation and helps to economize on voyages. eGlobe G2 is intended for operation with digital navigational charts. Provided updated ENCs in proper scale are available for the whole route and a backup system is in operation, eGlobe G2 will enable paperless navigation.

2.1 Start Up and Shut Down the ECDIS

2.1.1 Start Up

If the eGlobe G2 only consists of a PC display panel (PC HD 24T21 MMC) it will be connected to the general 220V AC and emergency 24V DC power system. Hence the UPS for the PC display panel is not required. In case your installation is additionally equipped with a separate UPS, the UPS must be switched on before start (see the Operator's Manual of the UPS manufacturer).



PC-Display-Panel HD 24T21 MMC

To start the system

1. Press the power switch of the UPS/computer tower (if available).
2. Press the power switch of the display panel.



PC display panel HD 24T21 MMC.

After the power switch has been pressed it turns green.

Wait until the start screen (*Integrator*) is displayed.

3. Start eGlobe G2 ECDIS via clicking on *Navigation mode*.



Start-up screen (Integrator)

eGlobe G2 user interface is displayed on the screen (see chapter Screen Layout and Menus).

Remember that changing the brightness of the display (see chapter Adjustment to Ambient Light Conditions) also changes the light intensity of the power switch. At zero display light the power switch is not illuminated at all although the ECDIS is still in operation.

From the *Integrator* the ECDIS may be re-booted, shut down and switched into service mode.

2.1.2 Shutdown

1. Click on *Settings* in the task bar (see chapter Screen Layout and Menus).
2. Click on *Exit Navigation Mode*
   Confirm exiting the application.
   The *Integrator* is displayed.
3. Click on *System Shutdown*.
   Confirm shutdown.
   The computer shuts down automatically, and the power switch turns red.

2.2 Interface Elements and their Use

2.2.1 Using the Cursor

By default the pointing device of the eGlobe G2 ECDIS is integrated into the standard keyboard. The rather advanced edition is the combined NSI Keyboard/Trackball consisting of an illuminated keyboard and a comfortable trackball. A third alternative is an NSI stand-alone trackball.



eGlobe G2 Standard Keyboard



NSI Keyboard/Trackball

Rotating the trackball moves the cursor on the display. The trackball devices have two (Standard Keyboard) or three buttons. These buttons must be pressed according to the desired action.

The cursor is positioned on the chart:

- Left click: performs the selected action, e.g. pick report on chart object or AIS target activation.
- Left click and hold: moves the chart as cursor operation (like drag and drop).
- Right click: opens a context menu to work with the current cursor position, e.g. add a Mark position.

Note:

On the eGlobe G2 standard keyboard there is no centre button. To open the pick report, use the *Pick* button instead (see also chapter Pick 

).

The cursor is positioned on a task bar or a toolbar or a menu:

- Left click: opens a submenu

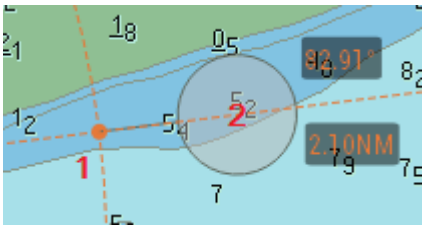
2.2.2 Use of Touchscreen

Basically, eGlobe G2 ECDIS is delivered with a touchscreen. This convenient and fast to operate method represents a good alternative to conventional input controlled by a trackball and keyboard. However, eGlobe G2 can also be operated just via keyboard; a combination of touchscreen and keyboard/mouse is also possible.

The following standard gestures are industry common and also apply to eGlobe G2 ECDIS:

Touchscreen	Equivalent tracker ball	Meaning
Tap (down and up)	Mouse left click	Performs the selected action, e.g. Pick Report on chart object or AIS target activation, and opens a submenu.
Press and hold (down, pause, up)	Mouse right click	Opens a context menu corresponding to the current cursor position.
Drag (down, move, up)	Mouse left drag	Left click and hold: moves the chart as cursor operation (like drag and drop).

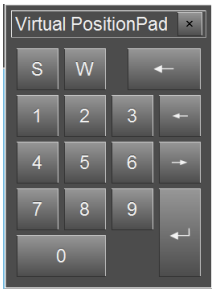
All functions which require precise positioning of the pointing device are supported by a special transparent widget off-centre from the measuring point to facilitate precise positioning by finger on the screen. The example below depicts the ERBL cursor in use:



1 – Measuring point of ERBL (Electronic Range and Bearing Line)

2- Special transparent widget for finger

If text or numerical input is to be done, the on-screen virtual keyboard is called on the screen. The shape of this on-screen keyboard may differ depending on the entry. The example below depicts the available virtual aids for different inputs:



Virtual Position Pad



Virtual Keyboard

2.2.3 Entering Values

To enter values centre the cursor on the edit field at the setting to be defined (or position or name). Left click on the edit field enables to enter a value (or position or name). In case the use of the on-screen keyboards is activated in the *Ship Setup*, the virtual aids displayed above will automatically appear. Invalid data such as 94°N will be blocked.



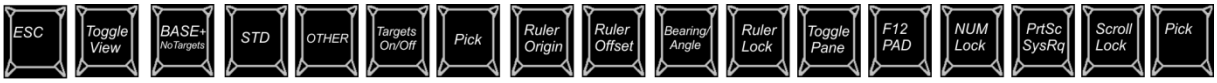
eGlobe G2 Standard Keyboard



eGlobe G2 Premium Keyboard

Peripheral devices for data input

On the eGlobe G2 standard and premium keyboard the function keys F1 to F12 have been replaced with a more convenient brief description of the respective function.

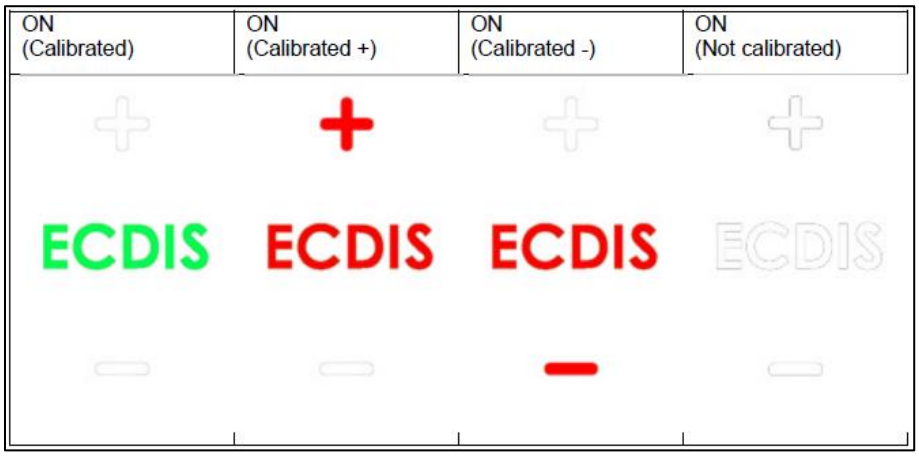


Function keys of the eGlobe Standard Keyboard

Moreover, it is possible to pick positions with the cursor for e.g. creating routes, positional fixes, etc.

2.2.4 Adjustment to Ambient Light Conditions

The PC display panel is equipped with an indicator displaying "ECDIS". This serves to symbolize the brightness. If the monitor is calibrated correctly the indicator is green. In case a red plus or minus appears above or below the symbol the brightness needs to be adjusted.



Brightness check on a standard display

At the front of the monitor there is a dimmer for the display brightness.

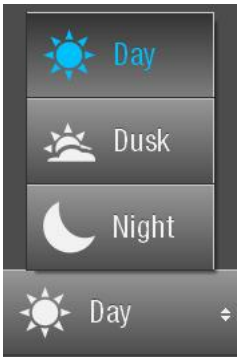


Buttons for brightness control

For safety reasons it is required to maintain an adequate brilliance so that all alerts can be visually detected.

The + and – buttons on the hardware frame allow for dimming the brilliance of the display to extinction. It is required to set back the brilliance to another value in case new alerts are detected within the ECDIS.

With the *Day*, *Dusk* and *Night* mode you can adjust the intensity of the colours to the ambient light conditions. Select the appropriate mode from a pop-up menu in the Toolbar at the bottom right.



Pop-up menu for ambient light conditions

The adjustment made is retained even in case eGlobe G2 is shut down and started anew.

> **Note:**
>
> The use of brightness/contrast control may inhibit the visibility of information, particularly when using the *Night* colour tables.

For another possibility of adjusting the brightness see *Brilliance Control* under System Settings.

2.2.5 On-Board Colour Differentiation Test

Note:

The instrumental calibration of colours on MMC24 is part of the production process and NOT a subject of any on-board procedure.

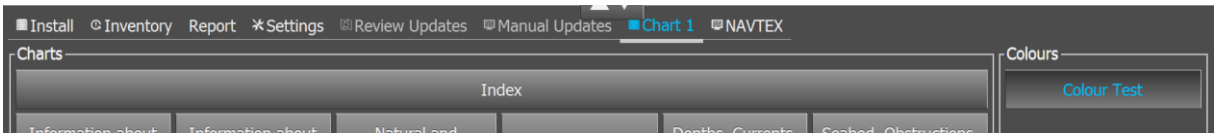
According to the extract from IHO S-52 ed. 6.1.1 (Annex C) document the following steps should be carried out in eGlobe G2.

C. 3.1.2 Colour Differentiation Test Diagram

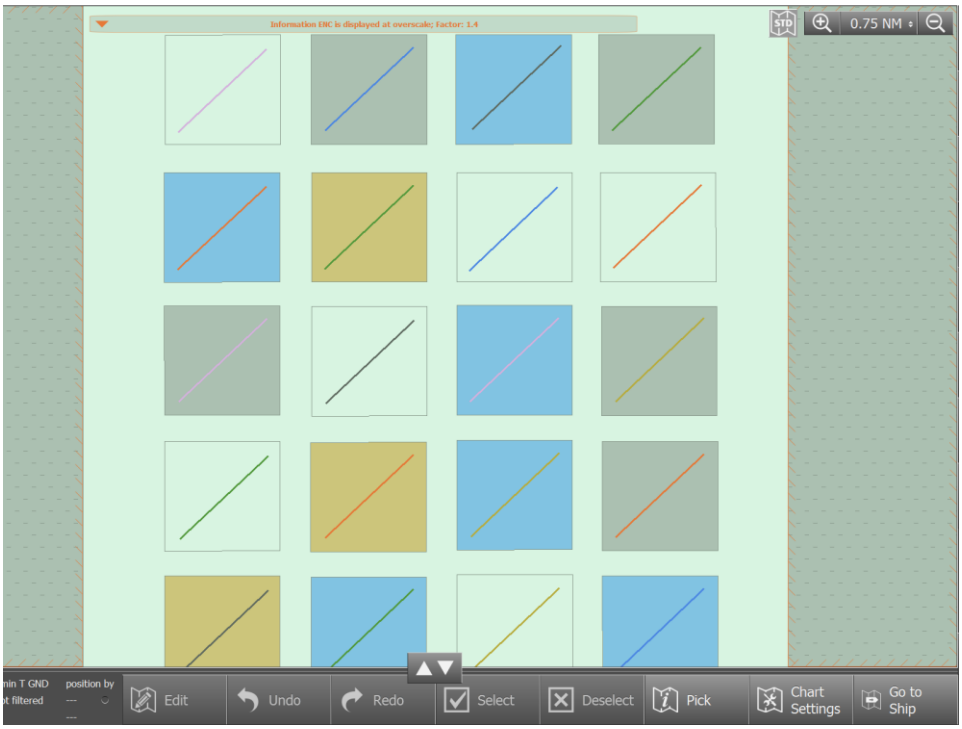
At the mariner's level, a test is required that reassures him that the display is functioning adequately or alternatively that servicing is required. This is provided in the Presentation Library, Part I, sections 16.3, 18.2 and 18.3. It provides test diagrams that allow the mariner to confirm that his display clearly differentiates the important colours, as well as acting as a test chart for setting the controls for night use.

For eGlobe G2 the following steps are required:

1. Adjust the MMC24 brightness to the pre-calibrated level as per 2.2.4 of UM.
2. Select *Chart Loader* from the Task Bar. Select *Chart1* subtask and load *Colour Test*.



3. Call *Colour*



4. For each colour palette (*Day*/*Dusk*/*Night*) make sure that all lines are clearly visible against the background. Note that the person carrying out the test should have passed the Isihara colour blindness test, or another test used to qualify bridge watchkeepers, and should adapt to night viewing for 10 minutes before checking the night display.

IMPORTANT Note!!!

If you cannot see or differentiate the lines on the screen of your ECDIS as depicted in the figure above although the brightness control is correctly adjusted, please call for service as your monitor needs to be recalibrated.

2.2.6 Zoom and Pan

The chart display can be shifted by merely swiping across the screen. The range can be changed by swiping up or down in the Range display in the upper right corner of the chart. Pinch open or close will zoom in or zoom out, respectively.

2.2.7 Scrolling

Scrolling is achieved by either

- swiping across the screen or
- by using the scroll bar.

2.2.8 The Handle

The semi-transparent circle makes handling e.g. ERBL and waypoints easier as the object or the desired position will not be concealed by the finger in case a touchscreen is used. And even if a trackball is utilized the handle considerably improves the cursor operation.

For ERBL and waypoints the handle is context sensitive. Pressing and holding the handle will open a context menu offering more functions. For more information see chapter ERBL Context Menu.

Note:

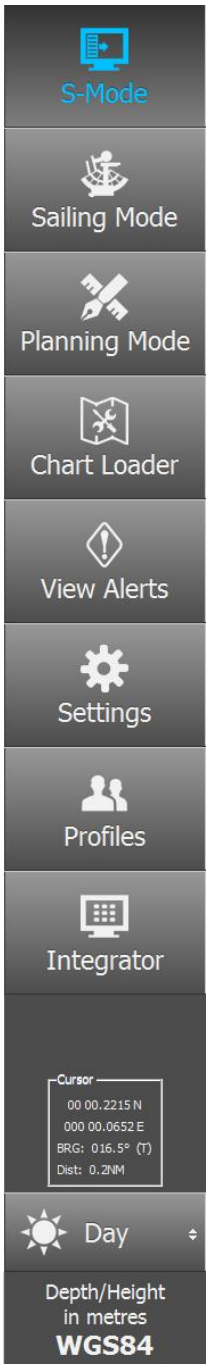
When opening the context menu, the finger must not be moved. Otherwise the context menu will not open.

2.3 Screen Layout and Menus

2.3.1 Task Bar

In eGlobe 2 the screen is divided into three sections (for the main sailing view).

On the right hand side (unless *Left-handed* is selected in the System Settings) there is the Task Bar. It allows to switch between several different views/tasks. The tasks are (top down):



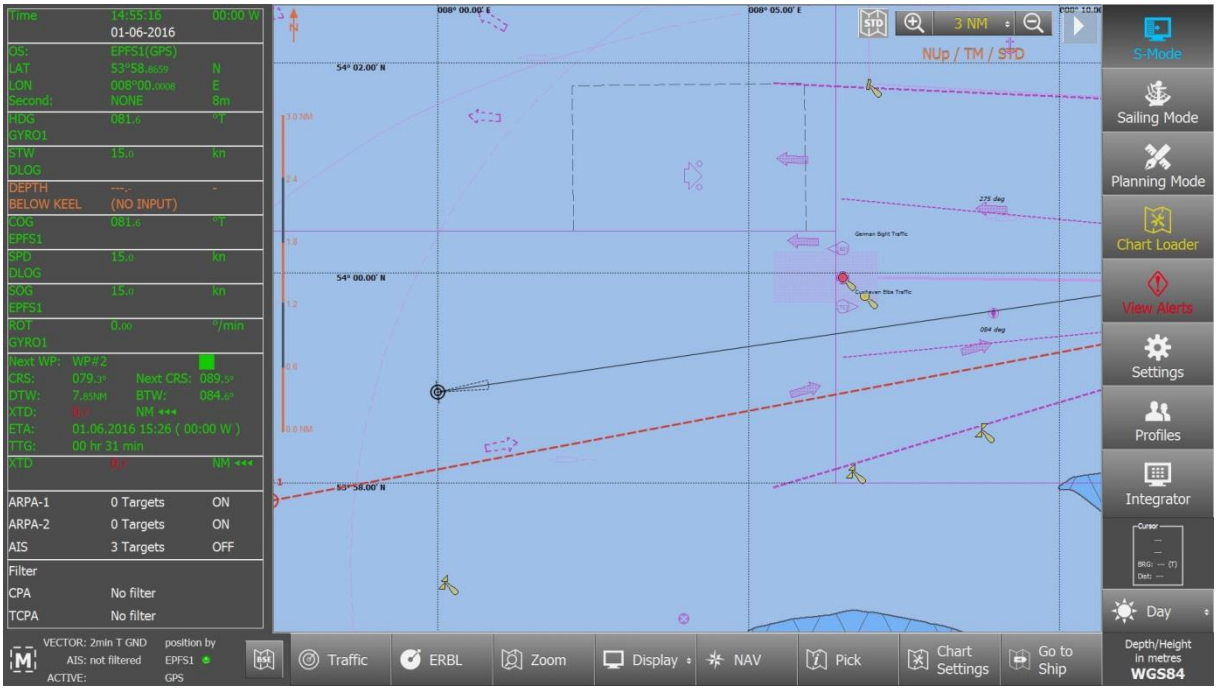
- S-Mode: Chart view with integrated information panel vertically positioned at the left side of the screen.
- Sailing Mode: Most used mode during the voyage. All navigational features are available. A planned route can be activated in this mode.
- Planning Mode: For planning, creating, modifying and checking routes/voyages and managing User Charts and Overlays.
- Chart Loader: For manually handling charts and updates; gives an overview of all charts in use.
- View Alerts: Displays current alerts.
- Settings: To define usage related settings for the eGlobe G2 system.
- Profiles: Scenario-dependent and personalized settings can be stored as profiles to ensure flexibility and handiness of eGlobe G2.
- Integrator: Access to other utilities of eGlobe G2 while Navigation Mode is retained.
- Info module: Displays the cursor/touch position, bearing and distance to the own ship position.
- Brightness: Allows for adjusting the screen brightness to ambient circumstances.

  For the meaning of the different colours see chapter Use of Colours in the Task Bar.

The Task Bar can be hidden and made visible again by repeatedly tapping on the arrow symbol  at the top of the screen.

2.3.1.1 S-Mode





S-Mode

2.3.1.2 Sailing Mode





Sailing Mode

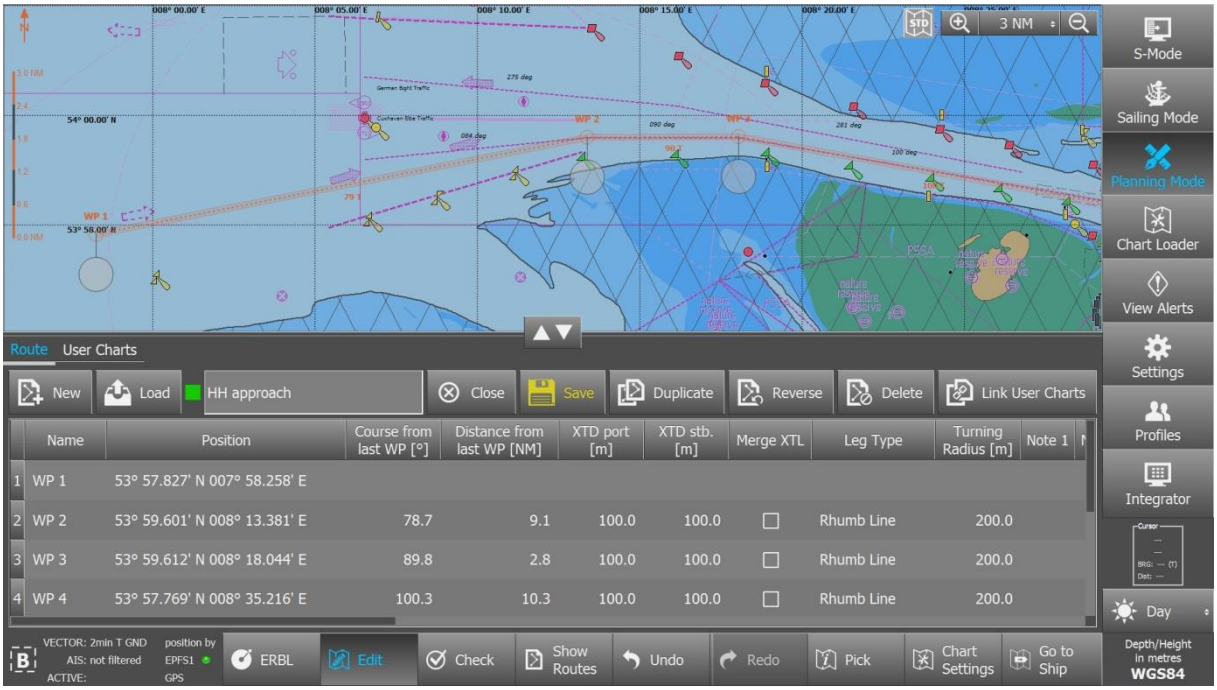
Note:

The user defined chart settings determine whether an object class is drawn on the chart or not.

In *Sailing Mode* this rule is overridden provided a chart object was detected by the Look-Ahead function to be dangerous. In that case the detected dangerous object will be displayed regardless of the current chart settings.

2.3.1.3 Planning Mode





Planning Mode

In this mode it is possible to switch between *User Charts* and *Route* subtasks. This is realized via two tabs at the top of the table.

Note:

The user defined chart settings determine whether an object class is drawn on the chart or not.

In *Planning Mode* this rule is overridden provided a chart object was detected by the Look-Ahead function to be dangerous. In that case the object will be displayed regardless of the current chart settings.

2.3.1.4 Chart Loader 

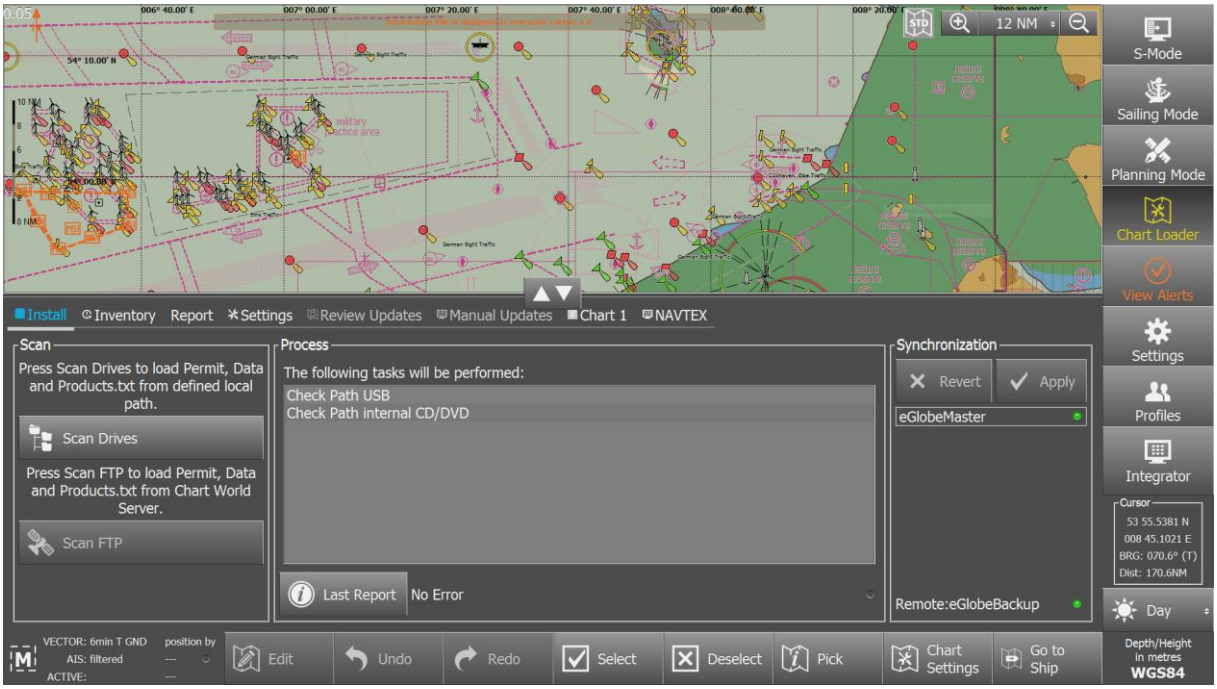
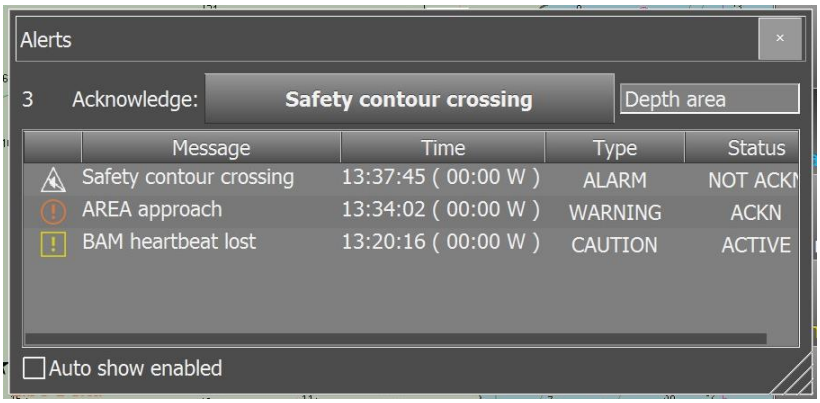


Chart Loader

For more information see chapter Chart Loader Task.

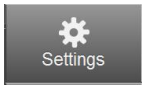
2.3.1.5 View Alerts 

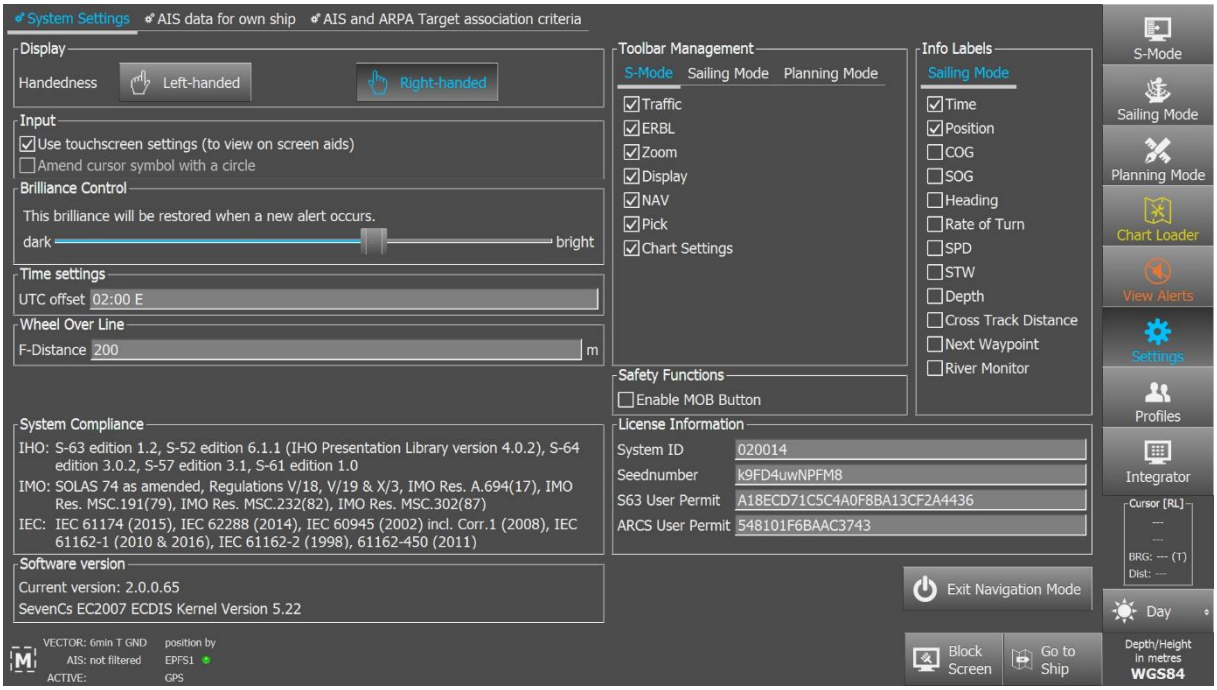


Alerts window with Status entries

Whenever an alert has been detected a respective icon corresponding to the alert priority (for a list of icons see Alerts Priority and Status) will be displayed on the task button and, according to the user settings, the *Alerts* window will appear on the screen.

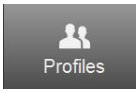
For more information on alerts, see chapter Alerts and Indications.

2.3.1.6 Settings 

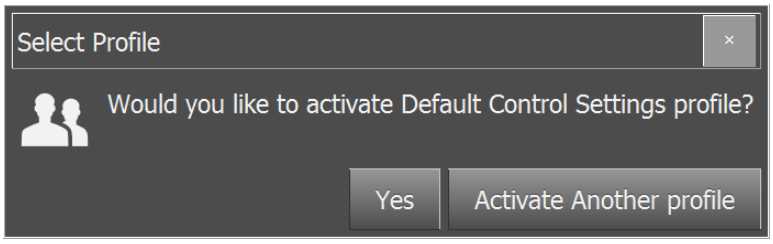


Settings

For more information see chapter Settings.

2.3.1.7 Profiles 

Tapping on this opens the *Select Profile* window.



For more information see chapter Profiles.

2.3.2 Toolbar

The second section of the eGlobe G2 screen is the Toolbar which is located horizontally at the bottom of the screen.

This chapter lists the most important tools available in the Toolbar.



Toolbar

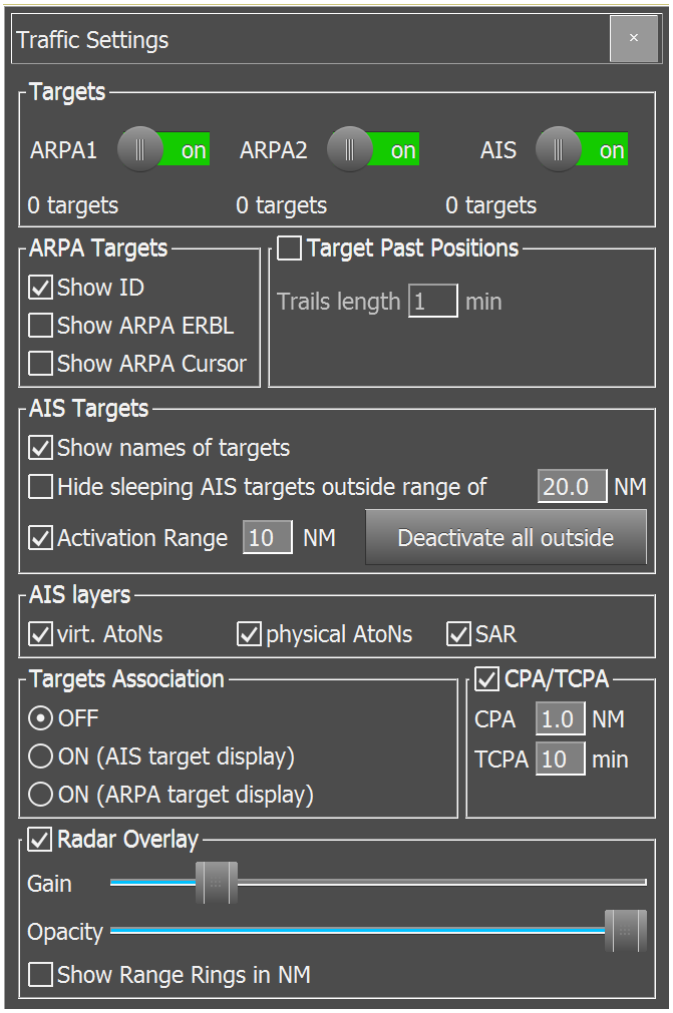
On the far left some information on the system is given:



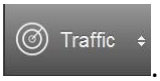
- Station indication: Whether M = Master or B = Backup or left empty (if seen on Master or Backup).
- Vector: Own ship and targets vector; length is defined, T = true, not relative, GND = ground stabilized.
- AIS: *Filtered* = some targets are suppressed according to the settings for AIS in the Traffic dialogue or *Not filtered*, i.e. filter parameters switched off.
- Position by: e.g. EPFS2 = selected, active and valid, indicated by green LED.
- Active: Positioning mode of the Main Position: DGPS, GPS, DR (Dear Reckoning), ER (Echo Reference.
- BSE: Tapping on this icon will activate IMO Category *Base*. Blue colour indicates that *Base* is active. For more information see *IMO Categories* in chapter Chart Settings / Chart Display.

2.3.2.1 Traffic

The *Traffic* button opens a window with traffic related settings.



Traffic Settings

For a detailed description see chapter Traffic 

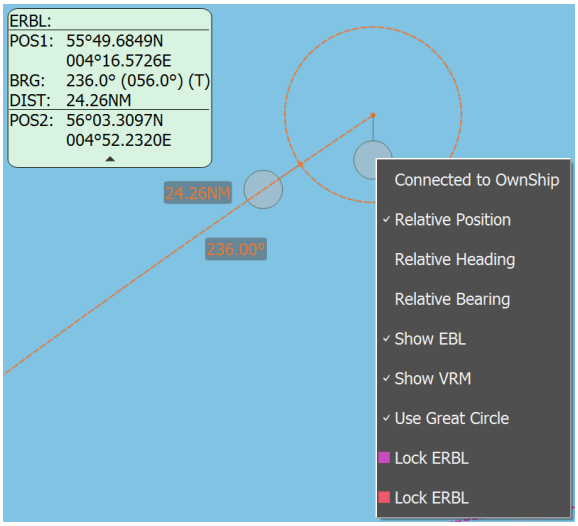
.

2.3.2.2 ERBL

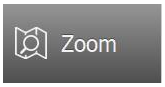


Tool to display and monitor bearing and distance, either between own ship and another object or between two other objects. ERBL is a combination of Electronic Bearing Line and Variable Range Marker (see chapter ERBL for more information).

Multiple features are available via context menu of the visual ERBL on the chart if once activated (for information on the context contents see chapter Context Menus).



2.3.2.3 Zoom



In case of using a physical keyboard instead of touchscreen it enables the user to fast zoom in. To do so, click the tool button. Then click into the chart and draw a rectangular shape. The using principle changes according to the setting *Use touchscreen setting (to view on screen aids)* which is accessible via *Settings* task button. If activated and touchscreen is used the zoom button should be activated and the rectangular is to be created via two single touches on the screen. Automatically the rectangular in between these two points will be diagonally created.

2.3.2.4 Display



Provides opportunities to adjust the screen layout. For a detailed description see chapter Display.

2.3.2.5 NAV



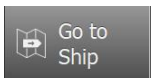
Opens a window in which settings for own ship, anti-grounding and routing can be defined. For more information see chapter Selection of Source for Own Ship Position, Heading and Speed.

2.3.2.6 Pick Report 

For further information see chapter Pick.

2.3.2.7 Chart Settings 

For more information see chapter Chart Settings.

2.3.2.8 Go to Ship 

This button is located at the right end of the Toolbar. It is available in all modes of the application, and always enabled in case the own ship is not on the display. When clicked it automatically changes into Sailing Mode and goes to ship position with defined look-ahead distance.

It centres the screen on the current vessel position.

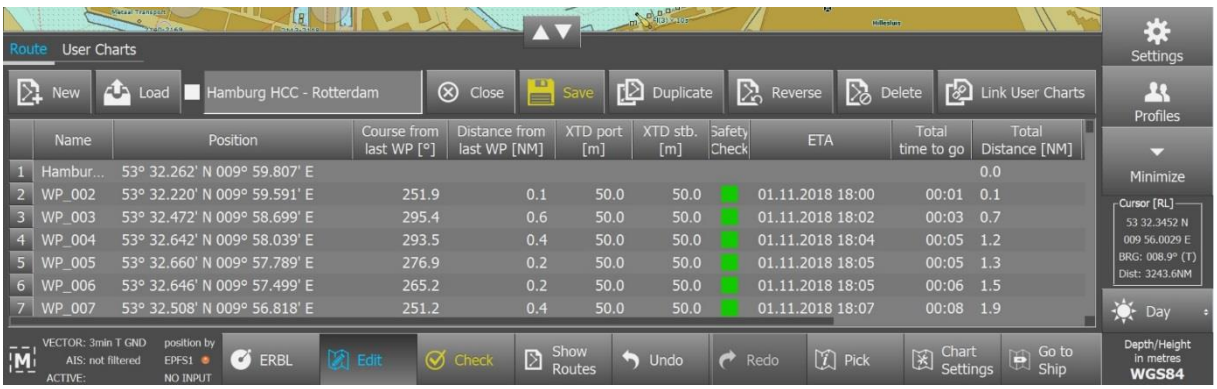
2.3.2.9 Day/Dusk/Night

Adjusts the brightness of the screen to ambient circumstances.



2.3.3 Chart View

Depending on the current task (e.g. Chart Loading or Route Planning) an additional table will appear above the Toolbar. This table contains task oriented additional settings and options (e.g. scan drives or list of waypoints).



Planning Mode table

2.3.3.1 Chart View Elements

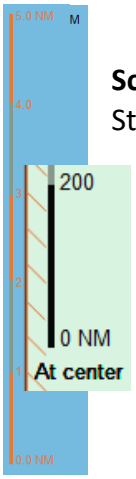


North Arrow: This arrow is located in the top left corner of the chart view. It always faces northward so that the direction can easily be detected. This avoids possible confusion while Head Up mode is active.



If the displayed area in combination with the used projection is such that the direction North is not uniform all over the displayed area (more than 20º difference in uniformity, or if the displayed area stretches beyond latitude 70º) the North Arrow shall indicate the direction of North at the own ship location on the displayed area.

If the own ship is not visible on the screen eGlobe G2 will use the projection utilized at the centre. In such case a permanent indication *at own ship* or *at centre* will be displayed next to the North Arrow.



Scale Bar: The scale bar is located on the far left of the chart view. According to IEC-Standard the colour of the scale bar changes at a range of 5 nautical miles.

If the displayed area in combination with the used projection is such that the scale is not uniform all over the displayed area, the scale bar (more than 5 % difference in uniformity for all directions or if the displayed area stretches beyond latitude 70º), or the latitude scale (more than 5 % difference in uniformity for latitude direction or if the displayed area is over latitude 70º) shall indicate the scale at the own ship location.

If the own ship is not displayed on the screen the centre of the displayed area will be used as scale reference. In such case a permanent indication at own ship or at centre will be displayed next to the scale bar or the latitude scale.

Range Widget: The Range Widget in the upper right corner is to view the current range.



On the left side of the widget a plus button is available to select the next smaller range (equivalent to zooming one step in).

On the right side of the widget a minus button is available to select the next bigger range (equivalent to zooming one step out).

According to the ship's position and the installed charts an advised/recommended range can be calculated. Within this range always the chart with the biggest compilation scale will be used. If eGlobe G2 detects that a better range could be used the current range will be

highlighted yellow while the advised range will be displayed in green in the list of ranges (open the list with a single tap on the Range Widget).

If Raster (ARCS) Charts are in use the recommended range will automatically be RCDS 1:1 mode. In this case it can be selected from the very end of the drop-down menu of the Range Widget. RCDS 1:1 shows the scanned paper chart in true size.

Note:

All charts in the *Chart Inventory* will be taken into account for the advised range. So it is recommended to select all chart products available at the current own ship position. The chart products can be selected in the *Chart Settings*, subpage *Chart Products* (see chapter Chart Settings / Chart Products.

Overscale Indicator: If the chart is displayed at a larger scale than it was created this will be indicated as *Overscaled*.

Generally, the "Overscale" status is indicated by a pattern of thin black vertical lines all over the relevant chart areas.

As soon as the overscale factor reaches 2, an additional message concerning the overscale factor will appear in the info box at the top.

If the overscale factor is 5 or higher an extra indication will be displayed next to the middle scale bar, which will become even larger in case the overscale factor reaches 10.



2.3.4 Integrator 



The *Integrator* is suitable for both touchscreen and trackball/keyboard operation. An active task (running application) is highlighted blue. There may be more than one in case tasks are running in parallel (e.g. Chart Browser and eGlobe G2 in Navigation Mode).

To switch to another task or to start a new one tap or click on the respective button. The button then is changed to "pressed".

To switch from Navigation Mode back to the Integrator tap on *Integrator* in the Task Bar.

2.3.4.1 Chart Browser

Starts the ChartWorld Chart Browser. This is a tool to manage the chart collection, and order/purchase new charts as well as receive new updates.

2.3.4.2 Navigation Mode

This task is automatically selected upon system power on. A timeout of 10 seconds allows terminating an automatic start of ECDIS *Navigation mode* by selecting another task.

2.3.4.3 File Manager

Provides a tool for managing all user related data in the ECDIS. Such data may include routes, user profiles, etc.

2.3.4.4 Restore System Settings As commissioned on vessel

This command copies all saved initial configuration files (i.e. files previously saved at the time of commissioning). These files then will supersede the current configuration files of the system.

> **Note:**
>
> Use this command ONLY in case you have detected performance problems with the system(s). It will reset the system into the state as it was commissioned by ChartWorld service specialist.

Shut down BOTH systems first! Start he Master and perform this command. Then shut down Master, repeat the operation on the Backup system. Finally start both systems.

In addition, this command will move all replay files for the voyage to the Backup archive. They will remain available via File Manager/Replay/Backup but NOT accessible from Navigation and Replay mode. To restore this access, copy these files from the Backup archive to an external storage medium (USB) and then to the *Current* list in the File Manager.

2.3.4.5 Update Software

This command starts the browser to locate `*.msi` files (or other types as applicable). Other files will neither be visible nor accessible.

Additionally, this `*.msi` files must have a producer's signature to be detected and processed.

In case a license file has to be changed ChartWorld will send a small setup which will replace the old license file.

2.3.4.6 Service Menu

Provides access to a menu of special tasks for service engineers. As per default it is password protected. The technical engineer then is enabled to select COM ports, adjust their settings, select the correct VDR settings, etc.

2.3.4.7 Replay Mode

This task starts the Playback application (eGlobe G2 special mode) to replay recorded voyages. It is not compatible with eGlobe G2 in Navigation Mode and can only be run when Navigation Mode is terminated. Functionality and graphical user interface (GUI) are mostly equal to those in Navigation Mode.

It goes without saying that navigational tasks such as sensor definition cannot be carried out in Replay Mode.

However, in addition to Navigation Mode a replay slider is available to play, stop and adjust the time of the replay file.

The playback speed can be varied (1x, 2x, 4x, 8x).

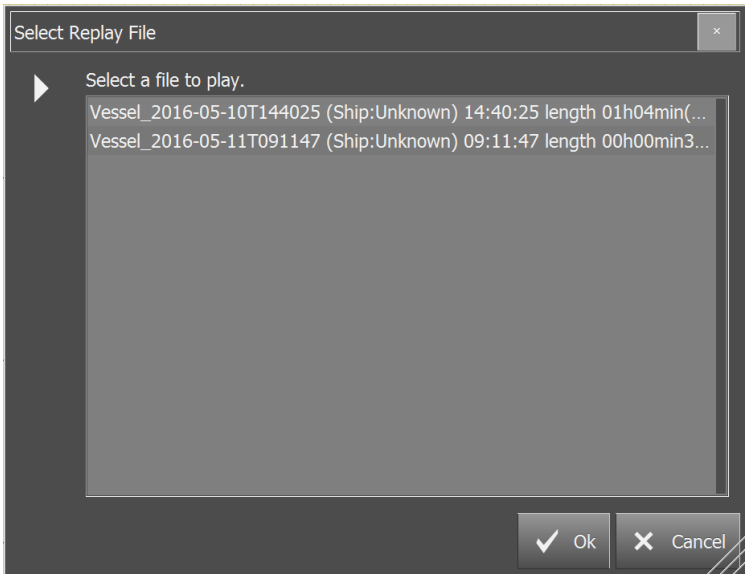


Replay slider

The slider button can be shifted to the desired time. After that the *Play* button has to be tapped again to start the replay file from that time onward. eGlobe will preprocess the skipped replay to initialize the correct navigational situation. This may take some time.

While navigating through a voyage a record is started every 24 hours or on every new start of the system to ensure that the data is saved at these intervals. In Replay Mode the recording can be selected from a list available via a task button. 

Once the desired replay file has been selected and confirmed with *OK*, tapping on the *Play* button will initialize replaying the track.



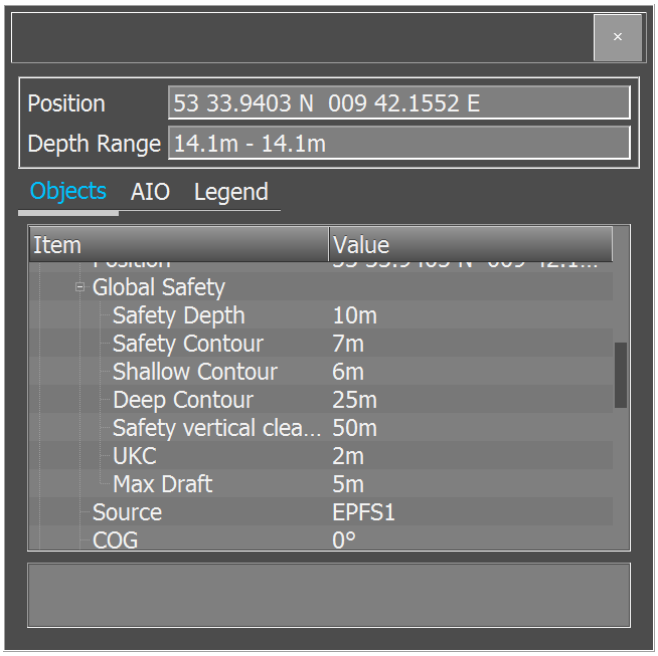
AIS targets and their tracks will be recorded up to a distance of 10 nautical miles around the own ship's position. The past track is recorded, too.

Via the Pick 

the navigational circumstances at the time of the recording can be viewed (this information is also available via pick report on the past track while being in the regular Navigation Mode of eGlobe G2).

Available information is, for example:

- SOG, COG, Position, HDG
- Charts used
- General Safety Settings used at the past track (see chapter Antigrounding) at the time of recording.



Pick Report with Global Safety details

Note:

Regularly the charts are displayed together with edition number and update number to prove the up to date status of the chart collection at the time the voyage was conducted.

In case of Raster Charts both these values might return -1 in the Pick 

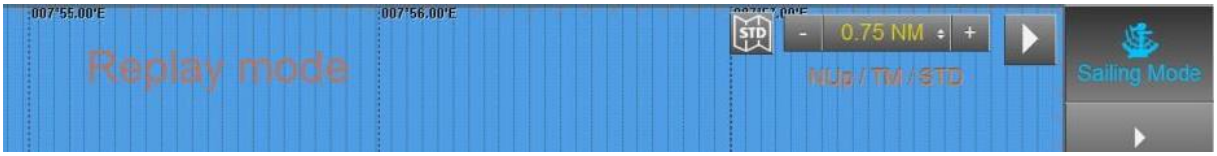
which indicates that the information is invalid. This does not necessarily mean that the ARCS chart is invalid, though.

The recordings can be managed (imported, exported, deleted) from within the File Manager which is available in the *Integrator*.

Note:

The deletion of tracks is only allowed for data older than 3 months. Tracks older than one year will be automatically deleted from the system. Take necessary steps to export and archive such data, if required.

It is very important to ensure that the user is made aware of being in the Replay Mode at all times so that no confusion may happen. For this reason, eGlobe G2 always indicates the Replay Mode in clearly visible letters at the top of the screen once acting in Replay Mode instead of Navigation Mode.



2.3.4.8 Communication Manager

The Communication Manager is a function which can only be used for downloading charts from the FTP server. This requires a connection to the internet which has to be configured for each ECDIS. Provided that this connection has been established for your systems, the Internet 3G Stick has to be connected to the unit before the Communication Manager is started.

Then tapping on the respective button in the *Integrator* will open the software to connect to the internet. Once the connection has been established charts and updates can be downloaded from within eGlobe G2 via *Navigation Mode/Chart Loader/Scan FTP*.

Note:

The correct FTP account access data has to be configured in the *Chart Loader* Settings first.

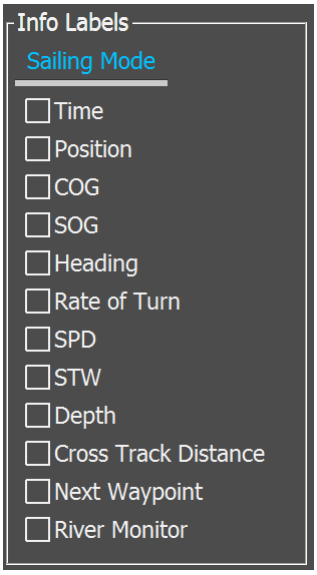
2.3.4.9 System Shutdown

This task allows to smoothly shut down the system thus preventing damage to the file system. If the system is shut down from within the Integrator the OS will recognize this and complete all running processes.

2.3.5 Information (Info) Labels

Info Labels may be utilized by advanced users who do not require all information offered in the S-Mode panel. Info Labels can be selected and freely combined in the *Settings*.

Info Labels are a dedicated feature within the Sailing Mode.



Info Label Manager in *Settings*

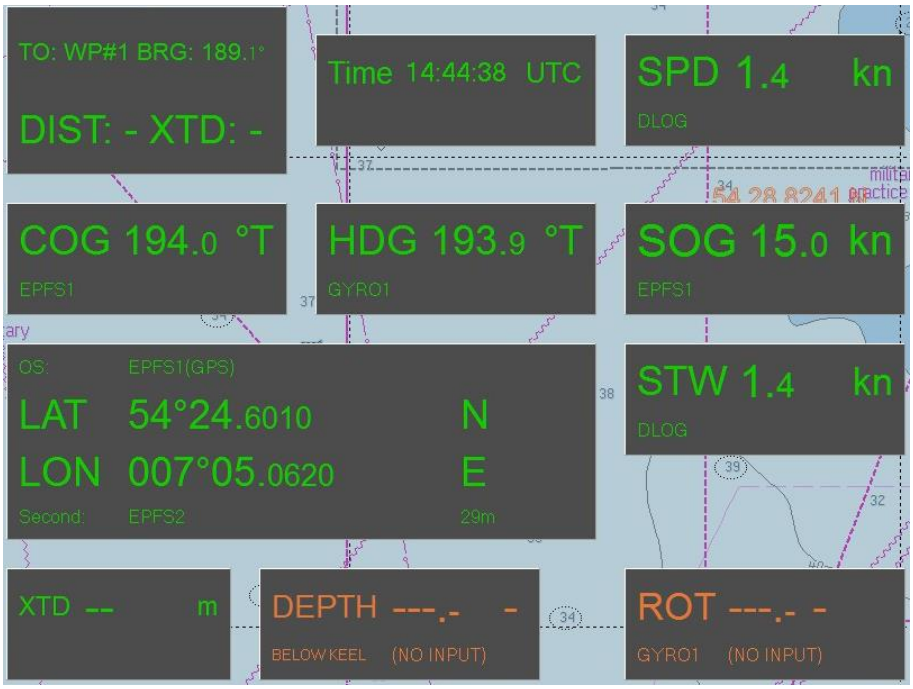
Functions of Info Labels:

- Adjusting the size individually, and closing labels which are no longer required in a changed scenario:



- Activating Info Labels in the *Settings*:

Open the *Settings* task and tick the checkboxes next to the info labels which shall appear in Sailing Mode. As per default the labels are displayed in vertical order on the left side of the chart view. The labels can be relocated and resized. The set order will be displayed again after restarting Navigation mode and can also be saved in a profile (see chapter Profiles).


TO: WP#1 BRG: 189.1°
DIST: - XTD: -
Time 14:44:38 UTC
SPD 1.4 kn
DLOG
COG 194.0 °T
EPFS1
HDG 193.9 °T
GYRO1
SOG 15.0 kn
EPFS1
OS: EPFS1(GPS)
LAT 54°24.6010 N
LON 007°05.0620 E
Second: EPFS2 29m
STW 1.4 kn
DLOG
XTD -- m
DEPTH ---.- -
BELOW KEEL (NO INPUT)
ROT ---.- -
GYRO1 (NO INPUT)

2.4 Menu Structure

2.4.1 Context Menus

A context menu can be opened at several locations on the screen. It is activated either by a long tap on the screen (with touchscreen), or by clicking the right button below the trackball on the keyboard.

Context menus are available at:

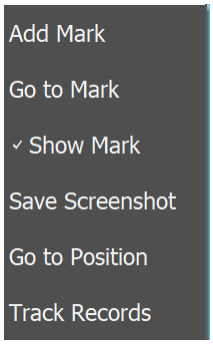
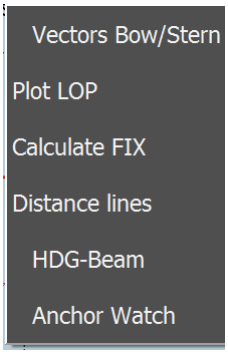


Chart Display

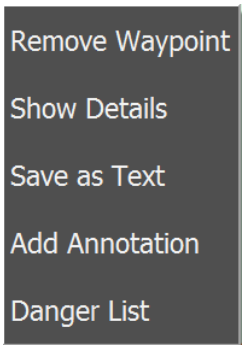


Own Ship

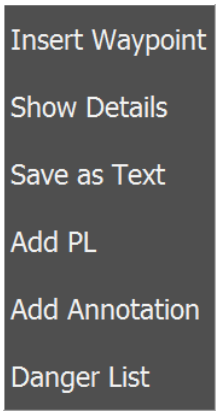


Ship Frame

Route in planning mode



On the Waypoint



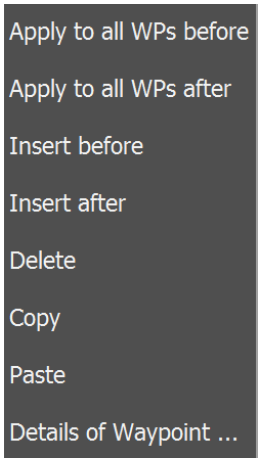
On the Leg



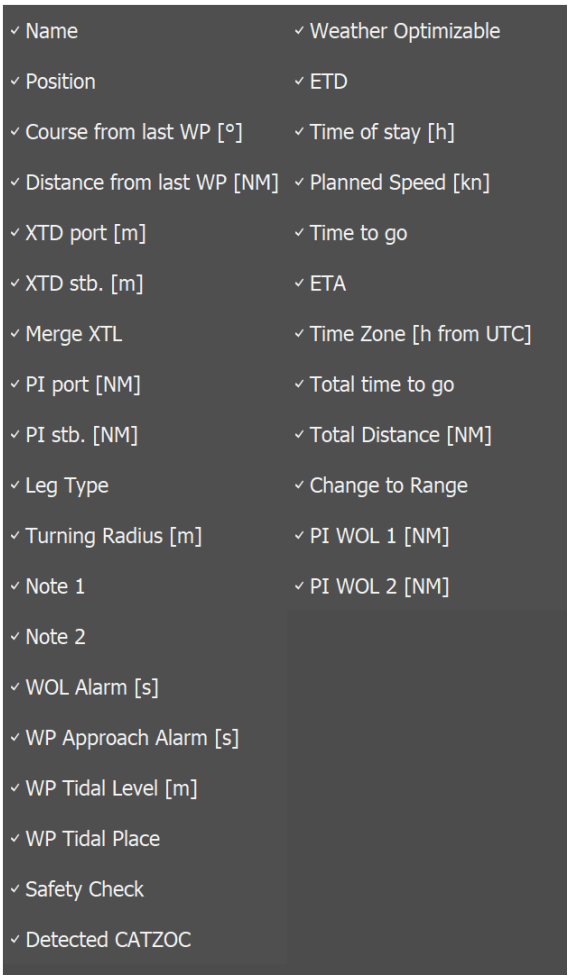
On the active route leg

Note:

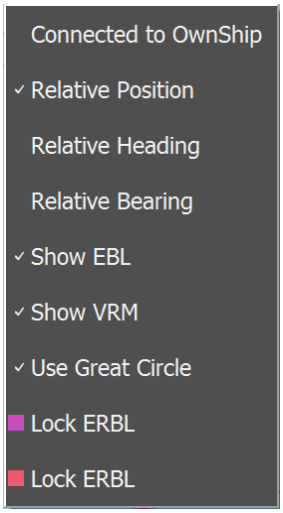
For the last two context menus (On the WP and On the Leg) the *Edit* button must be enabled. Otherwise the context menu items will be disabled.



Route Planning Table



Route Planning Header



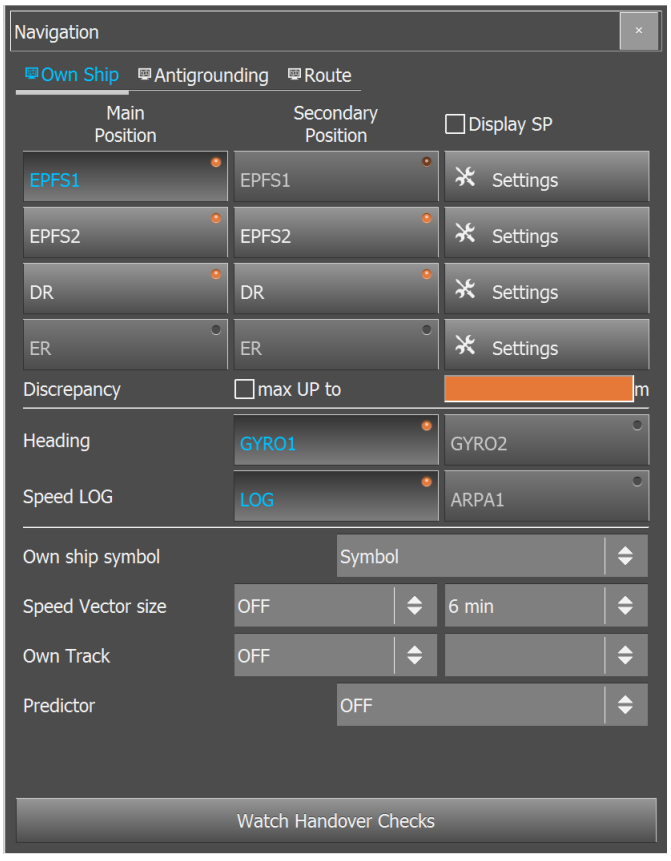
ERBL Handle

3 Own Ship Position Integration

When commissioned the system is pre-configured to take own ship position from the Primary navigation sensor, e.g. GPS (EPFS1), Heading from Gyro 1, etc. It is possible to change this configuration (e.g. in case of a device failure). The selection of positioning sources can be carried out in *Sailing Mode* via NAV button. The *Own Ship* tab provides an overview of sources and their availability with LED status indicator in grey (not configured), orange (data not available) or green (data coming).

3.1 Selection of Source for Own Ship Position, Heading and Speed

In Sailing Mode or in S-Mode, use the *NAV* button in the *Toolbar* to open the following menu (*Own Ship* tab; depicted is the *Master* view):



The upper section of the menu displays a table with all possible positioning sources and methods available in the system. One is selected as *Main Position*, and another (if available) may be selected as *Secondary Position*:

EPFS1 – Electronic Position Fixing System 1 (normally a GPS receiver).

EPFS2 – Electronic Position Fixing System 2 (normally a GPS receiver).

DR – Dead Reckoning form available and valid Heading and Speed Log data.

ER – Echo Reference position calculated from 1 to 4 transferred ARPA targets which have been associated with stationary geographical positions on electronic chart (e.g. Light house or Beacon).

Note:

ARPA targets can be selected for echo referencing. To do so, open the context menu of a fitting target and select *Use as ER*. After the timeout in which the selection can be adjusted and cancelled, the target will be used for ER, and based on the radar bearing and distance to the target the own ship's position will be calculated. It is recommended to use multiple targets for referencing at the same time to minimize the position error. To stop using a target for ER, open the context menu of the target and select *Stop ER*.

If the position source is available and functioning properly the source is available for selection and displays a green indicator 

. In case of position source (e.g. GPS) failure and/or problems with the connection the indicator turns yellowish-orange.

Note:

The colour of the indicator only shows the availability of the sensor connection and validity of the data received. Low integrity of the positioning data whether detected within ECDIS or marked by sensor as such does not change the colour of the source indicator. In case low integrity of data is detected the position reading on the Information (Info) Labels and/or S-mode panel will turn yellow.

Once selected the source is depicted as pressed/selected button 

.

Only one source can be selected as *Main Position*. This selected position data will be used for all navigational calculations in the system.

Only one source can be selected as *Secondary Position*. This position data is used only for graphical display if selected and cross-check of Main Position is within defined threshold values.

Note:

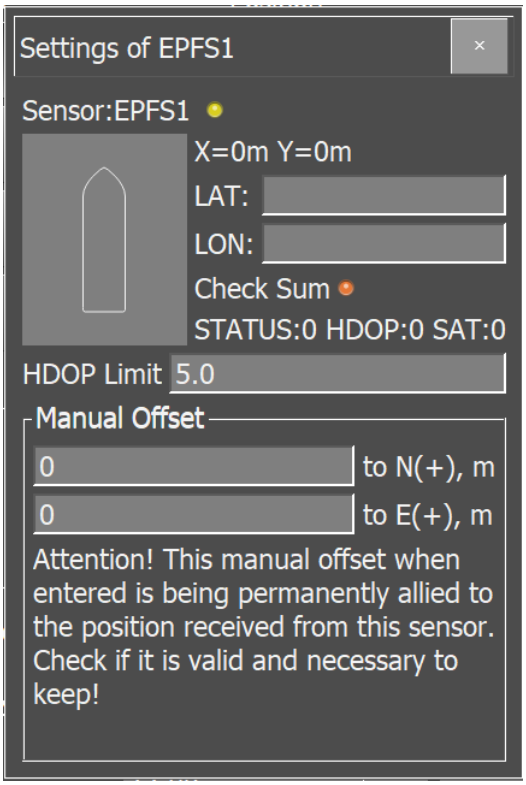
The selection of the Main Position has a priority over the Secondary Position selection.

3.1.1 Selection of Main Position

Check that the source intended for use is available and status indicator is green 

.

If necessary, check the detailed status of the sensor prior to selecting it in the *Settings* submenu.



Name of the sensor

Source indicator

Antenna position entry

Position currently received from the sensor (if processed)

Checksum status

Status, HDOP value and number of satellites

Manual Offset entry

It is possible to enter a fixed offset to the position received from the sensor. However, see **Note** below.

Note:

Entering an Offset manually should **ONLY** be done under exceptional circumstances, e.g. if the properly configured receiver (e.g. antenna position) indicates a systematic error which is also confirmed by other means. In all other cases make sure that ZERO (no offset) is entered.

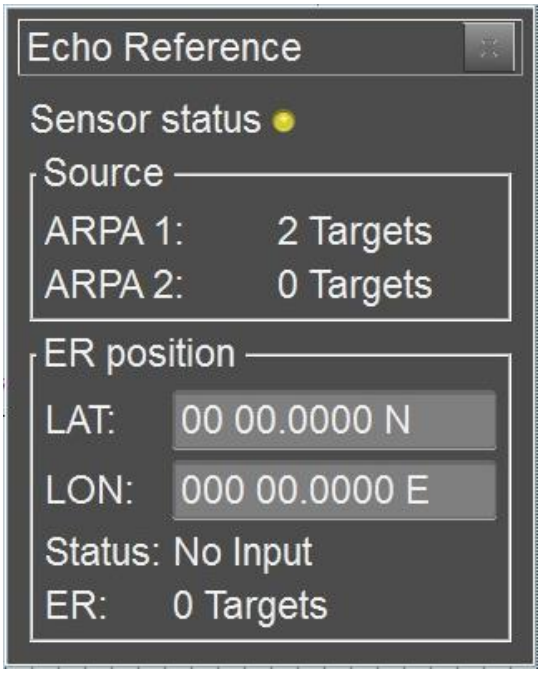
Select the *Main Position* by clicking the button with the respective source, e.g. EPFS 1.

Note that Main Position is corrected by the ECDIS for antenna offset and Conning Position offset and therefore Position Reading in the rest of the system will be different from Antenna Position reading in the *Setting* menu described above. This calculation of a Consistent Common Reference System (CCRS) is a subject of availability of valid Heading data. If that is not the case a warning is given.

The same procedure applies if it is necessary to select either Echo Reference or Dead Reckoning as Main Position. Normally it is necessary only in case if the Primary EPFS receiver connected to the ECDIS is not available any longer due to failure.

ALWAYS MAINTAIN AN ADEQUATE VISUAL LOOKOUT!!! Cross-check with navigational situation displayed on eGlobe G2 screen and Radar/ARPA screen. The situation that is seen through the window is always the truth!

Setting submenu for ER contains the following information:



Name of the sensor / status.

Number of targets available

Position currently calculated from ER targets, COG and SOG values. It turns red if data is no longer calculated (all targets are lost).

Status: here no Input.

Number of targets selected

These ARPA targets displayed in eGlobe G2 should match corresponding charted objects with reasonable accuracy depending on compilation scale ENC in use, target range, current ROT. Please note that ARPA tracking accuracy is reduced while the vessel is manoeuvring. Perform a visual check of these targets on the ECDIS screen at regular time intervals consistent with current navigational conditions.

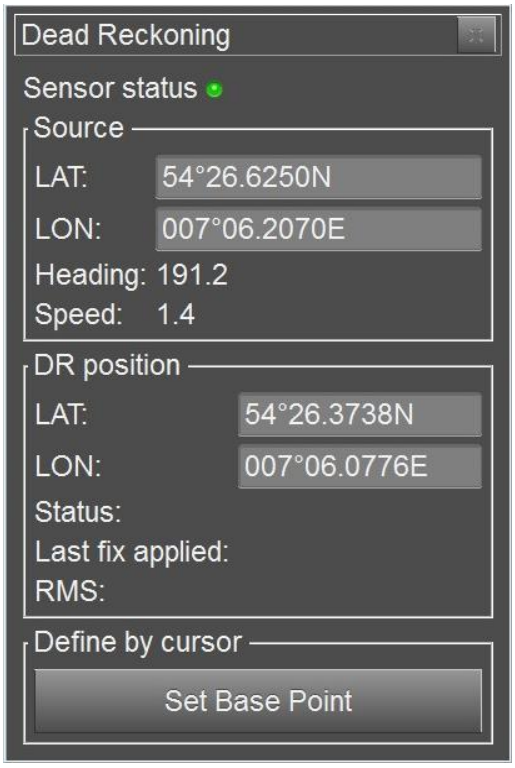
Significant deviations between the charted position of the object and the tracked target position transferred from ARPA may occur because

- wrong object has been selected on the ARPA/ECDIS.
- floating AtoN is off station (keep in mind that this is possible but very unlikely).
- incorrect Heading information in ARPA and/or ECDIS.
- wrong position of own vessel in ECDIS.

Note:

If the function to overlay the radar picture is available this can be a suitable method to cross-check the validity of available radar information matching the ECDIS ENC data and position input.

Setting submenu for Dead Reckoning contains the following information:



Name of the sensor

Status

Source indicator

Heading and Speed log selected sources, current values.

Position currently calculated from DR. Same field can be used to define a new DR position by entry.

Status, age of last fix by LOPs applied, RMS value

Indication(Status) in case DR is used as a Secondary or Main position

This button allows defining a new DR position by cursor on chart.

3.1.2 Selection of Secondary Position

It is necessary to select a secondary position whenever an alternative positioning source is available. It can be a second EPFS connected to ECDIS, Echo Reference or Dead Reckoning.

A secondary position is selected from available sources in the same way as the main position. However, a source already selected as main position CANNOT be selected as secondary position.

Defining maximum threshold for main and secondary positions discrepancy:



The value should be consistent with the expected accuracy of the positioning method with lower accuracy. For example, if both main and secondary positions are derived from EPFS the value can be set to the expected accuracy of EPFS. If the secondary position is ER the value can be higher to avoid false alerts.

3.1.3 Heading Source Selection

It is necessary to select the source for the ship's heading if more than one gyro are available. If only one gyro is connected to the system this is the default heading source.

The colour indicator will show availability and status of received heading data.



Remember to cross-check the source of heading with ARPA connected to the ECDIS to ensure that heading reference is consistent.

> **Note:**
>
> In the North Pole region (Latitude higher than 89 degrees 59 minutes North) heading is considered as invalid. Consequently, there is no radar overlay, no ARPA function, and the own ship is displayed only as a symbol rather than in ship shape.

3.1.4 Speed Source Selection

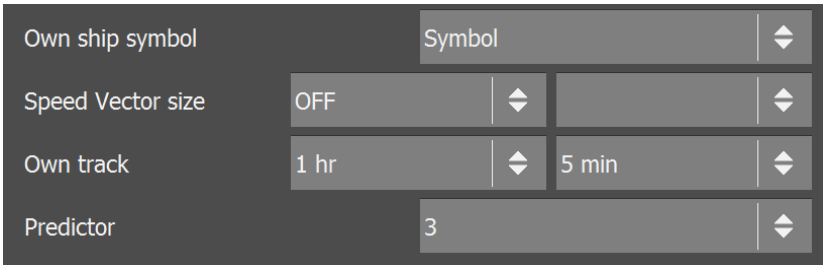
It is necessary to select the source for the ship's speed. Normally this source is the ship's Speed Log. However, if this log is faulty or not available it is possible to use speed from ARPA.

Note that the ARPA will only be selectable as speed source when the Radar connected delivers the NMEA message OSD, and the messaged type is also selected in the *Service Menu* in the *Integrator*.



3.1.5 Adjustments for the Own Ship Display

Once sources for Main and Secondary positions are selected the adjustments for the own ship display need to be made.

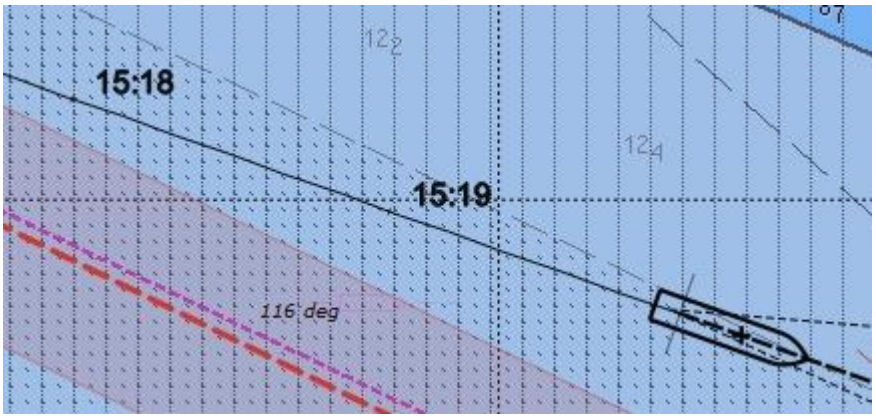


Select Own Ship to be displayed as:

- Symbol

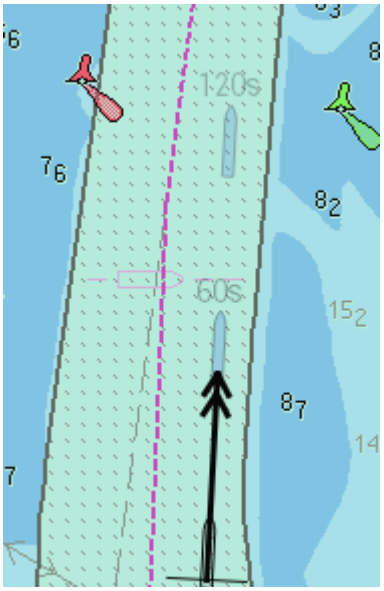
Selection	Display	Note
Symbol:		Symbol will always be displayed regardless of the display range. This is also a fall back mode if the ship's heading is not available.
Outline AUTO	Symbol if vessel outline is less than 3 mm beam on display at true scale. 	Selection between Symbol and Outline will be done automatically.

- Speed Vector Size
  Select the length in minutes.
- Past Track
  Past track settings allow to adjust length of past track and time interval to be permanently displayed on the screen:



The interval can be set between 1 and 60 minutes. Track length can be set from 0 to 72 hours.

- Predictor
  Predictor helps to assess the ship movement based on available Rate of Turn (ROT) and other dynamic ship parameters received from EPFS (e.g. GPS) and Gyrocompass. If ROT is not available, the prediction will not work.



The period can be selected via the numbers of predicted positions which can be 3, 5 or 7. Each step will display the predicted position of the own ship in light blue colour (as outline). Note that the predictor relies on sensor data and does not incorporate characteristics of the vessel and hydrodynamic data. Therefore, it may give inaccurate results especially in shallow and congested waters with strong gusty winds. The default is OFF.

3.2 Manual Position Fixing – LOP (Line of Position) Entry

A position line is a line which can be identified on a nautical chart. It is a line of bearing to a reference or another known point, along which a vessel is considered to be located. Such a line may be determined for instance, by the use of radar, landmarks, GPS, etc.

More than one position line may be utilized for a fix, i.e. the intersection of two position lines which is used to identify the navigator's location.

The controls to manage the system functionality for Manual Positioning mode include:

- Context menu (right click)
- Dedicated panels with local controls (e.g. Enter LOP data)

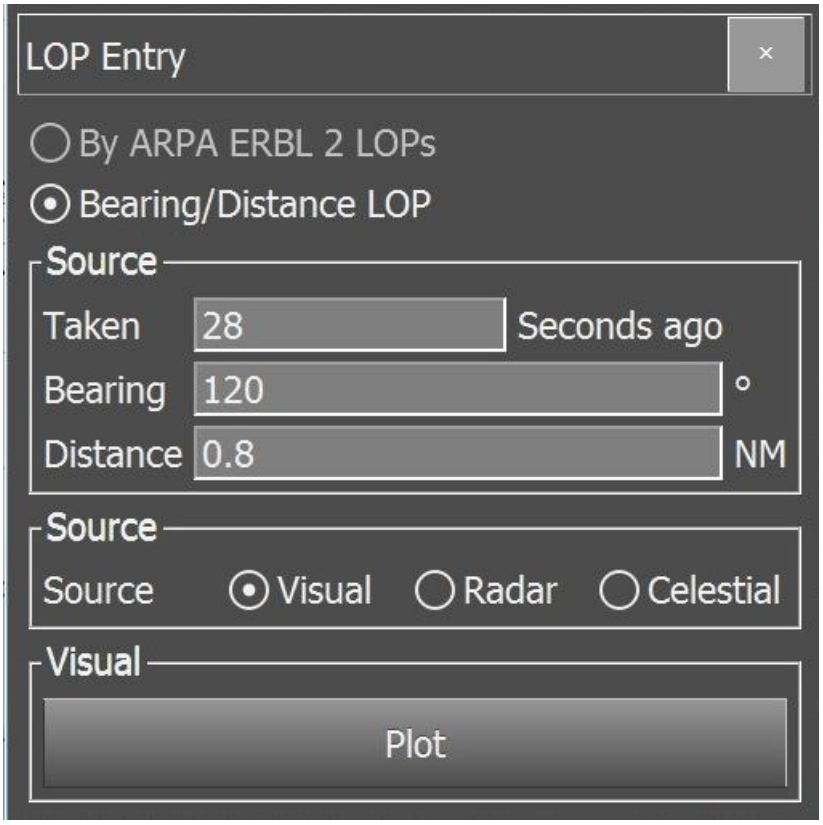
3.2.1 Initialization of LOP Entry

This function is available only in *Sailing* Task and *S-Mode* Task.

The context menu of the own ship includes two relevant menu items:

- Plot LOP
- Calculate FIX

The selection of menu item *Plot LOP* opens a dialogue box to enter LOP data:



Header and close button to close without action (cancel).

Selects 2 x LOP from transferred ARPA ERBL positioned on object.

Selects input of Bearing LOP and/or Distance LOP.

Counter starts counting when the window is opened. It starts from a predefined position, e.g. 5 secs.

Bearing reading entry.

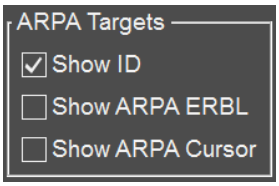
Distance reading entry.

Source indication, active default setting: Visual.

Plot- Confirms entry.

When *By ARPA ERBL* is selected this will block the input fields of *Bearing* and *Distance* as both will be taken from the current ERBL position as transferred from ARPA (RSD message). The *Source* is automatically set to *Radar*.

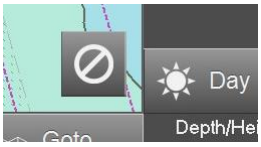
To monitor the correct location of ARPA data it is recommended to enable *Show ARPA ERBL* and *Show ARPA Cursor* in the *ARPA Targets* in Traffic.



The system will continue using the settings from the previous use of the function. On first start the defaults are bearing & distance, visual, 5 seconds delay.

Whenever values were entered to calculate estimated- or fix-positions and the entries are confirmed by the user, the graphical display of the LOP(s) will follow. As an aid to detect the selected object the origin of the LOP will be located on the past position of the own ship so that the object should be near the LOP(s). After the object has been identified the origin of the LOP(s) should be moved onto the object to correctly calculate the ship's position.

If the LOPs are considered to be incorrect they can be removed. Either move the handle towards the grey box down right located on the screen (see figure below), or wait for 20 seconds.



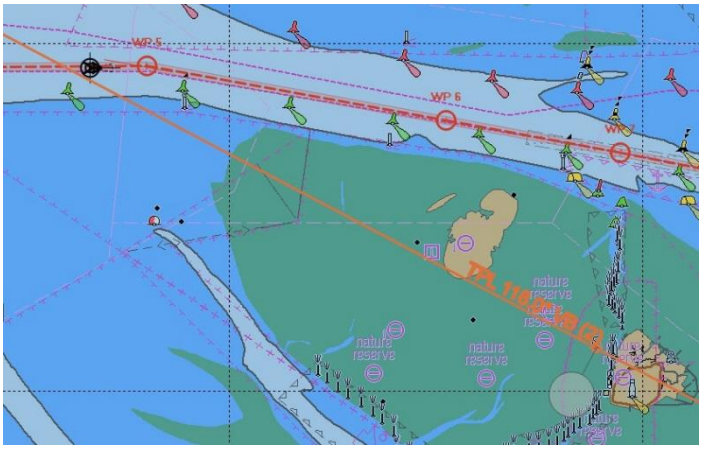
3.2.2 Bearing LOP Entry

To enter Bearing LOP data the user must

- select *Bearing/Distance LOP*.
- select the source accordingly (e.g. *Visual*, *Radar*).
- adjust time of LOP if necessary. By default the counter will take care of the time difference between LOP parameter taken at source and time of confirmation in ECDIS. By default the counter is set to 5 seconds which is considered to be sufficient time from getting parameter from e.g. pelorus on bridge wing to opening the menu of LOP entry in ECDIS). This parameter may vary from ship to ship and method of plotting.
- enter *Bearing* reading as taken, leaving *Distance* empty.

Upon confirmation (confirm by tapping on *Plot*-button) the dialogue box will disappear and LOP with defined bearing will be drawn over the screen (no distance limit). At first it should go via past track position corresponding to time of FIX (current time – offset taken, e.g. 11 seconds ago). A handle will appear connected to the line which allows adjusting the bearing to match the object. If the bearing is considered to be wrong it can easily be removed by moving the handle into the *Reject* button down right located on the screen.

If the bearing was considered to be correct the handle can be used to correctly adjust the LOP to match the corresponding object. After the adjustments have been made the LOP will flash three times before the LOP is fixed.



In this mode all chart pan and zoom functionalities are available. The user picks a handle and moves it so that it the handle pointer matches the located object on the chart. The navigation parameter *Bearing* remains as entered.

Once the user's finger has been removed and no further movement has happened within five seconds the LOP will be fixed together with a time stamp; it will be depicted as orange line.

3.2.3 Distance LOP

To enter Distance LOP data the user must

- select *Bearing/Distance LOP*.
- select the source accordingly (e.g. *Visual*, *Radar*).
- adjust time of LOP if necessary. By default, the counter will take care of the time difference between LOP parameter taken at source and time of confirmation in ECDIS. By default, the counter is set to 5 seconds which is considered to be sufficient time from getting the parameter to entering it in the respective line (here: Distance).

Upon confirmation the dialogue box will disappear and LOP with defined distance - a range circle will be plotted. At first it should be centred at the past track position corresponding to time of LOP (current time – offset taken, e.g. 11 seconds ago).

A handle will appear connected to the origin of the circle which allows moving the distance circle so that its origin matches the object. If the bearing is considered to be wrong it can easily be removed.

If the distance was considered to be correct the handle should be used to correctly adjust the LOP to match the corresponding object. After the adjustments have been made the LOP will flash three times before the LOP is fixed.

The handling is the same as in Bearing LOP Entry.

3.2.4 Combined Bearing and Distance LOP

To enter Distance + Bearing 2 x LOPs data the user must:

- select *Bearing/Distance LOP*.
- select the source accordingly (e.g. *Visual*, *Radar*).
- adjust time of LOP if necessary. By default the counter will take care of the time difference between LOP parameter taken at source and time of confirmation in ECDIS).
- enter Distance and Bearing reading as taken.

Upon confirmation the dialogue box will disappear and 2LOPs with defined distance and bearing - a range circle with a bearing line will be drawn.

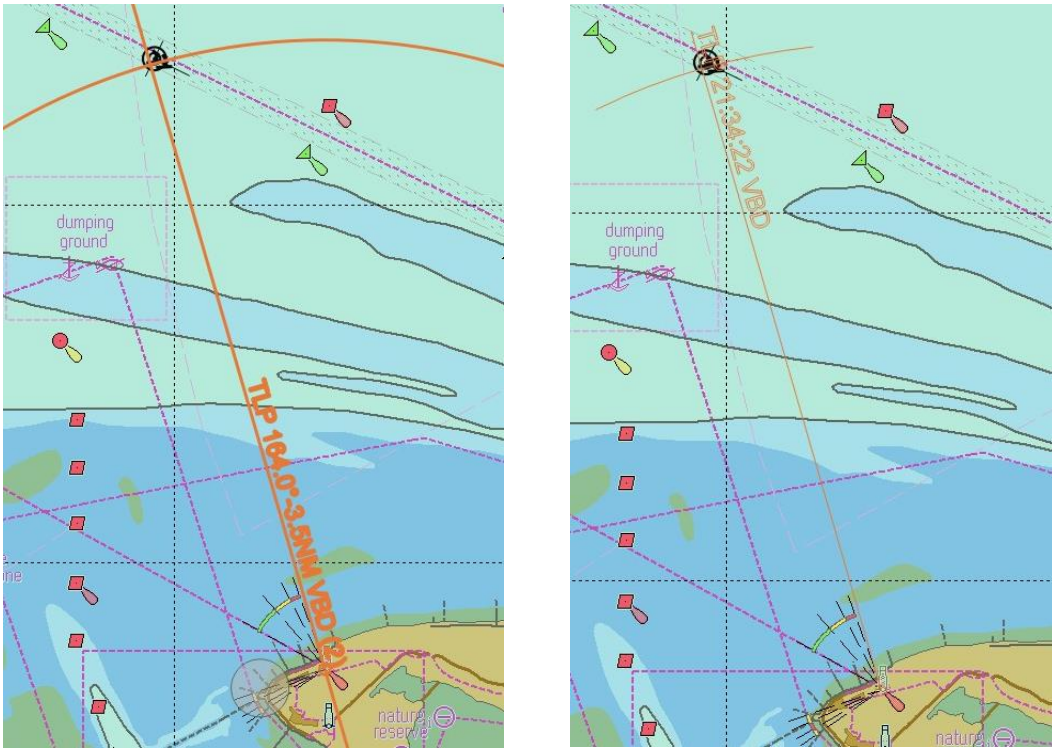
The origin point should be relocated to be exactly on the object.

The position on the past track should be the origin point of the circle. The selected object should be located as near as possible to the crossing point between both LOPs. The handle of the crossing point should be relocated to be exactly on the object.

After they have been moved and finally adjusted the LOPs will start flashing until they get fixed (three times). If the user does not change the position of the LOPs it will automatically be removed, so once the wrong value has been selected it is quite easy to remove it by not performing any further actions.

The manually measured position is fixed on the chart.

All functions will be available, e.g. zooming.



The user picks a handle and moves it so that the handle pointer matches the respective object on the chart. The circle range and bearing (navigation parameters *Distance* and *Bearing* as entered) remain unchanged. Once the user removes the finger and no further movement is detected within 5 seconds then 2LOPs are fixed with Time Stamp (in these 5 seconds it is flashing three times as can be seen in the left figure above). Afterwards it will be displayed as 1 pixel orange line (see right figure) to indicate where the related object is positioned.

3.2.5 By ARPA ERBL

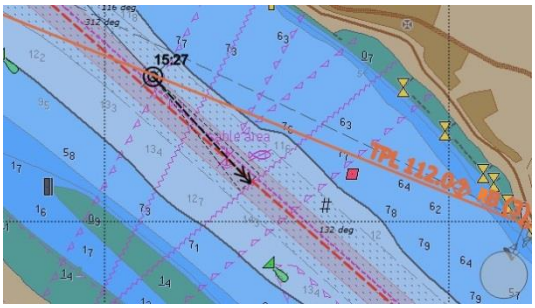
This way of LOPs entry is available whenever the ECDIS receives a valid RSD message for ARPA and has the transferred ARPA ERBL displayed.

To enter Distance + Bearing 2 x LOPs by ARPA ERBL data the user must

- select by ARPA ERBL 2 LOPs.
- disable source and time selection.

Upon confirmation the dialogue box will disappear and an intersection of 2 LOPs with defined distance and bearing will appear at the current position of the transferred ARPA ERBL. It will keep flashing for five seconds, or until the object is selected.

In this mode all chart pan and zoom functionalities are available.

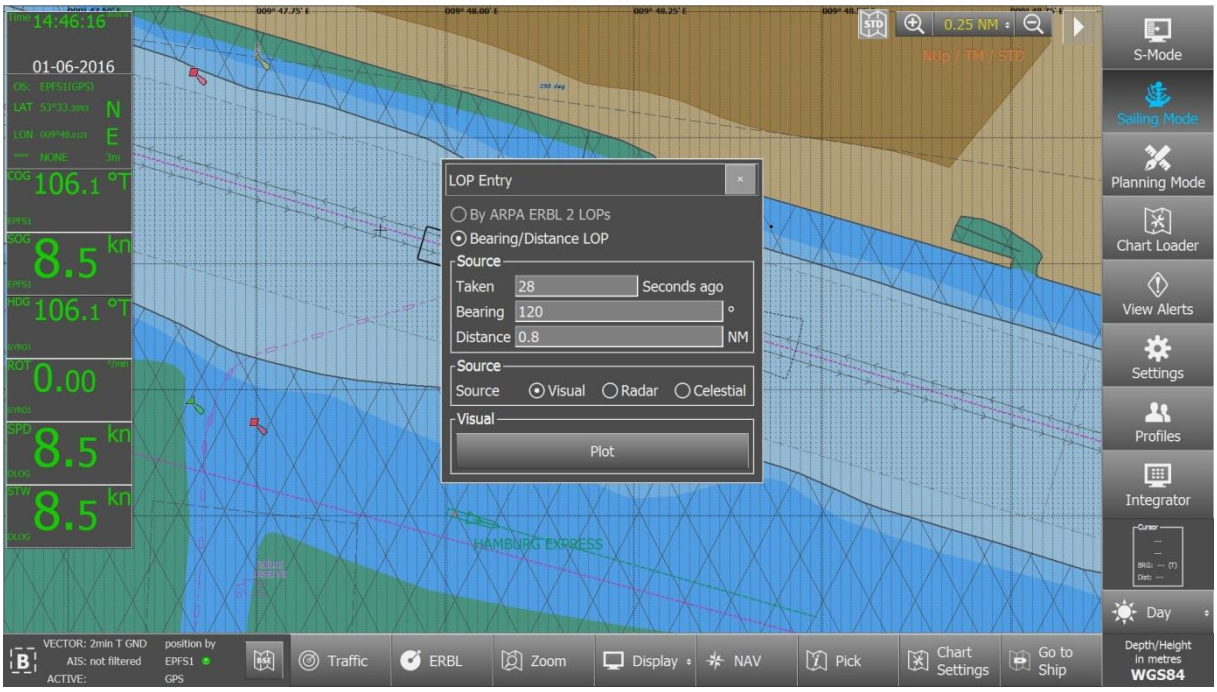


The remaining procedure is similar to the combined Distance / Bearing plot above.

3.2.6 Manual Fix Based on Celestial Observations

Mariners have to demonstrate that they have manually cross-checked their positioning system (by manual fixes, using LOPs).

The source can be *Visual*, *Radar*, or *Celestial*, as depicted in the figure below.



The function is the same as when the *Visual* radio button is selected.

The possible entries next to the fix in the chart could be C, V, R or any combination of these (e.g. VC).

While Inspectors might crosscheck the availability of manual fixes from past voyages the source of the determined fix will always be stated next to the fix. This could also be a combination, e.g. one LOP made visually and two LOPs based on celestial observations. The fixes will be recorded in the past track and can be recalled via Track Records function (see chapter Context Menus) in *Navigation Mode* or via playing the track file in Replay Mode.

3.2.7 Record

The plotted line of position is recorded in the ship's track and kept without the possibility of change or deletion.

The display of newly entered LOPs will be kept on the display for 15 minutes after entry to allow sufficient time for cross check with other positioning sources. After that LOPs will be automatically removed to declutter the screen. Should there be any need to review LOPs retrospectively for the current or any other date use the *Track Records* function from the pop up menu.

3.2.8 Initialization of Position FIX

The system can calculate a fix

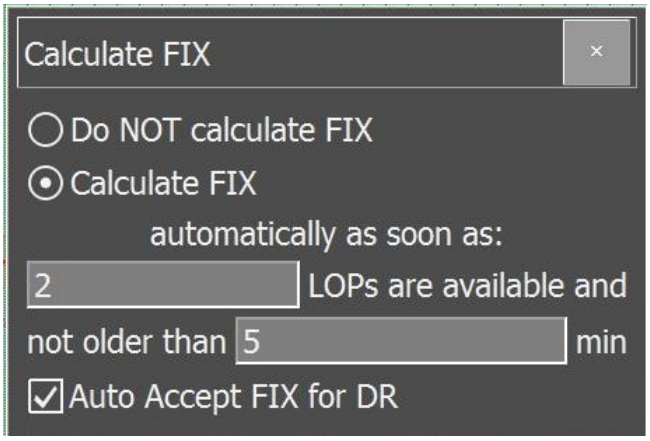
- automatically whenever 3 LOPs are available and not older than 5 minutes (default setting).

The function is available only in *Sailing Mode* and *S-Mode*.

The context menu of the own ship will include 2 relevant menu items:

- Plot LOP
- Calculate FIX

The selection of menu item *Calculate FIX* will open a dialogue box to enter FIX calculation parameters:



Header and *Close* button (changes will be kept).

No calculation of FIX.

Automatic calculation of FIX as soon as the required number of valid LOPs exists.

Set minimum number of LOPs. Set criteria for automatic fix. Automatic only.

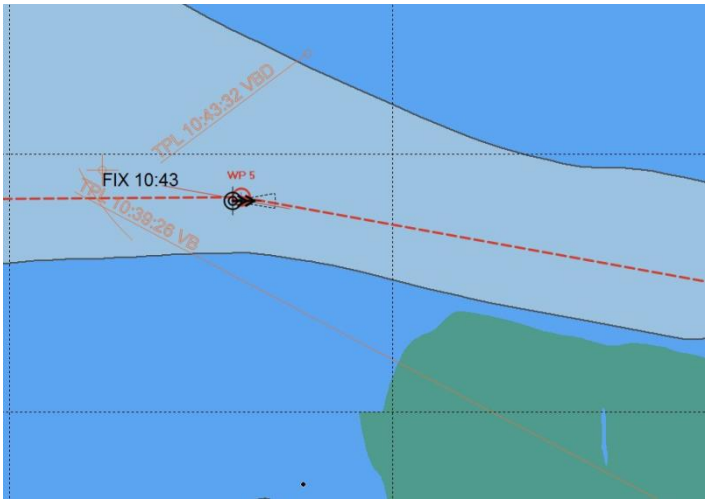
Automatically accepts resulting fix for Dead Reckoning position IF criteria of 2xRMS are met.

In the *Calculate Fix* dialogue it can be defined how many LOPs are required to create a fix (provided it is selected that a fix shall be created).

If the minimum number of LOPs is set to 2, these will create a fix already.

3.2.9 Calculation and Presentation of Fix/EP Position

Once the LOP selection mode is over or the conditions for automatic Fix calculations are met the system will present the calculated fix:



- Fix time is taken as time of latest LOP used for FIX.
- If 2 or more LOPs were used then FIX is indicated.
- The source of data for FIX is displayed as V for visual, R for radar, C for celestial, or a combination of those.

3.2.10 Calculation and Presentation of Fix/EP Position

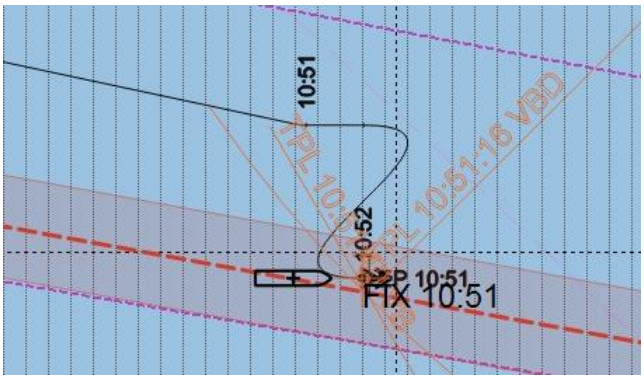
Once the fix has been calculated a new fix position should be accepted for Dead Reckoning.

For this mode the checkbox in the *Calculate Fix* window must be ticked.



DR should be pre-selected as Primary or Secondary positioning method.

Once selected the current past track should be recalculated from the accepted FIX position (Lat/Lon) to current time (vessel position):



Please note that the system will internally and automatically perform the "cocked hat" taking into consideration the respective LOP-Intersections as well as the time shifts occurring due to the time elapsed while creating the lines of position.

3.2.10.1 Temporary Distance Display

The position fixing is primarily carried out to cross check the continuous positioning method's exactness. Thus there is a feature temporarily display the actual BRG and distance from own ship to the just measured FIX position. The display will remain for 15 seconds and vanish afterwards to not clutter the screen.

3.3 Antigrounding

The *Antigrounding* subpage is part of the *Navigation* window, opened via the button *NAV* in the Toolbar. In it the user can define settings to prevent groundings, to ensure the correct display of chart contours and to manually define the individual safety settings for the *Look-Ahead* (see chapter Look-Ahead and Display Settings for Route Monitoring).

eGlobe G2 can check the safety of the current vessel's progress according to the defined parameters against overhead and underwater obstructions.

Overhead obstructions can be included provided the Safety vertical clearance has been carefully defined. Please note that this value is the vertical height of the vessel above the waterline plus (!) the additional safety margin considered to be enough for a safe passage.

Underwater obstructions can be included provided the Safety Contour has been carefully defined. Please note that this value should be the maximum draught plus the minimum UKC which is considered to be sufficient for safe navigation.

For an additional monitoring of the present UKC the Sounder data might be monitored. An alert can be defined in case a certain limit is exceeded.



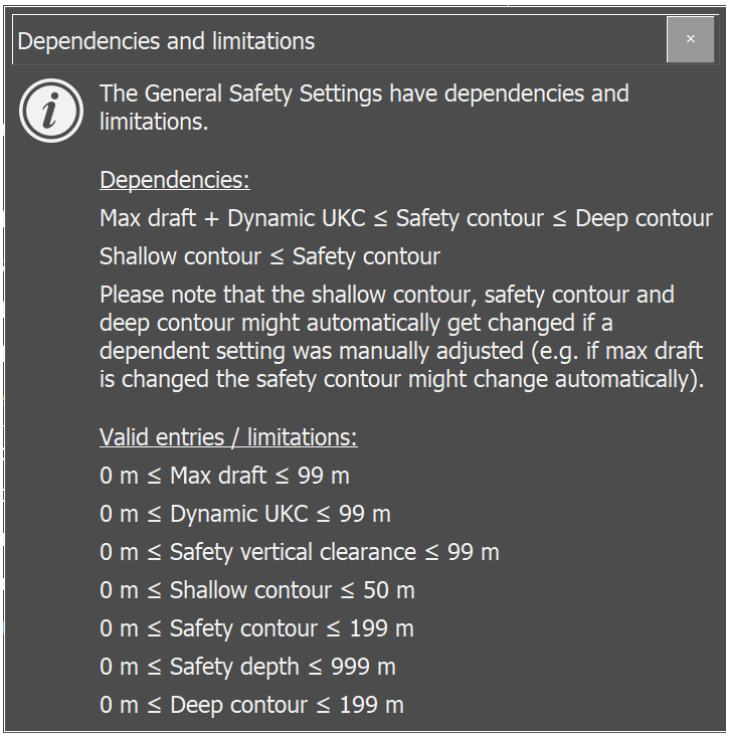
Antigrounding Subpage

Antigrounding has a lifetime warning display which appears in the top left corner of the tab once a danger has been detected. These dangers are based on the defined look-ahead sector. The warning indicator disappears in case no danger is detected anymore. In the input fields below the ship's specifics can be entered.

3.3.1.1 Dependencies and Limitations

Tapping on  opens the window *Dependencies and Limitations*. The *General Safety Settings* are partly dependent on other values. In addition, there are certain limitations coded within eGlobe G2.

These dependencies and limitations are displayed in the window of the same name.



More precise, this means that

- The Shallow Contour has to be shallower than the Safety Contour.
- The Deep Contour has to be deeper than the Safety Contour.
- UKC+Max Draft has to be equal to or less than Safety Contour and Safety Depth.

3.3.2 Max Draft

Is the current maximum depth the vessel reaches from the waterline to the deepest point of the ship's hull.

3.3.3 Dynamic UKC (Under Keel Clearance)

Under Keel Clearance is the vertical distance between the lowest part of the ship's hull and the seabed.

In *Dynamic UKC* further variable factors like weather, tide, swell etc. are also considered.

The relation between UKC, maximum Draft and Safety Depth/Contour is

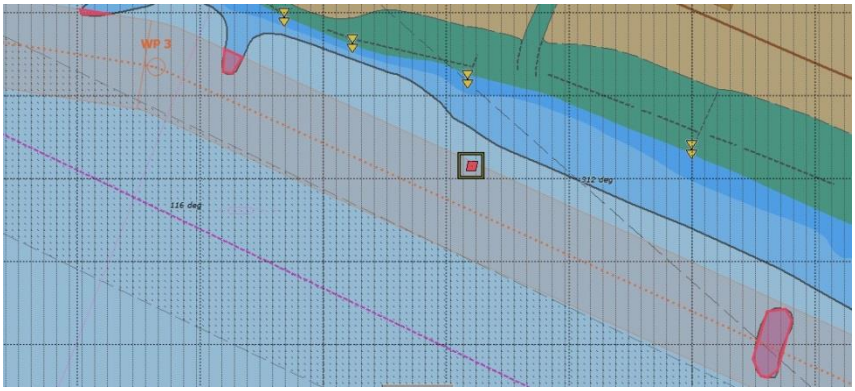
UKC + Maximum Draft = Safety Depth/Contour

If this condition is not met the Safety Depth value cannot be entered, and the line will remain orange until a valid value is entered. To enable the bridge team following standing orders the Dynamic UKC can be set up to 99 metres.

3.3.4 Safety Vertical Clearance

This parameter specifies the minimum vertical clearance which is required to safely navigate underneath overhead obstructions. For more information see chapter Safety Vertical Clearance.

3.3.5 Safety Contour



The *Safety Contour* separates chart areas with safe water (i.e. deep enough) from those with unsafe water (e.g. too shallow). It is up to the operator to decide which value is considered to be safe for navigation. The safety contour value set by the operator will be utilized to determine safe/unsafe areas, in particular ENCs in use. Depending on the data available the depth contour with the same value or the next deeper contour will be automatically selected by the ECDIS.

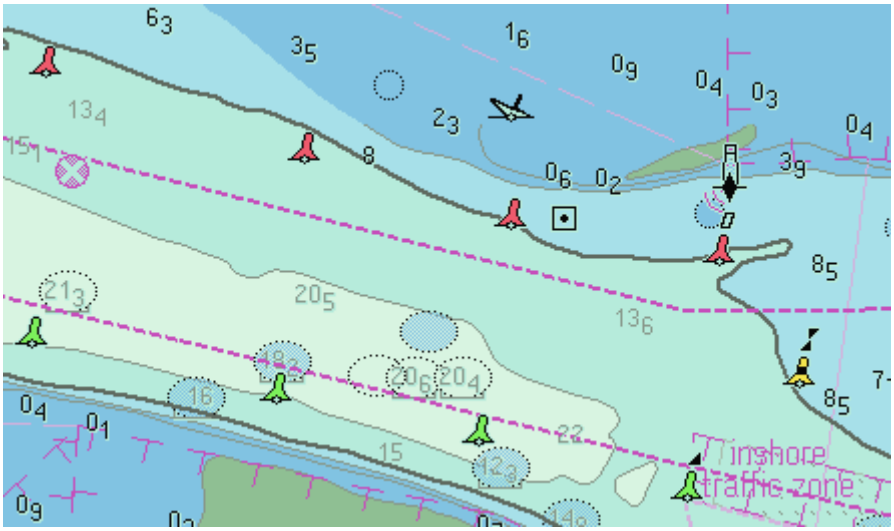
The safety contour affects the chart display and the look-ahead alarm (an alarm goes off in case the look-ahead sector overlaps a depth area with depth intervals shallower than the safety contour set by the operator). The safety contour is displayed as thick black line which defines the border between safe and unsafe waters.

In addition to the above explained functions the safety contour value is used for dangerous object detection (e.g. spot soundings) as well, while the safety depth value in the general safety settings does solely handle the visualization of those.

This means in particular that spot soundings shallower than the surrounding depth area within safe water will be detected if deemed to be dangerous according to the safety contour value added by the mariner.

> **Note:**
>
> Spot soundings within the range of the unsafe water area (e.g. a sounding of 5.1 m in the 5-10 m depth area) which are less deep than the safety contour value (e.g. 8 m) will NOT be detected as dangerous.

3.3.6 Shallow Contour/Deep Contour



As mentioned above the safety contour is used to split the chart into areas safe for navigation and areas which are not. The shallow contour is used to further subdivide the unsafe areas (shallow and very shallow). The deep contour is used to subdivide the safe areas (deep and very deep).

For each of the four depth categories (very shallow, shallow, deep, and very deep) a dedicated fill colour is used – this guarantees a better chart readability. However, shallow contour and deep contour parameters are not used for any safety related checks.

3.3.7 Safety Depth

According to international agreement the safety depth is NOT used for antigrounding purposes. Nevertheless, the system will present soundings equal or less than a set value in black, and soundings deeper than a set value in grey. The threshold value can be defined by the mariner.

3.3.8 Look-Ahead Settings

The look-ahead settings define the look-ahead and look aside distance. The look-ahead distance is defined in minutes always considering the current speed. The look-ahead distance is at maximum 15 minutes (with a SOG of 10 knots it is 2.5 NM ahead).

The look aside sectors to starboard and port side define the breadth of the sector. They can be manually defined between 3° and 25° for the port side and between 3° and 35° for the starboard side.

It may be appropriate to automatically switch the look-ahead off if the speed falls below a certain limit. This limit can be defined in the field *Turn OFF if SOG (knots)* < xx. The limiting values are 0 and 3 knots.

It has been developed to avoid unnecessary alarms while approaching a berth.

The visibility of the sector can be switched on or off by ticking/unticking *Show Sector on Chart*.

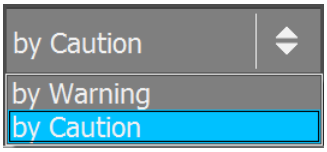
3.3.9 Navigational Hazards / A to Ns (Aids to Navigation, e.g. buoys and beacons)

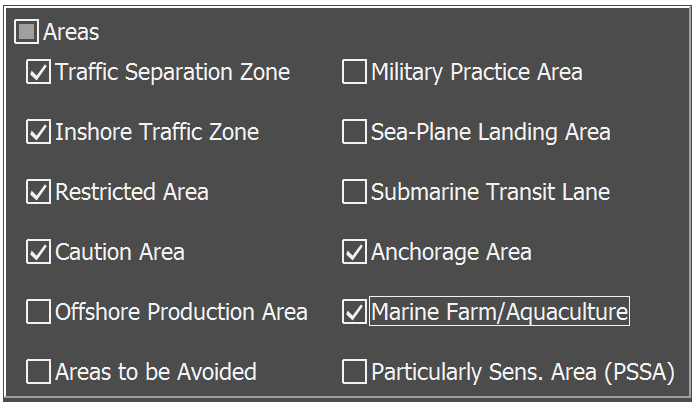
The Navigational Hazards are not optional to be alerted or not while the AtoNs can be deselected completely. Combined they together can be selected to either be categorized as warning or caution once detected by the look-ahead sector check in route monitoring.



3.3.10 Area Alarms

The area alarms can be defined as caution or warning.





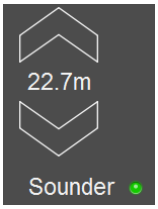
Area Alarm Table

The first button is to fast handle all alerts at the same time to switch them on or off. This will change the current area alert settings.

3.3.11 Minimum Sounder Depth

In this input field the minimum sounder depth has to be defined. If this minimum clearance is underrun by the value monitored by the echo sounder an alarm is triggered.

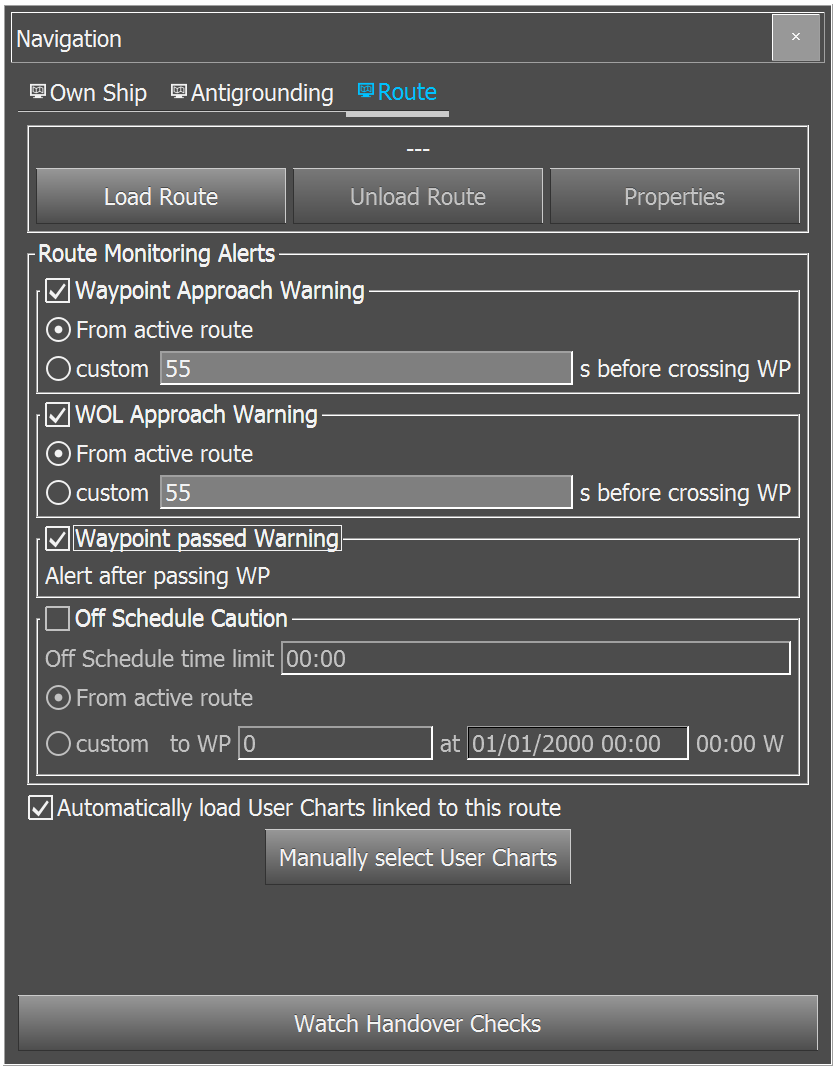
The sounder value is displayed top right (see figure below).



Note:

The minimum sounder depth can be switched off by simply unticking the respective checkbox. In such case G2 will NOT raise an alert if the entered value is underrun.

3.4 Route



Header

Selection of route and related alerts

Manual handling of planned routes to activate for navigation and to overview their properties.

Set a waypoint approach warning defined in route planning table or directly in this table (custom).

Same as above, but for predefined Wheel Over Line position. F-distance to be defined in System Settings to get this feature working.

Selection to start a warning or an alert after WP has been passed.

Sets a time limit after which a caution is displayed.

User Charts can be connected to planned routes. They can be directly loaded into *Navigation Mode*.

Watch Handover Checks opens a checklist to assist the navigating officer in maintaining and logging his duties.

Additional information on selected items:

Waypoint Passed Warning

Allows to get a reminder once the current ETA deviates from the planned one by a defined amount of time. Can be set during voyage planning or by the customer.

User Charts

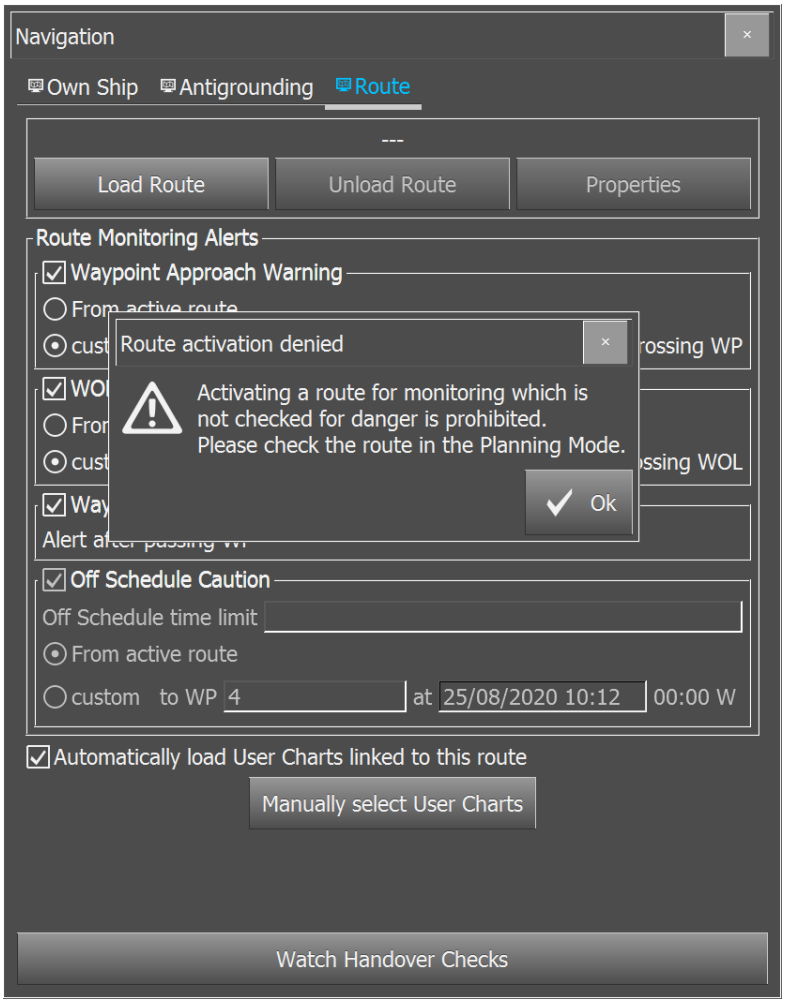
In *Planning Mode* user charts can be defined (when switching to user chart table).

The selection of user charts can also be carried out manually while navigating through an active route without leaving *Navigation Mode* via the button *Manually Select User Charts*.

3.4.1 Loading of unchecked routes

In case a route was not checked in the last 10 days or the route was never checked at all or it was loaded via the FileManager therefores imported as unchecked,

the loading of the unchecked route into monitoring is denied.



The user should load the route in the planning mode an perform the safety check first and save the route. Afterwards the route is checked and can be loaded into monitoring.

4 Chart Display Content

4.1 Chart Settings

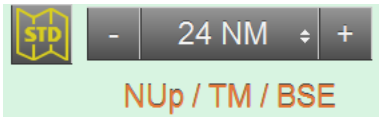


Chart Settings allow adjusting the displayed chart information to the user's requirements. The *Chart Settings* are subdivided into *Chart Display* and *Chart Products*.

4.1.1 Standard Display and Base Display

Whenever necessary it is possible to suppress the current chart settings via single operator action and load the settings predefined for IMO Standard Display or IMO Base Display.

The location of the respective buttons can be seen in the figure below:



The button with yellow content is the standard button (yellow = current chart settings below standard).



This button is the single operator action base button (if blue = temporarily activated chart settings: IMO Base).

The yellow button at the top next to the range widget will load the standard display settings. Whenever the applied chart settings are less than IMO category standard the button will be highlighted yellow to indicate so.

The button down left in the Toolbar temporarily loads the base display settings. This button will remain enabled until changes to the settings are carried out or the button is deactivated by tapping it again.

4.1.2 Chart Settings / Chart Display

Note:

The user defined chart settings determine whether an object type is drawn on the chart or not.

In *Sailing Mode* this rule is overwritten provided a chart object was detected by the Look-Ahead function to be dangerous. In that case the object will be displayed regardless of the current chart settings.

The seven items in the *Chart Display* can be clicked open, then resulting in a rather long list which can be shifted using the scroll bar on the right-hand side, or simply by moving the content of the window upward or downward.

However, for better overview in the following they will be presented separately.

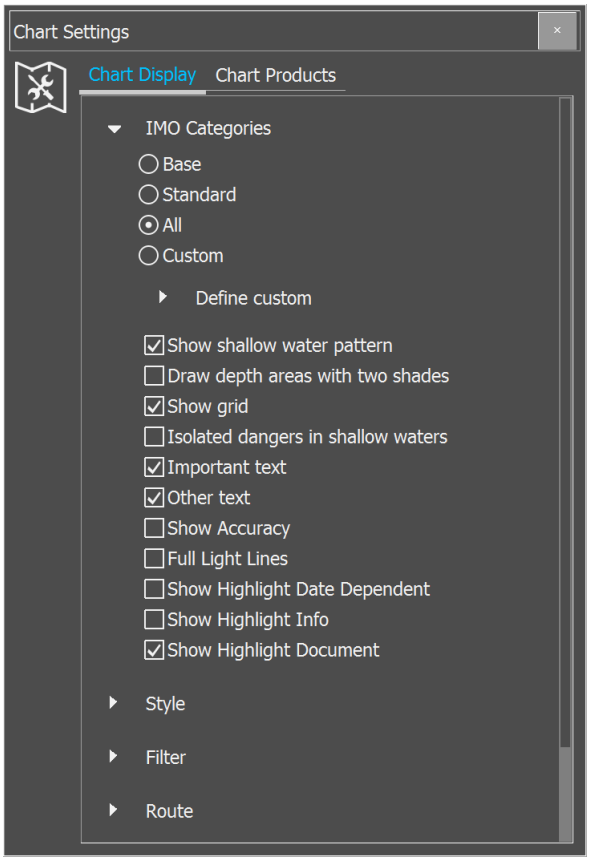


Chart Settings / Chart Display 1

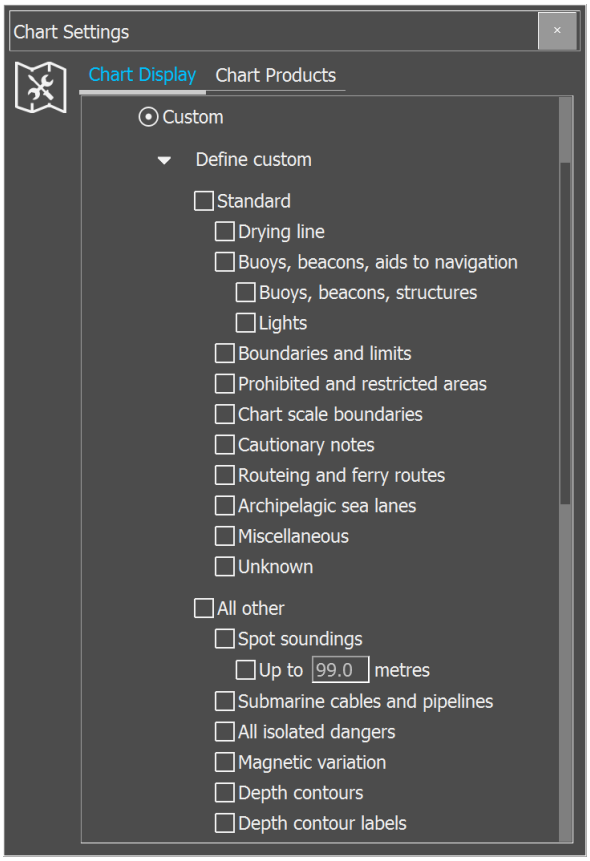


Chart Settings / Chart Display 2

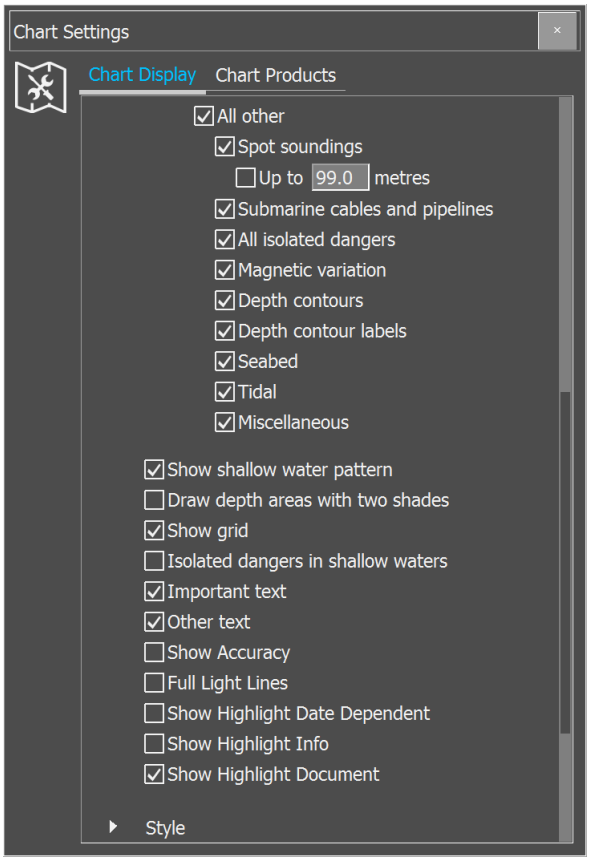


Chart Settings / Chart Display 3

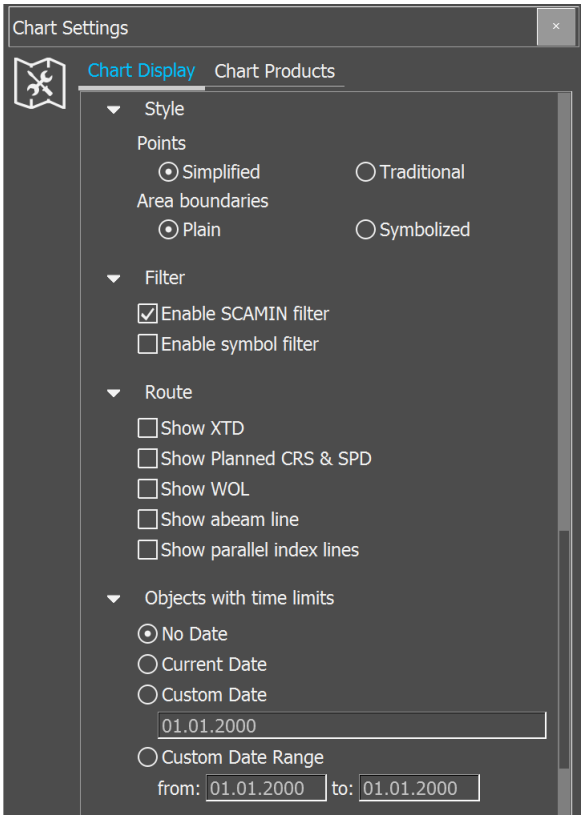


Chart Settings / Chart Display 4

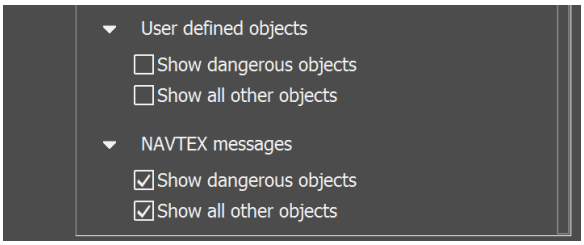


Chart Settings / Chart Display 5

IMO Categories

There are three IMO categories plus an additional one for the chart display:

- Base
  That content of the chart Standard Display which must be permanently retained on the ECDIS display, e.g. coastlines, scale, range etc. It is not intended to be sufficient for safe navigation.
- Standard
  That part of the chart SENC which includes e.g. buoys, beacons, restricted areas etc. It is intended to be used as a minimum during route planning and route monitoring.
- All
  This includes all available chart information, e.g. spot soundings, graticule, etc.

- Custom
  This allows the mariner to specifically select information to be displayed on the screen.

It is always possible to switch back to *Base* by tapping on 

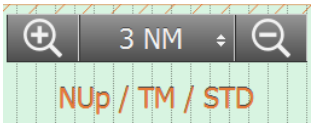
in the Toolbar. Tapping on the button while *Base* is already active (blue colour) will return to the previously selected IMO Category.

> **Note:**
>
> The use of this button will temporarily remove some information layers such as radar overlay, AIS targets, etc.

Tapping on 

next to the *Range Widget* in the upper right corner will set the IMO Category to *Standard*. In case the selected items do not meet the *Standard* requirements this button is coloured yellow as a warning.

Moreover, the IMO Category is also indicated directly beneath the *Range Widget* (the third position in the figure below).



In case IMO Category *Custom* is selected the indicator will change according to the selection made under Define Custom:

- STD if only *Standard* is selected.
- STD+ if at least one more item is selected.
- BSE if at least one of the items listed under *Standard* is deselected.

Display

Several options can be selected to define the elements displayed in the current chart view.

> **Note:**
>
> Chart Settings are available in all tasks (Nav main, Nav splitscreen, Planning and Chart Loader), and they can be individually defined. All settings are saved in profiles.

Optional checkboxes in the *Display* topic:

Show shallow water pattern:

Activates shallow pattern.

Draw depth areas with two shades:

If not selected depth areas will be displayed in four shades.

Show grid:

Displays the coordinates in an overlay, once activated.

Isolated dangers in shallow waters:

Activates the display of isolated dangers within unsafe waters.

Important text:

Shows important text on the chart (such as VHF communication channel).

Other text:

Shows all other text on the chart which is not flagged as important (such as names of buoys and countries).

Show Accuracy:

Displays the object pattern for the quality of the data. Details about the quality can be sighted through the pick report information panel.

Full Light Lines:

In this checkbox the decision to display lighthouse lights style can be taken.

Show Highlight Date Dependent:

Shows the symbol to highlight objects with a date dependency as identifier.

Show Highlight Info:

Display the object attribute for highlight information.

Show Highlight Document:

Shows the symbol to highlight objects with an embedded document as identifier.

Style

Points:

Can be displayed in *Simplified* or *Traditional* style.

Area boundaries

Can be displayed *Plain* or *Symbolized*.

Filter

Enable SCAMIN filter:

Reduces the amount of information according to a set SCAMIN attribute encoded in the ENC for this object.

Enable symbol filter:

Ensures that symbols do not overlap.

Route

Show XTD:

Displays the Cross Track Distance area to stb and port of the displayed routes on the screen.

Show Planned CRS & SPD

Displays the planned course and planned speed as set in *Planning Mode*.

Show WOL:

Displays the Wheel Over Line to visualize the position to alter the course towards the next course.

If activated the WOLs will be displayed for all waypoints ahead of the current own ship position/leg. However, waypoints where the alteration in course is less than 10° do not have a WOL (item is considered to be insignificant). In such case no WOL alarm will be generated.

Show abeam line:

Displays at waypoints lines perpendicular to the route segment the ship is currently travelling. The distance between the ship's bow and such line is displayed in the info label *River Monitor* (see chapter Route Monitoring Details / Info Label).

Show parallel index lines

Displays Parallel Index Lines which are used to prepare information necessary for Parallel Index Line radar navigation.

Objects with time limits

These are objects which are to be displayed solely within a defined timeframe.

No Date:

No date will be taken into account.

Current Date.

Displays the objects provided the current date is within the set timeframe.

Custom Date.

Displays the objects provided the entered date is within the set timeframe.

Custom Date Range

Displays the objects provided the entered time period is within the set timeframe.

User defined objects

Possibility to have *dangerous*, and/or *all other* objects displayed.

NAVTEX Messages

Possibility to have *dangerous*, and/or *all other* objects displayed.

> **Note:**
>
> Dangerous objects will be displayed on the screen even if this is not activated in the *Chart Settings* once a non-drawn object is detected to be dangerous in Look-Ahead check.

4.1.3 Chart Settings / Chart Products

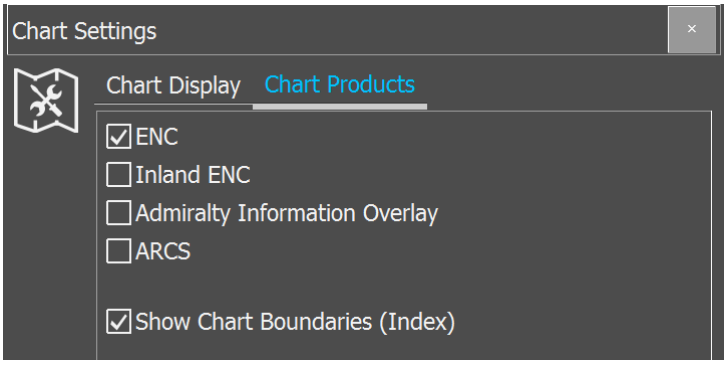


Chart Settings / Chart Products

Here you can select which chart products shall be displayed.

- *ENC* contains standard nautical charts.
- *Inland ENC*
- *Admiralty Information Overlay* (AIO) offers to display additional information not included in the nautical charts (e.g. T&P NtMs). *Admiralty Information Overlay* requires AVCS.
- *ARCS*
- *Show Chart Boundaries* displays the contours of areas for which charts are installed.

4.1.4 User Chart (UC) Layers and Selection

Various user charts can be defined, loaded and displayed in the chart view. User Charts are user created inlays which contain information to be displayed on the chart with a related geographical position. Remarks, objects, dangers, berthing experiences and much more can be collected in one or more inlays. They can be either used in general or connected to a selected route.

The procedure to create user charts is explained in detail in chapter User Charts.

Once user charts have been created and stored, they can be displayed in the chart view.

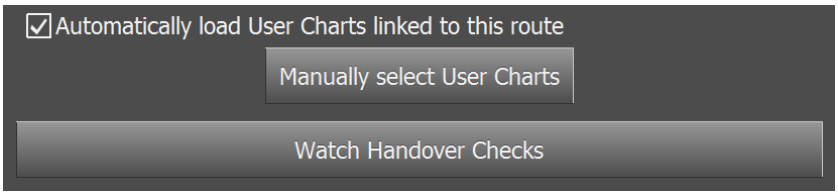
To do so, in *Sailing Mode* click on *NAV*.

The Navigation window opens.

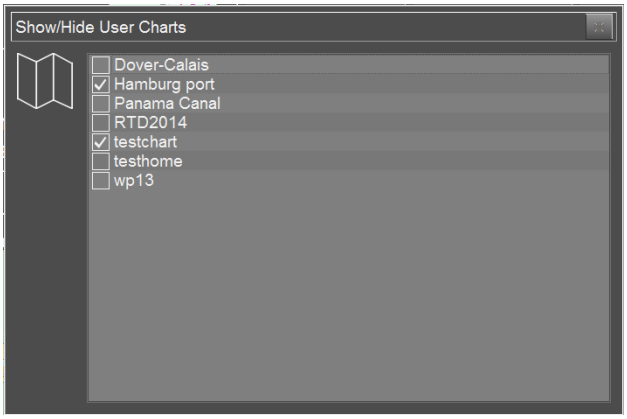
Select *Route* at the top of the window.

At the bottom, two options are available:

- Automatically load User Charts linked to this route
  To use this command it is necessary to link the created UCs to a specific route (which needs to be active while ticking that checkbox). The list of linked UCs which will then be displayed is shown in a box below the checkbox.
- Manually select User Charts
  Opens a window which lists all existing UCs. The user is free to select all required information.



Part of the NAV tool from Tab Route



Window for selecting User Charts

Note:

It is recommended NOT to load many User Charts simultaneously.

5 Look-Ahead and Display Settings for Route Monitoring

5.1 Safety Parameters Settings

5.1.1 General

The values to be entered comprise

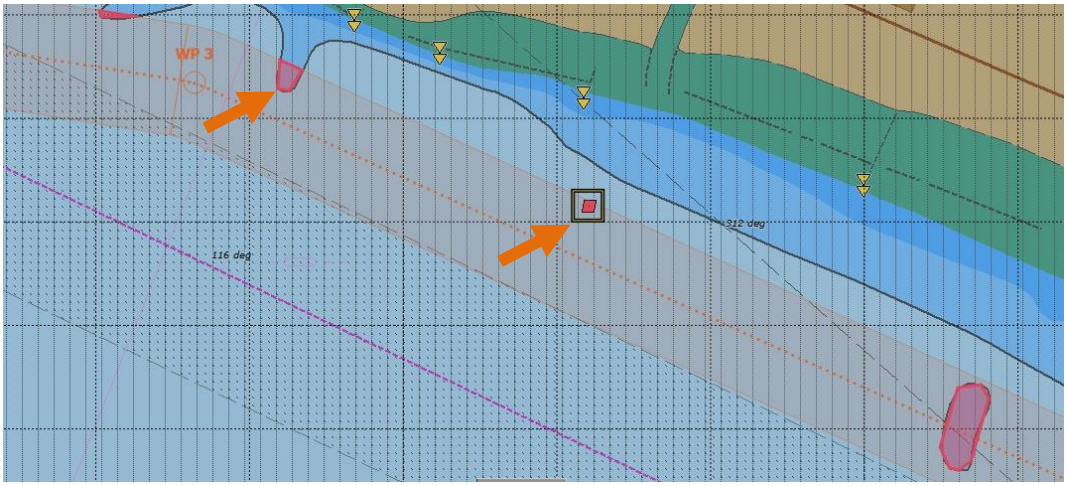
- Safety Contour
- Safety Depth (only for visualization of the soundings)
- Shallow Contour
- Deep Contour
- Safety Vertical Clearance

For entering the values a virtual number pad is displayed.

5.1.1.1 Safety Contour

The safety contour separates chart areas with safe water (i.e. deep enough) from those with unsafe water (e.g. too shallow). It is up to the operator to decide which value is considered to be safe for navigation.

This parameter affects the chart display, route check (route check error if XTD overlaps safety contour), and the look-ahead alarm (an alarm goes off in case the look-ahead sector overlaps the safety contour). The safety contour is displayed as thick black line which must not be crossed by the vessel.

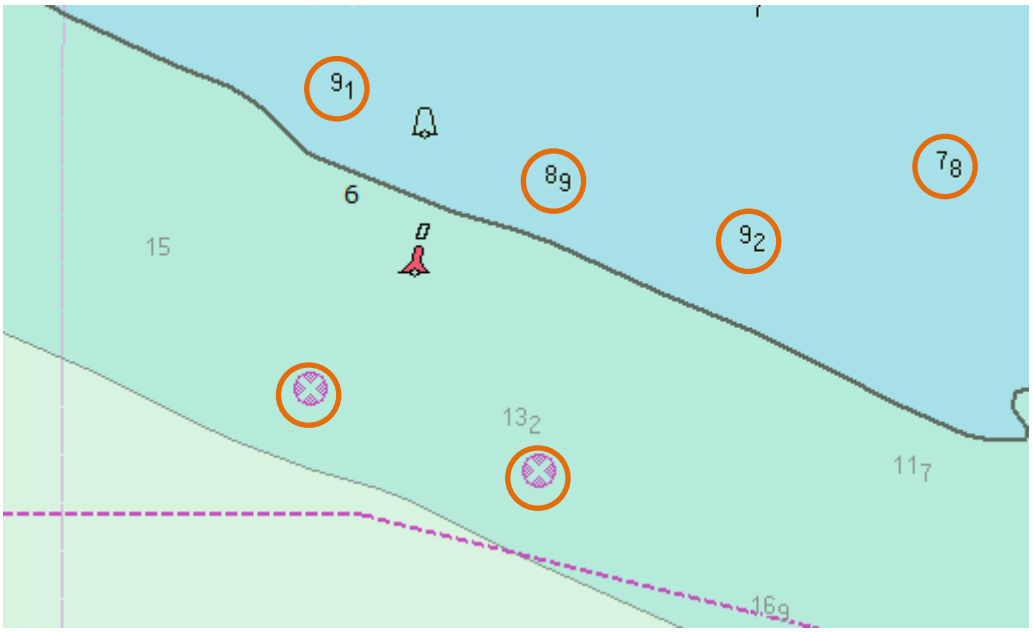


Safety Contour and AtoN detected by route check

5.1.1.2 Safety Depth

The safety depth value should be defined to visually differentiate between shallow and safe soundings.

Shallow soundings are displayed in black whereas safe soundings are displayed in grey. Dangerous underwater hazards are marked with an isolated danger symbol.



Highlighted objects (soundings and isolated dangers) are shallower than safety depth

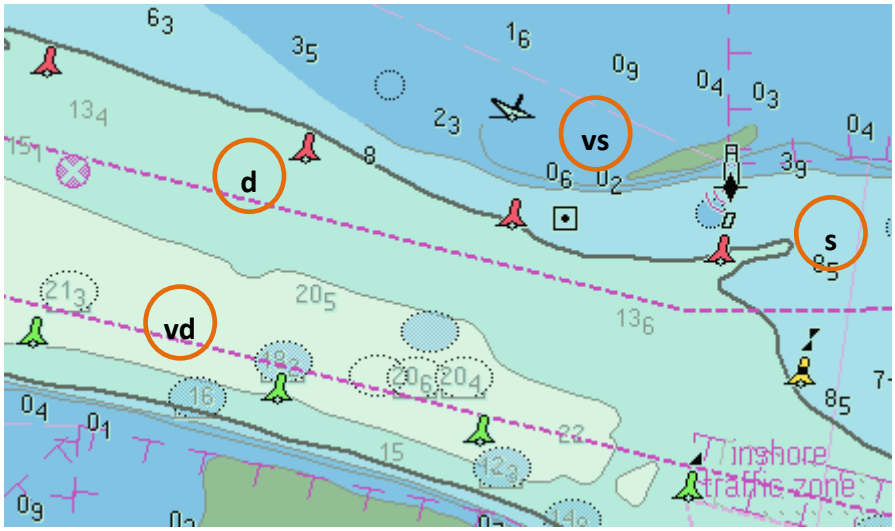
5.1.1.3 Shallow Contour / Deep Contour

As mentioned above the safety contour is used to split the chart into areas safe for navigation and those which are not.

The shallow contour is used to further subdivide the unsafe areas (shallow and very shallow).

The deep contour is used to subdivide the safe areas (deep and very deep).

For each of the four depth categories (very shallow, shallow, deep, and very deep) a dedicated fill colour is used – this guarantees a better chart readability. Shallow contour and deep contour parameters are not used for any safety related checks.



Depth categories: vd – very deep, d – deep, s – shallow, vs - very shallow

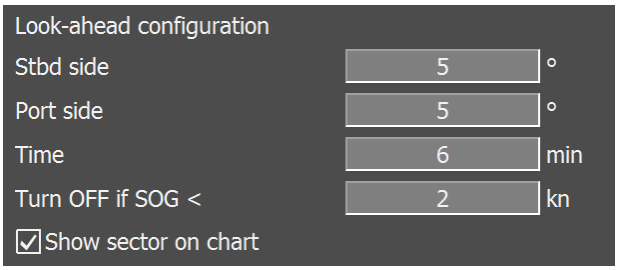
5.1.1.4 Safety Vertical Clearance

This parameter specifies the minimum vertical clearance which is required to safely navigate underneath overhead obstructions and/or bridges. This parameter does not affect the chart display. It is taken into account for the route check (error if XTD overlaps an object without sufficient vertical clearance), and the look-ahead alarm (an alarm goes off in case look-ahead sector overlaps object with insufficient vertical clearance).

> **Note:**
>
> The safety vertical clearance value should not be taken from the ship's height above waterline because in this case the safety distance to the overhead obstruction is nil. Instead, The Safety vertical clearance should be carefully defined. This value is the vertical height of the vessel above the waterline plus (!) the safety distance considered to be enough for a safe passage.

5.1.1.5 Look-Ahead

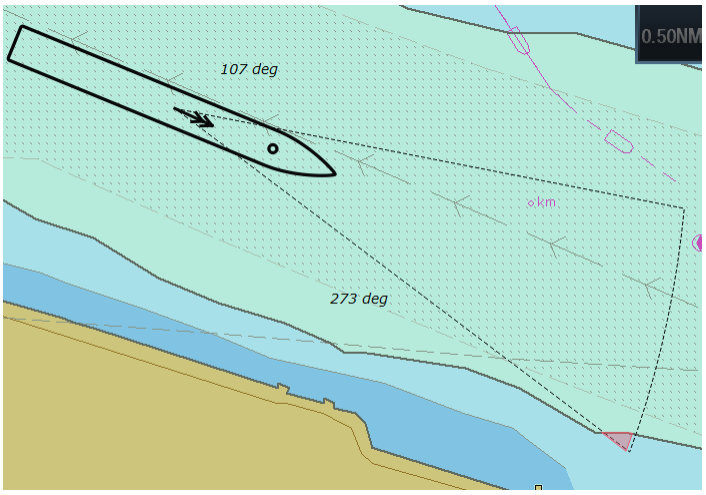
The *Look-Ahead* is used to define a look-ahead sector in front of the vessel. This sector is constantly scanned for dangerous objects which must be avoided (e.g. underwater hazards, aids to navigation, shallow water, restricted areas, etc.). As soon as the look-ahead sector overlaps a dangerous object an alarm is triggered.



The following settings directly influence the *Look-Ahead* behaviour and the size / shape of the look-ahead sector:

- Starboard Side Angle
- Port Side Angle
- Time
- Turn off if SOG <

If *Show Sector on Chart* is ticked the area within which alarms will be triggered is displayed on the screen. In this sector potential risks of grounding and areas to be monitored will be continuously checked.



Visualization of *look-ahead* sector

To avoid triggering numerous alarms which might not be relevant the look-ahead parameters should be set to reflect the characteristics of the current situation. Alarm triggering can be influenced by increasing or decreasing the look-ahead sector (starboard side angle, port side angle). The minimum speed can be set from which *Look-Ahead* shall stop detecting dangers, e.g. in berthing operations.

For entering the values, a virtual number pad is displayed.

In open waters it is recommended to set the starboard angle to 25 degrees and minimum time to 10 minutes. Thus the system will always monitor the dangers within the area where collision avoidance manoeuvres of the own ship are most likely to occur.

The limits are:

- Stb side: 3°-35°
- Port side: 3°-25°
- Time: 1 min-15 min
- Turn OFF if SOG: 3 kn

Note:

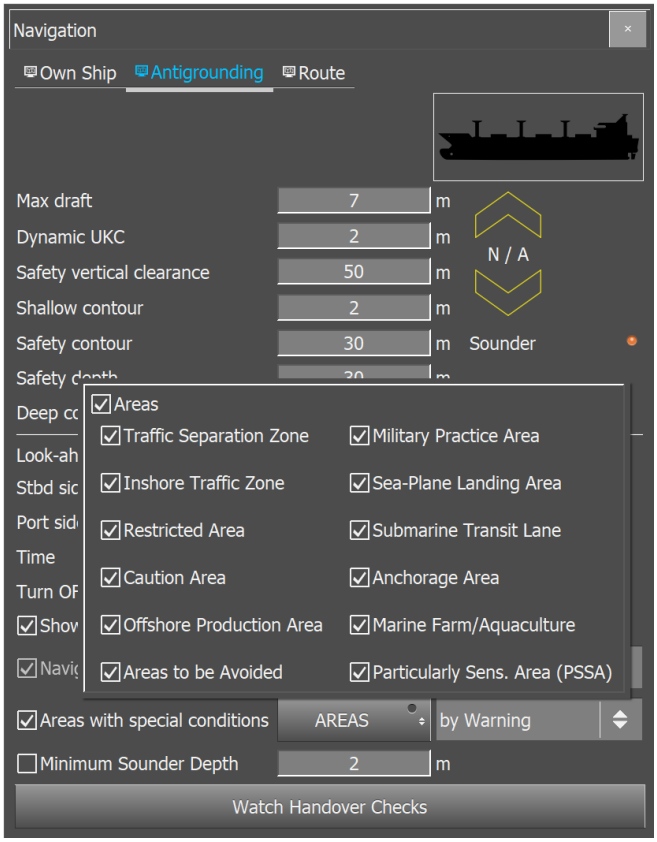
The settings of the look-ahead are included in the scenario dependent user Profiles and therefore can be applied quickly by selecting the respective profile.

5.1.2 Area Alarms

Here you can select from a list of items those which shall trigger an alert. An alert will be triggered as soon as the vessel's look-ahead sector (see chapter Look-Ahead) overlaps one or more of the selected chart features. This list can also be used as filter e.g. to exclude specific items.

Moreover, the list is used as initial route check condition. If one of the selected items overlaps the XTD area of the checked route an indication will be generated (See chapter Check).

To the right of the *AREAS* button there is a selection box to define whether the look-ahead shall trigger a caution or warning (for the differences between alarms, warnings and cautions see chapter Alerts and Indications).



Area Alarms

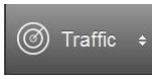
5.1.3 Navigational Hazards and AtoNs

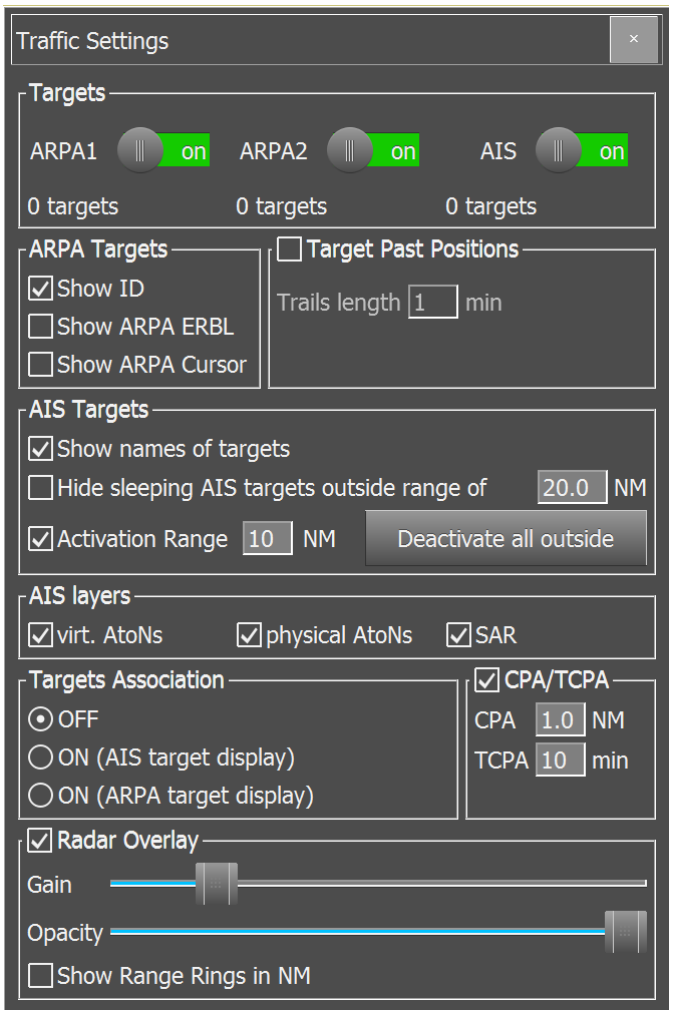
To the right of the AtoNs checkbox there is a selection box to define whether the look-ahead shall trigger a caution or a warning when a new Navigational Hazard or AtoN is detected within the look-ahead sector. (for the differences between alarm, warning and caution see chapter Alerts and Indications).



5.2 Display Settings

5.2.1 Traffic





5.2.1.1 Targets in General

eGlobe G2 makes use of both AIS and ARPA targets. Here are some general remarks about the display of these targets.

Target Sizes:

While all targets are displayed as triangle sleeping, activated and dangerous targets are of different sizes:

Sleeping targets are 3 mm (base) and 4.5 mm (height).

Activated targets are 4 mm (base) and 6 mm (height).

Dangerous targets are 5 mm (base) and 7.5 mm (height); the colour is red.

Furthermore,

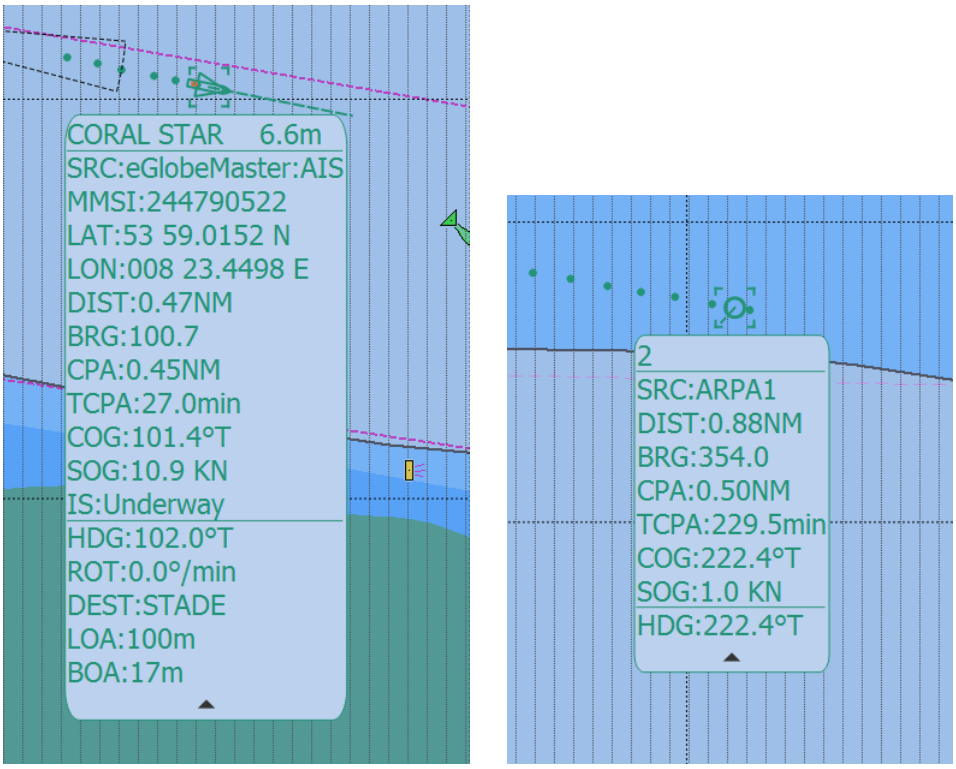
1. True-scale outlines for individually activated AIS targets are not used when a target's heading is not reported, or when the beam of the outline is less than 3 mm.

   ARPA targets are never displayed with a true-scale outline.

2. Lost AIS targets are marked as lost after 3 minutes and removed from the display after 6 minutes.

3. If ARPA targets get lost this will get marked lost after 10 seconds and removed from the screen after 30 seconds.

5. Details of AIS targets as well as ARPA targets will be displayed after tapping on the respective target.



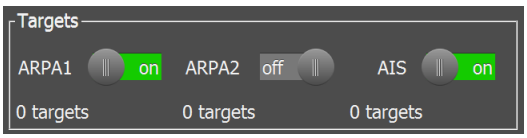
Details of AIS target (left) and ARPA target (right)

The amount of information displayed can be increased or reduced by tapping on the arrow symbol at the bottom of the list.

6. Once an AIS target is considered dangerous according to the manually defined parameter the target will be drawn red (no alert will be generated). The target will stay red as long as the criteria of being dangerous are met.

5.2.1.2 Targets

There are three slider buttons at the top of the window:



- ARPA1
  This slider button switches the display of ARPA target from ARPA 1 ON or OFF.
- ARPA2
  This slider button switches the display of ARPA target from ARPA 2 ON or OFF.
- AIS
  This slider button switches the display of AIS targets ON or OFF.

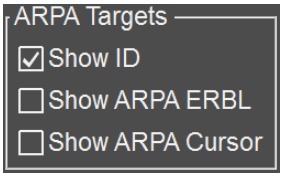
5.2.1.3 ARPA Targets

The display parameters for ARPA targets can be defined in this section:

Show ID (to view Targets´ ID as assigned by ARPA and presented on ARPA screen).

Show ARPA ERBL (to view ERBL at origin bearing and distance as set on ARPA1 device when connected).

Show ARPA Cursor (to view Cursor at bearing and distance as set on ARPA1 device when connected).



5.2.1.4 Target Past Positions

The target *Trails* can be enabled and defined via length in minutes. If this feature is enabled and the user clicks on an AIS target on the chart the past track of that particular vessel will be displayed as small dots along the past track; in the same colour as the target. The user can tap on any AIS target to have its trails displayed. This is a fast method of considering the past movement of a particular target. By default, the checkbox is disabled.



5.2.1.5 AIS Targets

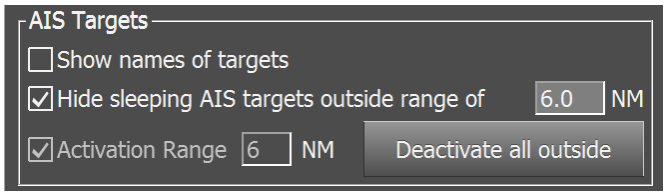
In this section the display parameters for AIS targets can be defined:

Show names of targets defines whether the target name shall be displayed next to the target.

Hide sleeping AIS targets outside range of hides inactive targets which are not within the entered range.

Activation Range defines the range around the own ship within which any detected AIS sleeping target is automatically activated and the safety calculation to the targets shall start (CPA/TCPA). The *Activation Range* can be deactivated independent of the entered value.

Deactivate all outside deactivates all targets outside the *Activation Range*. eGlobe G2 automatically activates AIS targets as soon as the distance to the own ship falls below a defined value. As AIS targets which have been once activated will remain active *Deactivate all outside* can be used to change the status of all AIS targets from *active* to *sleeping* to declutter the screen



5.2.1.6 List of Supported AIS Messages

eGlobe G2 does interpret a number of different AIS message types transmitted via AIS systems. For a list see chapter AIS Messages Supported in eGlobe G2 ECDIS.

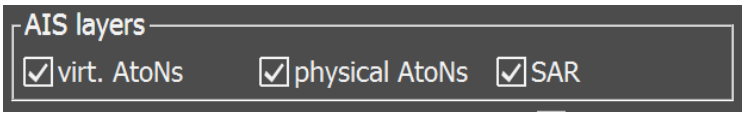
5.2.1.7 AIS Layers

AIS layers allow for displaying additional information. This additional information is grouped into three parts which can be activated / deactivated separately.

Virtual Aids to Navigation (AtoNs), e.g. text which appears on the chart.

Physical AtoNs, e.g. buoys, lighthouses, etc.

SAR (Search and Rescue), i.e. any information that may be required for SAR operations.

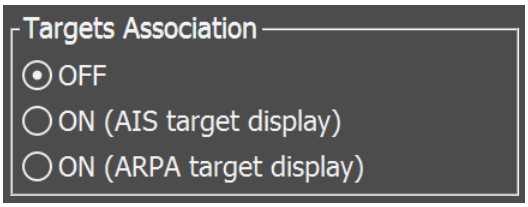


5.2.1.8 Targets Association

AIS and ARPA messages from the same target can be associated to be displayed as a single target according to internally defined threshold values. These values can be set in the *Settings*.

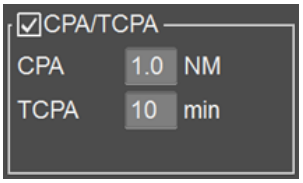
The options in the *Traffic* settings are to disable the association (*OFF*) or to view matching target information and have it displayed either as *AIS target* or *ARPA target*.

For the settings to define the criteria for merging the display of both data see chapter AIS and ARPA Target Association Criteria.



5.2.1.9 CPA and TCPA

In an ECDIS targets do not generate an alert. However, in eGlobe G2 it is still possible to differentiate between dangerous and non-dangerous targets. To enable this function check the settings *CPA/TCPA* and define the minimum figures for the closest point and the time of closest point below which a target shall be considered dangerous. Such target will get coloured red instead of the regular AIS target colour.

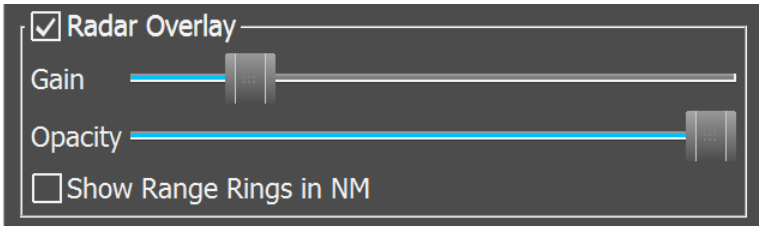


5.2.1.10 Radar Overlay

Radar Overlay is a live overlay input from the on-board radar unit, i.e. the swipe of the radar antenna is live fed into the ECDIS.

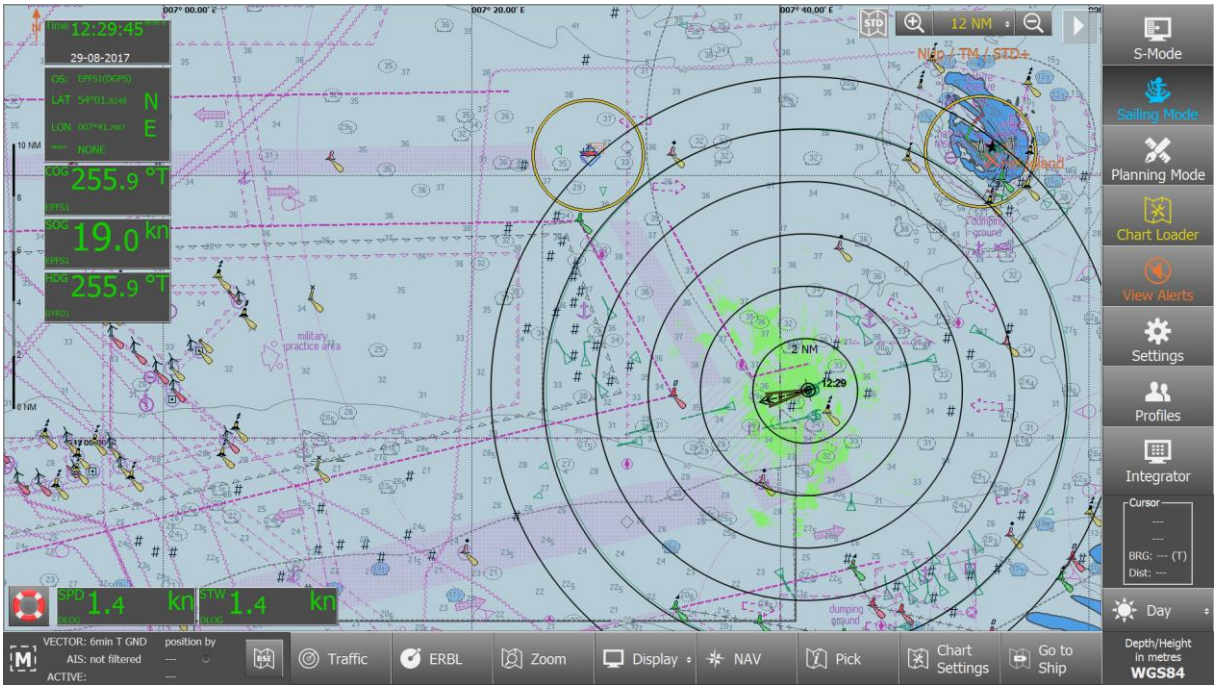
> **Note:**
>
> Not every eGlobe G2 installation will provide the *Radar Overlay* function as it is not a standard feature of eGlobe G2. *Radar Overlay* must be activated in the *Service Menu* of the *Integrator*; otherwise this section will not be displayed. Moreover, it is also required that the necessary hardware components and cabling have been properly fitted before.

If connected and available, the *Gain* and *Opacity* slider buttons can be used to adjust the transparency and intenseness of the overlaying picture coming from the radar. In order to enable processing overlay data from different manufacturers a scan converter is running to format the input.



5.2.1.11 Range Rings

In combination with *Radar Overlay* it is possible to activate *Range Rings*. This is done in the *Traffic* dialogue. The rings will be automatically adjusted in size and number according to the user-selected range of the screen display (activation/deactivation is only possible provided *Radar Overlay* is active).



Radar overlay including range rings

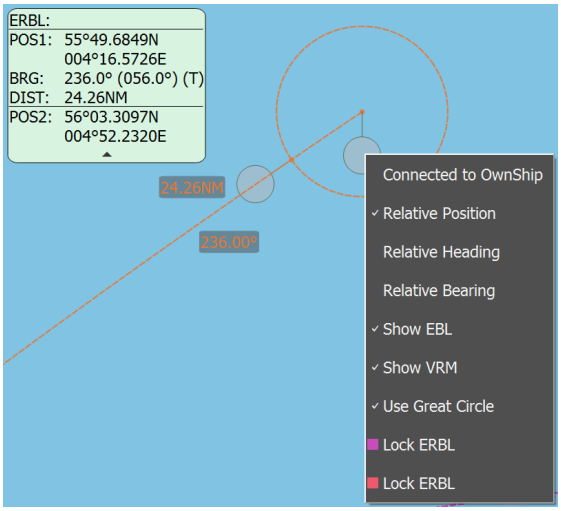
5.2.2 ERBL 

The ERBL function can be activated by clicking on ERBL in the Toolbar. By default, it is connected to the own ship. By using the handle, the ERBL settings can be adjusted via the Context Sensitive ERBL Menu (see chapter ERBL Context Menu).

The context menu also allows fixing the ERBL. A fixed ERBL cannot be changed anymore but must be deleted and set anew. To delete an ERBL, press and hold it.

The ERBL can be detached from the own ship, and reconnected. Just drag the ERBL onto the own ship.

A handle which is out of the visible area cannot be returned into the visible chart area. In this case the chart must be shifted. The ERBL is then adjusted according to the clicked position.

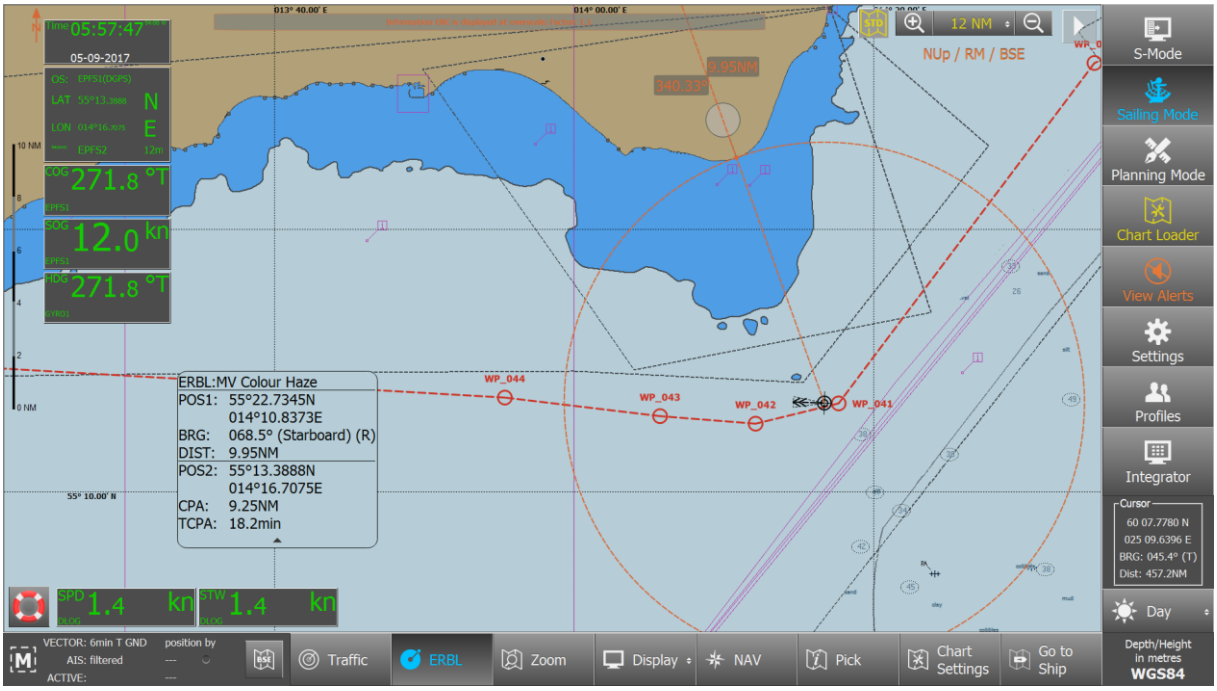


ERBL

5.2.2.1 ERBL On-Screen Info

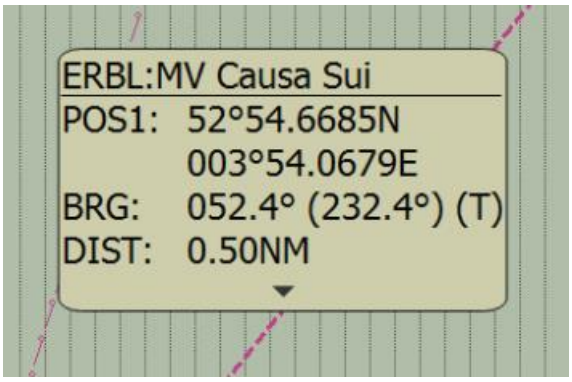
As soon as ERBL is activated an information window opens displaying e.g. Opposite Bearing. This display can be freely moved over the screen. It is closed when ERBL is deactivated.

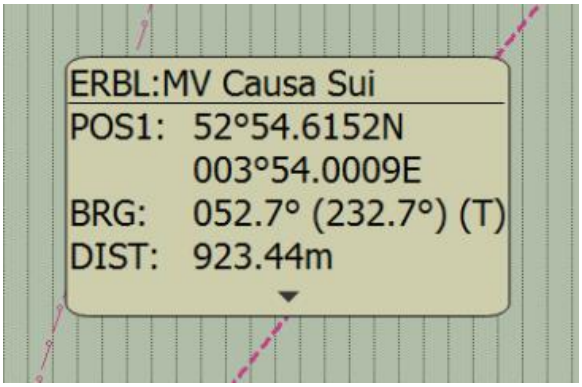
The bearing can optionally be displayed as relative bearing to ships heading if *Relative Bearing* is selected via context menu.



ERBL with On-Screen Info

In case the distance falls below 5 nm the display automatically changes from nautical miles to metres (see figures below).

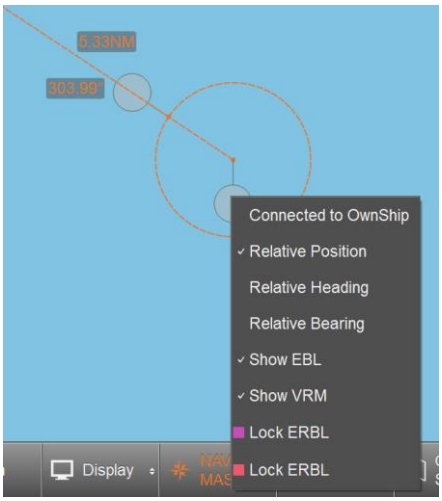




5.2.2.2 ERBL Context Menu

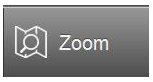
Press and hold the ERBL handle or right-click on it. This opens the context menu with the following functions:

- Connected to Own Ship – connects the ERBL to the own ship. Alternatively, one end of the ERBL can be dragged onto the own ship.
- Relative Position – the ERBL moves with the ship and the readings (BRG and Dist) do not change.
- Relative Heading – the EBL follows the changes of the own ship´s heading and keeps the same relative bearing.
- Relative Bearing – changes the entries in the ERBL info box to relative bearing readings instead of true.
- Use Great Circle – when the check is active the bearing line will be calculated based on great circle calculation. If not the bearing line will be displayed using Rhumb line as mathematical basis. *Please note that the Rhumb line visualization does not work correct in Polar Regions.*
- Lock ERBL (purple) – Locks the ERBL into the current position and colours it purple.
- Lock ERBL (pink) – Locks a second ERBL into the current position and colours it pink for better distinction.



ERBL Context Menu

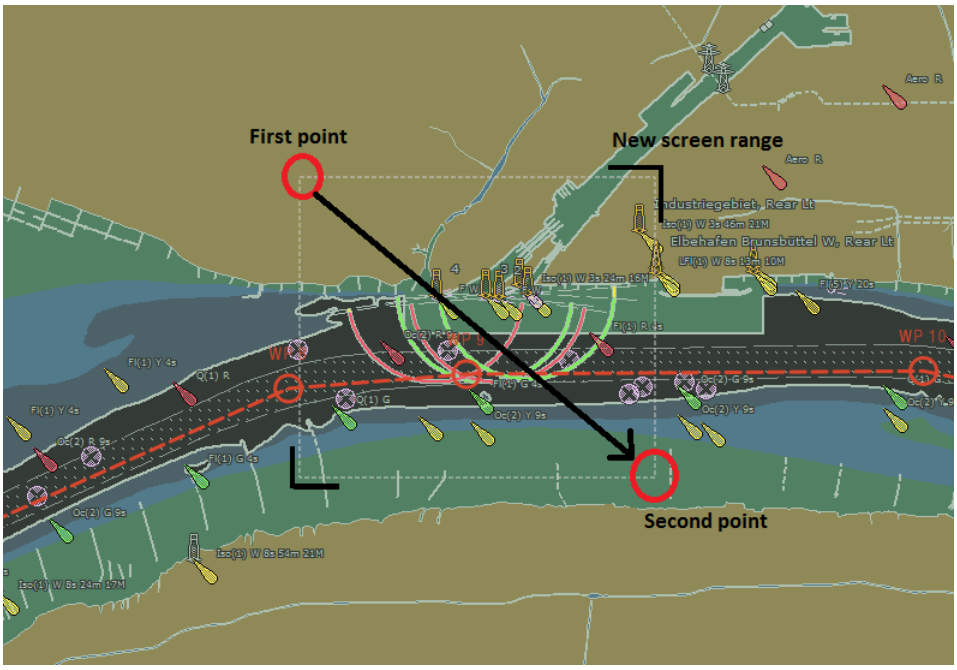
5.2.3 Zoom



The *Zoom* button allows for zooming in. The use of this feature is related to the setting *Use touchscreen settings* which can be changed in the *Settings* task.

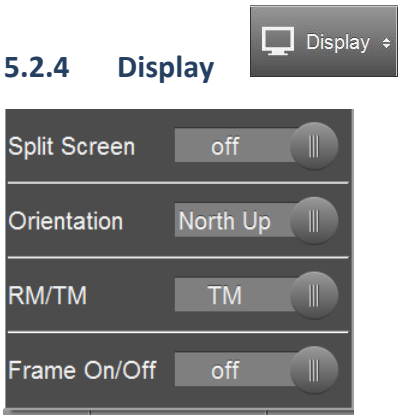
Once the button is activated the next left click / tap on the chart will fix the first spot of a rectangle. When moving the trackball, the rectangle will change its size. The second left click will fix the rectangle. Alternatively, if *Use touchscreen settings* is ticked, the rectangle is opened by using a finger swipe on the screen. The selected chart area will then be displayed filling the whole screen on the event of terminating the swipe move.

For more details on use of touchscreens see chapter System Settings.



Zoom functionality with commentary

5.2.4 Display



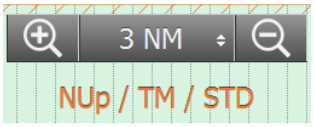
5.2.4.1 Split Screen

Splits the screen vertically, thus offering the possibility to e.g. have the own ship displayed while watching another ship at the same time. The dividing line can be shifted to enlarge/reduce the respective area on the screen. By tipping into an area (left/right) this area is activated. Via the Toolbar different settings for the two areas are possible.

> **Note:**
>
> In case of a split screen the area on the right hand side is the Main Screen. The content of this area will still be displayed even after finishing Split Screen.

5.2.4.2 Orientation

The orientation of the chart is either *North Up* or *Head Up*. With the slider button the orientation of the chart can be changed. This requires heading sensor data. The orientation is also indicated directly beneath the *Range Widget* in the upper right corner (*Nup* for North Up in the figure below).



In case of a split screen the orientation can be different for each area. To do so, activate the desired area (single left click into the respective area), click on Display to open the pop-up menu and change the orientation accordingly.

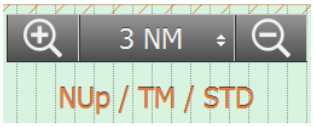
> **Note:**
>
> The setting will be retained as long as it is not changed again.

5.2.4.3 RM / TM

Relative Motion (RM) and True Motion (TM) are different modes of displaying the vessel's movement.

In Relative Motion the chart is moving under the vessel while the vessel stays at the defined position. In True Motion the vessel is moved on the chart.

RM / TM is also indicated directly beneath the *Range Widget* in the upper right corner (*TM* for True Motion in the figure below).



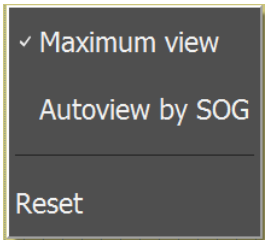
5.2.4.4 Frame

The purpose of the *Frame* is to ensure that the chart display follows the movement of the own ship symbol on the display. As soon as the ship reaches the boundary of the frame the underlying chart is shifted so that the ship stays within the frame area.

> **Note:**
>
> The *Frame* function is always active when the ship is depicted on the screen.

The frame is made visible (symbolized by four right angles) by setting the slider button to *Frame On*. The extent of the frame can be varied by pinching open or close. Moreover, the frame can be shifted on the screen.

The visibility of the *Ship Frame* function is regulated by a timeout function. Thus the user can move the chart away from the vessel without being pulled back to the vessel's position. There is a time frame of 15 seconds after which the vessel will be moved back into the frame for safety reasons. If the screen has been moved so that the vessel is no longer visible the user needs to go back to the ship manually (or by tapping on *Go to Ship* in the task bar). If the full screen shall be used to display the ship's position the frame has to be resized to its maximum.



Maximum view provides the maximum look-ahead.

Autoview by SOG adjusts the maximum view position in relation to the current speed over ground (SOG). The view ahead with 20 knots is more than when compared with 3 knots.

Please note that in this function the actual frame position will be automatically relocated based on speed over ground and the longitudinal direction of the movement.

Reset sets back the frame to its predefined size and centres it on the chart, plus selects *Autoview by SO*G.

Note:

Maximum view, if selected before, will be switched off and replaced with *Autoview by SO*G when tapping on *Reset*.

5.2.5 NAV 

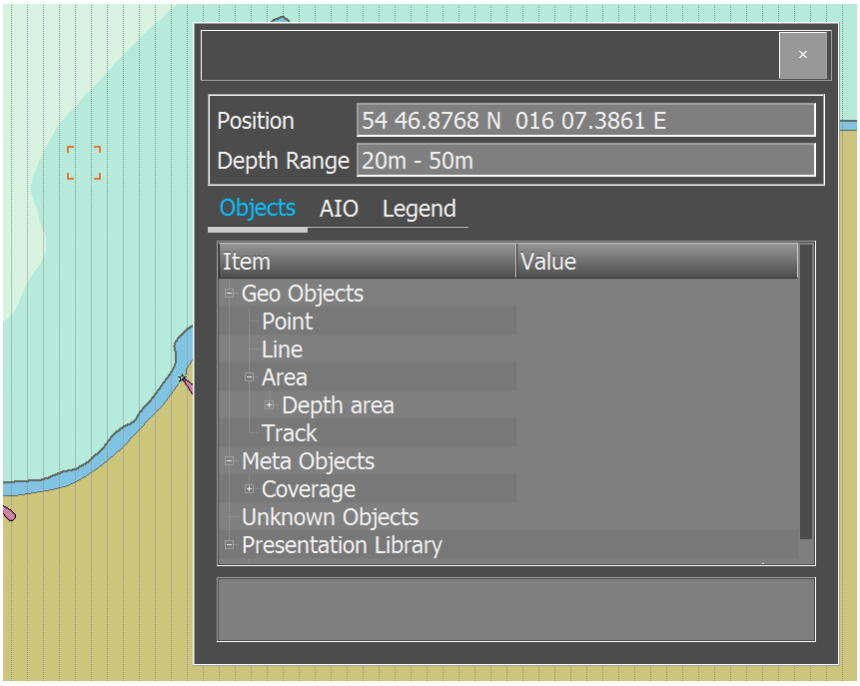
See chapter Selection of Source for Own Ship Position, Heading and Speed.

5.2.6 Pick 

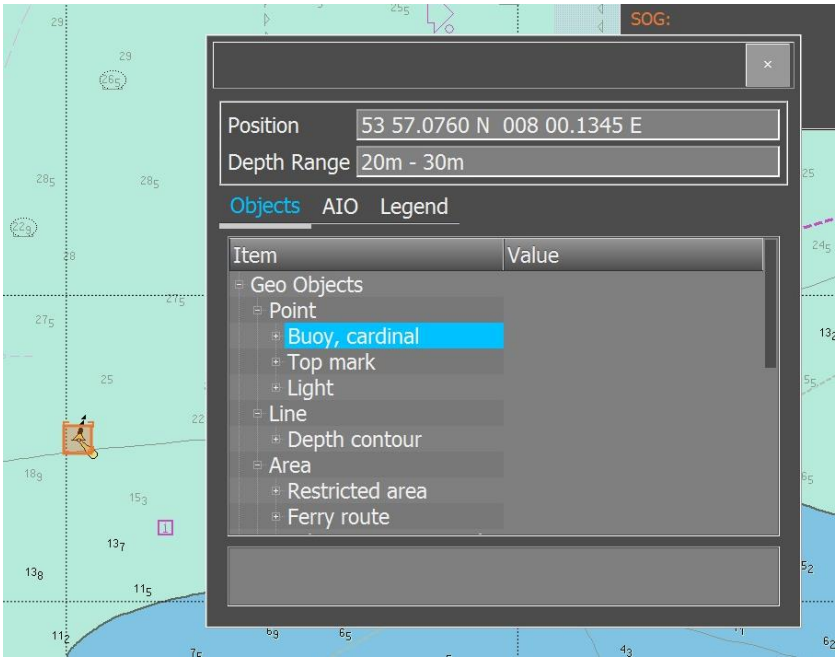
Clicking on this button opens the Pick report. Once it is activated the clicks on the chart will paint an orange circle and an arrow on the screen at the pointed position. Apart from the position and the depth area all available additional information about that position will be displayed. The Pick report is available in all views. In addition to the chart legend and picked chart objects manual objects can be picked.

In case a hardware keyboard is used the pick function can also be called using the hot respective function key (see figure *Function Keys* in chapter Entering Values).

It is possible to directly view which object is listed in the pick report. To do so, select an item from the pick report. The respective object will be highlighted on the chart, and a reference will be established. Further bear in mind that the object itself and not one of its attributes has to be selected in the pick report.

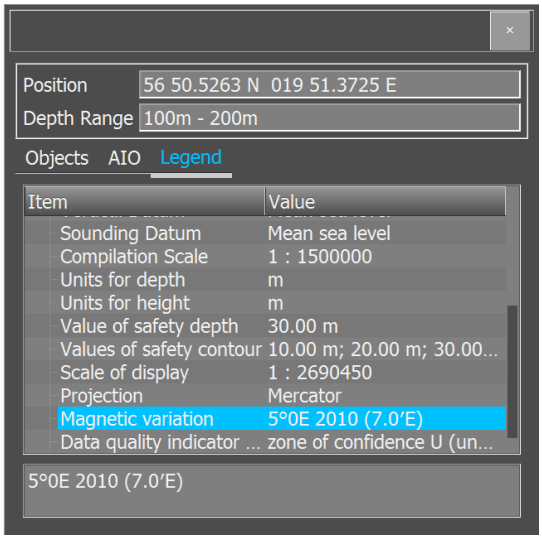


Pick Report

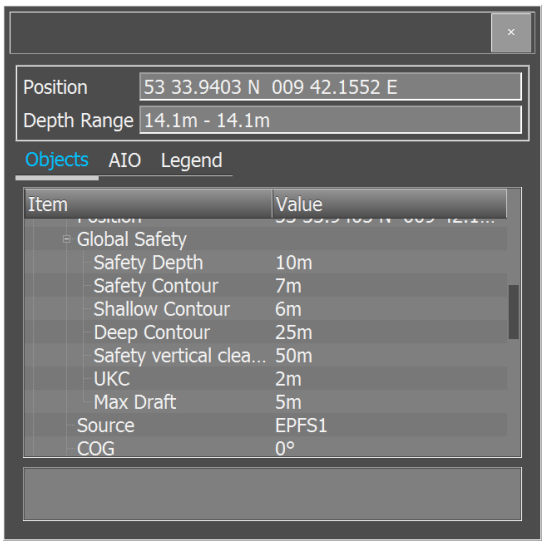


Pick Report with a selected item plus highlighted on the chart (orange box around object)

Note that in the *Legend* the *Magnetic Variation* is available in the pick report, too. eGlobe G2 internally searches for the nearest Magnetic variation point object towards the own ship within the currently displayed ENC. As the coding convention for ENC´s does not enforce the Hydrographic Offices to include such a point object in every ENC, it might happen that the check returns no information. In such cases zooming out to load a smaller scaled chart can help. Due to the link to the cell the magnetic variation is shown in the legend section of the pick report.



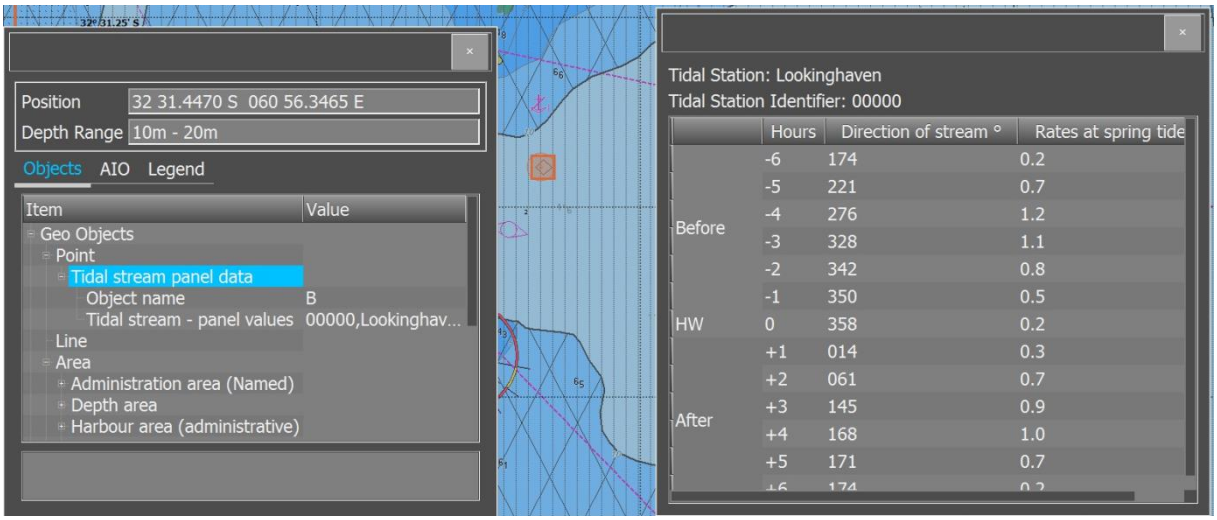
When picking on a track in Sailing Mode, S-Mode or Replay Mode information on the ship´s position, course and speed as well as used ENCs and the General Safety Settings in use when the recording was done will also be displayed.



Pick Report with Global Safety details

5.2.6.1 Tidal Stream Display in Pick Report

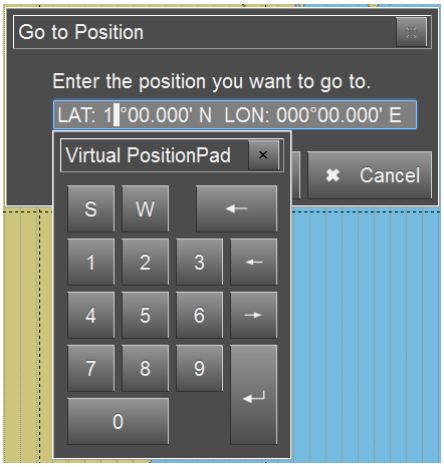
Information about tidal level tables can be obtained via the pick report dialogue by tapping on a tidal object in the chart. After opening the details on the Tidal Stream object in the pick report list all available information will be displayed. For an example see the figure below.



Tidal Stream Display

5.2.7 Go to Position

Go to Position is an option within the context menu of the displayed chart. It opens a position window for entering latitude and longitude.



Position window

The position can be entered with an advanced method which was especially designed for user friendly position handling, optimized for touch-screen operation.

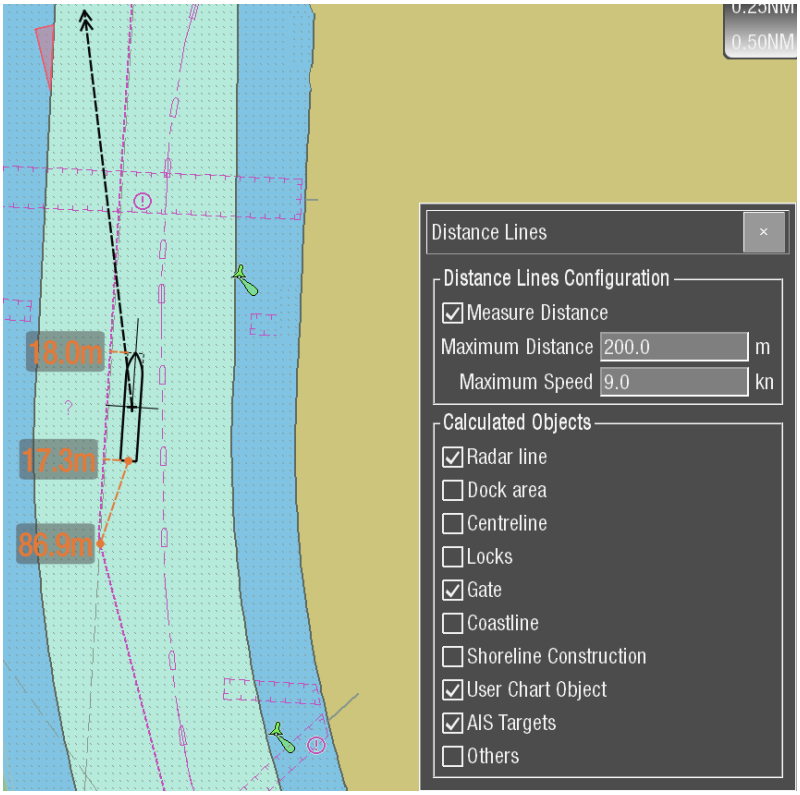
5.2.8 Distance Lines

This function is called via the context menu of the own ship. When it is active this is indicated by a check mark in front of the item.

Distance Lines improve berthing as well as approaching in narrow waters. Predefined object-classes e.g. Radar line, Gate, Coastline, User Chart objects, etc. can be activated, and the distances to the vessel will be measured and displayed. From the own vessel the software defines search sectors within which an object can be detected.

For displaying distance and direction to the own vessel these criteria must be met:

- To guarantee preciseness only charts of reasonably large scale are used for measuring. These are charts of usage 5 *Harbour* or higher (e.g. 6 *Berthing*).
- The distance between vessel and object must be below a certain value (max. 900 metres).
- Speed below a certain value (max. 9.0 knots), set by the mariner.



Starting point and terminal point of the measuring lines are marked with points of 2 pixels in diameter.

The measurement result is displayed after the terminal point. If results of several measurements overlap only the shortest distance will be displayed.

The object list includes the following:

- Radar Line
- Dock area
- Centre Line
- Locks
- Gate
- Coastline
- Shoreline Construction
- User Chart Objects

Note:

Objects which were marked *Distance Line Calculation* in User Charts can be processed in this function.

- AIS Targets

Note:

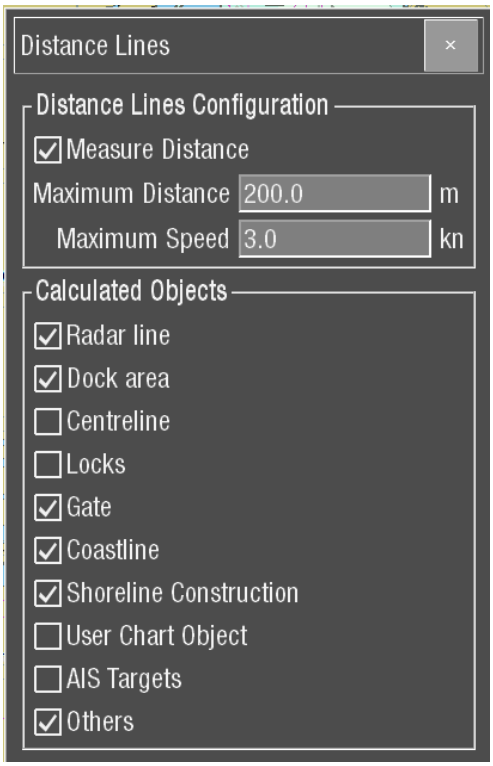
AIS Targets will only be regarded provided the speed is less than 2 kn, and Heading is transmitted. Measurements are displayed in yellow. Further it should be borne in mind that the accuracy of the measurements also depends on the settings of the AIS Target sensors which cannot be influenced by the system.

- Others

This category includes the following object classes: Pontoon, Floating dock, Hulk, Dry dock, Fence/wall, Dam, Mooring/warping facility, Pylon/bridge support

Note:

In general, this function can only be used on ships provided the Heading is known to the system.



5.2.9 Heading Beam

This function is called by tapping on *Hdg Beam* in the context menu of the own ship. If selected, the heading beam will be visible up to the edge of the screen provided the selected range does not exceed 48 NM.

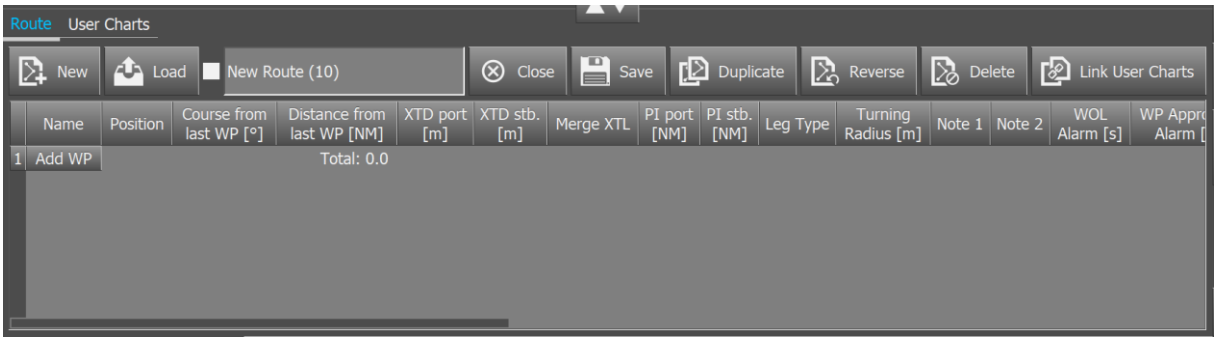
6 Planning Mode

In *Planning Mode* in the lower part of the screen a table is opened which displays the route information. With the arrows  attached to the table that table can be enlarged or minimized by dragging the arrows up or down.

The table size is at least about 1/3rd of the screen. However, it can be completely hidden. To do so, put the cursor on the arrows or the upper boundary and drag it to the bottom of the page. To open the table again, drag the arrows to 1/3rd of the page.

Note:

When it comes to dragging the arrow symbols you have to move the cursor a considerable distance down or up before the table is hidden or displayed, respectively.



Planning Mode

Use the two tabs to select the next action:

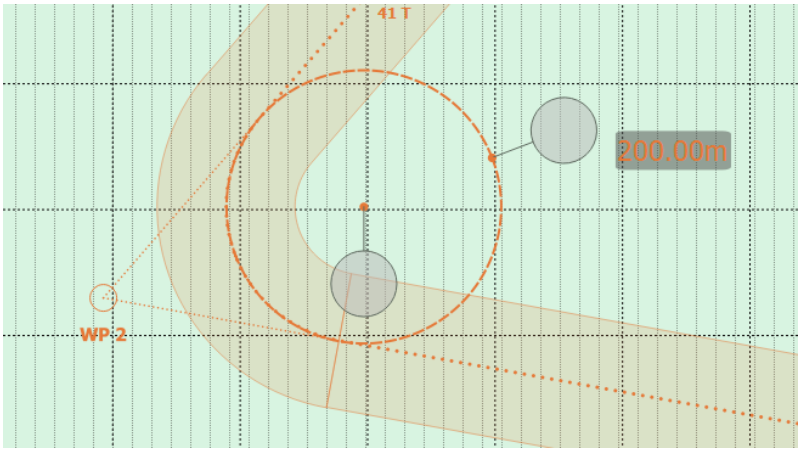
- Route – route and voyage data handling.
- User Charts – Mariner's notes and additional overlay user charts handling. See chapter User Charts for details.

Note:

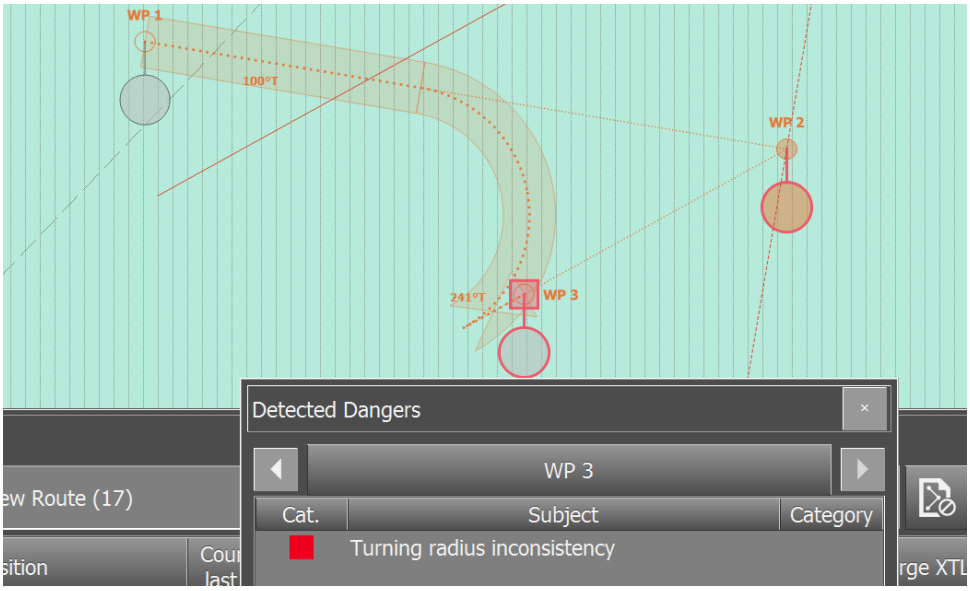
In *Planning Mode* both the Own Ship symbol and the Past Track are displayed, with the latter based on length and interval defined in *Sailing Mode*.

6.1 Turning Radius Check

Within a route each waypoint has the parameter *Turning Radius*. In eGlobe G2 the default value is 200 metres. That means that when conducting the voyage passing a waypoint the alteration of the course can at maximum be performed on a circular round with the radius = 200 metres.



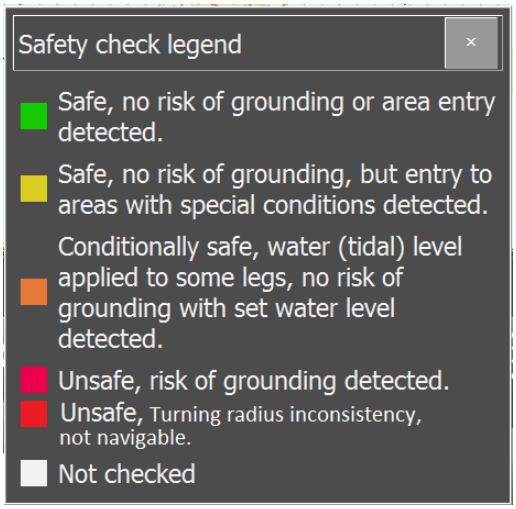
If the course change between both legs connected by the waypoint is too small so that the turning manoeuvre cannot be performed eGlobe G2 will indicate a danger to the route.



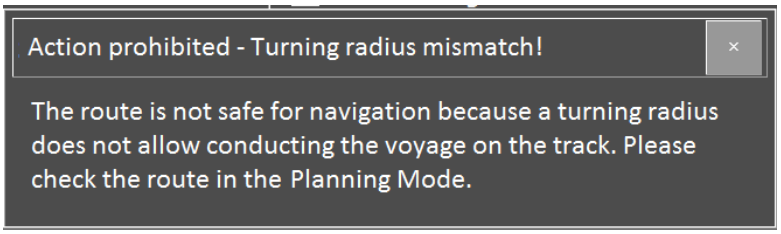
The inconsistent turning radius will be detected as a danger in *Route Planning*. The respective waypoint will be highlighted, and both adjacent legs will be marked as dangerous.

Change the turning radius as fit for this waypoint and the ship´s dynamic characteristics or change the waypoint position(s) to find a possible course change with the radius in use.

Within the Danger Table the danger will be listed as *Turning radius inconsistent*, while the danger flag will be red:



In addition, this danger will prevent the route from being loaded as active route in *Sailing Mode*. Whenever the user tries to load such route for monitoring the system will display a warning message.



6.2 Zone of Confidence

When planning a voyage the zone of confidence should be taken into account. In this regard, see also chapter Use CATZOC.

Open the *Chart Settings* and tick the checkbox *ShowAccuracy*.

Open the Pick 

report and pick in the area of interest. In the meta data part of the pick report the *quality of data* is indicated. The zone of confidence (category A-D) provides information on the accuracy of data and allows for safe adjustments, highlighting potentially unconfident areas or adjusting the minimum UKC.

.

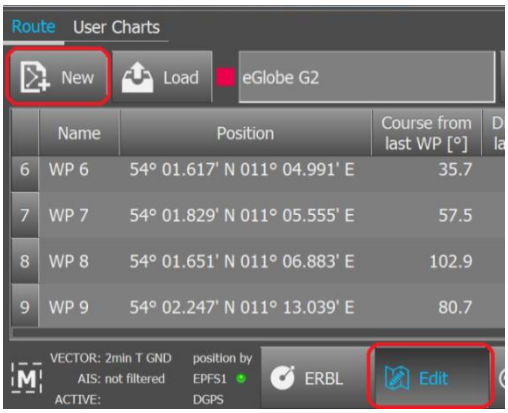
6.3 Cross Track Distance (XTD)

The value of the Cross Track Distance limit in Planning Mode defines the maximum allowed deviation of the vessel from the planned route. In monitoring mode an alarm will be triggered in case the vessel is outside the predefined XTD limits. The Route Check function considers these set Cross Track Distance limits (on port and starboard side) for each route leg for detection of navigational dangers, safety contour crossings, AtoNs, areas with special conditions etc. that are WITHIN those limits.

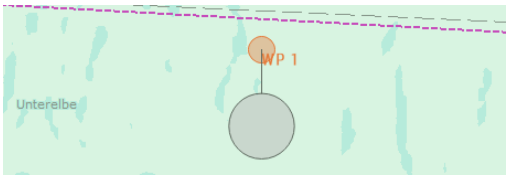
> **Note:**
>
> If set to 0 the XTD will be internally considered to be 1 metre. Otherwise checking would be disabled.

6.4 How to Plan a Route

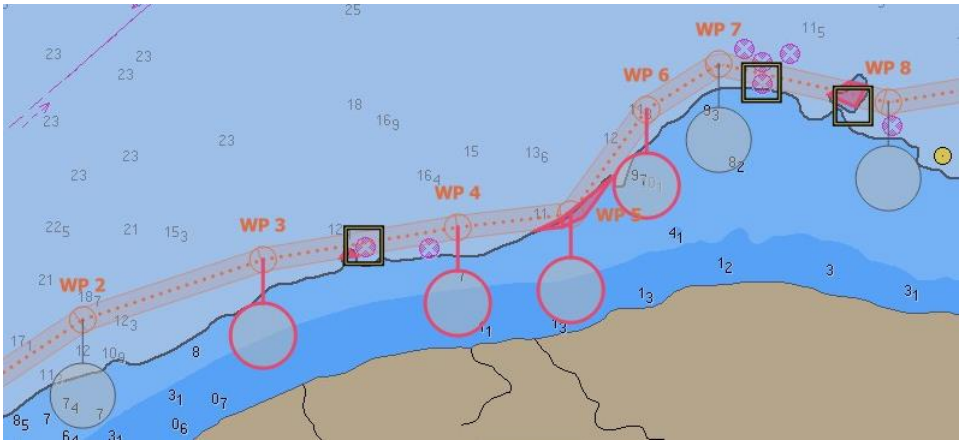
Click on *New* and the *Edit* button in the Toolbar is automatically activated. Enter an adequate name for the route instead of the default *New Route*.



Move the screen to the area where the first waypoint shall be set. Tap (in case of touchscreen) or click left with keyboard or mouse at the desired position, and the first waypoint will be displayed. It is possible to use the handle to precisely set the waypoint position, especially if touchscreen is used.



Adjust the screen area if necessary and touch the screen at the position of the next waypoint. This will insert the next waypoint and create the route leg from the first waypoint.



Should the automatic *Check* function detect any dangers the respective handle will be highlighted reddish (i.e. risk of grounding), and dangerous objects will be highlighted. So it is possible to have a closer look. If any dangers occur it is possible to change the location of the waypoint by moving the handle and / or changing the safety contour for route checking. Once this is done, the changed leg will be automatically checked again.

The check will only be initialized once the waypoint is left on the screen so continuous moving along the chart will not continuously check the safety of the possible leg.

If no dangers are found the handle will not be highlighted reddish.

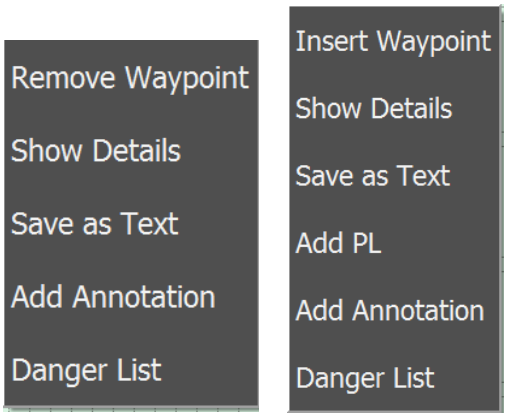
It is recommended to save the route after the session is finished otherwise the planned route will not be synchronized with the potential other stations inside the network (e.g. from Planning Station to Master Station).

Note:

The handle highlight just indicates dangers detected in a currently modified leg and the adjoining ones. Once route planning has been completed it needs to be checked again to confirm the safety check status of the route (for further information about route checks see chapter Check).

6.4.1 Extended Information on a Waypoint

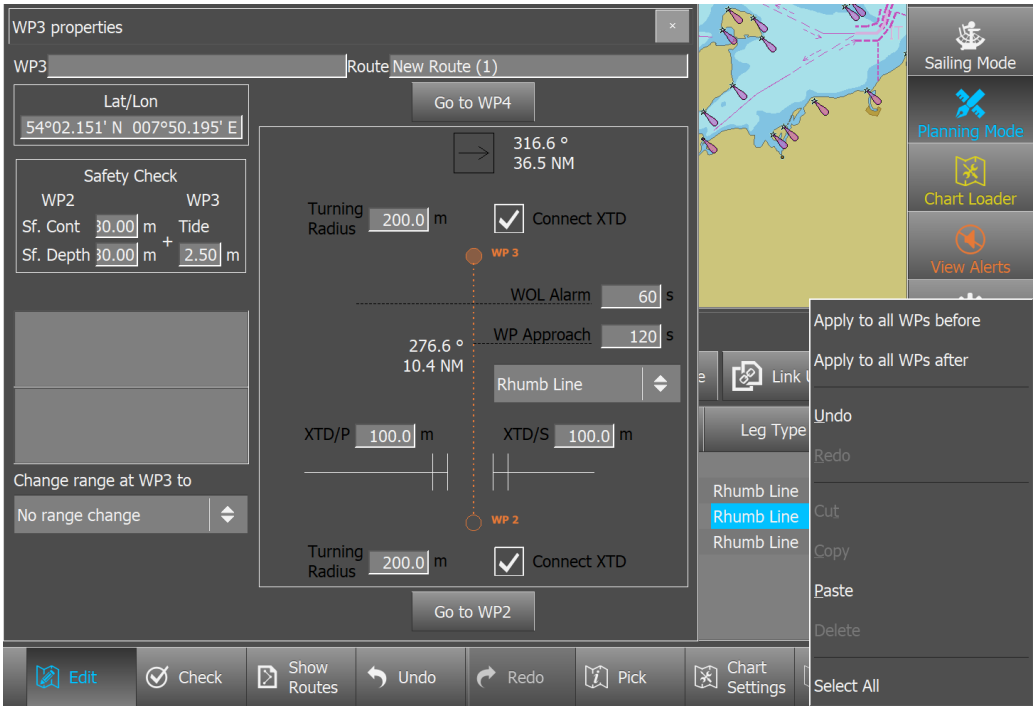
It is possible to have extended information on a waypoint / leg displayed. This is done via the context menu of the respective handle / legline:



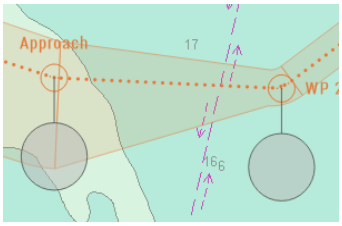
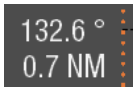
Context menu of waypoint (left) and legline (right)

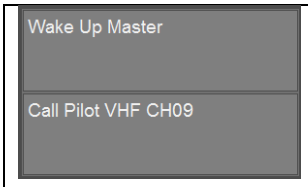
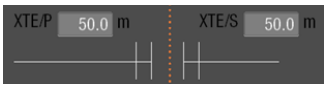
Remove Waypoint removes the selected waypoint.

Show Details opens an additional window displaying the properties of the respective waypoint:



Thus, the user has quick access to all properties and parameters of the waypoint / leg:

Parameter	Description	Note
	Waypoint number and optional name.	Number is for display only. Editable.
	Route name.	Display only.
	Latitude / Longitude of the WP.	Editable.
	Safety check for leg and parameters used for route safety check. Tide: expected (planned) tidal level.	Only Tide level is editable.
	Indication of the course and distance for the next route leg.	Display only.
	Turning radius at waypoint.	Editable.
	Connect XTD allows to have a non-parallel XTD limit for a particular leg by connecting to the limit of next leg. The smaller value of two will be used.	
	Advanced time for WOL approach alert.	Editable.
	Advanced time for WP approach alert.	Editable.
	Type of leg. Rhumb Line or Great Circle.	Editable.
	Indication of course and distance for the current route leg.	Display only.
	Cross track limit on port side.	Editable.
	Cross track limit on starboard side	Editable.

	Entry of notes 1 and 2.	Editable.
	Selection of an automatic range change at the waypoint.	Editable.
	Jump to next or previous waypoint.	
	View the selected XTD for port and starboard.	This can be adjusted by moving the white indicators.

It is possible to open a context menu in each editable field. Besides standard functions (e.g. copy, paste and delete) this menu also offers to apply the same value to all waypoints/legs before or after (except WP name, notes and tidal level).

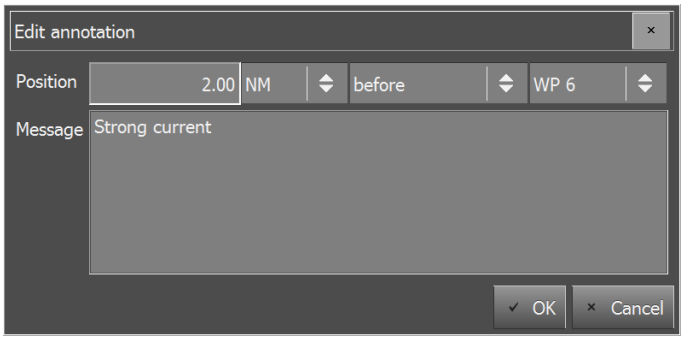
Note:

Any change of parameters (except WP name, time settings for alarm, notes and range change) will trigger a safety check on the leg.

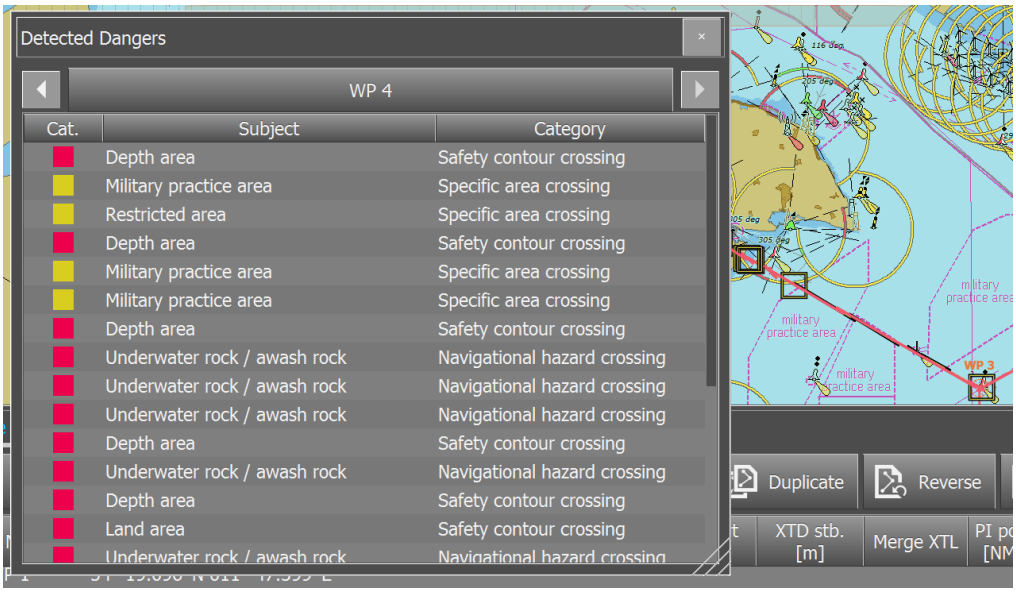
Save as text offers to create a text file document of the currently loaded route with the current state. This function saves a description of the selected route as text (.txt) file. This file can then be found in the File Manager on the tab *Routes TXT*. It can be exported and opened with any text editor.

Add PL offers to set Parallel Index Lines which are used for radar navigation.

Add Annotation opens a window to enter additional information on the respective route/waypoint.



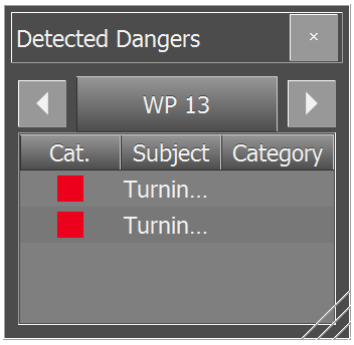
Danger List opens a dialogue listing detected dangers in a table enabling the user to easily centre single dangers.



At an early planning stage a route probably contains numerous dangers. When it comes to fine tuning the officer can open the danger list offering to jump from detected danger to detected danger. Clicking on one entry will centre the view on that dangerous object.

The *Category* colour visualizes the nature of the respective danger (e.g. yellow for area, red for turning radius, reddish for dangers).

The list entries are sorted `chronologically`, i.e. the first danger detected from WP1-WPx is listed first.



With the arrow buttons it is possible to jump to the previous / next leg line.

The lower right part of the detected danger dialog allows resizing the window.

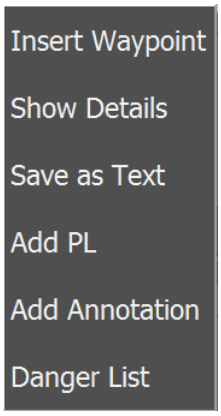
Note:

The context menu of a leg under planning always allows opening the Danger List dialogue, even if there are no dangers detected. In this case the list will remain empty.

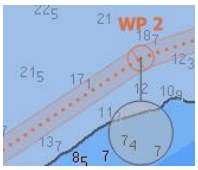
6.4.2 How to Insert, Move or Delete Waypoints

6.4.2.1 Insert a new Waypoint

To insert a new waypoint it is necessary to open the context menu anywhere on an existing leg:



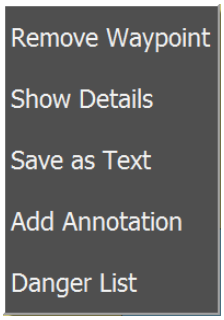
Then select *Insert Waypoint*:



A new waypoint will be inserted while all waypoints along the route are renumbered. The position of the newly inserted waypoint can be adjusted if necessary.

6.4.2.2 Remove Waypoint

To remove a waypoint it is necessary to open the context menu of this waypoint, and then select *Remove Waypoint*:



6.4.2.3 Move Waypoint

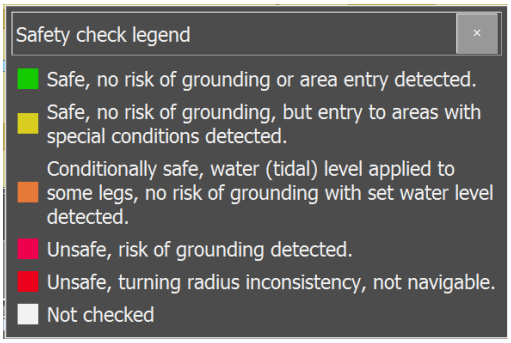
To move any waypoint on the route enable *Edit* in the toolbar. Then it is possible to touch a waypoint and drag it to its new location.

> **Note:**
>
> Once the route has been defined it is recommended to disable the *Edit* mode.

6.4.3 Safety Status of the Route

Whenever a new waypoint is set in *Route Planning* the resulting legline it is instantly checked for safety, and an appropriate mark is set in the *Safety Check* column.

The meaning of the various colours is explained in the *Safety Check Legend*. This can be opened by tapping on  at the bottom of the *Safety Check* column.



Finally, the newly planned route has to be saved. This is indicated by 

.

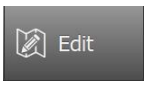
Tap on the button, and the new route is saved.

6.5 Functions in Planning Mode

6.5.1 ERBL

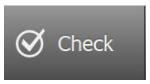
See chapter ERBL 

.

6.5.2 Edit 

The *Edit* button has to be activated for moving or editing waypoints. This requirement prevents setting waypoints when just zooming in/out or panning in the chart. To deactivate this function, click on *Edit* again.

By default, the *Edit* function is automatically enabled after clicking the button *New*.

6.5.3 Check 

This button opens a window which allows to define check parameters and to activate route checking. Apart from the fact that each leg was automatically checked during creation the whole route should be checked after completion to highlight the final status of the route and to double-check the safety. The status of the route will be displayed at several locations in eGlobe G2.

- The leg status will be displayed in the route table for each leg (by default at the very right end, but changeable by moving the headline in the table).
- Next to the route name in the route planning table
- In the *Navigation* window on the *Route* tab, next to the name of the current route. The *Navigation* window can be opened in *Sailing Mode* via the *Nav* button.
- In the *Route-Check* window.

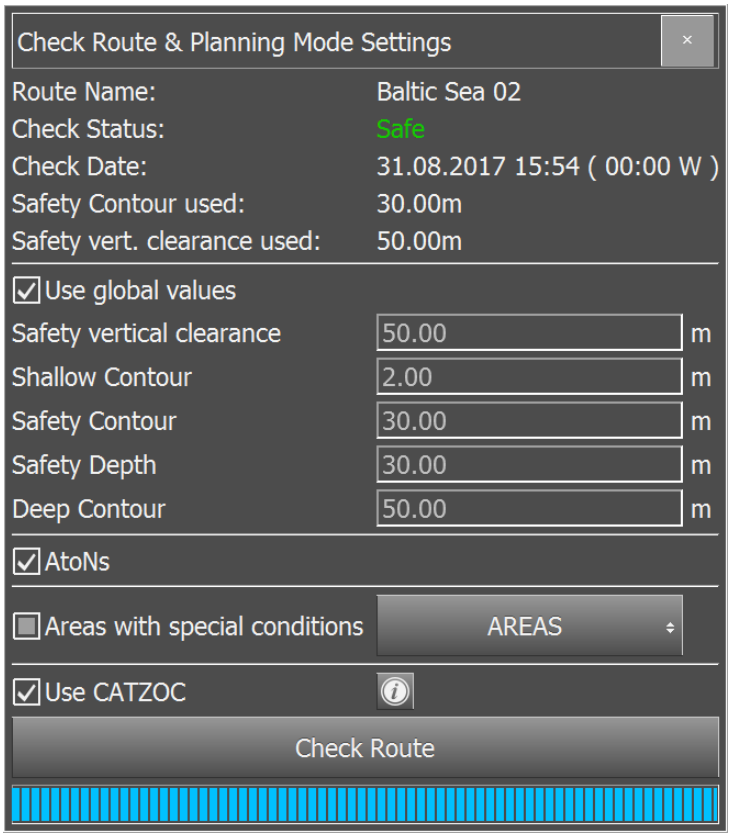
The route check is based on the settings entered in the *Check Route* window.

By default for each new route safety parameters are taken from those currently used for monitoring (*Use Global Values*). However, it is possible to change those parameters for the route for e.g. next voyage planning where significantly different draft and/or different sailing conditions are expected. Chart Display in *Planning Mode* will be adjusted accordingly. Once particular Safety parameters have been entered for the route the system will remember those parameters and apply them whenever the route is loaded for editing.

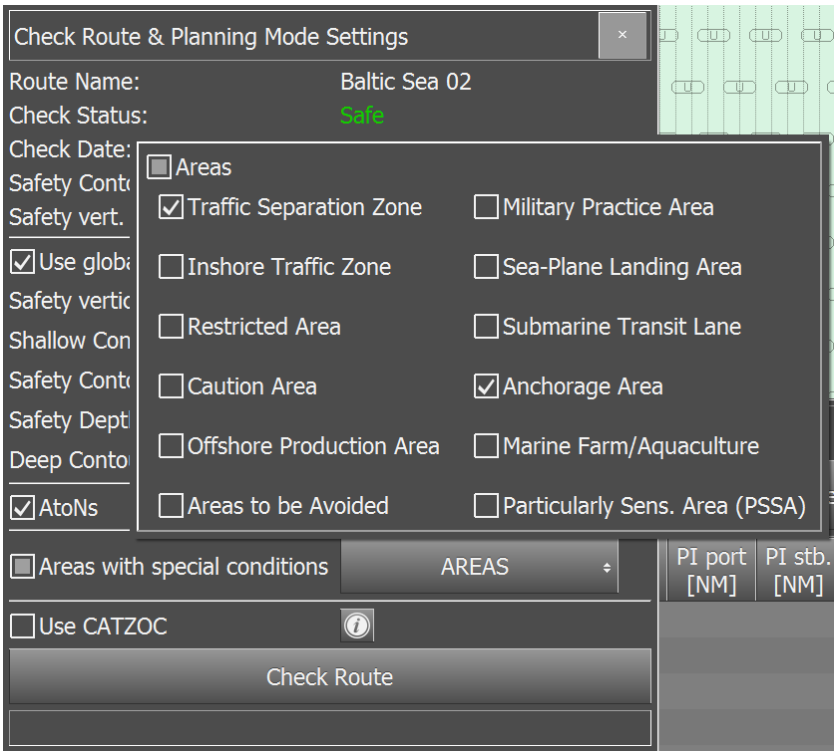
After disabling the checkbox *Use Global Values* you can directly enter different values instead of changing them on the Antigrounding tab in the *Navigation* window in *Sailing Mode*.

Note:

Be aware that if you do change the values as described above the values used in safety checks will differ from those displayed in the Antigrounding tab in the *Navigation* window in *Sailing Mode*. Once the route has been activated for monitoring during creation it is possible to check the used settings in the *Properties* dialogue.



The *Check Route* window offers various configuration options. *Safety Vertical Clearance, Shallow Contour*, *Safety Contour*, *Safety Depth,* and *Deep Contour* can be considered. Moreover, *Aids to Navigation* (*AtoNs*) can be taken into account.



It is also possible to select *Areas with special conditions*, e.g. Caution Areas, Anchorage Areas, etc.

To select all available areas at once tick *Areas with special conditions* or *Areas* top left in the selection window.

To select single area types, click on *Areas* and select the desired items. In case single area types have been selected the checkbox *Areas with special conditions* is not ticked ☑, but greyed out ▣.

Unticking *Areas with special conditions* will deselect all selected areas. Caution! Selected areas are not saved but will have to be reselected after deselection.

Note:

Changes to *Safety Contour*, *Safety Depth* and *Vertical Safety Clearance* are saved to the planned route while other settings remain related to *Planning Mode*, i.e. will not be restored in case the route is reloaded at a later date.

The check date will also be visible in route properties. Whenever a route has not been checked for more than 10 days the status will change and the properties of the planned route will indicate that the status might not be safe anymore. A new check of the route is recommended.

Note:

Loading the route for monitoring will not change global safety settings used for monitoring. However, the warning message will be displayed in case of mismatch.

Use the *Check AREA* checkbox in the check window to enable or disable area approach checks in route check.

All detected dangers will be highlighted until the route is either changed or saved.

Detailed object information can be viewed by opening the Pick report and picking the respective object.

The *Use CATZOC* checkbox is unselected by default. Refer to chapter Use CATZOC for details.

Note:

Routes which were imported from another ECDIS will be automatically set to status *Not checked* (grey).

6.5.3.1 Use CATZOC

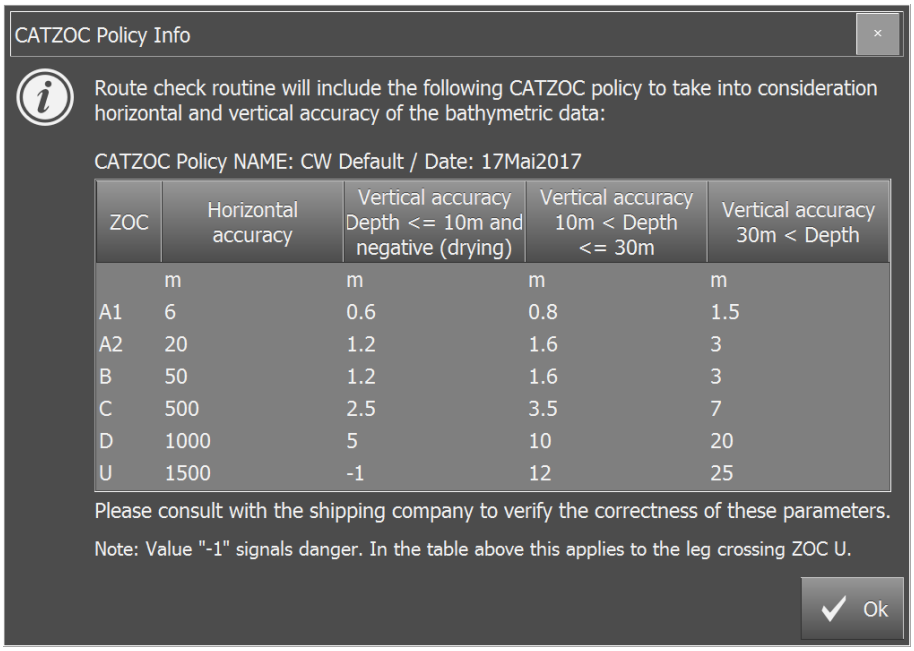
CATZOC (Category Zone of Confidence) values are used to indicate the accuracy of the data presented on the charts. The vertical accuracy component represents possible maximum errors in charted depths (depths may be shallower or deeper than those charted on ENC) while the horizontal accuracy component represents the possible maximum position error of charted objects (the position of charted objects in reality may be closer to the ship and/or planned route than charted on ENC and displayed on the ECDIS).

Nowadays many shipping companies have their own policies regarding CATZOC handling but in any case Masters and Navigational Officers are advised to take CATZOC into consideration for route planning and monitoring.

Selecting *Use CATZOC* in the *Check Route* dialogue will apply a CATZOC policy to the route check.



Tapping on  opens a window providing information on the CATZOC policy currently in use.

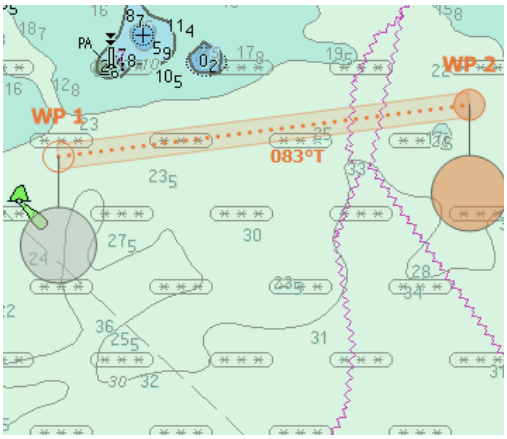


ZOC	Horizontal accuracy	Vertical accuracy Depth <= 10m and negative (drying)	Vertical accuracy 10m < Depth <= 30m	Vertical accuracy 30m < Depth
	m	m	m	m
A1	6	0.6	0.8	1.5
A2	20	1.2	1.6	3
B	50	1.2	1.6	3
C	500	2.5	3.5	7
D	1000	5	10	20
U	1500	-1	12	25

The Use CATZOC function allows to take into account CATZOC values while route planning. An additional safety margin is added to the planned route according to the ZOC detected within the route leg being planned:

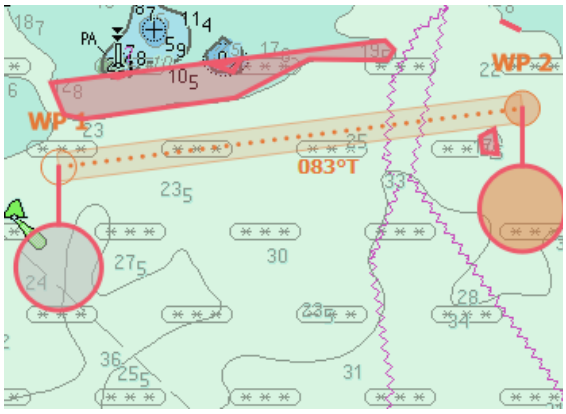
- A value of vertical accuracy is automatically added to the Safety Contour setting in use.
- The area for dangerous object detection is automatically extended by the value of horizontal accuracy, reaching beyond the set XTD.

***Use CATZOC* deactivated:**



Route leg is marked as SAFE

***Use CATZOC* activated:**



Route leg is marked as DANGEROUS

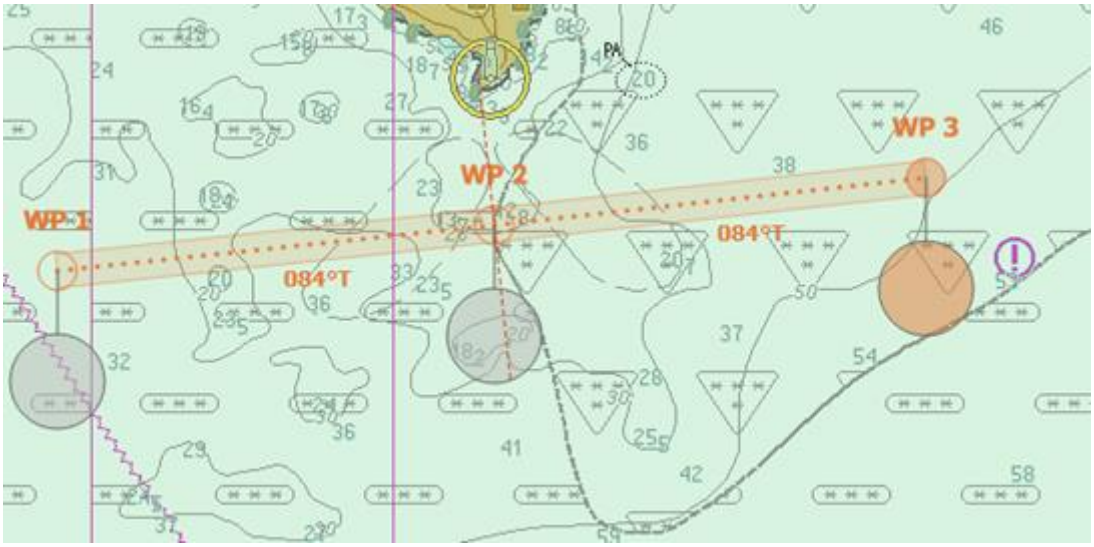
Detected ZOC: C

Vertical accuracy applied: + 3.5m

Horizontal accuracy applied: + 500m

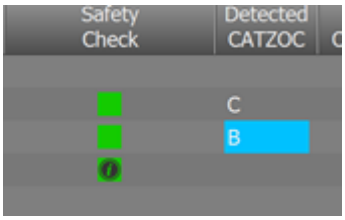
Note:

If a route leg crosses several ZOC areas then the worst detected ZOC will be used for the entire leg (waypoint to waypoint). To avoid any degradation of the check results it is recommended to insert intermediate waypoints at positions where there are significant ZOC changes (refer to the figure below).



Intermediate waypoint – at position of change from ZOC C to ZOC B

The detected CATZOC is reflected in the *Route Table*:



Note:

Whenever *Use CATZOC* is activated the value of the Safety Contour in use for route planning does NOT need to consider the ENC accuracy component (CATZOC) – it is done automatically by the system.

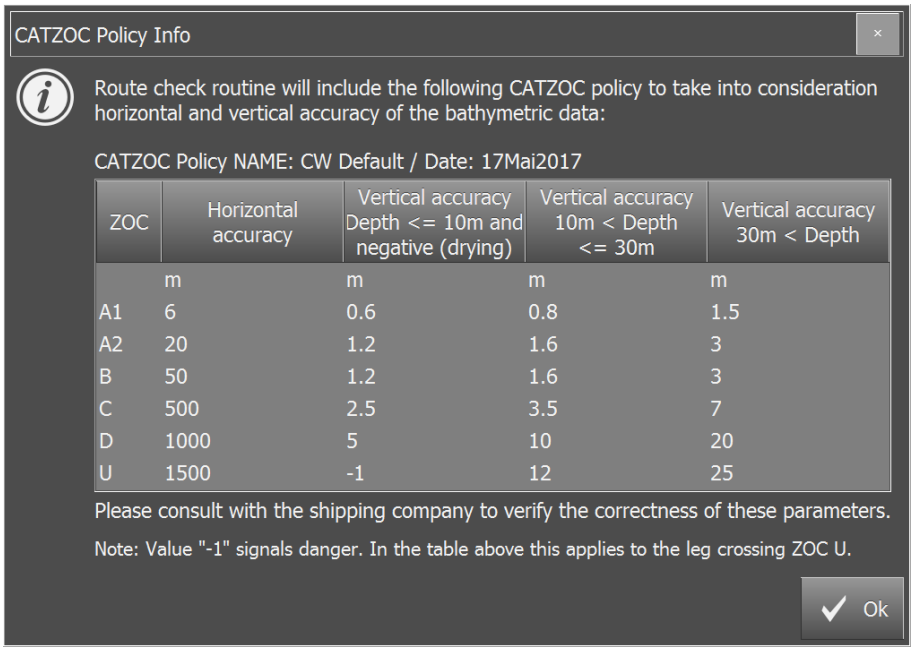
In general, whenever *Use CATZOC* is activated and the route leg has been detected as safe then no additional measures are necessary. However, when a risk of grounding has been detected due to poor accuracy of the data consider the following measures:

- Check if better scale ENCs are available for ordering for the area concerned.
- Change the route position to allow greater distance from navigational hazards.

If the route leg still is classified as dangerous then the navigation conditions need to be assessed in addition. Some shipping companies (as well as Vetting and PSC inspectors) may require a formal risk assessment in such situations. Refer to the next paragraph *CATZOC Policy*.

ChartWorld Default CATZOC Policy

By default, the system includes a ChartWorld version of the CATZOC policy, based on the IHO Standard S-57.



ZOC	Horizontal accuracy	Vertical accuracy Depth <= 10m and negative (drying)	Vertical accuracy 10m < Depth <= 30m	Vertical accuracy 30m < Depth
	m	m	m	m
A1	6	0.6	0.8	1.5
A2	20	1.2	1.6	3
B	50	1.2	1.6	3
C	500	2.5	3.5	7
D	1000	5	10	20
U	1500	-1	12	25

It is possible to change the CATZOC policy. This is done in the *Service Menu* which can be accessed via the *Integrator*.

Note:

In case of necessity to change the CATZOC policy please contact ChartWorld for further support and instructions.

ZOC Table:

Symbol	ZOC [1]	Position Accuracy [2]	Depth Accuracy [3]		Seafloor Coverage	Typical Survey Characteristics [5]
	A1	± 5 m + 5% depth	= 0.50 + 1%d		Full area search undertaken. Significant seafloor features detected [4] and depths measured.	Controlled, systematic survey [6] high position and depth accuracy achieved using DGPS or a minimum three high quality lines of position (LOP) and a multibeam, channel or mechanical sweep system.
			Depth (m)	Accuracy (m)		
			10 30 100 1000	± 0.6 ± 0.8 ± 1.5 ±10.5		
	A2	± 20 m	= 1.00 + 2%d		Full area search undertaken. Significant seafloor features detected [4] and depths measured.	Controlled, systematic survey [6] achieving position and depth accuracy less than ZOC A1 and using a modern survey echosounder[7] and a sonar or mechanical sweep system.
			Depth (m)	Accuracy (m)		
			10 30 100 1000	± 1.2 ± 1.6 ± 3.0 ±21.0		
	B	± 50 m	= 1.00 + 2%d		Full area search not achieved; uncharted features, hazardous to surface navigation are not expected but may exist.	Controlled, systematic survey achieving similar depth but lesser position accuracies than ZOCA2, using a modern survey echosounder[5], but no sonar or mechanical sweep system.
			Depth (m)	Accuracy (m)		
			10 30 100 1000	± 1.2 ± 1.6 ± 3.0 ±21.0		
	C	± 500 m	= 2.00 + 5%d		Full area search not achieved, depth anomalies may be expected.	Low accuracy survey or data collected on an opportunity basis such as soundings on passage.
			Depth (m)	Accuracy (m)		
			10 30 100 1000	± 2.5 ± 3.5 ± 7.0 ±52.0		
	D	worse than ZOC C	Worse Than ZOC C		Full area search not achieved, large depth anomalies may be expected.	Poor quality data or data that cannot be quality assessed due to lack of information.
	U	Unassessed - The quality of the bathymetric data has yet to be assessed				

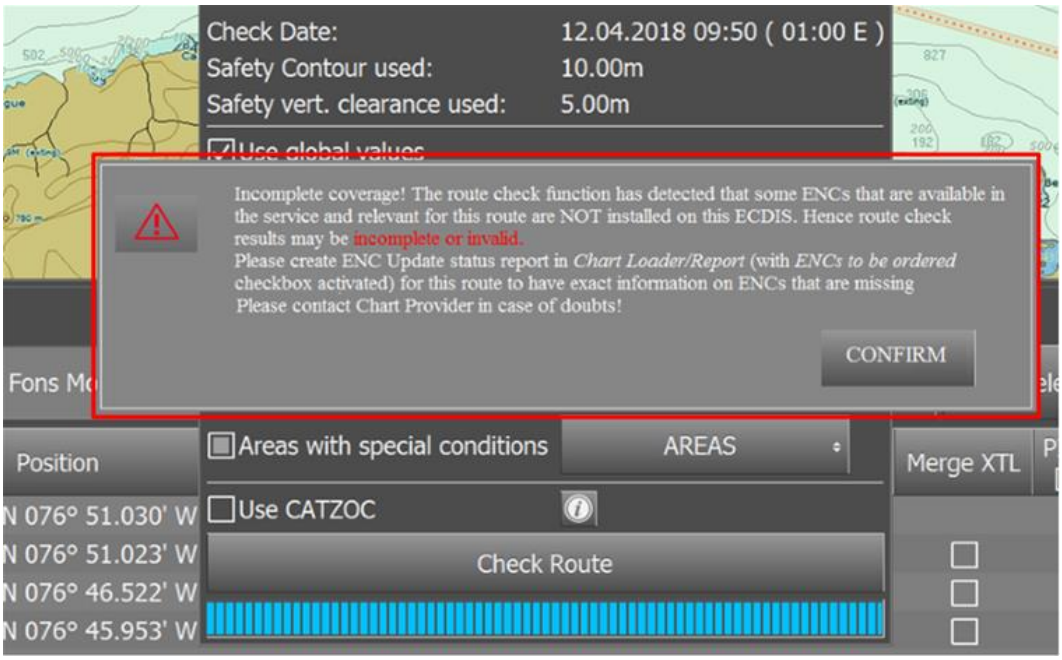
Whenever ZOC D and U cover a considerable area, especially in open waters, the experience of selected shipping companies was applied as to CATZOC handling in these areas.

In particular ZOC U was NOT considered dangerous provided there are substantial depth margins (exceeding double the value of the vessel´s static draught).

Note:

Consult with the respective shipping company about which CATZOC policy to be applied.

6.5.3.2 Coverage Check



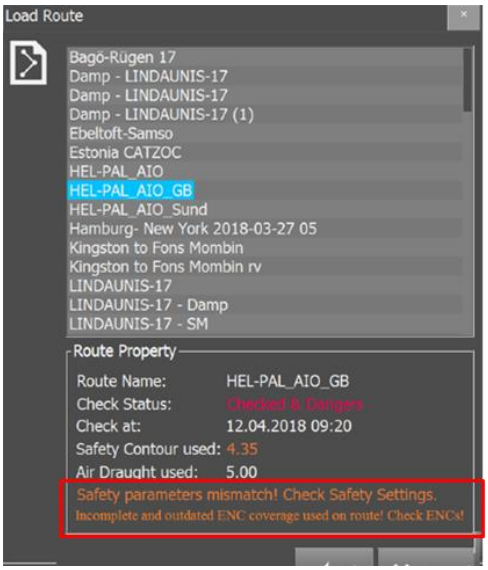
In the background of the Route Check an additional coverage check is carried out. This automatically checks whether all charts for the respective route are available and up-to-date.

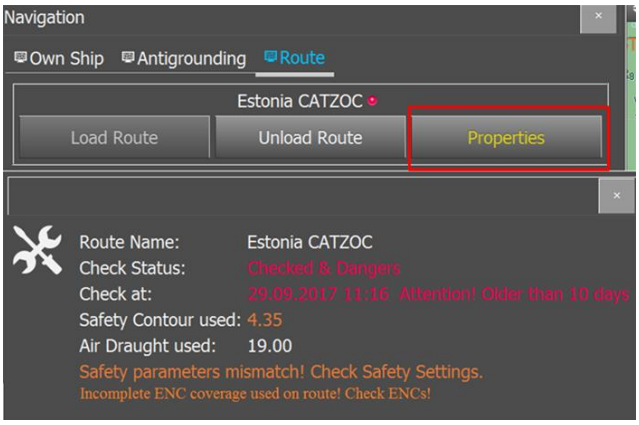
If not, a window with a caution notice will pop up.

After loading such route for monitoring an additional message is displayed.

This message may be:

- Incomplete and outdated ENC coverage used on route! Check ENCs!
- Incomplete ENC coverage used on route! Check ENCs!
- Outdated ENC coverage used on route! Check ENCs!

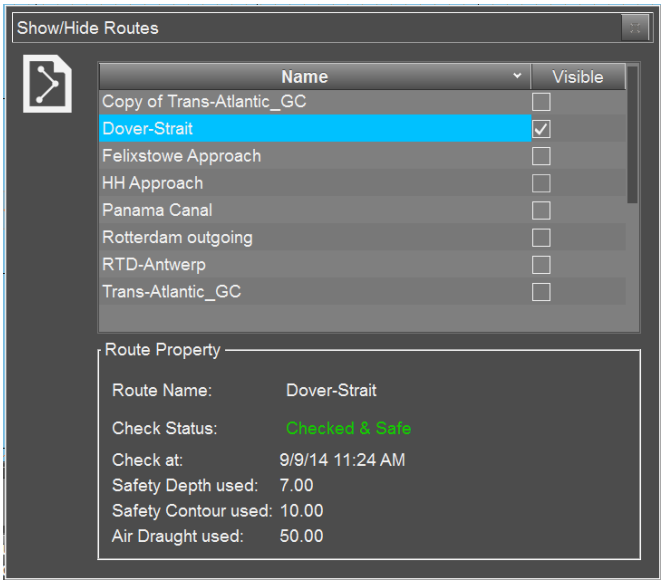




In addition, the *Properties* button at the top of the Navigation / Route window will be highlighted yellow when such route is loaded (see figure above).

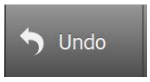
6.5.4 Show Routes

This button opens a dialogue box to select alternative routes (if necessary) for display in route planning mode. Note that it is possible to modify only ONE route at a time (the one selected in Route Edit selector) while others are just visible on the chart for reference to support current route planning. Routes selected for display will always be at the top of the list in the Route Edit selector.



Show/Hide routes

> **Note:**
>
> The *Check Status* of imported routes always is *Not checked* until they have been checked in eGlobe G2.

6.5.5 Undo 

Sets the last work step back. This might also include undoing the last automatic safety check for a leg.

6.5.6 Redo 

Reveals the last work step if undone.

> **Note:**
>
> *Undo* and *Redo* are only enabled provided any work steps have already been taken.

Once the route file is saved both buttons are disabled.

6.5.7 Pick



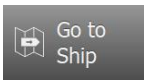
See chapter Pick.

6.5.8 Chart Settings



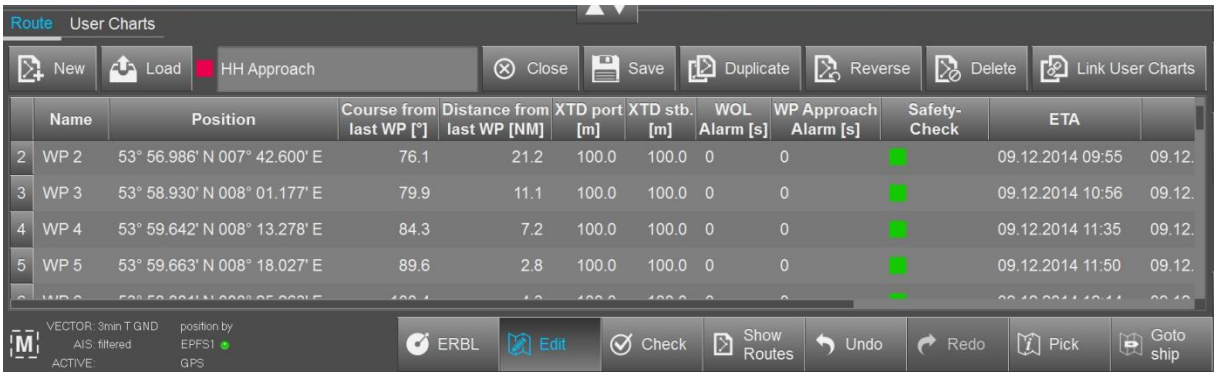
See chapter Chart Settings.

6.5.9 Go to Ship



See chapter Go to Ship.

6.6 Voyage Planning in the Table



Planning in the table can complement geographical route planning with relevant voyage data and calculations. It is also possible to plan a complete route in the table if waypoint position data is available from another source.

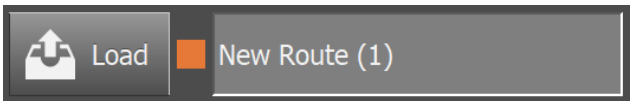
Voyage plans especially include ETA calculations and planned speed at the selective legs. Define a starting time and the planned speed to get a calculated ETA for each following waypoint. If a time to stay can be foreseen it can be entered to the respective waypoint, which will be included in voyage planning and ETA calculation. When planning a voyage which includes different time zones, these can also be manually added to the respective legs.

Please note that this is to be carefully planned in order to use the off schedule watch functionality precisely (see chapter Alerts).

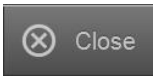
6.6.1 Controls in the Table



Creates a template for a new route, and assigns a default name. Change to the desired name.



Route Edit selector with a flag for current safety check status and route name.

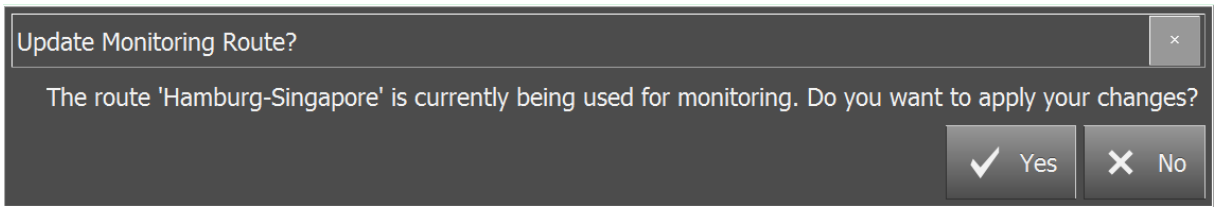


This button unloads the selected route from planning view. It is recommended to unload a route after planning has been finished. Otherwise additional changes to that route made on other stations will not be distributed to the station at hand.



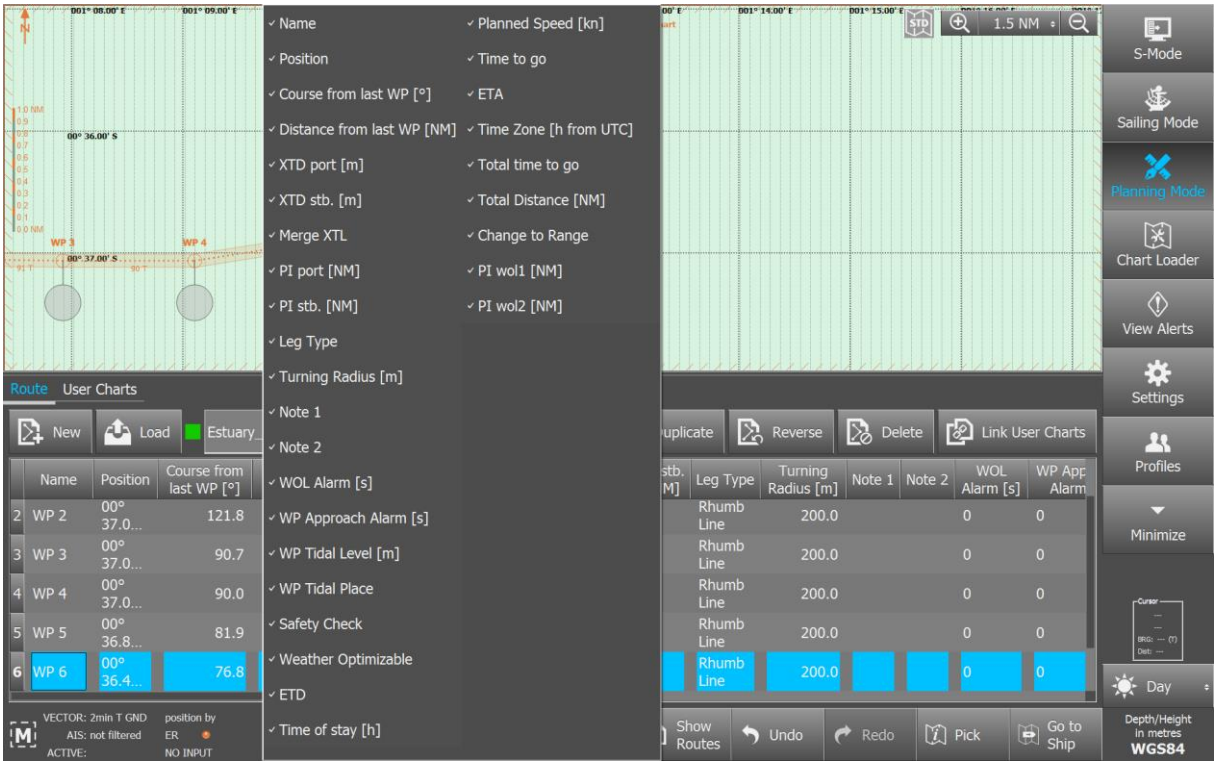
This button is enabled as soon as any changes have been made to the route (or voyage) data. As soon as the currently displayed state does not match the one last saved the button is highlighted yellow (see above).

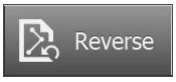
Once *Save* is used all recent changes are saved in the route file and deemed as accepted. All detected danger highlights will be removed. Saved routes will be distributed to other stations on the network, and the Master station will be prompted for acceptance of the newly saved version of the monitored route if changed.





This button creates an exact copy of the route with all attributes. The copy then can be renamed and changed as desired.





This button copies the route, but in reverse direction. In the display the note *Reverse* appears.



Deletes the selected route.



Enables the user to link created user charts to a planned route. If this option is selected the connected User Charts will be automatically displayed for monitoring modes once the route is activated.

6.6.2 Content of Route Table

Each column can be relocated according to the user's demands. For example, it is possible to move the Safety Check column to become one of the first columns. To do so, just tap, hold the header, and move the column to the desired position.

> **Note:**
>
> After columns have been shifted the new sorting will be maintained even after restart.

The following data is contained in the route table (default sorting):

Parameter	Description	Route Data	Voyage Data	Note
NN	Sequence number of WP in the route.	X	X	Automatically generated
Name	Waypoint name.	X	X	Editable
Position	Latitude and Longitude of the WP.	X		Editable
Course from last WP	Course true to WP from the previous WP.	X		
Distance from last WP	Distance between this WP and the previous WP.	X		
XTD port	Cross Track Distance port.	X		
XTD stbd.	Cross Track Distance starboard.	X		
Merge XTL	Connection of corridors.	X		
PI port	Distance from route leg to a PI line on port side, if any.	X		Automatically generated from PI line entered
PI stb.	Distance from route leg to a PI line on starboard side, if any,.	X		Automatically generated from PI line entered
Leg Type	Selection between Rhumb-Line (RL) and Great Circle (GC) type for the leg.	X		Editable
Turning Radius	Planned turning radius of the vessel.	X		Editable
Note 1	Free text note for WP/leg.	X	X	Editable
Note 2	Free text note for WP/leg.	X	X	Editable

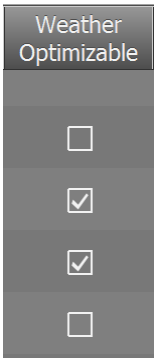
WOL Alert	Advance time for a WOL alarm. Deactivated for particular WP if ZERO. No WOL alarm for waypoints with change of course less than 10°.	X		Editable
WP Approach Alert	Advance alert before WP approaching. Deactivated for particular WP if ZERO.	X	X	Editable
WP Tidal Level	Expected least tidal level at ETA to WP. *The value needs to be reconfirmed before depth critical WP/leg approach!*	X	X	Editable
WP Tidal Place	Reference name for a Tidal prediction point location, which is critical for this WP.	X	X	Editable. Text only.
Safety Check	Result of safety check for the particular leg.	X	X	Automatically generated. It is possible to get the list of detected dangers, if any, by clicking on Safety Check status indicator.
Detected CATZOC	Display of detected ZOCs, if *Use CATZOC* was selected for the route check.			
Weather Optimizable	Weather optimized leg. This leg of the route can be optimized by weather routing systems.	X	X	Editable
ETD	Estimated time of departure from WP.		X	Editable
Time of stay	Time to stay at WP (e.g. if in port).		X	Editable
Planned Speed	Defined speed for Leg (e.g. speed limit, expected speed or economical speed).		X	Editable
Time to go	Time to go on the Leg to this WP.		X	
ETA	Estimated time of arrival at WP.		X	Editable
Time Zone	Time Zone at the WP.		X	Editable

Total Time to go	Total Time to go from the beginning of the route.		X	
Total Distance	Total Distance from the beginning of the route.		X	
Change to Range	Possibility to set a range (via left mouse click). When the legline is approached the range will automatically change to the set value.	X		
PI wol1	Distance Parallel Line 1 – Wheel Over Line.	X		
PI wol2	Distance Parallel Line 2 – Wheel Over Line.	X		

6.6.3 Import/Export Routes to Weather Services

eGlobe G2 allows for using external optimizing applications offered by route optimization providers such as MeteoGroup and Bon Voyage System (BVS). These optimization processes are carried out on separate computers and are mainly based on weather information.

To make use of such services eGlobe G2 offers to define certain leg lines of a planned route for optimization.



This is done by ticking the respective checkbox in the *Weather Optimizable* column in *Planning Mode*. Only the selected leglines will be taken into account in the optimization process, while those unselected will remain untouched with regard to waypoints and legline positions.

Once the route has been created and saved it has to be exported. This means that the complete route will be sent to the external service provider and will be returned optimized according to current weather forecasts.

Prior to export the file has to be converted into a format enabling to load it into the optimization software for the time being exporting .spos and bidirectional .bvs).

Export and re-import of the route are carried out in the File Manager.

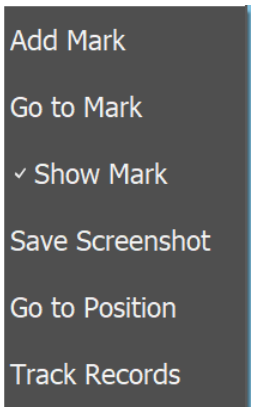
6.7 Further Functions in Route Planning

6.7.1 Context Menus

6.7.1.1 In the Display Area

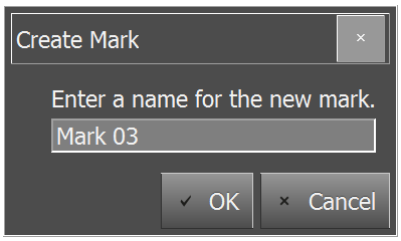
Note:

This context menu is also available in *S-Mode* and in *Sailing Mode*.



Add Mark

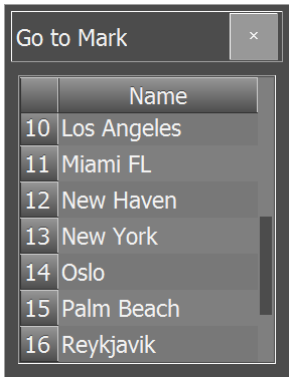
A mark can be added manually. After tapping on Add Mark the window Create Mark opens.



In it the name for the new mark can be entered.

Go to Mark

Offers to go to a previously defined mark. Tapping on *Go to Mark* opens the identically named window to select the desired mark from.



The selection of a specific mark will centre the displayed chart on that mark.

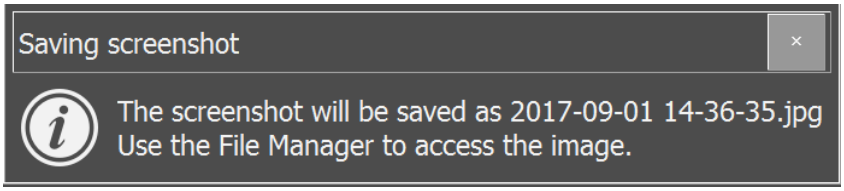
Show Mark

Displays all existing marks on the chart (see figure below).



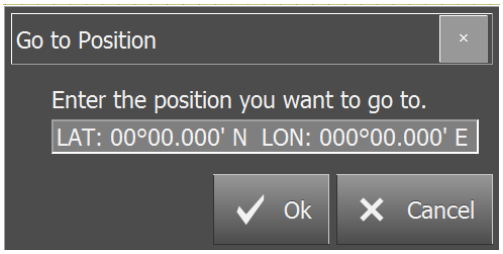
Save Screenhot

Saves a copy of the complete screen to the File Manager.



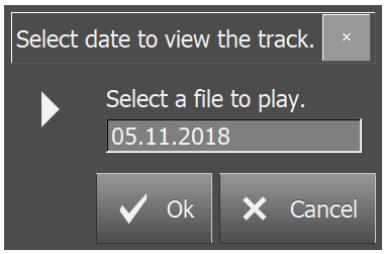
Go to Position

Opens a position window for entering latitude and longitude of the desired position.



Track Records

Opens a window for selecting a recorded track for playback.



The *Track Records* function can be called from the context menu on the chart.

When doing so a dialogue opens which allows to enter a date. Upon confirmation the system will load the respective past track and adjust the screen position and range so that the complete track is displayed.

The time stamps appear according to current past track settings in NAV/Own Ship.

The function can be deactivated by deselecting the past track or via pressing the *Go to Ship* button

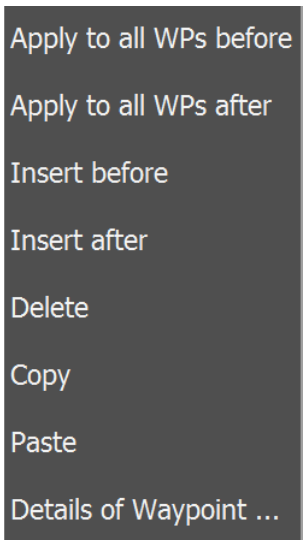
Delete Mark

Long press the respective mark. A small window *Delete Mark* opens. Tap on it to delete the mark.



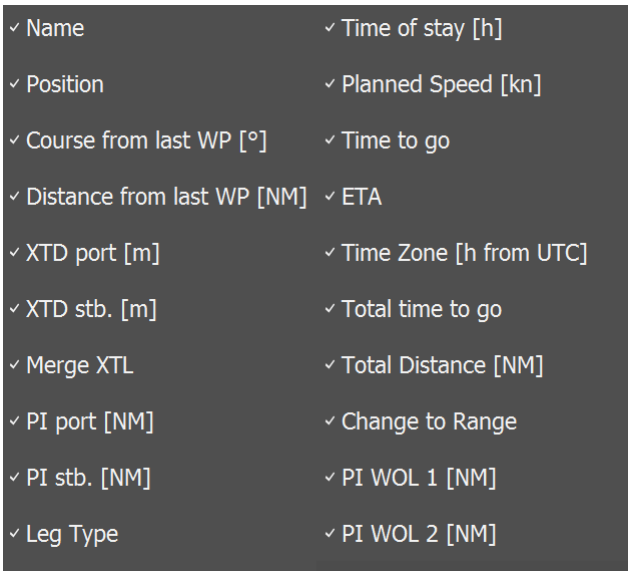
6.7.1.2 Context Menus in the Waypoint List

For the columns *Planned Speed*, *XTD Bb* and *XTD Stb* the context menu additionally offers the items *Apply to all WP before* and *Apply to all WP after*. This allows for e.g. applying the planned speed to all waypoints before or after. Finally there is a query whether the selected value shall be applied to all affected waypoints.



Context menu for single waypoint in WP list

A context sensitive menu in the first row of the waypoint table allows for selecting columns to have them displayed or concealed.



Context menu of columns in WP list (detail)

Columns can be shifted within the table via drag and drop.

Waypoints (rows) can be marked thus offering to insert parts of a route into another route using *Copy* and *Paste*.

Entries in the Lowest Table Row:

Add WP

In the last row of the waypoint list there is the button *Add WP*. Clicking on it will create a new waypoint right away and add it to the list. On the chart the new waypoint will first be positioned just where the previous waypoint is located. The new one can then be shifted to the desired position.

Total (Distance)

In the last cell of the column *Distance from last WP* in the waypoint list the *Total* distance covered by the route is displayed.

 At the bottom of the *Safety Check* column opens the *Safety Check Legend* (see chapter Safety Status of the Route).

On-Screen Keyboard, Number Pad and Position Pad

In case a text shall be changed in the waypoint list an on-screen keyboard is displayed. If numbers are to be entered just a number pad is displayed. Whenever a position is required a pad optimized for entering geographical positions will appear.



Number Pad



Position Pad

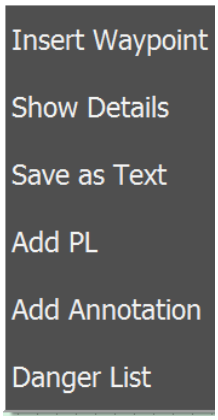
6.7.2 Parallel Index Lines

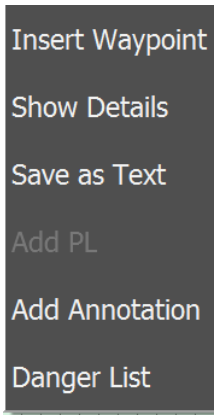
eGlobe G2 offers a function to set Parallel Index Lines which are used to prepare information necessary for Parallel Index Line radar navigation. The set parameters are saved as component of the route.

Parallel Index Lines (PL) are set in Planning Mode along with other route parameters and User Chart information. PLs can be displayed in *Planning*, *Sailing* and *S-Mode*.

Parallel Lines are defined in *Planning Mode*. Optionally up to 2 Parallel Lines can be set for each route leg; one on port side and one on starboard side.

Whenever *Edit* is enabled a context menu can be opened on each leg via long tap.





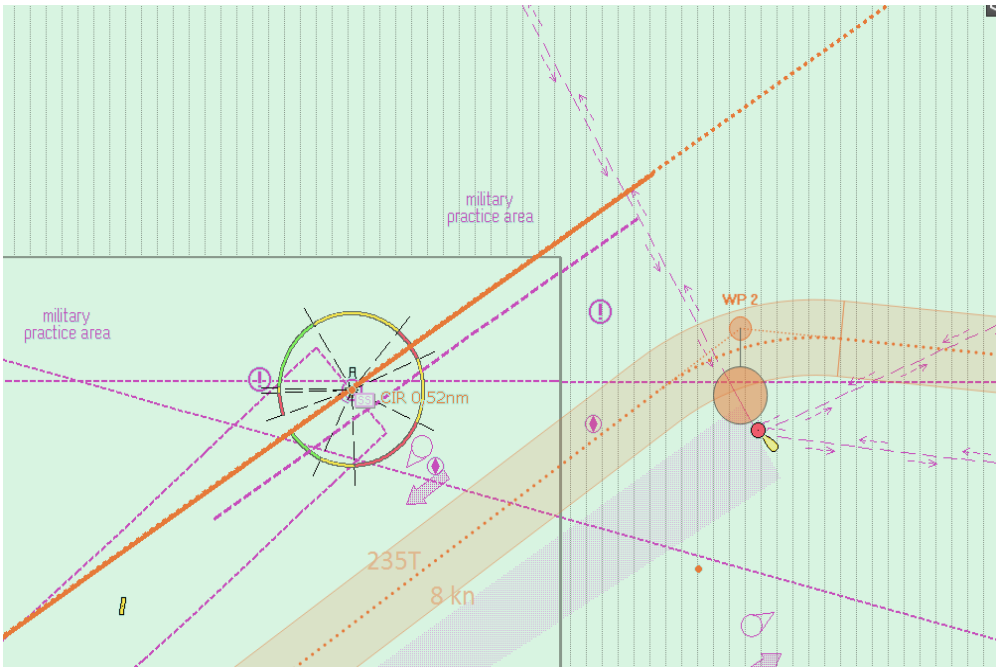
This context menu includes the item *Add PL*. *Add PL* is available only if none or one PL is set for this leg. In case two PLs have already been defined for the respective leg the menu item is greyed (see figure on the right above).

As soon as *Add PL* has been tapped the line is displayed on the screen. Concurrently a *Delete* button  appears in the right lower corner of the display, allowing for instant deletion of the line just set. If no further move is taken within five seconds the button will vanish and the entry is completed.

Note:

This procedure provides the time for shifting the Parallel Line to a geographical point with an object (lighthouse, Small Island, any other radar conspicuous point) expected to be used on radar for parallel indexing navigation.

Once a Parallel Index Line has been defined it is displayed as follows:



If the Parallel Line is set to the starboard side of the leg it is defined as Starboard (PLs); if it is set to port it is defined as port (PLp).

Set Parallel Lines are also displayed in the waypoint list, columns *PI port* and *PI stb*.

6.7.2.1 Deletion of Parallel Index Lines

Set Parallel Lines can be deleted in two ways. Either, long tap on the Parallel Line to be deleted.

This opens a context menu with just one item: Delete PL.

6.7.3 Parallel Index Lines and Route Modifications

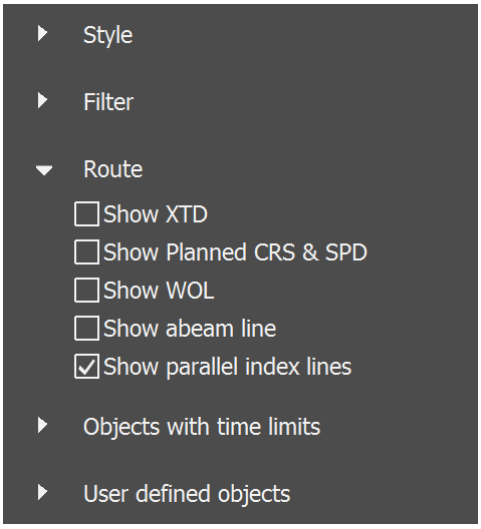
Route modifications may also affect leglines with referenced Parallel Lines, for example in case a waypoint is moved.

If the changes are rather insignificant, for example, if the PL originally defined as a Starboard PL (PLs) remains on the Starboard side of the referenced leg or its extension, PLs and PLp will graphically follow the leg being changed. In such case the PL entry point (Latitude-Longitude) will remain the same.

In case of significant leg changes resulting in e.g. change of the starboard PL to port and vice versa, the affected Parallel Lines will automatically be deleted. However, if *Undo* is tapped immediately after the route leg modification this will restore the previous leg position and the assigned Parallel Line.

6.7.4 Parallel Index Lines Display in Various Modes

Parallel Index Lines can be displayed in *Planning*, *Sailing* and *S-Mode*. To enable this *Show parallel index lines* must be ticked in the Chart Settings / Chart Display (see figure below).



Note:

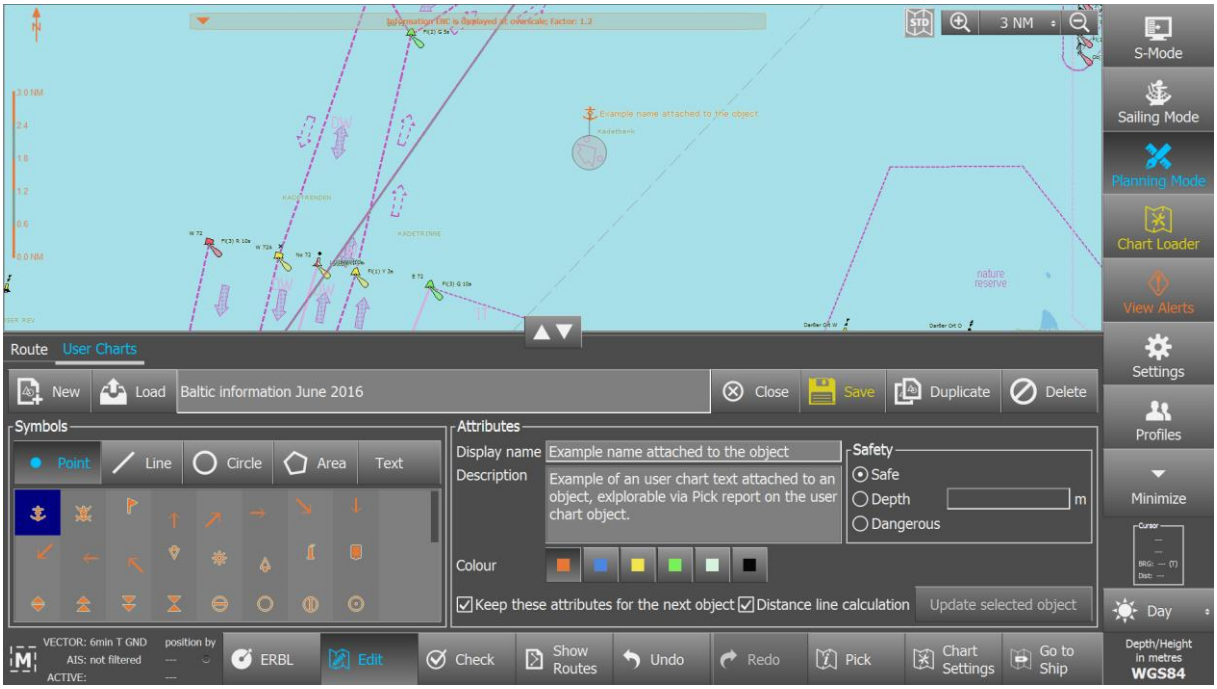
In *Planning Mode* the display of Parallel Lines is activated as soon as it is attempted to set such lines, even if *Show parallel index lines* in the Chart Settings / Chart Display is not ticked.

6.8 User Charts

While planning a voyage it is important to add relevant notes and other objects such as danger highlights. It is possible to store this data as overlay files and optionally link them to a particular route.

Buttons for Route Planning and User Charts (left to right):

ERBL, Edit, Check, Show Routes, Undo, Redo, Pick, Go to Ship



6.8.1 How to Create a User Chart

To create a User Chart, open the *Planning Mode* and select the subpage *User Charts*.

A new User Charts is started just like the creation of a route.

1. Click New and enter an appropriate name for the User Chart instead of the default name (New User Chart).
   Now the system is ready to add new objects to the new User Chart with the name as defined. The Edit-button is enabled by default so that the objects can easily be positioned on the chart.
2. Select the type of object (point, line, circle, area or text) you want to create and its characteristics (line style, required point object or written text to be defined).
3. If required, enter a name to be displayed and/or a description which will appear as detailed information in the pick report.

4. Set the attribute if the object shall be detected by the Look-Ahead, and for route planning checks.
   In the same section it is possible to set the check for reusing the settings for the next objects.
5. Now everything has been created and when next time tapping on the chart view the defined object will be positioned on the chart.

To add a new object it is necessary to select the type of object and its attribute as applicable.

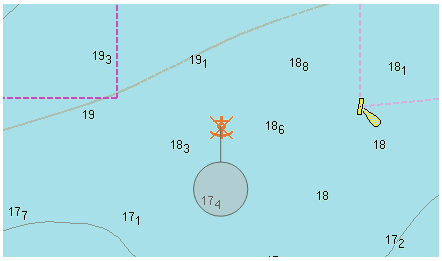
As soon as changes are applied the *Save* button will be highlighted, and the changes can be saved.



To save a copy of the User Chart click on *Duplicate* and change the User Chart name accordingly.

6.8.1.1 Point Objects

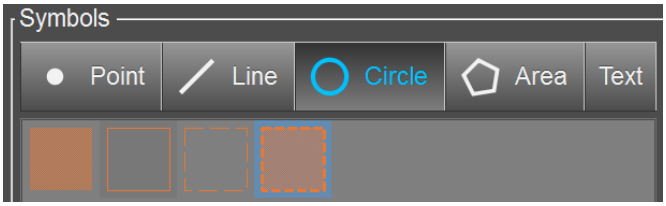
Once attributes and object type have been defined and *Edit* is enabled in the Toolbar tapping (or a left click) on the chart area will create a point object at the selected position.



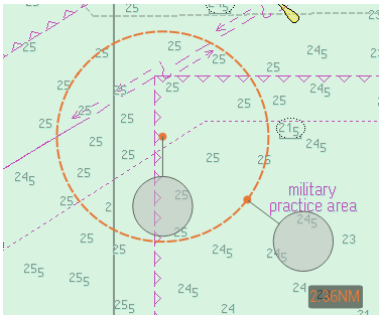
The position of the newly inserted object can be adjusted as necessary by moving the object on the chart. To save the object tap on *Save*. This can be done at the end of the session.

6.8.1.2 Circles

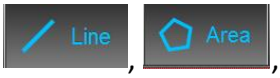
To enter a circle it is necessary to select this type of object, its attributes, and to define a line style:



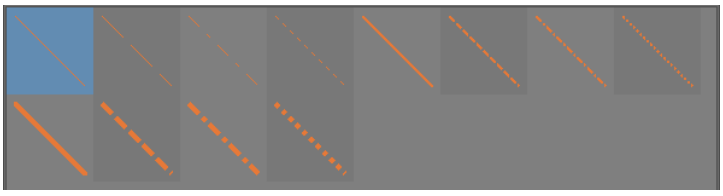
Once attributes and object type have been defined use a single tap on a touchscreen at the desired circle centre position. The default range of the first circle is 5 cm in diameter. It is possible to use the handle on the circle range ring to adjust the range.



6.8.1.3 Lines and Areas

To enter a line or an area it is necessary to select this type of object 

, its attributes, and to define a line style:



Once attributes and object type have been defined and the *Edit* button is enabled the next tap on the screen will set the first point. A text *Click here to finish* will appear on the screen. If this is clicked / tapped the line (area) is considered to be complete and will be assigned to the User Chart.

Use a single tap on a touchscreen at the desired position for the next point. It is possible to use the handle on each line (area) point to adjust its position.

6.8.2 User Charts Object Attributes

Attribute	Explanation	Note
	Text to be displayed on the chart next to the object.	Optional
	Assigns a colour to the object. Applicable only provided the object is NOT dangerous and does not have a Depth attribute. In the latter cases the red colour is used.	Optional
	Defines a safe object.	Optional
	Optional depth value input for objects with selected *Depth* attributes.	Optional
	If selected, this object will be detected by antigrounding and route checking.	Optional
	If the selected attributes shall be used for the next object this checkbox must be ticked.	Optional
	The objects created while this is active will be included in the distance calculation in Sailing mode.	Optional

6.8.3 Edit Object

To edit an object, i.e. altering its location and/or attribute, click on *Edit* in the toolbar. Use a single tap on a touchscreen to select the object to be changed. The system will display the current state of its attributes. Plus, the handle related to a selected object is coloured orange. It is possible to change the attributes of the object as required, and to change the location of the object as described above for a new object.

For the changes to take effect, tap on *Update selected object*.

It is also possible to select other objects for editing. To leave the *Edit* mode, click on *Edit* again.

6.8.4 Delete Object

To delete an object, open the context menu of the object/handle and select *Remove Object* from that menu.

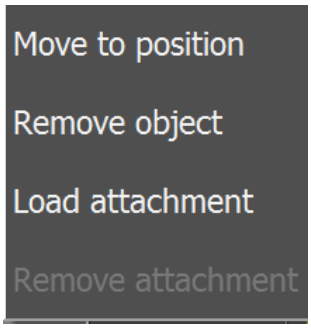
6.8.5 Delete User Chart

To delete a user chart, click the *Delete* button. A window will appear listing all available user charts. Highlight the user chart(s) to be deleted and click on OK. The selected user chart(s) will be deleted.

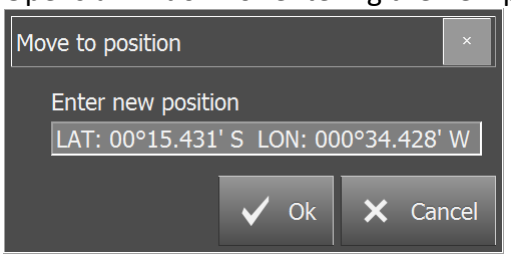
6.8.6 Other Functions in User Charts

6.8.6.1 Context Menu of the Created Objects

To manage the objects, open the respective context menu. It contains the following items:



- Move to Position :
  Opens a window for entering the new position (LAT/LON).

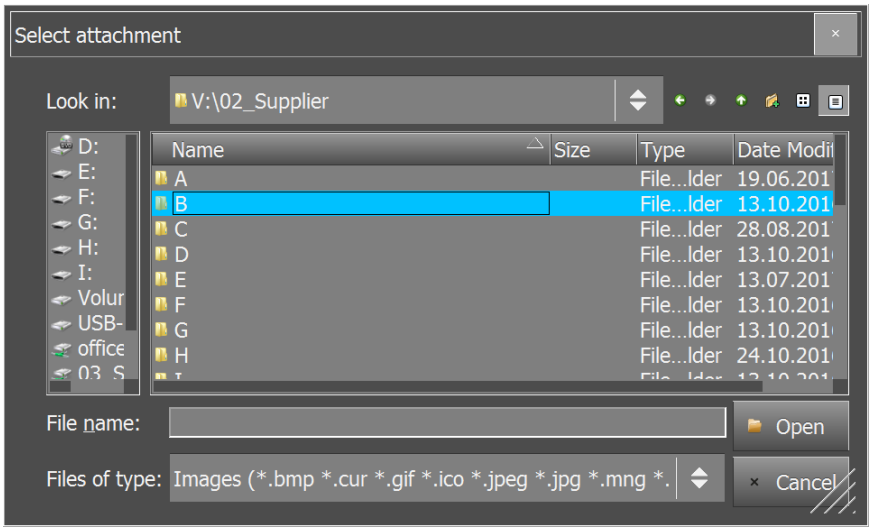


- Remove Object:
  Removes the object without further request for confirmation.
- Load Attachment:
  Opens a window for selecting an attachment (see Attachments to User Chart Objects).
- Remove Attachment: Removes an attachment.

6.8.6.2 Attachments to User Chart Objects

Objects that were created for user charts can be provided with attachments. This can be e.g. text or a picture offering additional information about the specific object. The attachment can then be made visible in the Pick report.

To add an attachment, in *Planning* Mode open the context menu of the respective user chart object, and tap on *Load Attachment*. Select the desired attachment, and then save the user chart.



To make use of the chart attachment, activate the user chart in *Sailing Mode*. Then pick on the user chart object and confirm the attachment symbol next to the respective object.

Note

The attachments have to be taken from a removable device as in eGlobe G2 the hard drive must not be accessed by the user.

Also note that not all data formats are supported. Supported data types are:

*.txt, *.bmp, *.jpeg, *.jpg, *.cur, *.gif, *.ivgz, *.tif, *.tiff, *.xbm, *.xpm, *.mng, *.ico.

7 Alerts and Indications

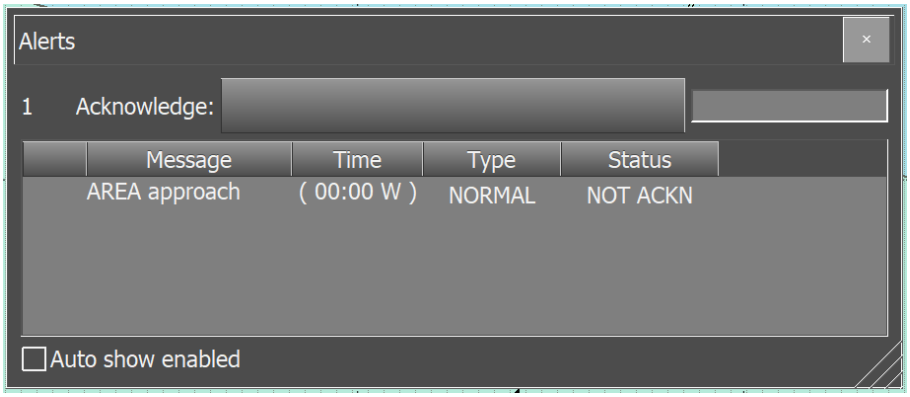
7.1 New Alert

In the event of detected alert condition the system notifies the user about this by means of visual indication and sound signal, where applicable.

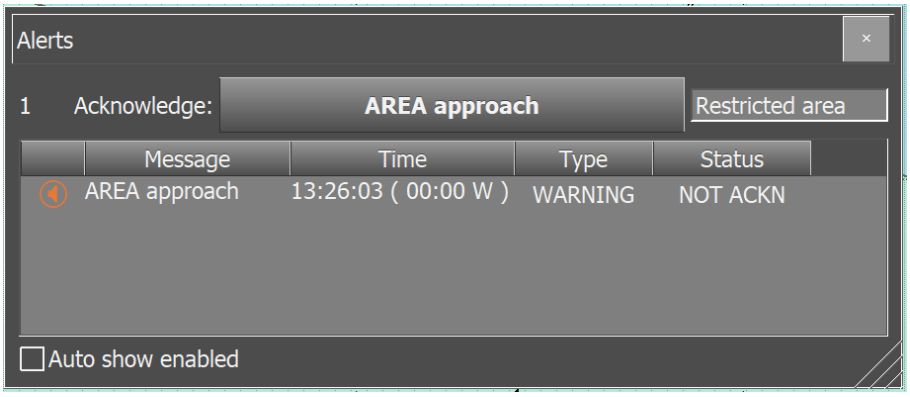
As a minimum the *View Alerts* button changes its symbol and colour according to the alert with the highest priority 

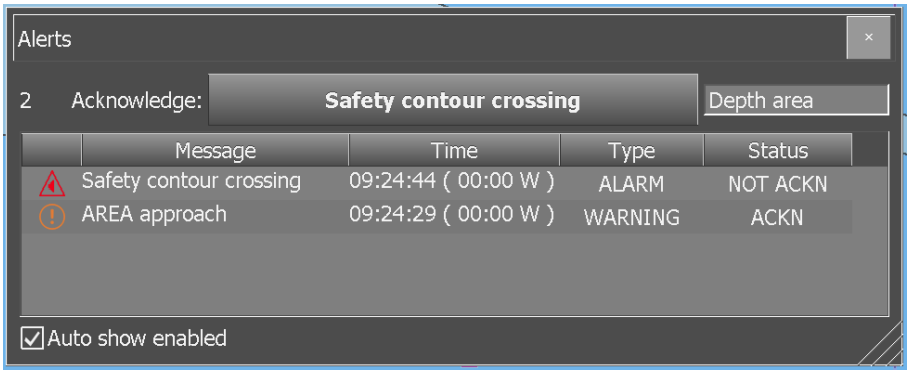
. This button is used to open the *Alerts* window. In some cases (namely in case the Task Bar has been removed from the screen and/or *Auto show enabled* has been selected) the *Alerts* window automatically appears on the screen as soon as a new alert is detected.

The alert is first symbolized in the *Alerts* window for 4s in a pre-initialization state to wait for a responsibility transfer request from a CAM if one is connected. During this period, it does not give a sound or a status indication:



As soon as the initialization period is over and the responsibility was not transferred the alert is raised with sound and status indication:





Alerts window with Status entries

The *Alerts* window allows quick access to the alert list and the possibility to review and acknowledge non-acknowledged alerts.

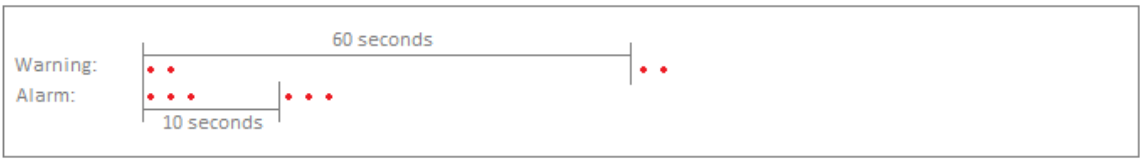
All Alerts will be presented in the order according to their status and priority:

- Active - Unacknowledged alarms
- Active - Unacknowledged warnings
- Rectified - Unacknowledged alarms
- Rectified - Unacknowledged warnings
- Active - Acknowledged alarms
- Active - Responsibility transferred alarms
- Active - Acknowledged warnings
- Active - Responsibility transferred warnings
- Active - Cautions

Alerts with the same status and priority are shown at the sequence they have occurred.

For details refer to table Alerts Priority and Status.

Non-acknowledged and not silenced alerts will cause a respective sound signal.



Note:

The sound cannot be switched off. The sound signature of alarms (3 beeps within 10 seconds intervals, repeating until acknowledgement) differs from that of warnings (two beeps within 60 seconds; see figure above). If 2 or more active unacknowledged warnings are in the system, then additional 20 seconds gap will be allowed between warning sound signal which in this case may delay respective warning sound signal. The sound signal for unacknowledged active alarms always takes precedence over the same for warnings.

Cautions do not generate any sound.

7.2 How to Minimize the Alert Numbers

eGlobe G2 has been designed adjustable to ensure the minimum number of alerts allowed by current regulations. There are only 3 mandatory alarms in the system according to recent normative documents:

- Safety Contour crossing
- XTD Limit
- Anchor watch (Escalated to alarm - only if not acknowledged as a warning within 2 minutes)

The rest of the alerts are either warnings or cautions which create far less disturbance level on the bridge.

Please consider the following steps to optimize the alert conditions:

1. Adjust carefully the Antigrounding settings as relevant to the current part of the voyage. Particular attention must be paid to the size of the Watchdog sector (danger detection) which is defined by starboard and port angle as well as look-ahead time. Use smaller values for time and angle setting while navigating on e.g. a river with pilot and increase these values while in open sea to always cover the most probable collision avoidance manoeuvre you may need.
2. Carefully select areas of interest as well as AtoNs settings in Antigrounding. These are selectable (On/OFF) individually. The type of the alert may be set to either warning or caution.
3. In Planning Mode, leave the XTD limits wide enough so the vessel will not leave XTD limits while navigating in narrow waters.
4. Consider to put a minimum speed limit (e.g. SOG less than 3 knots) for Antigrounding checks so alerts will not be generated while berthing.

Remember to adjust these settings in accordance with the expected vessel's conditions as minimizing alerts shall not compromise safety of navigation. In particular it is strongly recommended to always keep adequate value of Safety Contour and Warning alert priority for navigational hazards detection. Option for Caution must be avoided in open waters and shall be used with extreme care as it is not associated with any audible signal



These settings are part of user defined profiles (see chapter Profiles) to ensure a quick change of the system configuration in order to adapt to particular sailing conditions.

Note:

The initial delivery of eGlobe G2 includes the minimum alert setting recommended profile.

The same profile is available from the documentation CD together with instructions on how to load it into the system.

7.3 Alerts Priority and Status

Indication in eGlobe G2	Priority	Status	Associated Sound signal	Meaning
 Flashing, 1Hz	Alarm	active unacknowledged	• • • every 10 sec	Alert condition still present, alert not acknowledged
 Flashing, 1Hz	Alarm	active – silenced	None	Alert condition still present, alert silenced by the operator
 Steady	Alarm	active – responsibility transferred alarm	None	Alert condition still present, alert silenced, and responsibility is taken over by the connected Central Alert Management System with additional system knowledge: Such CAMS shall be approved for conducting alert revaluating functions.
 Steady	Alarm	active acknowledged	None	Alert condition still present, alert acknowledged by the operator
 Flashing, 0.5 Hz	Alarm	rectified unacknowledged	None	Alert condition rectified, alert still unacknowledged
 Flashing, 1Hz	Warning	active unacknowledged	• • every 60 sec	Alert condition still present, alert not acknowledged
 Flashing, 1Hz	Warning	active – silenced	None	Alert condition still present, alert silenced by the operator
 Steady	Warning	active – responsibility transferred alarm		Alert condition still present, alert silenced, and responsibility is taken over by the connected Central Alert Management System with additional system knowledge: Such CAMS shall be approved for conducting alert

				revaluating functions.
 Steady	Warning	active acknowledged	None	Alert condition still present, alert acknowledged by the operator
Indication in eGlobe G2	**Priority**	**Status**	**Associated Sound signal**	**Meaning**
 Steady	Caution	active	None	Alert condition for caution present
 Steady	Normal, no active or rectified alerts	None	None	Alert condition not existing

7.4 Silencing and Acknowledging Alerts

A sound signal is used to attract the operator's attention to the source of the alert so that the reason for the alert can be evaluated. Once any action has been taken by the operator on eGlobe G2 (for example, changing the active task in the *Task Bar* or calling a menu) the alert sound is silenced for 30 seconds. If the active alert is still not acknowledged within 30 seconds and no operator action is taken the sound signal will resume.

To acknowledge the alert the prominent button at the top of the *Alert* window has to be used. This button displays the text of alert to be acknowledged ("Safety contour crossing" in the example below).

Once the button has been tapped the new unacknowledged alert, if any, is presented for acknowledgement. The view of the alert list in the *Alert* window changes accordingly.

Make sure the alert message as well as associated risks is well understood before acknowledging the alert.

Whenever eGlobe G2 is used within a network configuration (typically Master and Backup station) the alerts and their statuses are synchronized. Once an alert has been acknowledged on the Backup it does not need to be acknowledged separately on the Master and vice versa.

7.5 Connection to CAM (Central Alert Management System)

7.5.1 Functions related to CAM

Whenever on a vessel eGlobe G2 is connected to a Central Alert Management System the routines around the alert management in eGlobe G2 can be facilitated by a centralized alert management. This includes:

- Remote display of eGlobe G2 alerts and their status on the CAMS display
- Remote silencing of the alert sound signal on eGlobe G2 from CAMS
- Remote acknowledgement of selected alerts (category B alerts only) from CAMS
- Responsibility transfer of eGlobe G2 alerts to CAMS (see 7.5.2)

Note that Category A alerts (for example, "Crossing safety contour") cannot be remotely acknowledged from the CAMS but can only be silenced from there.

Note:

Category A alerts includes those where information at task station directly assigned to the function generating the alert is necessary, as decision support for the evaluation of the alert-related condition, e.g. either collision or grounding danger. Therefore, it needs to be assessed at relevant graphical display (e.g. Radar/ARPA or ECDIS, respectively).

Category B alerts are specified as alerts where no additional information for decision support is necessary apart from the information which can be presented at the alert information.

Please refer to the CAMS equipment manual for detailed description of the CAMS functionality and its limitations.

eGlobe G2 can be connected only to one Central Alert Management System.

7.5.2 Alert Responsibility Transfer support.

"Responsibility transferred" is the process used to inform functions, sensors and/or sources that after revaluation, BAM compliant equipment, with its system knowledge, has taken the responsibility in order to reduce number of high-priority alerts" (IEC 62923-1:2018).

Another words if a vessel is equipped with the Central Alert Management System that is capable of collecting, analysing and managing of alerts form multiple systems by applying additional system knowledge (revaluating functions) then the number and priority of alerts on the bridge can be considerably reduced/optimised without harm to the situation awareness.

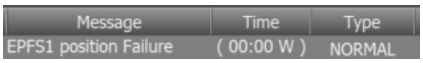
Only CAMS equipment approved for R class "revaluation functions" according to IEC 62923-1 is allowed to be connected to eGlobe to perform these functions on the bridge. Please note

that all alarms and warnings can be set to this mode.

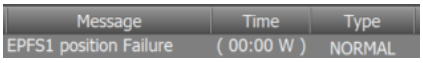
To explain the principle of the Alert Responsibility Transfer the following example can be used: A GPS receiver failed. CAMS accept the responsibility for this alarm and alarm on faulty GPS receiver does not sound and shown in "responsibility transferred state". CAMS evaluated this event and by applying additional system knowledge that the second GPS receiver is available and currently selected for navigation by ECDIS and in normal operational condition reduces the priority from the initial alarm to a warning as the situation is no longer requires immediate attention.

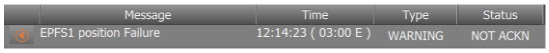
eGlobe G2 ECDIS will apply the following routines for handling of the Alert Responsibility Transfer depending on how fast CAMS is with the Responsibility Transfer request:

Routine A implies that CAMS sends the Responsibility Transfer request instantly (within 4 seconds) from the reported event on eGlobe G2:

Time	Event status	Alert indication	Note
00 sec	New alert situation is detected and alert event is sent to CAMS	None on Task Bar and new alert in list of Alerts window with status NORMAL. No sound signals. 	If CAMS does not send a request for the responsibility transfer then the regular alert management procedure applies.
< 04 sec	CAMS successfully revaluated alert event from eGlobe G2 and requested Responsibility Transfer	 Task bar indicates the alert button for the new warning with status "active – responsibility transferred". No sound signals. 	It is not possible to acknowledge alerts in this state on eGlobe G2.
> XX sec	Initial alert condition is rectified. EPFS1 is back to normal operation.	All associated alerts indications are removed from Task Bar and Alerts window without any User action on eGlobe G2 side irrespective if the alert has been acknowledged or not.	Rectified – Unacknowledged state of alert is not possible after Responsibility Transferred state.

Routine B implies that CAMS sends the Responsibility Transfer request later than 4 second from the reported event on eGlobe G2:

Time	Event status	Alert indication	Note
00 sec	New alert situation is detected and alert event is sent to CAMS	None on Task Bar and new alert in list of Alerts window with status NORMAL. No sound signals. 	If CAMS does not send a request for the responsibility transfer then the regular alert management procedure applies.

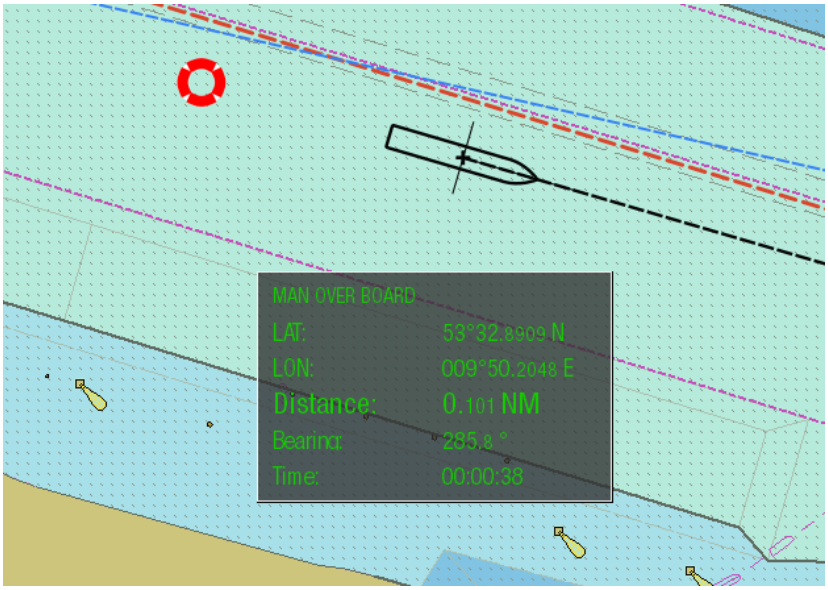
04 sec	No Responsibility Transfer request has been received from CAMS	 Task bar indicates the alert button for the new warning with status "active – unacknowledged". sound signal is active for warning condition. 	It is possible to acknowledge alerts in this state on eGlobe G2.
> 04 sec	CAMS successfully revaluated alert event from eGlobe G2 and requested Responsibility Transfer	 Task bar indicates the alert button for the new warning with status "active – responsibility transferred". No sound signals. 	It is not possible to acknowledge alerts in this state on eGlobe G2.
> XX sec	Initial alert condition is rectified. EPFS1 is back to normal operation.	All associated alerts indications are removed from Task Bar and Alerts window without any User action on eGlobe G2 side irrespective if the alert has been acknowledged or not.	Rectified – Unacknowledged state of alert is not possible after Responsibility Transferred state.

Note:

In case eGlobe G2 detects connected CAMS to be unavailable or reporting a failure condition for longer than 65 seconds all alerts with state "Responsibility Transfer" are taken back to eGlobe G2 and raised again with their original priority and active unacknowledged status. Sound signal will be active as applicable.

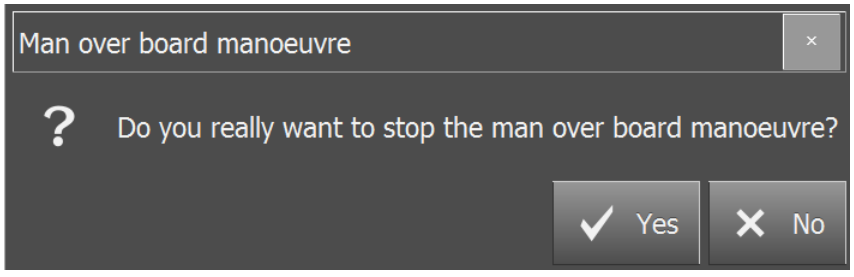
7.6 MOB (Man over Board) Manoeuvre


In case of an emergency clicking on this button in the lower left corner of the display will fix the current position on the chart. The position is marked with a life buoy; at the same time an information label opens displaying position, distance, bearing, and elapsed time.



MOB display

Clicking on MOB again will deactivate the display; for documentation an entry (Man overboard event) is added to the *Go to Mark* list.

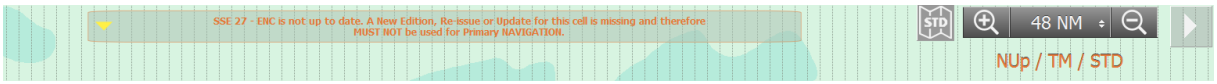


Stop MOB?

> **Note:**
>
> The MOB symbol is only displayed provided this has been enabled under Safety Functions in the System Settings.

7.7 Permanent Indications

Besides the categorization of alerts there are events in ECDIS which are of less importance so that the user does not require to immediately respond to, but it still is to be indicated. This information is grouped in the Permanent Indication element at the top of the chart.



The newest message in the system will always be displayed. In case there is more than one permanent indication available a drop down button will appear on the left hand side of the element. This button allows opening a list view displaying all currently relevant indications.



8 Chart Handling

8.1 General

Chart import and maintenance capabilities of eGlobe G2 are designed to carry out the process most efficiently. The following principles apply:

- The system can be used for navigation while chart installation or maintenance is in progress. Once the process is completed and confirmed by the operator all changes are automatically applied to the chart collection used for navigation, voyage planning and anti-grounding checks.
- The system is designed to automatically distribute changes to the chart collection carried out on one ECDIS workstation to all others in the same network. In order to achieve this chart installation and maintenance is allowed on one workstation only at any specific time – the one where the process was started first. Other workstations will have this functionality locked. It is recommended to have all workstations on network ON and running to avoid complicated synchronization processes.
- Manual updates to ENCs and Raster charts are automatically distributed to all other workstations on the same ECDIS network once they have been accepted by the operator. However, it is required to save the applied changes to enable the system to distribute the updates to the other stations.
- Data with critical errors will not be installed. Other errors that do not affect the content and status of charts are reported in logs, but data is accepted for use. Should such errors be reported by the system please contact your data supplier.

Note:

Chart installation and synchronization may take some time. This will not impact the usability of the system (e.g. Sailing will remain operational under all conditions); but the chart handling module will be protected/blocked until the process is finished.

8.2 Chart Loader Task

This is designed to facilitate chart loading / updating. It includes the chart display area and a dedicated panel in the lower part of the screen.

With the arrows  attached to the panel it can be enlarged or minimized by dragging the arrows up or down.

The panel size is at least about 1/3rd of the screen. However, it can be completely hidden. To do so, put the cursor on the arrows or the upper boundary and it to the bottom of the page. To open the panel again, drag the arrows to 1/3rd of the page.

> **Note:**
>
> When it comes to dragging the arrow symbols you have to move the cursor a considerable distance down or up before the panel is hidden or displayed, respectively.

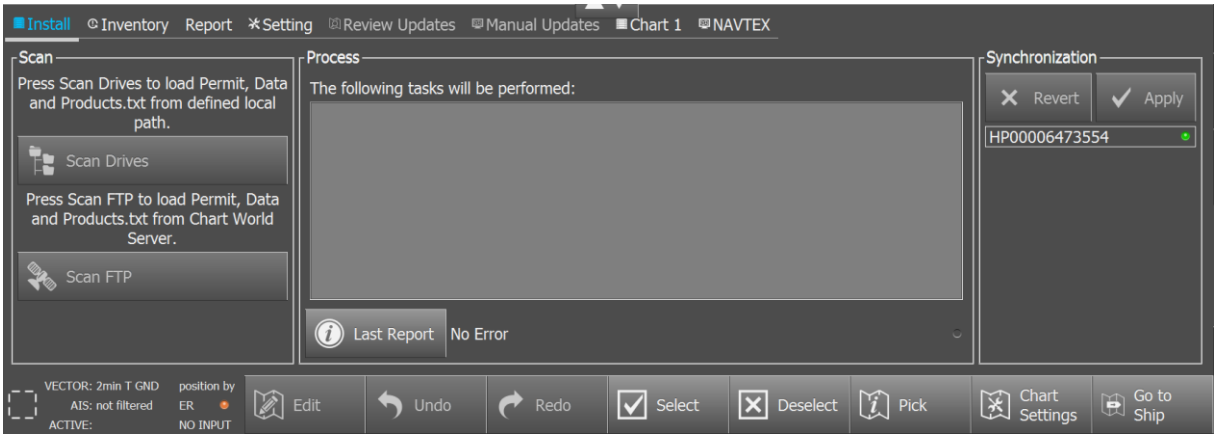


Chart Loader subpage

Chart Loader is activated by clicking on the identically named icon in the Task Bar (depending on the GUI configuration it can be on the right- or left-hand side of the screen).

The *Chart Loader* window is subdivided into several operational and control areas.

- Toolbar, fixed not modifiable, not removable.
- Chart review Operational Area, modifiable by moving the border. Always NUP (except Polar areas).

- Functional specific Area, modifiable by moving the border. It includes the following tabs (selection by dedicated buttons on the header line of the panel):
    - Install
    - Inventory
    - Report
    - Settings
    - Review Updates
    - Manual Updates
    - Chart 1
    - NAVTEX

The *Toolbar* contains a predefined number of icons associated with tools available for the respective tab.



Depending on the activated tab (e.g. Chart Loading) some of the tools might not be helpful in it. In such cases the respective tool buttons are disabled (e.g. Edit, Undo and Redo in Chart Loading tab).

8.2.1 Chart Loading Functions

Install selects the subtask.

8.2.1.1 Station Status Indications and User Interaction

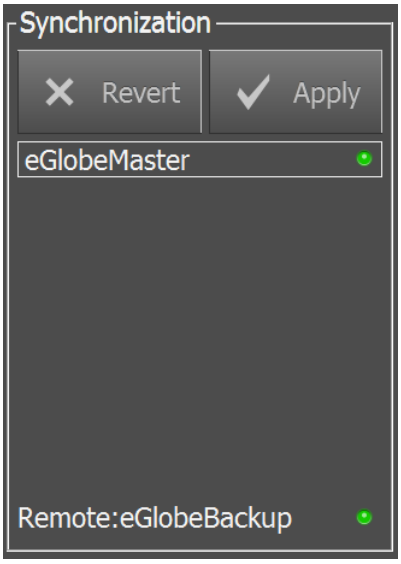
The stations status is indicated on the right hand side of the table in the Chart Loading tab. Normally the status LED will display a green light. In this case the current workstation is up to date with regard to the chart collection. All other stations configured in the network are displayed / listed below. Once charts or updates have been installed on one station, the LEDs of the other stations will turn yellow to indicate that the chart collections are different and synchronization is in progress.

In case all data has been installed without errors the changes will automatically be distributed to the other stations. After finishing the synchronization the status LEDs of all stations will turn green again. Please be aware that this may take a few minutes, depending on the volume of installed charts.

The user can reject the result of the latest chart installation by selecting *Revert*. Please note that *Revert* will only be available provided the installation did not run without critical errors.

If all charts were successfully installed only the *Apply Changes* button will be enabled. This button has to be clicked to start the synchronization process on the current station and all stations available via network. If the update ended with errors and the *Revert* button was used all stations will turn green again, and recent changes to the chart collection will be discarded. Any successful completion as well as rejection of the synchronization will be added to each chart installation report.

The update status of the collection status is displayed in the synchronization table.



Green – station's collection includes recent changes, station is online.

Yellow – data collection is not up to date and synchronization is in progress.

If there is a problem/error detected in synchronizing the collection copying will be repeated automatically. The status should remain yellow.

Any station that was offline during a complete process of chart loading and synchronization will check the latest collection status first and automatically initiate the synchronization once the difference is detected. If a station is turned on while chart loading or synchronization is still in progress its status will turn to yellow, and the synchronization will continue in the normal manner.

8.2.1.2 Mastering the Chart Loading Process

The station where the chart loading operation or manual updating was started will be mastering the chart loading operations and synchronization until the completion of the process. All other stations should ONLY display the status of the synchronization and allow functions that are NOT connected to chart loading or updating.

The mastering station is automatically selected as the first one where the user starts chart loading (Scan Drives, Scan FTP). Upon start the system will make sure that NONE of the other stations online has started the process at the same time (i.e. will wait for 5 seconds).

If no other stations are engaged in chart loading then this station will be mastering the chart maintenance session until the end of the synchronization process, or the rejection. On all other stations the chart loading functions will be blocked.

Please note that eGlobe G2 does create a backup directory which improves reliability and redundancy. After each chart installation both directories will be synchronized.

Depending on the size of the newly installed data this process may take some minutes. The chart handling module of eGlobe G2 will NOT be operational for new updates while this process is running. All remaining functions of eGlobe G2, e.g. route planning or conduction of the voyage in *Sailing Mode* are NOT affected. However, the described process will be indicated as an information text in the *Chart Loader* as long as this process is running.

8.2.2 Loading Data from FTP

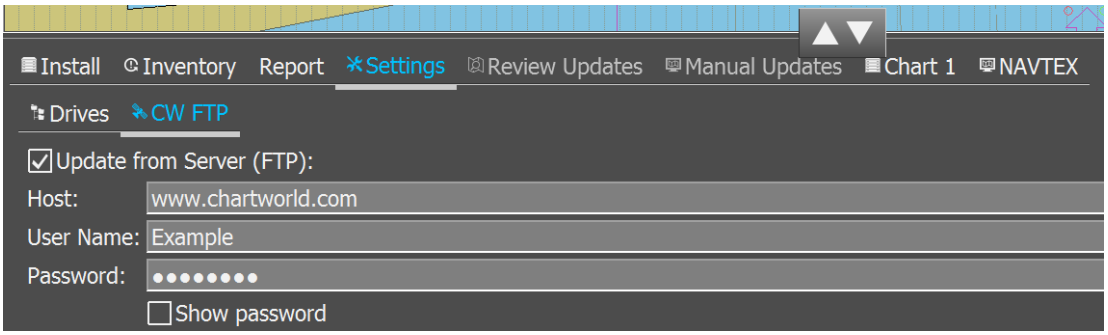
Charts and updates can be installed via a so-called FTP (File Transfer Protocol) account. Such account is set up at ChartWorld International for each installation of eGlobe G2.

To utilise an FTP connection a *User Name* and a *Password* are required. These are provided at the time of system commissioning. For example:

- User name: DC12345
- Password: CW1234

If this information is not available please contact the ChartWorld support.

User Name and *Password* have to be entered on the *Settings* tab *CW FTP* of *Chart Loader*.



Note that *Update from Server (FTP)* needs to be ticked. Otherwise *Scan FTP* on the *Install* tab will be greyed out and deactivated.

To download permits and data from the ChartWorld FTP server click on *Scan FTP*. After a successful download the *Scan Result* is displayed.

Note:

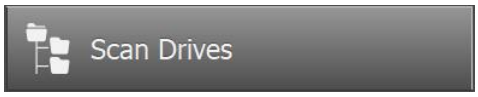
Unless explicitly arranged with ChartWorld the FTP account does not normally include ENC base cells; thus the ACES or AVCS media have to be used. To optimize the installation process it is recommended to keep *Keep a copy of latest media* in the *Settings* menu activated. This will allow the system to detect and keep a copy of the latest base media on the ECDIS internal storage and reuse it whenever necessary. In this case only newly delivered Base Media have to be scanned.

It is also recommended to always perform the installation from the same workstation (e.g. Backup).

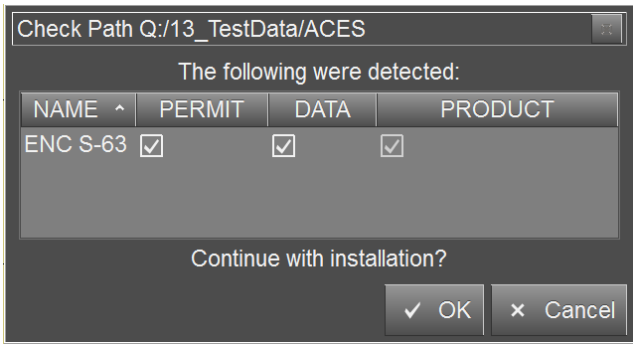
8.2.3 Loading Data from Media

The *Settings* page defines the most commonly used data paths (e.g. connectable DVD drive, USB memory stick, etc.). Use the *Settings* page to define the routine for weekly ENC updates and new coverage installation. This may include a specific path for scanning. Normally *Scan Drives* will initiate scanning all external dives and/or predefined paths as selected.

Connect the media with chart data and/or permits to one of the USB ports. Please allow a few seconds for the system getting the drive recognized.

Click on 

on the *Install* page to initiate scanning the connected media and/ or predefined path. The system then scans the media for relevant data and upon completion presents the result.



Displayed are relevant items that were found on the media. If, for any reason, one of the found items shall not be installed it is possible to deselect the respective item (e.g. DATA) within this dialogue. It is not possible to deselect item products.

One of the following options can be selected:

- OK – the system will continue to install all items found on the media (recommended).
- Cancel – cancels the operation.

Base Media

Depending on the respective scenario, base media may be required.

- New permits, new system: Base media required.
- New permits for extended chart coverage: Base media required.
- Updates, no change in chart coverage: Base media not required.

Base media can be e.g. DVDs, CDs, USB cards. There are:

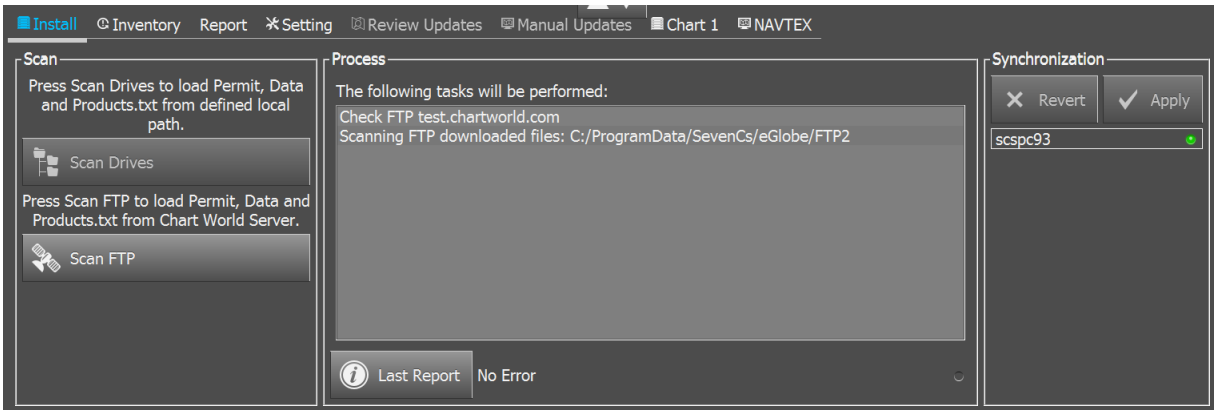
- ACES: Aces base media USB
- AVCS: AVCS DVD set or Base CDs
- ARCS: base CD set +updates

Note:

To optimize the installation process it is recommended to keep *Keep a copy of latest media* in the *Settings* menu activated. This setting will allow the system to detect and keep a copy of the latest base media on the ECDIS internal storage and reuse it whenever necessary. In this case only newly delivered Base Media have to be scanned.

It is also recommended to always perform the installation from the same workstation (e.g. Backup).

8.2.3.1 Installation Progress



For chart loading process the button *Scan Drives* has to be pressed.

As soon as the installation is confirmed the system will display the progress bar plus related messages.

The status indicator 

will show the interim results of the installation if the system detected any errors. The indicator will change to yellow in case some errors were detected during data import. The number of errors is displayed, too.

Should critical errors be detected the indicator will change to yellowish orange, and the affected data will not be imported.

The message window will display relevant messages. All messages and actions are recorded in the report file which is accessible via the button *Last Report*.

In case of critical errors the user has to reject the result of the latest chart installation by selecting *Revert*. Please note that *Revert* will only be available provided the installation did not run without critical errors.

If all charts were successfully installed only the *Apply Changes* button will be enabled. This button has to be clicked to start the synchronization process on the current station and all stations available via network.

8.2.3.2 Possible Error Messages

Error Code	Error/Warning Message	Implementation	Technical Description
SSE 01	Self-Signed Key is invalid	Not relevant, should not be displayed to customers. It affects the initial process between SA and DS.	SSE 01 must be returned when a self-signed key (SSK) cannot be validated against the public stored as part of the SSK. The data server must check that its own SSK is valid before sending it to the SA. The SA will confirm that the date server SSK before returning the SA signed data server certificate.
SSE 02	Format of Self-Signed Key file is incorrect	Not relevant, should not be displayed to customers. It affects the initial process between SA and DS.	SSE 02 must be returned if the SSK is wrongly formatted. That is if elements of the SSK or characters are missing. The SA and data servers must complete this check.
SSE 03	SA Signed Data Server Certificate is invalid	Not relevant, should not be displayed to customers. It affects the initial process between SA and DS.	SSE 03 must be returned if the SA signed data server certificate does not authenticate correctly against the SA public key. This validation process must be carried out by the SA before supplying it to the data server. The data server must validate the SA certificate received from the SA. The data client must validate the SA certificate contained in the ENC signature file prior to decryption.

SSE 04	Format of SA Signed DS Certificate is incorrect	Not relevant, should not be displayed to customers. It affects the initial process between SA and DS.	SSE 04 must be returned if the SA signed data server certificate is wrongly formatted. This must be carried out by the data server on receipt from the SA.
SSE 05	SA Digital Certificate (X509) file is not available. A valid certificate can be obtained from the IHO website or your data supplier.	The scheme administrator's certificate is not installed on the ECDIS/ECS. It can be obtained from the IHO website (IHO.CRT).	SSE 05 must be returned if there is no certificate installed on the data client, or the path cannot be found.
SSE 06	The SA Signed Data Server Certificate is invalid. The SA may have issued a new public key or the ENC may originate from another service. A new SA public key can be obtained from the IHO website or from your data supplier.	The data cannot be validated. The certificate does not validate against the signature file. Either the certificate is corrupted or outdated, or the data signature is corrupted. In either case the data server needs to be contacted.	SSE 06 must be returned if the SA digital certificate (public key) does not validate against the following: SA digital certificate will not validate against the SA public key. The SA public key contained in the digital certificate will not authenticate against the signature contained in the ENC signature file. This could be a case of the certificate being invalid, or an invalid or badly formatted signature.
SSE 07	SA signed DS Certificate file is not available. A valid certificate can be obtained from the IHO website or your data supplier.	Not relevant, should not be displayed to customers. It affects the initial process between SA and DS.	SSE 07 must be returned if the SA signed data server certificate is not available to the data server for checking or is not present in the ENC signature file when the data client attempts to authenticate it.

SSE 08	SA Digital Certificate (X509) file incorrect format. A valid certificate can be obtained from the IHO website or your data supplier.	The scheme administrator's certificate is corrupted. A new one can be obtained from the IHO website (IHO.CRT).	SSE 08 must be returned if the SA public key held in the SA digital certificate is wrongly formatted or the certificate file is unreadable.
SSE 09	ENC Signature is invalid	The data signature is invalid. This may happen when copying data to a USB stick, for instance. The data server needs to be contacted.	SSE 09 must be returned if the ENC signature element in the ENC signature file does not authenticate against the data server public key contained in the certificate element of the ENC signature file.
SSE 10	Permits not available for this Data Server. Contact your data supplier to obtain the correct permits.		SSE 10 must be returned if there are no cell permits available for a particular data server corresponding to the exchange set that was loaded.
SSE 11	Cell Permit file not found. Load the permit file provided by the data supplier.		SSE 11 must be returned if there are no permits installed on the system.
SSE 12	Cell Permit format is incorrect. Contact your data supplier and obtain a new permit file.		SSE 12 must be returned if the cell permits are formatted incorrectly.
SSE 13	Cell Permit is invalid (checksum is incorrect). Contact your data supplier and obtain a new permit file.		SSE 13 must be returned if the calculated CRC of the cell permit does not validate against the CRC held in that cell permit [Data Clients]. This may be a HW_ID problem, corruption during transmission or the permits are for a different system.

SSE 14	Incorrect system date, check that the computer clock (if accessible) is set correctly or contact your system supplier.		SSE 14 must be returned if the system date does not agree with the date obtained from any alternative, reliable date source, e.g. GPS [Data Clients].
SSE 15	Subscription service has expired. Please contact your data supplier to renew the subscription license.	This message is displayed in case the cell permit expiry date is earlier than the date received from the system clock.	SSE 15 must be returned if the expiry date of the cell permit is earlier than that obtained from the validated system date [Data Clients].
SSE 16	ENC CRC value is incorrect. Contact your data supplier as ENC(s) may be corrupted, or data are missing.	The extracted S-57 file is validated with a checksum that is stored within the catalogue. If this check fails this error message is issued**.**	SSE 16 must be returned if the calculated CRC value of the ENC (after decryption and decompression) does not validate against the corresponding CRC value in the CATALOG.031 file. This also applies to the unencrypted signature, text and picture files [Data Clients].
SSE 17	User permit is invalid (checksum is incorrect). Check that the correct hardware device (dongle) is connected or contact your system supplier to obtain a valid user permit.		SSE 17 must be returned if the CRC contained in the user permit does not validate against the calculated CRC of the extracted HW_ID [Data Servers].
SSE 18	HW_ID is in incorrect format.		SSE 18 must be returned if the if the decrypted HW_ID extracted from the user permit is incorrectly formatted [Data Servers].

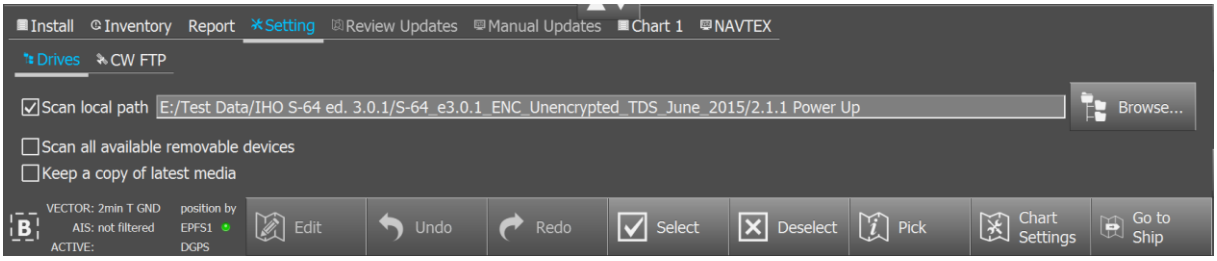
SSE 19	Permits are not valid for this system. Contact your data supplier to obtain the correct permits.		
SSE 20	Subscription service will expire in less than 30 days. Please contact your data supplier to renew the subscription licence.		SSE 20 must be returned if the subscription licence is due to expire within 30 days or less.
SSE 21	Decryption failed, no valid cell permit found. Permits may be for another system or new permits may be required. Please contact your supplier to obtain a new licence.	No permit found for the permit file.	SSE 21 must be returned if a valid cell key (decryption key) cannot be obtained from the relevant cell permit to enable the system to decrypt the corresponding ENC cell.
SSE 22	SA Digital Certificate (X509) has expired. A new SA public key can be obtained from the IHO website or from your data supplier.	**The scheme administrator certificate (IHO.CRT) has expired. A new** one can be obtained from the IHO website (IHO.CRT).	SSE 22 must be returned if the SA Digital Certificate (X509) has expired. That is if the "Valid to" date in the certificate is older than the validated system date.
SSE 23	Non sequential update, previous update(s) missing. Try reloading from the base media. If the problem persists contact your data supplier.		SSE 23 must be returned if the imported ENC update is not sequential with the latest update already contained in the SENC for any given cell. Under these conditions the update process (for the cell) must be terminated, and the ECDIS is to display a warning when the cell is displayed stating that the cell is not up to date and should not be used for navigation.

SSE 24	ENC Signature format incorrect, contact your data supplier.	Equals SSE 09.	SSE 24 must be returned if the ENC signature format (first R & S pair) is not compatible with the format outlined in this document. Under these conditions the import process for the cell should be terminated but the system should continue to authenticate the integrity of any remaining cells.
SSE 25	Viewer – "The permit for ENC<cell name> has expired. This cell may be out of date and MUST NOT be used for Primary NAVIGATION".		SSE 25 must be returned if the stored ENC permit for any given cell has expired. It should be possible to view the cell but a permanent warning message must be displayed informing the user, e.g. "The permit for ENC<cell name> has expired. This cell may be out of date and MUST NOT be used for Primary NAVIGATION".

SSE 26	This ENC is not authenticated by the IHO acting as the Scheme Administrator.	If the data validates against another certificate than the one from the scheme administrator it has to be considered as invalid.	SSE 26 must be returned if the signed certificate (in the ENC signature file) authenticates against a certificate or public key file stored on the Data Client other than the one provided by the SA. This caters for instances where more than one certificate or public key is stored on the Data Client.
SSE 27	Viewer – "ENC<cell name> is not up to date. A New Edition, Re-Issue or Update for this cell is missing and therefore MUST NOT be used for Primary NAVIGATION".		SSE 27 must be returned if the status of the cell being viewed is not up-to-date with respect to the latest PRODUCTS.TXT file loaded or maintained on the system. A permanent warning message must be displayed on screen informing the user, e.g. "ENC<cell name> is not up to date. A New Edition, Re-Issue or Update for this cell is missing and therefore MUST NOT be used for Primary NAVIGATION".

List of possible error messages

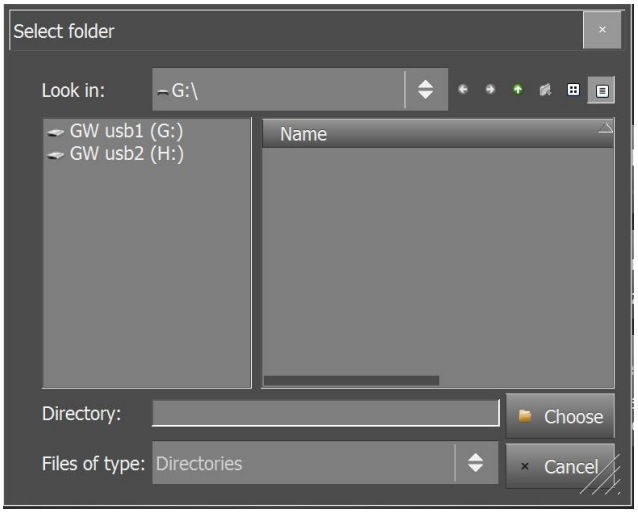
8.2.4 Chart Loading *Settings* Tab



To define the source of the data the settings must be selected first. If removable devices are used to load data into the ECDIS the option *Scan all available removable devices* is recommended. For a specific path within a file structure (for example, if Chart Browser was used to load updates into a defined folder) select *Scan local path* and choose the correct path via the *Browse* button.

Note:

When loading data from media and using eSecure you can only choose between USB1 and USB2 (see figure below).



If there is a connection to the Internet you can check *Update from ChartWorld Server* (FTP) to directly load the data into your system.

Keep a copy of latest media saves the content of the medium charts were last installed from to a predefined location making it available for future use. Note that when this function is enabled eGlobe G2 will initialize an internal process once a new base medium was connected

to the ECDIS and the regular installation has been performed. So, do not remove the base medium until the process is terminated. The function works for ACES as well as for AVCS base media.

After the data were applied, they become part of the inventory, and the correctness can be checked.

Note:

It is recommended to always perform chart installations on the same station within a network. Installed charts should then be synchronized with other stations on a regular basis.

8.3 Chart Inventory

The *Inventory* displays the status of the chart collection with regard to applied updates and validity of licenses.

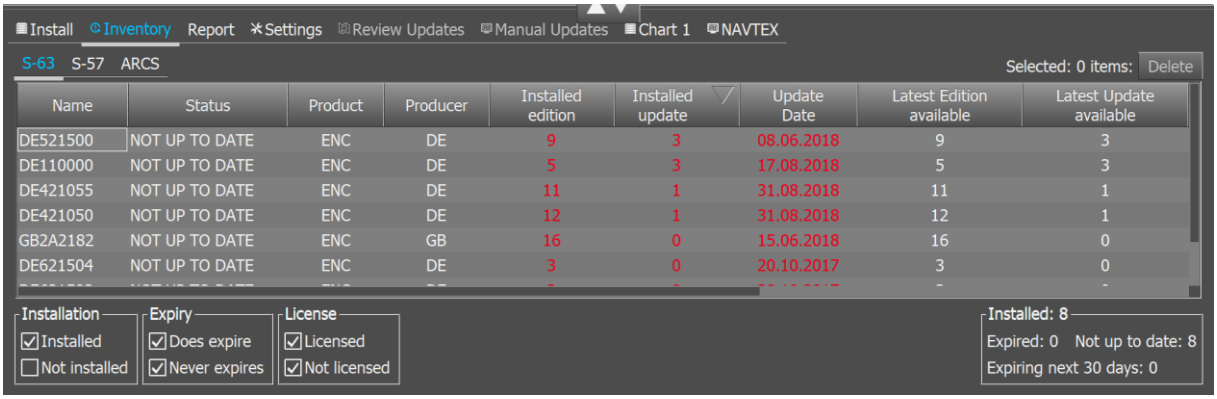


Chart Inventory displaying the preinstalled world-overview charts

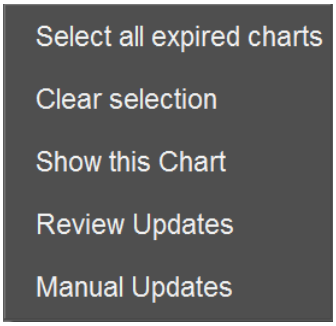
The table displays the list of items according to the filter selection. All items which are available in the service are displayed in the chart view as chart frames/outlines. Installed chart frames are marked with solid lines while not installed charts are marked with dotted lines. Different colours represent the formats/products of the charts:

- S57/S63 – Magenta
- ARCS – Green

The same filter settings apply to table and chart view. However, the latter includes graphical frames of all formats regardless of the format subpage selected.

It is possible to select items graphically by a rectangle drawn on the chart. To do so, use *Select* in the Toolbar.

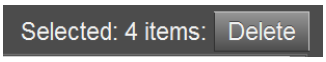
In the chart list it is possible to open a context menu.



Available options:

- **Select all expired charts** (selects all charts with expired permits)
- **Clear selection** (clears the list)
- **Show this Chart** (centres the screen at the centre of the chart and changes the scale close to compilation scale of the selected chart.). No other ENCs/charts will be displayed.
- **Review updates**
- **Manual updates**

Once items have been selected, the system will display the number.



8.3.1 Deletion of Charts

It is possible to delete selected items. Note that the selection method in the table is related to the setting *Use touchscreen settings* which can be enabled or disabled in the *Settings* task. This is to optimize the system when performing eGlobe G2 depending on whether a touchscreen is used or not.

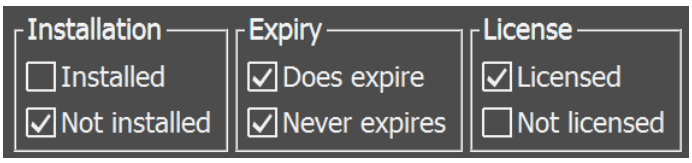
It is possible to delete on or more charts as follows:

1. Select the chart(s) to be deleted.
2. Tap on the *Delete* button.
3. Confirm in the confirmation window.

In addition it is possible to directly select *All expired charts.*

8.3.2 Filters

The current table view can be filtered according to the parameters depicted in the figure below.

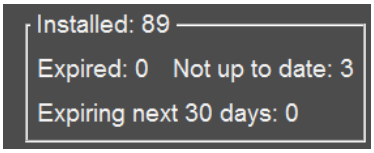


Note

The filters only affect the current table relevant for the selected chart product (S-63, S-57 and ARCS).

8.3.3 Overview

The charts displayed in the table can be effectively overviewed according to their number and validity. This provides a fast method to check whether an action on charts is required or not.



8.3.4 Toolbar Content

The *Toolbar* includes the following buttons:

- Edit
- Undo
- Redo
- Select
- Deselect
- Pick
- Chart Settings
- Go to Ship

8.3.5 Format Subpage

The table includes the following fields:

- Name (cell/chart name)
- Status (show status of each items with regards to actions required)
- Product (product type)
- Producer (publishing authority, HO)
- Installed Edition (number)
- Installed Update (number of last update)
- Update Date (date of issue of last update)
- Latest Edition Available
- Latest Update Available
- Date of Latest Update
- Expiry Date

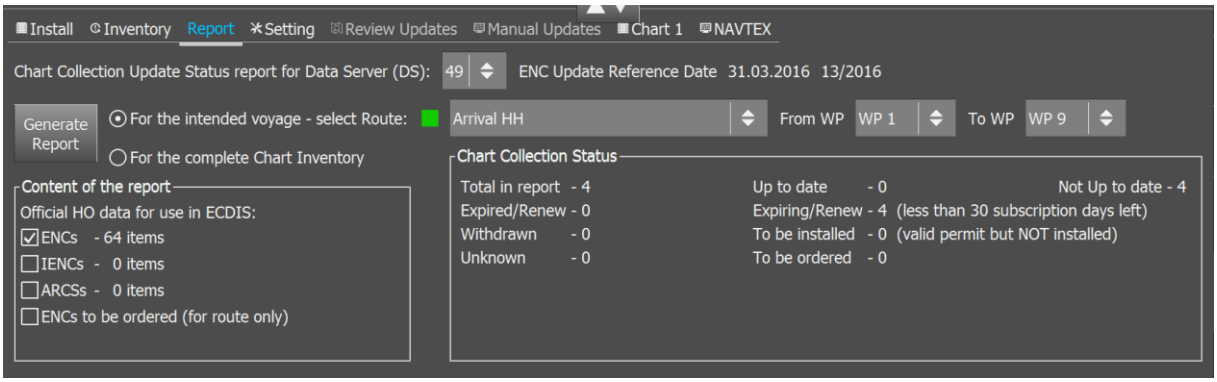
- Data Server
- Last Update Applied (i.e. date when last mentioned update / installation was applied to SENC)

It is possible to sort data in the table by any field as selected.

The page includes summary section (Installed total, Expired, Expiring next 30 days, Not up to date).

8.4 Reports

This chapter describes how to generate ENC Update Status reports as PDF files.



The button *Generate Report* on the left-hand side allows for creating a report on the currently loaded chart inventory, or on charts required for an intended voyage.

Once the button has been tapped a confirmation window appears to indicate that the report has been successfully stored. The report is available on the *Reports* tab in the File Manager which can be opened from within the Integrator.

This function especially helps to track and later on prove the correct handling of chart work.

The following is a screenshot of the generated report:

ENC Update Status Report

Vessel Name:	Vessel
Identifier:	IMO 1111111
ENC Update Reference Date:	28.04.2016: WK17/2016 (49)
Date of Report:	01.06.2016
Content:	Full
ECDIS:	SevenCs eGlobe ver. 1.1.0.72
Chart Status Summary:	
Chart Status:	**Count**
Total*:	231
Up to Date	0/231
Not Up to Date	227/231
Expiring	0/231
Expired	53/231
Withdrawn	0/231
To be installed	3/231
Unknown	1/231
To be ordered	0/231

* - Report includes some other chart data in addition to ENCs (see details below).

Data Server: 49

Cell Name	Product/ Producer	Ed. Inst.	Ed. Avail.	Upd. Inst.	Upd. Avail.	Issue Date	Status	Manual Updates	Lincensed Until	Action
BE3VLBNK	ENC/BE	27	27	19	19	29.03.2016	Not Up to Date	No	31.05.2016	Update
C1514291	ENC/C1	3	3	20	20	04.01.2016	Not Up to Date	No	31.05.2016	Update

Figure only shows a part of the report

Cell Name = Cell name

Product/Producer = Chart Producer

Edition installed = from SENC/Catalogue; shows installed edition number.

Edition Available = from SENC/Catalogue; shows if a newer edition is available

Update Inst. = from SENC/Catalogue

Update Avail. = from SENC/Catalogue

Update Date = from SENC/Catalogue (to be cross-checked with update date from PRODUCT.TXT to be NOT older than 4 weeks, otherwise highlighted red in Inventory view.

Applied Date = from SENC/Catalogue, date of last update application.

Manual Updates = Shows if manual updates were applied on the cell.

Licensed until Date = permit validity, yellow if less than 30 days left, red if expired (in Inventory view).

Status = Directly indicates if the update status is not okay.

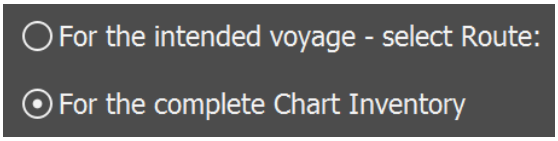
Note:

Colour highlight is relevant for inventory view only. The PDF report is monochrome.

File name and extension are generated automatically. The export is carried out in PDF format.

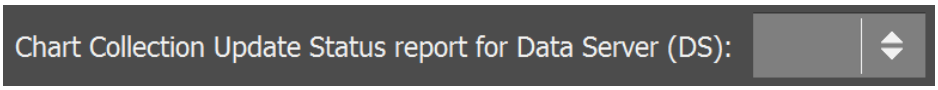
8.4.1 Inventory Report

To create a report on the Chart Inventory select the respective radio button.



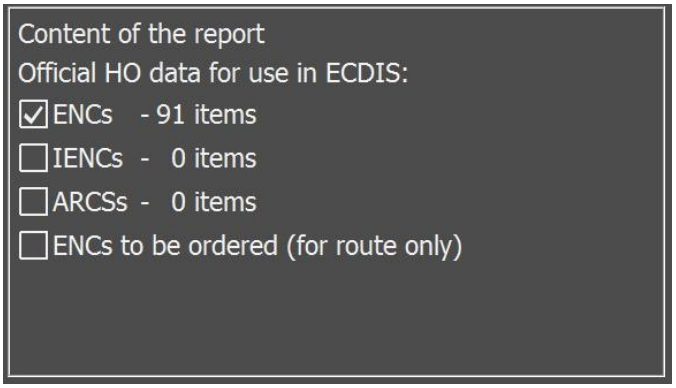
The report can be limited to cells from a single Data Server (DS).

To do so use the following selection method:



All available DS (Definition: Term used to represent an organisation providing an ENC service protected by the S-63 Data Protection Scheme, for example UKHO AVCS=GB, ChartWorld ACES=49) will be listed in the drop-down list to the right of the text.

Furthermore, it is possible to define which chart products shall be considered in the report. To do so, tick the respective checkboxes.



Content of the Report

For official HO data supported by the system:

- ENCs (both S57 and S63)
- IENCs
- ARCS

- ENCs to be ordered (cells that are NOT available in the collection, but the cell boundaries have an intersection with the selected route or part of it). This is not applicable for the complete chart Inventory Reports.

8.4.2 Route Related Reports

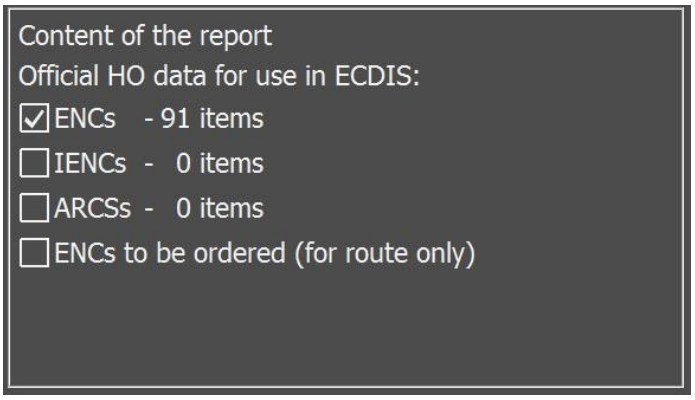
A report on charts can be stored for e.g. subsequent voyage archiving. To create such report, tap on the *Route* radio button.



Select the route which shall become the basis for the report.

By default the complete route will be considered. For selecting just a section of the route select the first and last waypoint on the right hand side.

The report will be generated for the selected products.



eGlobe G2 will crosscheck the available charts against the PRODUCTS.TXT delivered with every weekly chart update.

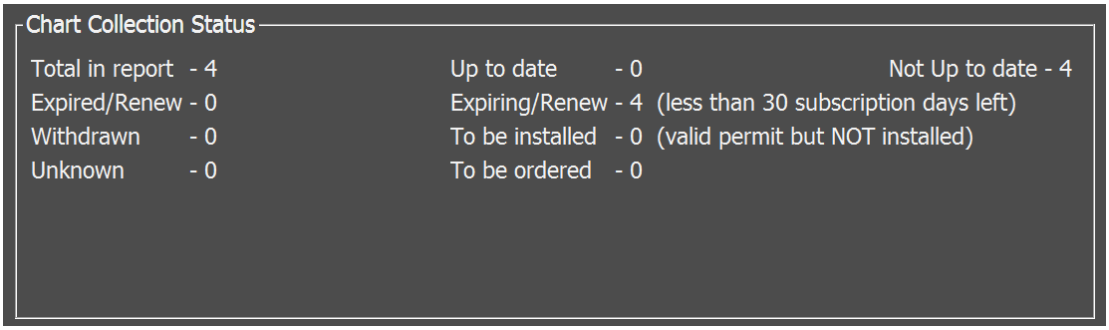
The PRODUCTS.TXT also provides information on all available ENCs in the service. If a cell is available and required for the intended voyage this cell will be listed in the report provided the checkbox *ENCs to be ordered* was selected.

8.4.3 Chart Collection Status

This section displays the statistics/content of the report according to the previously set selections (route or entire collection, type of data). This helps identifying activities possibly required for having an error-free collection status (e.g. up-to-date status of the collection or missing charts to be installed) before report generation.

The actions performed in the *Report* table will instantly be reflected in the Chart Collection Status section. If, for example, 10 ARCS charts have expired this will be reflected in the

collection status only provided the ARCSs checkbox is ticked. As soon as it is unticked the chart collection status will list these 10 expired charts no longer.



Note

If the media state (date) in the PRODUCTS.TXT is older than 4 weeks all S-63 ENC items will be considered as Not Up to Date.

The generated reports are automatically saved in the *File Manager* under the tab *Reports*.

8.5 Manual Updates

Manual updates may be necessary to avoid dangerous gaps until official updates have been received on board. Hence these updates should be regarded as temporary corrections.

Note:

Objects which are manually inserted into an official chart can be complemented with an ID; typically this is the name of the user. This ID must be entered before the chart correction is started.

Start the manual update editor:

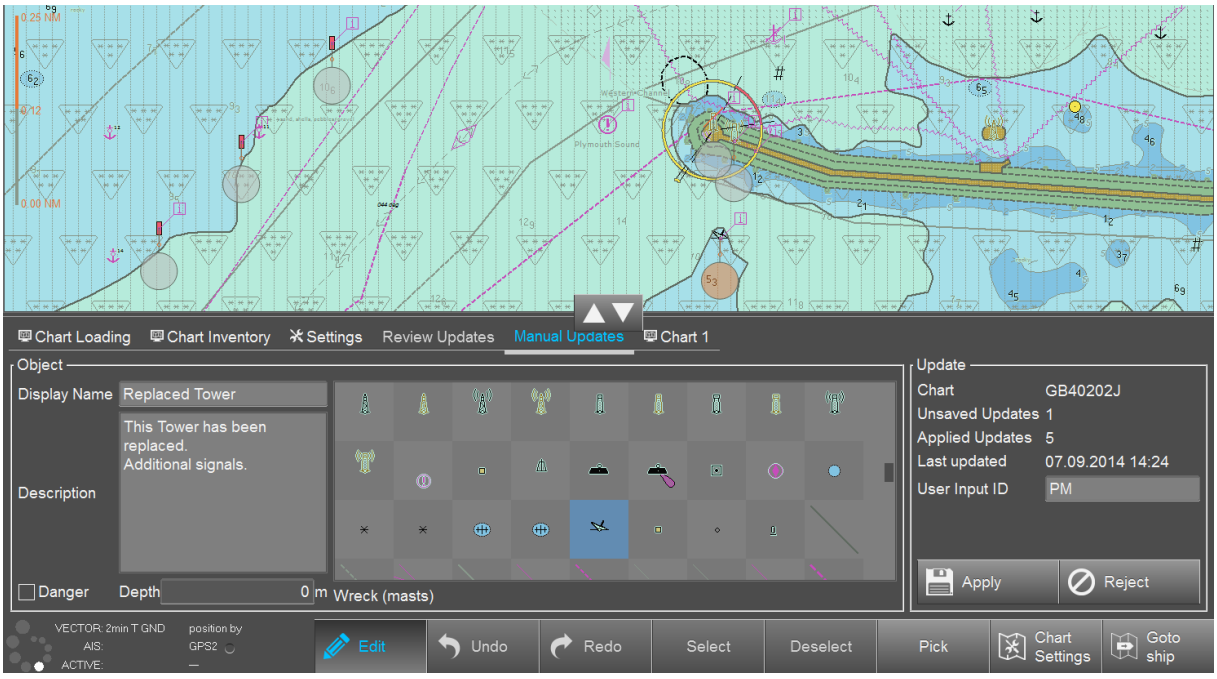
1. Left click on *Chart Loader* in the Task Bar and select a chart to be updated from the list.
2. Open the context menu of the selected chart and select *Manual Updates*.

Now the selected cell is automatically loaded and centred in the chart view. The table provides all tools to manually correct/supplement the chart with the required objects.

Note:

If you want to view the logged history of applied updates for the specific chart, select the subpage *Review Updates* in the *Chart Loader* task. In *Review Updates* both automatic updates (official chart updates) and manual corrections are logged.

View after taking these steps:



GUI of Manual Updates

Once the user has tapped on *Manual Correction* the respective content will be loaded into the table.

Verification part helps to track the updates applied. The User input ID has to be entered once per session until the entered updates have been applied or rejected. After that the ID must be entered again.

Whenever an action was taken in this section it can be easily rejected and it will not affect the charts at all. This is to ensure that no incorrect action will be applied accidentally.

The following editor options are available:

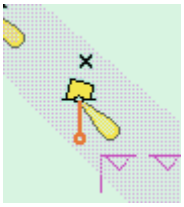
Insert Updates:

1. Start the manual update editor as described above.
2. Type Information about update, type the Object Name (optional).
3. Select an object by left click (the object will be highlighted in the table as an indicator that the activation was successful).
   The object preview is scrollable.

4. Touch at the correct position on the chart display to create the object. A handle will appear providing the opportunity to further move the object.
   The object appears at the selected position with an orange user mark.

Note:

The *Edit* button in the Toolbar is activated once the manual updating process has been started. If it had been disabled (e.g. in case the updating process was interrupted and it was to ensure that meanwhile no objects were added to the cell) it will not be possible to insert objects until *Edit* is enabled again.



Inserted manual update

Note:

Objects which are defined by more than one position, e.g. lines or areas (multi point objects), have to be finished by creating the last point above the first, or by tapping the text on the chart `Click here to finish`.

Delete Updates from the Chart:

1. Start the manual update editor as described above.
2. On the chart, select an object to be deleted by right click. A context menu will open, providing the option to delete an object. Once acknowledged, a window will appear listing all objects which are available at this spot.

Please note that all actions can easily be recovered using *Undo*. For rejecting Undo actions use *Redo.*

Move Objects:

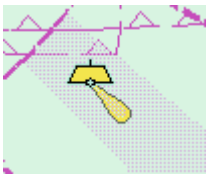
1. Start the manual update editor as described above.
2. Once the desired object is visible in the chart view and the Edit button is enabled every object has a handle to facilitate moving the object.

Withdraw Updates:

1. Start the manual update editor as described above.
2. Open the context menu on the desired object and tap on *Withdraw Updates* (ensure that

the *Edit*-function is enabled, i.e. the lettering is blue).

The original chart object is re-established.



Result of withdrawing an update

8.6 Review Updates

Use case:
New updates have been loaded into the ECDIS and the user wants to inquire which updates have been applied to the charts.
The *Chart Inventory* provides the option to sort the charts according to headline information such as *Last Update Applied*. This functionality can assist the user to identify the currently updated charts (if, for example, he wants to view the latest updates).

To view the changes applied by updates open the context menu of the marked cell in the *Inventory* and select *Review Updates*.

To select a cell there are two possibilities:

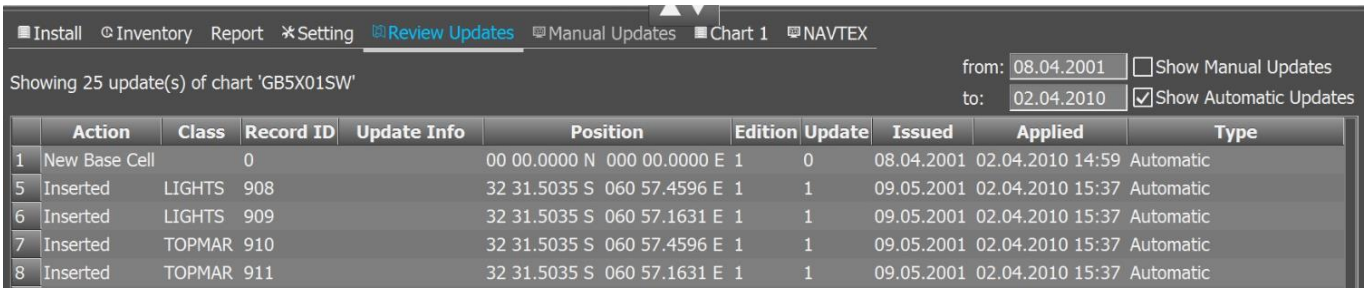
1. Select the cell from the Inventory so that it is highlighted.
2. Select the desired chart from the chart view via context menu. The context menu will display all cells located at the position where the context menu was opened.

After the context menu of the marked cell was opened and the *Review Updates* function was selected the chart view will change accordingly and display only the selected chart.

The figure below depicts a table view listing the available updates.

Note:

If a cell is delivered to the system as a new edition or a reissue and no updates have been applied so far the table will be empty.



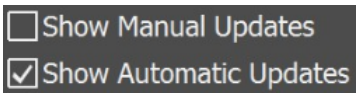
	Action	Class	Record ID	Update Info	Position	Edition	Update	Issued	Applied	Type
1	New Base Cell		0		00 00.0000 N 000 00.0000 E	1	0	08.04.2001	02.04.2010 14:59	Automatic
5	Inserted	LIGHTS	908		32 31.5035 S 060 57.4596 E	1	1	09.05.2001	02.04.2010 15:37	Automatic
6	Inserted	LIGHTS	909		32 31.5035 S 060 57.1631 E	1	1	09.05.2001	02.04.2010 15:37	Automatic
7	Inserted	TOPMAR	910		32 31.5035 S 060 57.4596 E	1	1	09.05.2001	02.04.2010 15:37	Automatic
8	Inserted	TOPMAR	911		32 31.5035 S 060 57.1631 E	1	1	09.05.2001	02.04.2010 15:37	Automatic

GUI of Review Updates

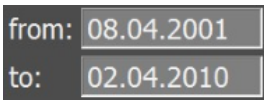
To visually go through the updates in the chart it is possible to use the keyboard buttons Up and Down, or tap on the respective items in case a touchscreen is used. The next update will be automatically highlighted.

8.6.1 Table View Filtering

The table view to review updates can be filtered for Manual Updates (see chapter Manual Updates), for Automatic Updates (delivered by ChartWorld), or for both at once.



In addition a date range can be defined.



8.7 NAVTEX

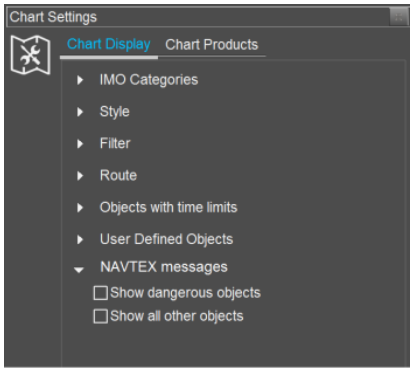
eGlobe G2 offers to incorporate NAVTEX messages as a separate overlay.

The function requires a hardware cable connection with NAVTEX. This connection has to be set up in the Configuration Utility by the Technical Engineer on Installation.

As soon as the configuration has been carried out eGlobe G2 will automatically receive new messages.

Received messages will be automatically extracted with respect to the geographical position of the NAVTEX-messages content, and the objects will be drawn in the overlay.

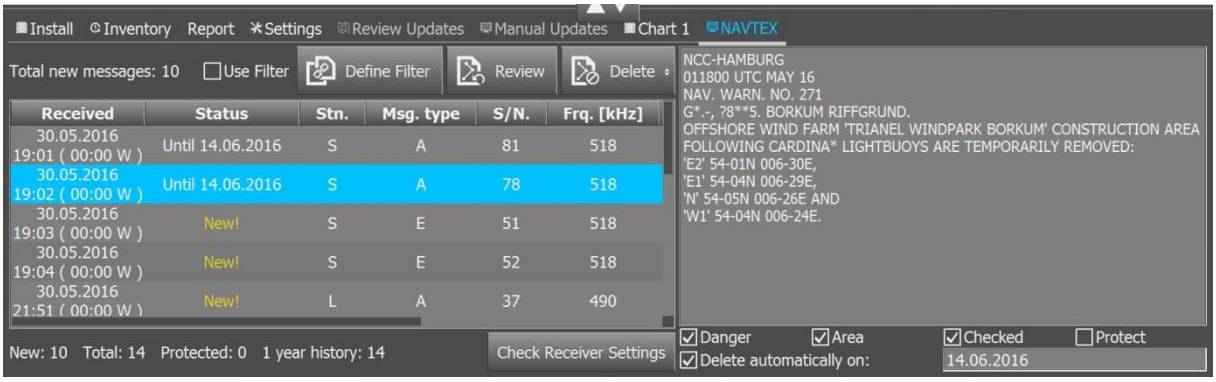
The visibility of NAVTEX-messages can be defined in the *Chart Settings* dialogue of the respective task (S-Mode, Sailing Mode, Planning Mode and Chart Loader). By default newly incoming messages are set to *dangerous*. This status can later be redefined in the NAVTEX manual function provided by eGlobe G2 in the Chart Loader task.



Note:

Objects which do not provide full position information may not be directly inserted in the chart view. Missing digits in the position information will be indicated by an asterisk (*), and the error rate for that message will reflect this.

The NAVTEX table can be opened in *Chart Loader* by selecting the *NAVTEX* tab.

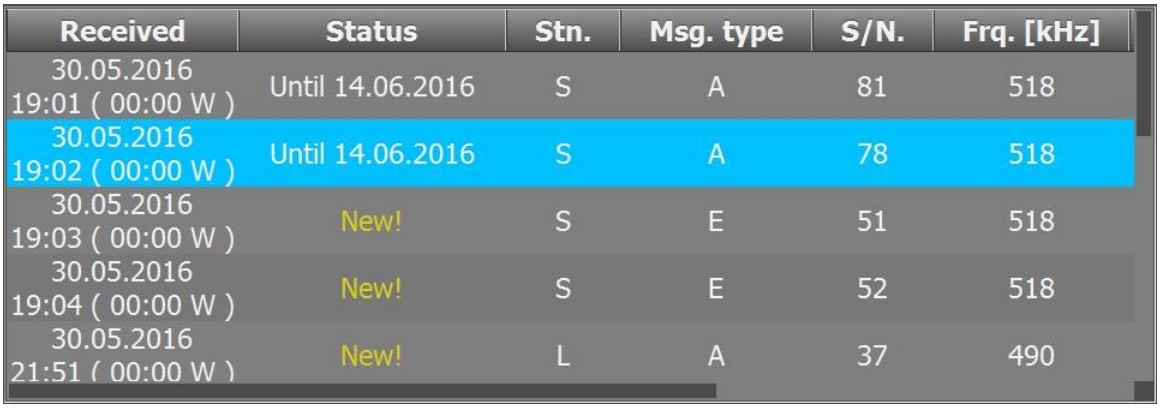


NAVTEX table overview

8.7.1 Function Overview

8.7.1.1 Message List

All messages concerning the currently selected filters are displayed in the NAVTEX message list.



Received	Status	Stn.	Msg. type	S/N.	Frq. [kHz]
30.05.2016 19:01 (00:00 W)	Until 14.06.2016	S	A	81	518
30.05.2016 19:02 (00:00 W)	Until 14.06.2016	S	A	78	518
30.05.2016 19:03 (00:00 W)	New!	S	E	51	518
30.05.2016 19:04 (00:00 W)	New!	S	E	52	518
30.05.2016 21:51 (00:00 W)	New!	L	A	37	490

If one of the messages is selected by single tap (or left click), the message details will be displayed in the right table part.

Column Overview:

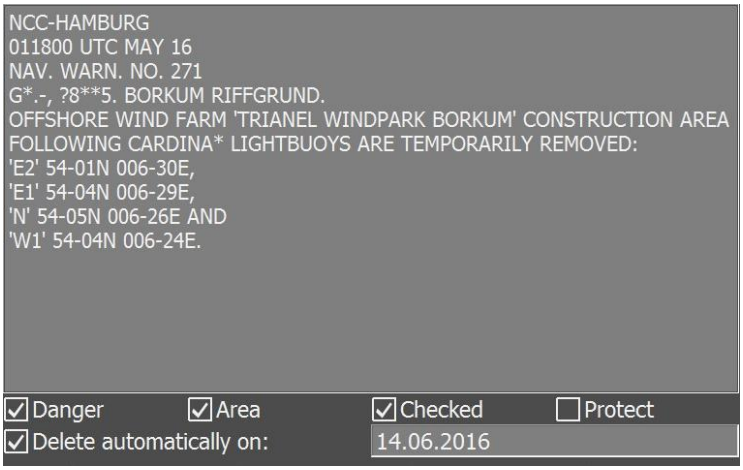
Column	Description	Note
Received	UTC Date and time when message was included (after successful processing) into eGlobe G2 database.	Not editable. Defined automatically.
Status	Describes the status of the message as assigned by the system (New) or defined by the operator.	Not editable. Defined automatically. See Status table below.
Stn.	Identifier of transmitting NAVTEX station location.	Not editable. Defined automatically.
Msg. type	Identifier of NAVTEX message subject.	Not editable. Defined automatically.
S/N	Serial number of the message.	Not editable. Defined automatically.
Frq.[kHz]	Frequency of the receiver when message was received (490 kHz; 518 kHz or 4 209,5 kHz).	Not editable. Defined automatically.
Pos.	Number of extracted positions.	Not editable.

Danger	Danger attribute to message conditions. Object from this message will be detected by antigrounding and route check functions. All new messages with at least one position detected shall be set to *Danger* by default.	Editable in message view.
Protect	Checkbox set by the operator that shall protect the important message from being accidently deleted.	Editable in message view, not in the table.
Error [%]	Error rate of the missing symbols (* instead of character).	Not editable. Defined automatically.

Status Table Overview:

Status	Description
New!	Newly received message that has NOT been checked yet by the operator. There are no message with the same ID detected in the DB (Station, Subject, S/N).
Duplicate!	Newly received message that has NOT been checked yet by the operator. Some previously received message(s) with the same ID is detected in the DB (Station, Subject, S/N).
Checked	Message that has been checked. Review by the operator implies that the table is opened and focus was on this message so the text of the message is visible in the message content view. Checkbox "Checked" is ticked.
Until dd.mm.yyyy	Message that has been checked and defined by the operator to be automatically deleted at the particular date.

8.7.1.2 Selected Message Details



Once a message from the left overview table was selected, the details of this message will be displayed in the right part of the table.

It is possible to amend the message with attributes such as *Danger*, *Area*, *Checked*, and *Protect*. The message update in case of any attribute change will immediately lead to an update of the other stations within the network.

An automated deletion order can be defined via activating the checkbox *Delete automatically on…*.

8.7.1.3 Indication of New Messages

New messages are indicated by a text in the top left corner of the table.



8.7.1.4 Filtering of Messages

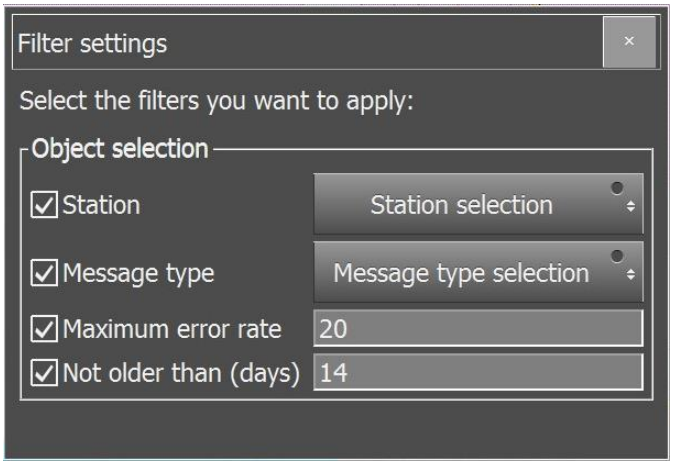
The message list can be filtered according to set filters so that only a specific selection will be listed.

Furthermore the selected filter applies only to the table and does not apply to all chart views of the station on which the filters were set.

To apply or disregard the filters, activate or deactivate the checkbox filter.

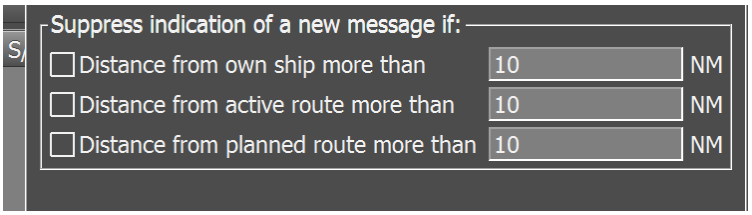


To define the required filters open the dialogue offered via the *Define Filter* button.



By default no filtering is applied.

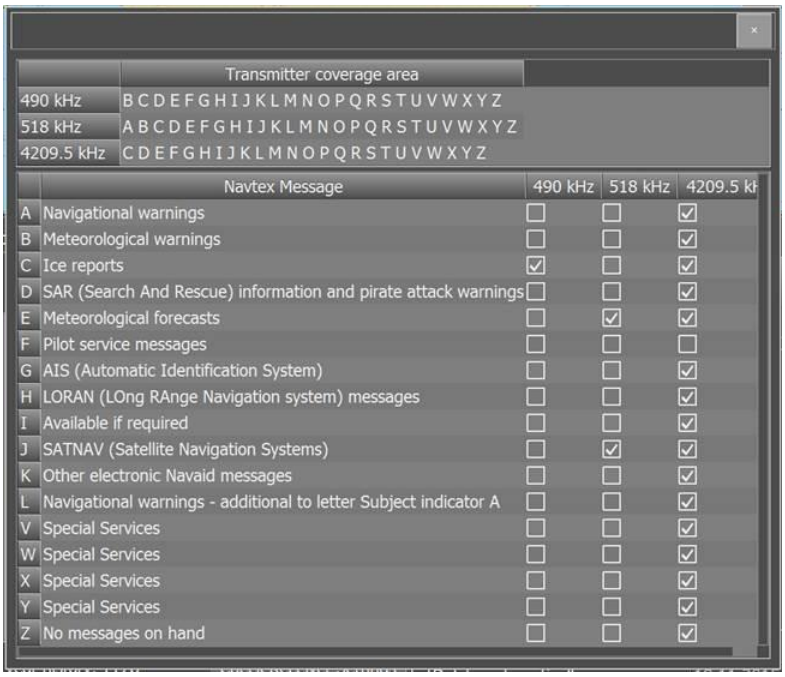
Notification of newly received messages may be suppressed depending on the distance to the own ship, active and/or planned route.



8.7.1.5 Check Receiver Settings Dialogue

The receiver settings dialogue enables the user to cross-check which settings are configured in the Navtex unit.

In addition, the display can be used to verify that the selected stations and their messages (to be done on Navtex) are correctly interpreted in eGlobe G2.



8.7.1.6 Delete Messages

Old messages can be deleted. To do so, select one or more entries from the left table view. A selected message (selectable via single tap) is highlighted blue.

> **Note:**
>
> After selecting an entry from the list the message details are displayed in the right part of the table. As soon as more than one message is selected there will be no more details listed.

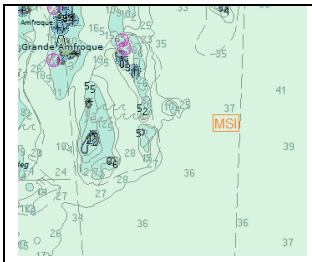
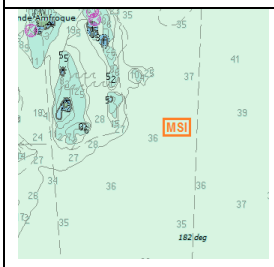
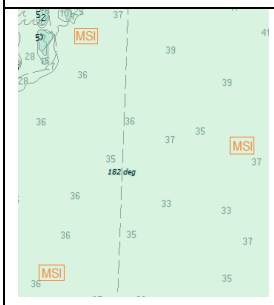
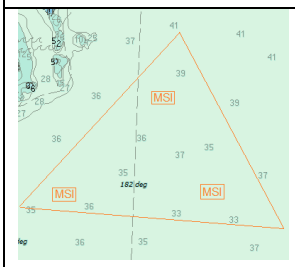
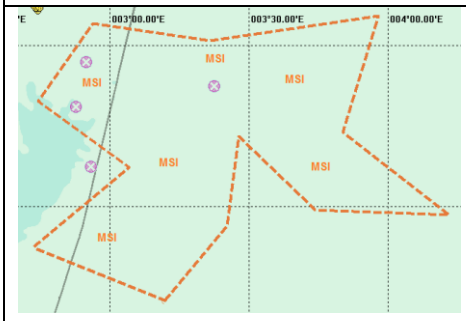
After the messages to be deleted are highlighted a tap on *Delete* will open a confirmation window. In this window all selected messages are displayed.

On confirmation these messages will be permanently deleted.

> **Note:**
>
> Please maintain the Navtex message database to ensure that the performance of the function will not get impaired. In addition, per default eGlobe G2 always activates *Delete automatically on* to delete a message after two weeks referenced to UTC.

8.7.2 Symbolization

NAVTEX messages can be symbolized as follows:

	Point Object, Checked.
	Point Object, New. Displayed in bold font and line.
	Multiple Point objects from one message. Not an area. Checked.
	Multiple Point objects from one message. Area. Checked. Borderlines are dashed.
	Multiple Point objects from one message. New. Area (by default). This is a typical rig list display newly received. Displayed in bold font and line.

8.7.3 View Information on a Charted Message

The information on a charted message is available via Pick Report (see chapter Pick 

).

Open the pick report window, tap on the point or line object, and open the entry *Navtex* which appears in the list of picked objects in the report dialogue.

All information on the Navtex message will be displayed.

8.7.4 Antigrounding and Route Check

NAVTEX objects with the attribute *Dangerous* will be detected by the antigrounding *Look-Ahead* (see chapter Look-Ahead and Display Settings for Route Monitoring) and route check. This is equivalent to the function in *User Charts*. Objects filtered out to be not visible/not used will not trigger an alarm.

8.8 Chart 1

8.8.1 ECDIS Symbols/Chart1

eGlobe G2 offers a chart legend with an overview of all display symbols according to Chart 1 (INT 1). The Chart 1 is in line with the newest presentation library. To check the version number open the Settings page inside the Navigation Mode (System Compliance box).

Open "chart 1" in ECDIS as follows:

1. Open the *Chart Loader* task.
2. Click on the subpage *Chart 1* and the field below will show the available cells for Chart1.
3. Tap on one category button. The chart view will load the chart including the related symbols according to IHO Publication S-52 ANNEX A, Ed. 4.0.2, July 2017. The cell is automatically centred with an appropriate range to oversee the complete part of chart 1.
4. To get details of a specific symbol the pick report can be used. Once the pick report is active and user selects a symbol by touching on it the legend of the object will be displayed.

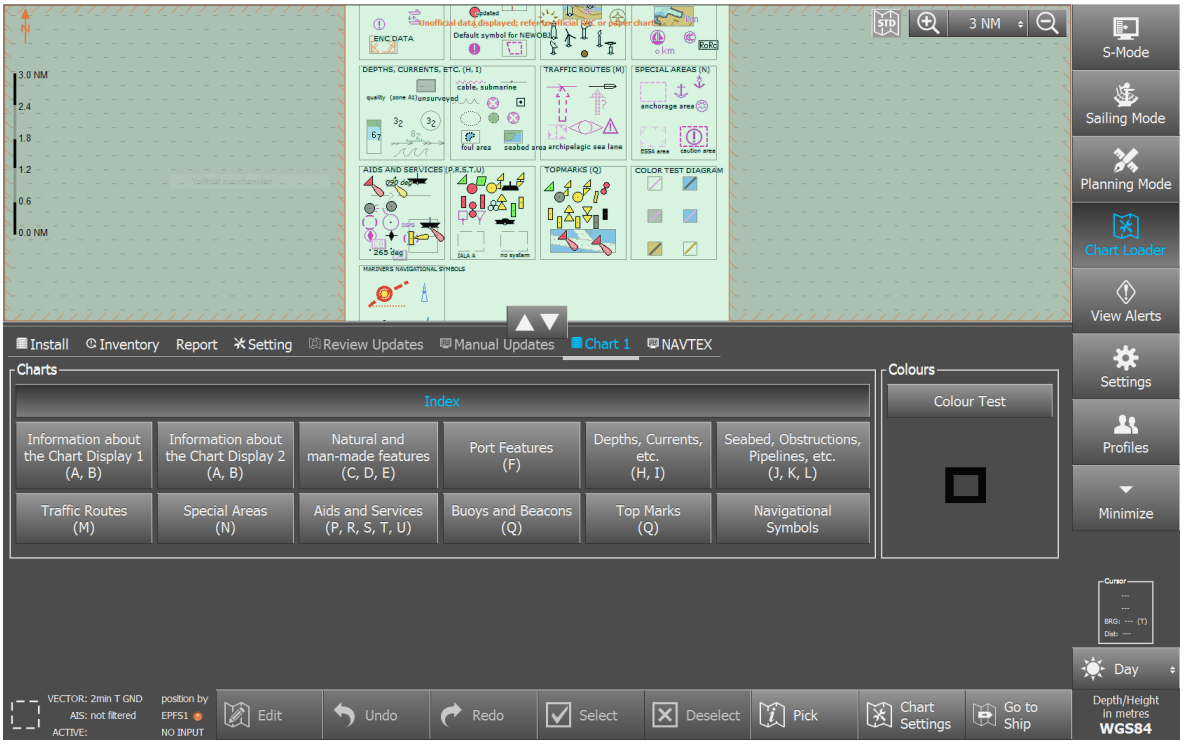


Chart 1

With the categories listed in the table you can check the brightness settings.

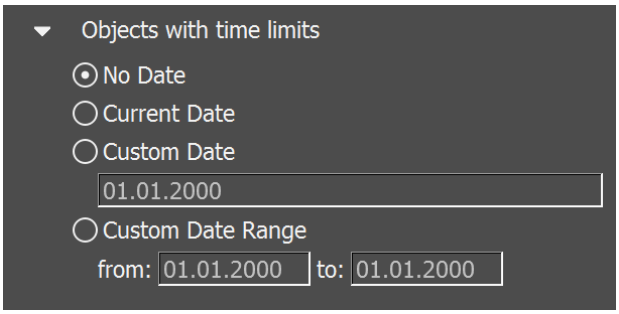
8.9 Temporary Display of Chart Objects

Chart objects may have attributes with conditions varying in time, for instance a bird sanctuary area with entry prohibited during spring and summer. The default behaviour is to use the current date as check date- option Check Date – Current date.

When the option *Check Date* is selected there are three ways to specify the check date. *Current Date* means the actual date from the computer clock.

How to define:

1. Open the *Chart Settings* via tool button.
2. Select the subpage *Chart Display* and open *Objects with time limits*.
3. Define how to handle these objects.

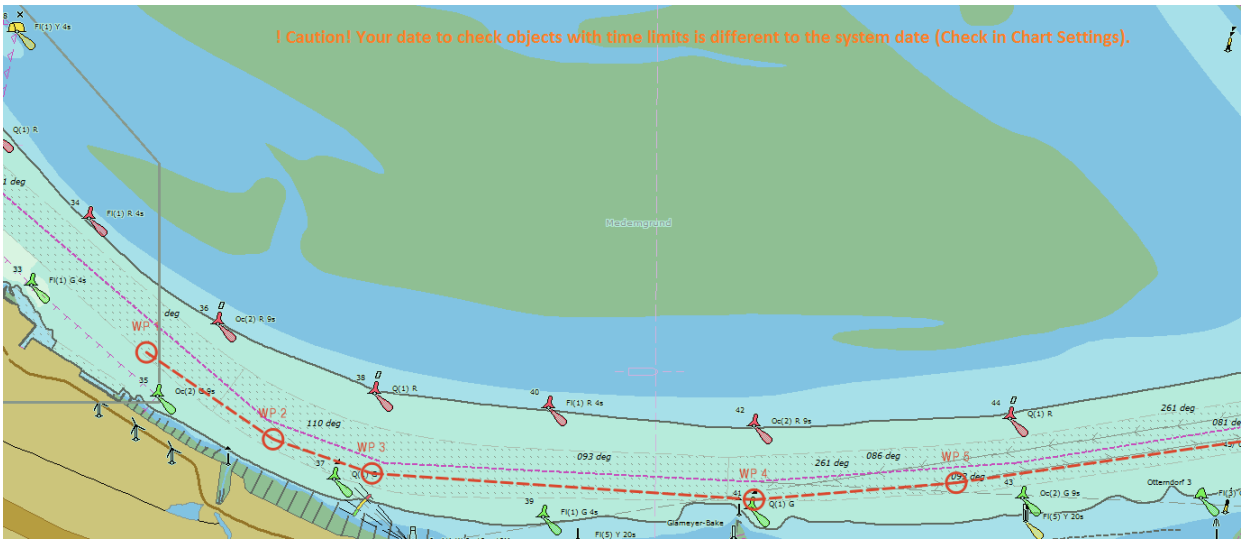


Settings for time limited objects

Set any date using the calendar control, or enter a time period (date range).

In *Check Date* mode the visibility of objects with assigned time limits is controlled by the specified date.

If a date has been manually entered and this date differs from the current date this will be indicated at the top of the chart view (see figure below).



9 Profiles

Use of an ECDIS requires situation specific settings to utilize the interface and functionalities.

Profiles in the task bar offers to save scenario based settings in different profiles. This will facilitate quick access to settings optimized to match different scenarios, e.g. berthing (without area alarms, etc.). Such profiles are listed in the section *User-generated profiles*.

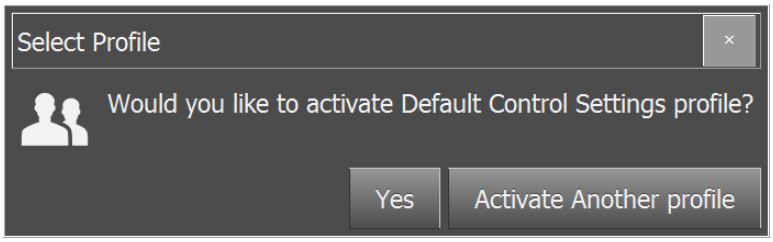
In addition, two default profiles are provided. These are named *Default control settings* and *eGlobe G2 default*, respectively. They are contained in the section *Mandatory Profiles* at the top of the screen.

Note:

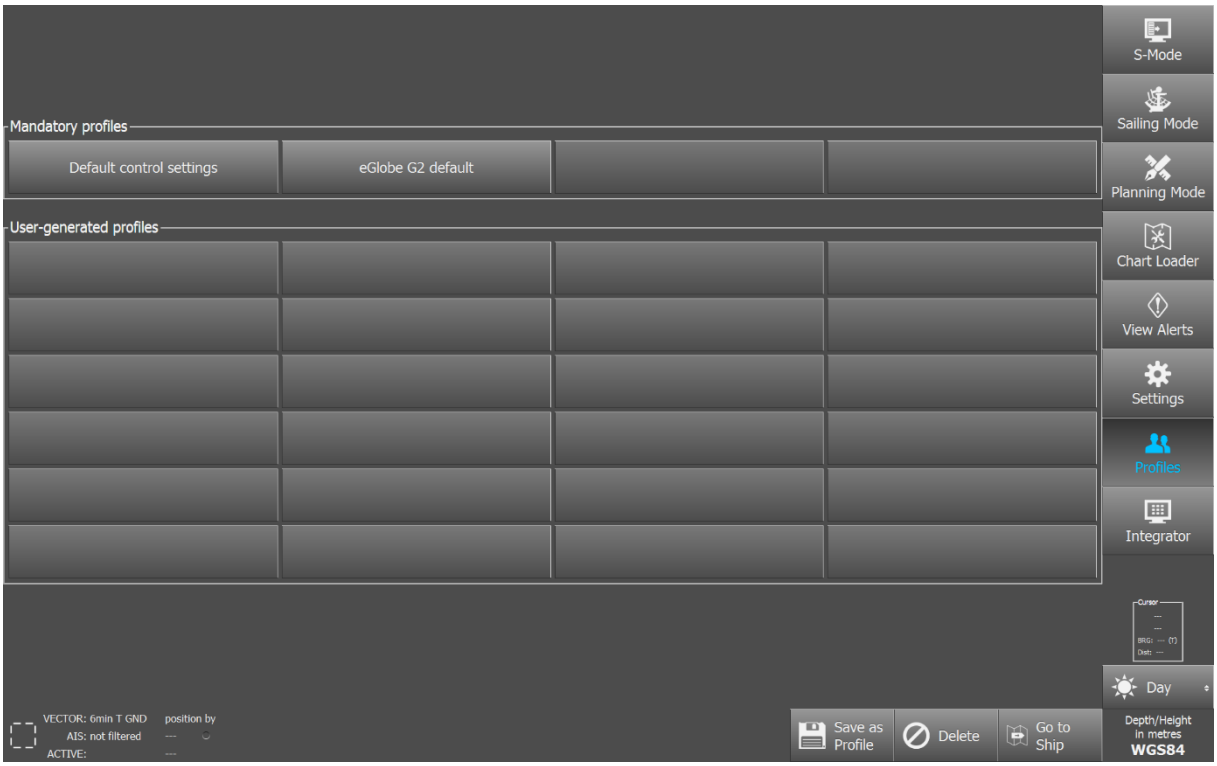
It is possible to use a mandatory profile as a kind of template. To do so, activate the desired profile, then modify it and tap on *Save as Profile*. The modified profile will then be displayed in the section *User-Defined Profiles*.

9.1 Default Control Settings

Whenever the *Profiles* button is tapped the *Select Profile* window opens. This window offers to open the *Default Control Settings* by just tapping on *Yes*.



The *Default Control Settings* are predefined by the software and cannot be changed by the user.



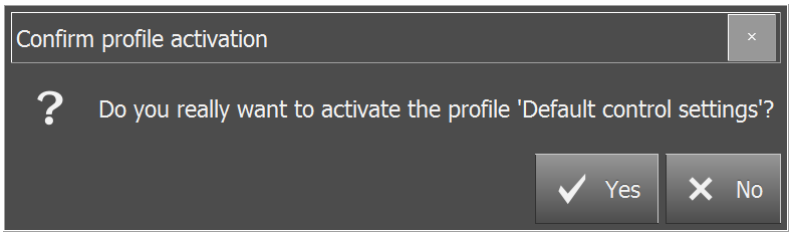
Profiles

User-defined profiles can be altered or deleted.

> **Note:**
>
> An active profile, i.e. a profile that is currently in use, cannot be deleted.

9.2 Activate Profiles

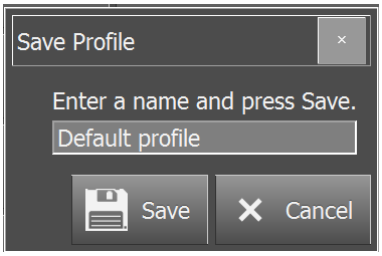
Profiles can be activated by tap or single left click. Then a confirmation window is opened. Tap on *Yes* to activate the respective profile. The name of an active profile is displayed in blue. An asterisk indicates that the original settings of the respective profile have been changed.



The profiles also save safety relevant settings such as look-ahead settings.

9.3 Save Profiles

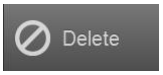
Saving a profile basically means creating a copy of all settings. A profile which has been altered afterwards is marked with an asterisk (*). All such changes need to be saved again (under the same name, or type in another one).



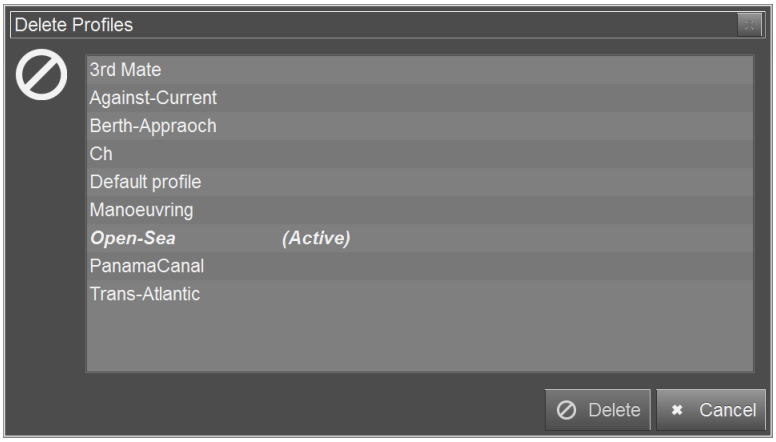
Note:

The settings will be remembered after restart even if no profile has been saved. The system will be set up just as it has been shut down before.

9.4 Delete Profiles



With this button profiles can be deleted. A single tap / click on a profile in this window will select and highlight it. If you want to delete more than one profile at once, simply click on other profiles which will then be selected, too. After finishing the selection tap on *Delete*. Note that deleted profiles will not be stored in any backup location.



Note:

Though it is possible to create and save an indefinite amount of profiles it is only possible to have 24 of them displayed at once (in alphanumeric order). So, if you have generated more than 24 profiles and want to view, for example, profile No. 25 you'll have to delete one of the earlier profiles.

9.5 Settings and Storage

Profiles depend on the respective scenarios; that is why some settings cannot be saved in *Profiles*. The same applies to whether settings shall be reloaded on restart.

The following tables give an overview of the settings which are saved in *Profiles* and for restart.

9.5.1 Setttings – View Alarms

View Alarms	Remembered on Restart?	Remembered in a Profile?
Autoshow enabled	yes	no
Settings		
Handedness	yes	yes
Input (Use Touchscreen…)	yes	no
Brightness Control	yes	no
Time Settings	yes	no
F Distance	yes	yes
Toolbar Management	yes	yes
Target Association Settings	yes	yes
Others		
Light conditions (day/dusk/night)	yes	no
Activated Settings through Profile	yes	

9.5.2 Settings – S-Mode

S-Mode	Remembered on Restart?	Remembered in a Profile?
Show/Hide Task bar	no (always visible when starting/loading a profile)	no
Show Bookmark status	yes	yes
Vectors Bow/Stern	yes	yes
HDG Beam activity	yes	yes
Distance calculation activeness and settings	yes	yes
LOP/EP/FIX settings	yes	no
Traffic window (all settings)	yes	yes
ERBL activity	no	no
ERBL Settings (Relative Position, Relative Heading, Show EBL, Show VRM)	yes	yes
ERBL Connected to own ship	no (shall be connected as per default on each activation)	no
locked ERBLs	yes	no
Tool buttons activeness (relevant for all buttons)	no	no
Split screen activity	yes	yes
Settings of split screen	yes	yes
Chart Settings of split screen	yes	yes
Orientation	yes	yes
RM/TM	yes	yes
Frame settings	yes	yes
Reload Active Route	yes	no
All settings in NAV page		

Own Ship	yes	Only **yes** for Ship Symbol, Vector size, Predictor and secondary position display)
Antigrounding	yes	Only **yes** for look-ahead settings
Route	yes	all **yes**
All Chart Settings Display	yes	yes
All Chart Settings Products	yes	yes
Last known Position	yes	no
Selected Range	yes	yes
Activity of Base Button	no	no
Track Record display	no	no

9.5.3 Settings – Sailing Mode

Sailing Mode	Remembered on Restart?	Remembered in a Profile?
Show/Hide Task bar	no (shall always be visible when starting/loading a profile)	no
Show Bookmark status	yes	yes
Vectors Bow/Stern	yes	yes
HDG Beam activity	yes	yes
Distance calculation activeness and settings	yes	yes
LOP/EP/FIX settings	yes	no
Traffic window (all settings)	yes	yes
ERBL activity	no	no
ERBL Settings (Relative Position, Relative Heading, Show EBL, Show VRM)	yes	yes
ERBL Connected to own ship	no (shall be connected as per default on each activation)	no
locked ERBLs	yes	no
Tool buttons activeness (relevant for all buttons)	no	no
Split screen activity	yes	yes
Settings of split screen	yes	yes
Chart Settings of split screen	yes	yes
Orientation	yes	yes
RM/TM	yes	yes
Frame settings	yes	yes
Reload Active Route	yes	no
All settings in NAV page		

Own Ship	yes	Only **yes** for Ship Symbol, Vector size, Predictor and secondary position display)
Antigrounding	yes	Only **yes** for look-ahead settings
Route	yes	all **yes**
All Chart Settings Display	yes	yes
All Chart Settings Products	yes	yes
Last known Position	yes	no
Info Label activity/location/size status	yes	yes
Selected Range	yes	yes
Activity of Base Button	no	no
Track Record display	no	no

9.5.4 Settings – Planning Mode

Planning Mode / User Charts	Remembered on Restart?	Remembered in a Profile?
ERBL activity	no	no
ERBL Settings (Relative Position, Relative Heading, show VRM, Show EBL)	yes	no
ERBL Connected to own ship	no (shall be NOT connected as per default on each activation)	no
locked ERBLs	yes	no
Edit (Status)	yes	no
Visible Routes	yes	no
All Chart Settings Display	yes	yes
All Chart Settings Products	yes	yes
Last known Position	yes	no
Selection of columns available in route table	yes	no
Location of columns available in route table	yes	no
Visibility of Marks	yes	no
Visibility of User Chart loaded in the view	yes	no
Last used attributes in User Chart table	no	no

9.5.5 Settings – Chart Loader

Chart Loader	Remembered on Restart?	Remembered in a Profile?
Location of table/chart view-border	no	no
Product selected in inventory	no (default shall always be S-63)	no
Filters of each product table (installed, not installed…)	yes	no
Report page settings and selections	yes	no
Activity of any Tool Button	no	no
Chart Settings	yes	yes
Settings (FTP settings, path for browser, all checkboxes etc.)	yes	no
Default display of tab (Loader, Inventory, settings, etc.)	no (default shall always be Install)	no
Chart 1 selected cell	no (default always index)	no
Navtex filter activity and definitions	yes	no

10 Route Monitoring

This chapter describes route monitoring and how to retrieve information on the voyage progress. Moreover, it deals with adjusting the alert criteria.

The values can be entered using a virtual number pad which automatically opens as soon as you are about to enter a value.

> **Note:**
>
> The automatic appearance of virtual aids can be switched off by disabling *Use touchscreen settings* in the *Settings* if e.g. a hardware keyboard is in use.

10.1 Alerts

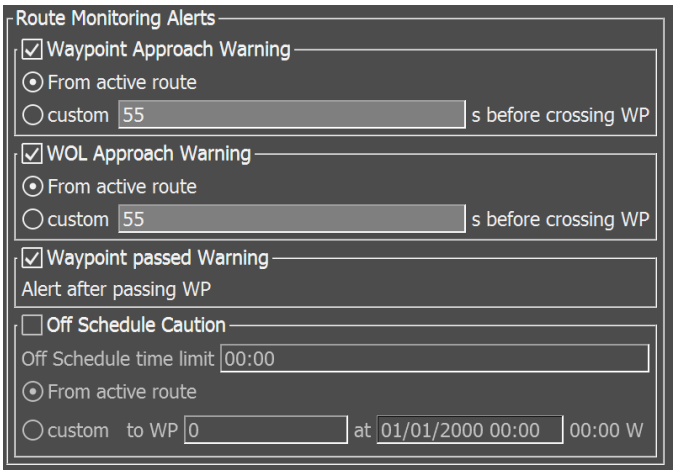
According to the IMO performance standards the route monitoring ability of an ECDIS has to include alert facilities in case of approaching critical points. These do also apply to Route Planning.

The route related alarms can be defined in a window which you can open as follows:

1. Tap on *NAV* in the Toolbar.
2. Tap on *Route* at the top of the window.
3. In the frame *Route Monitoring Alerts* you can define alerts.
4. It is possible to completely switch the alerts off if not required. To do so, deselect the respective checkbox on the left-hand side of the window. Once it is deselected the text will be greyed out as indication of inactivity. See the two lowest entries *Waypoint passed* and *Off Schedule* in the figure below.

Values can be taken either *From active route*, i.e. as the route has been defined in Planning Mode, or *Custom*, which requires entering the values manually.

Off Schedule triggers a caution if, at current speed over ground, the ETA to the next defined waypoint is calculated the entered time late or ahead of schedule.



For a detailed description of the *Route* page elements see chapter Route.

Route

The antigrounding related alerts can be defined in a window which you can open as follows:

1. Tap on *NAV* in the Toolbar.
2. Tap on Antigrounding at the top of the window.



Alerts will be raised as soon as an object which is defined as dangerous is detected by the *Look-Ahead* (i.e. within its sector). The minimum settings for the Look-Ahead sector are 1 minute ahead with an angle of at least 3° to port and starboard. The upper limit to switch the Look-Ahead off for manoeuvring is 3 knots.

Dangerous objects may be

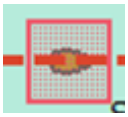
- Navigational Hazards - fixed group of objects, cannot be switched off.
- Aids to Navigation (AtoNs) – such as Buoys, Beacons, etc. Can either be alarm, warning, caution or switched off.
- Areas with special conditions – such as restricted areas. Can either be alarm, warning, caution or switched off.

In addition it is possible to define which shall trigger an alert and which not.

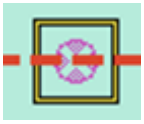
A detailed list of alerts available in eGlobe G2 ECDIS can be found in the Appendices. See chapter Alert Messages Handled in eGlobe G2 ECDIS version 2.0.x.

According to the new Presentation Library requirements eGlobe G2 does graphically differentiate between detected alarms and detected warnings.

An alarm is displayed as a red, constantly highlighted object within a red frame.

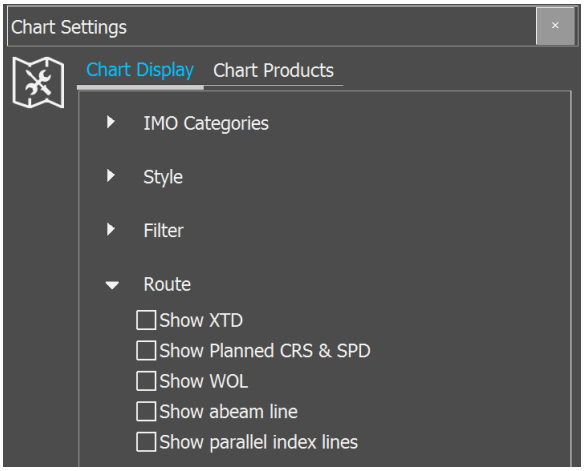


A warning or caution is displayed as a yellow square around the object.



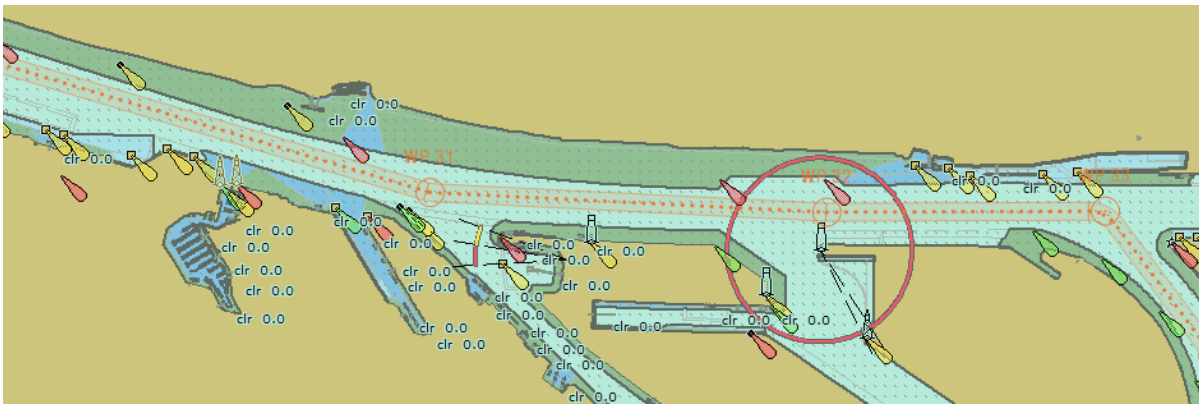
Some settings regarding route monitoring (e.g. ship dimension, sensor positions) are defined in the ECDIS system configurations, done by the service Technician during installation. However, access to these settings is protected by password and available to authorized personnel only.

Another route monitoring related alert is the check against deviation from the route track. On the linear legs the route is checked against current deviation of the vessel. This *Cross Track Distance (XTD)* ensures that the mariner realizes moving horizontally away from the track. After exceeding the allowable XTD (which is to be defined manually, default value: 100 m) the mariner is notified by an alarm. The allowable cross track distance is defined in the planning stage. The visibility of the XTD corridor can be activated in *Chart Settings*, subpage Chart Display, *Route.*

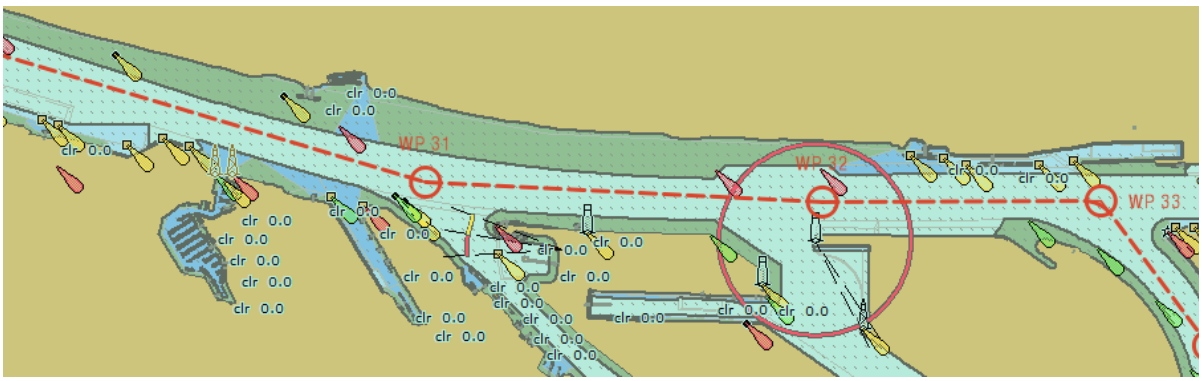


10.2 Activate / Deactivate Route Plan

As soon as a route is loaded for monitoring it becomes active. Active routes are marked by red dashed lines. Inactive routes in *Planning Mode* are light orange, and the lines are dotted.



Inactive Route



Active Route

Comparison inactive and active routes

After editing the route must be manually activated.

Please note that for safety reasons routes can only be selected/activated for monitoring in *Sailing Mode* (*Sailing Mode*/*NAV*/*Route*/*Load Route*).

Make sure your route has successfully passed the route check. This is indicated by the status flag left next to the route (green indicates a checked and safe route).

To double check the status of a route it may help to open the properties of the route.

Important:

A route is only allowed to be loaded into monitoring when the following conditions are fulfilled:

- the routes is checked
- the check is not older than 10 days

or the route is received by RTZ from another ECDIS

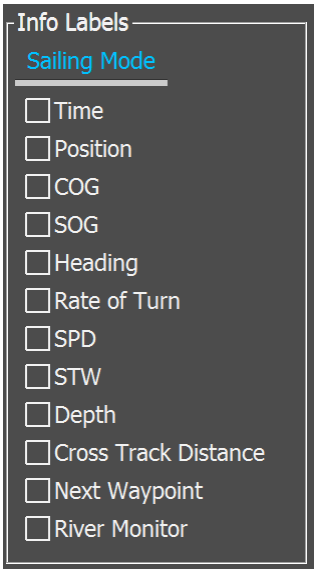
Deactivate/hide a route:

1. In *Sailing Mode* -> Tool button *NAV* -> Tab *Route*. At the top of the page a route can be unloaded to become inactive. This will end the route monitoring process.

10.3 Route Monitoring Details / Info Label

The route and all chart related objects are displayed in the charts. Additional layers, chart settings and other aids can assist in navigation. Whenever critical situations may occur, alerts will indicate so in the alert panel.

Navigational information can be added to the *Sailing* view as required for the current situation. To switch Info Labels on and off tap on *Settings* in the task bar. The available labels are listed under *Info Labels*. Each one can be selected individually by ticking the checkbox next to the descriptive text. The selected labels will then appear in the navigation view.



Selection of Info Labels



Info Labels displayed

The Info Label provides all necessary information to monitor navigation related data. Once the input from the sensor source is lost for 10 seconds, the colour of the respective text will turn yellowish orange to indicate that the data is lost. This will automatically trigger an alert for the respective sensor.

The core benefit of this kind of the Info Label implementation is that only those data which are relevant for the individual situation can be selected to appear on the screen.

All Labels are scalable. To do so, tap on the Label once to activate the operational aids (close button and resizing control). An extension triangle at the lower right appears and allows to diagonally resize the square. In addition, *close* symbol in the upper right corner appears which allows closing the Label. The respective label will then be unselected in the list of checkboxes. However, this functionality is not available in case two or more Info Labels are docked at each

other.

The status of the Labels (activated or not) will be saved in a profile provided such profile is saved. If no profile has been used the last status will be available in Sailing mode after restarting eGlobe G2. Info Labels will be part of a profile if saved.

10.3.1 Info Labels

- Time: Always displays the system time in hours: minutes: seconds (07:15:59).
- Position: Displays the current own ship position (Latitude and Longitude), taken from the primary sensor.
- Course: Displays the Course Over Ground (COG) which is currently measured.
- Speed: Displays the Speed Over Ground (SOG) received either from Speed Log or GPS.
- Heading: Displays the current heading of the vessel.
- Rate of Turn: Displays the RoT ° (degrees) per minute.
- SPD: Ground-stabilized speed generated by LOG.
- STW: Water-stabilized speed generated by LOG.
- Depth: Vertical clearance between sea-ground and echo sounder.
- Cross Track Distance: Displays the current deviation between route leg and current ship position in metres.
- Next Waypoint: Provides information about Next Waypoint:

  Name of Next Waypoint, Current Course, Next Course, Distance to Waypoint, Bearing to Waypoint, Cross Track Distance (XTD), Time to Next WP with current Speed (ETA) and Time to Go (TTG).
- River Monitor: Bearing, Course, Distance, XTD. This label is designated for river voyages. It displays the information most relevant for river navigation in one small Info Label.

10.3.2 Waypoint Table

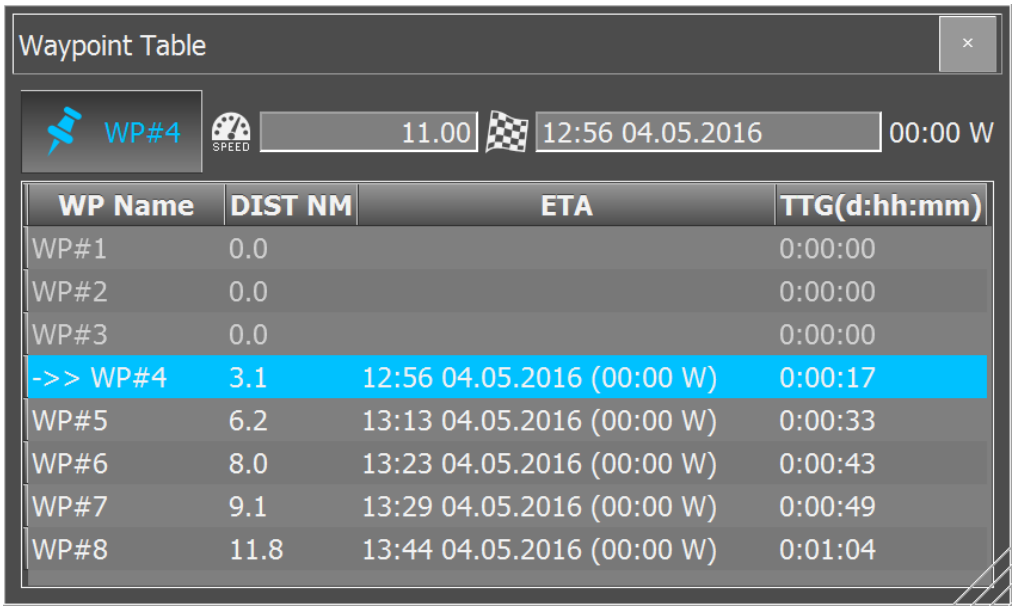
Information on the waypoints of an active route can be obtained from the so-called *Waypoint Table*. A long tap on any position on a route will open a context menu. In this context menu, tap on *WP Table* to open the window.

First only the header of the table is displayed, showing the data of the next waypoint ahead. Tapping on 

top left will open the complete waypoint table for the current route. In this table the next waypoint is marked with 

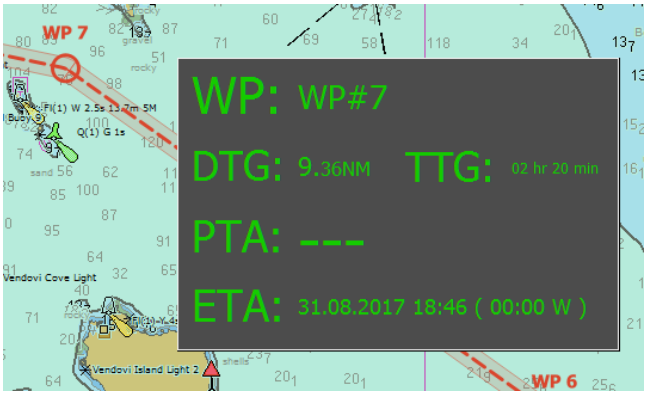
on the left. All waypoints of the currently active route are listed, with those that have already been passed greyed out and with the TTG (time to go) set to zero.

In addition, the values for speed and ETA (estimated time of arrival) can be changed in the header of the window.



10.3.3 Selected Waypoint Label

It is possible to select a waypoint on the route to monitor ETA and the remaining distance to sail – e.g. for Pilot station arrival time update.

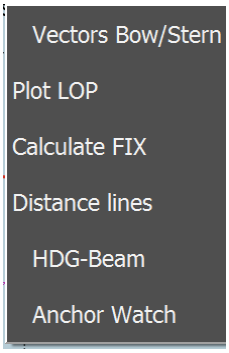


A long tap on any position on a route will open a context menu. In this context menu tap on *WP Label* to open the selected WP label.

10.3.4 Anchor Watch

The Anchor Watch function increases the safety by ensuring that the OOW is aware if e.g. the anchor is drifting while at anchor, and the ship leaves the defined safe area without the attendance of the officer of the watch.

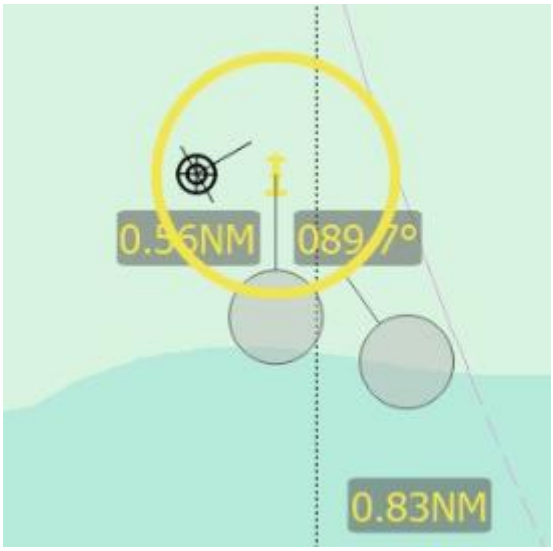
To activate the Anchor Watch function, open the context menu of the own ship and tap on *Anchor Watch*.

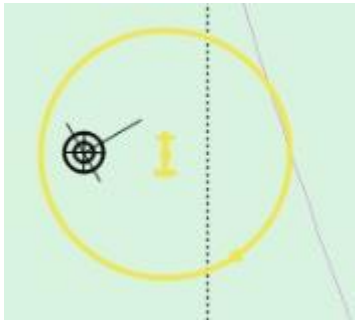




An anchor symbol will appear at the bow of the own ship which is the origin of a circle. Both, the anchor and the circle have a handle connected thus allowing for defining the origin as well as the radius.

The readings next to the radius adjustment handle display the distance in metres (as ERBL this will switch to nm above 999 metres).

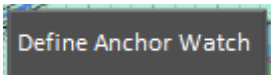




The readings next to the origin re-locate handle reflect the offset to the conning position in BRG as true readings and distance [m-nm] (this will also switch to nm if above 999 metres).

Once the user has moved the position, or tapped on one of the handles, or changed the radius, the circle will flash for 5 seconds and get fixed afterwards if there is no interaction in between. Removing position or radius handle will interrupt the flashing and reset the counter.
Once the anchor ring and position are defined the function is active and the ring and own ship outline will be checked for intersections; handles and readings will disappear.
To deactivate Anchor Watch, tap on the context menu option of the own ship, so that the check next to the *Anchor Watch* disappears.
To reopen the edit-mode, open the context menu of the Anchor symbol to *Define Anchor*

Watch.



The handles will reappear, and the location and radius can be adjusted.

In case the Anchor Watch circle is relocated within an active monitoring, its new location and the ships position will be re-evaluated and the alerts will be raised accordingly.

Restart while Anchor Watch is active

If Anchor Watch was active while eGlobe G2 was shut down it will be active again with the same settings (anchor position, offset) upon restart.

Check Principle and Alerting

Regularly the simplified outline (4 positions outline box around the own ship shape) is checked against intersections with the Anchor ring, once active. This will ensure that the own ship is always completely within the Anchor Watch ring. The check will be performed every 10 seconds.

Once the anchor watch warning was not acknowledged within 2 minutes, eGlobe G2 will escalate it to become an alarm.

Whenever an intersection between the simplified outline and the circle object is detected eGlobe G2 will generate a warning, and the circle will turn red (alarm colour) for as long as the intersection exists, or the function is deactivated.

Once the anchor watch warning was not acknowledged within 2 minutes, eGlobe G2 will first be moved to a warning, then an alarm.

10.4 Watch Handover Check List

The Watch Handover Check List is a useful method to capture the most important information available in ECDIS at once. It displays a summary of position, surrounding targets, chart collection status, sensor status, safety parameters in use, route monitoring status and active alerts.

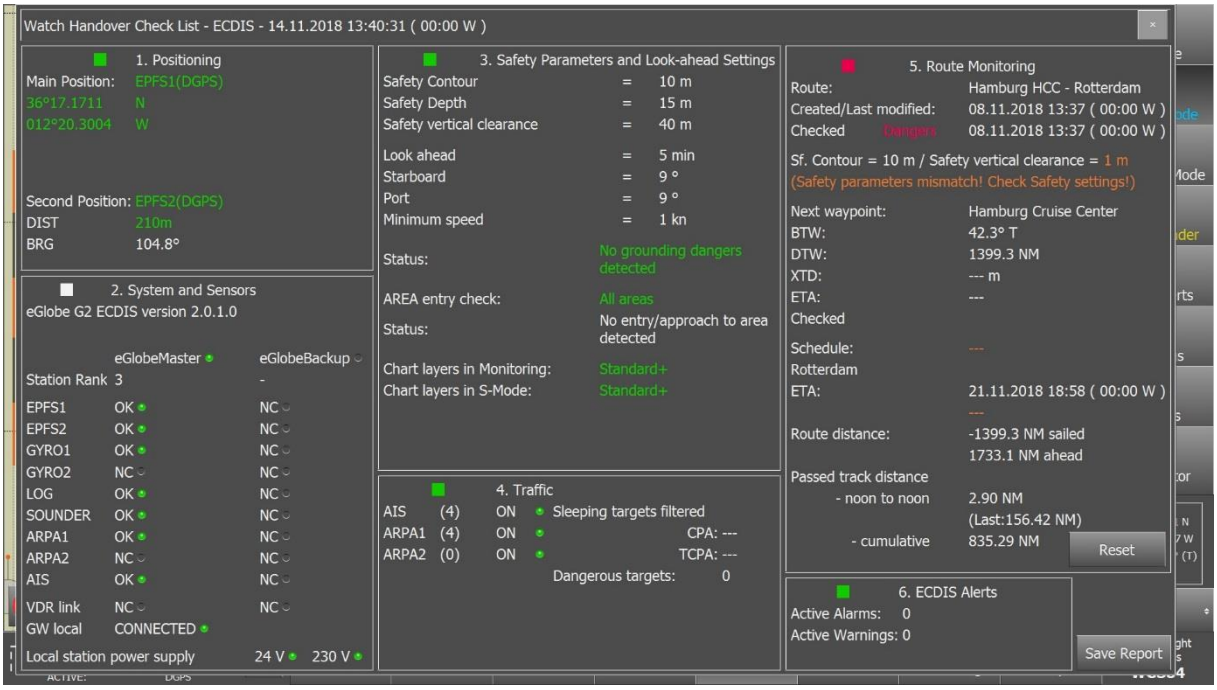
> **Note:**
>
> If eSecure is in use the availability of the USB ports (GW local) is indicated at the bottom of column 2 (see figures below).



GW locally disconnected



GW locally connected



The displayed data will be displayed in accordance with the commonly used colour coding scheme of eGlobe G2.

In addition, each section has an overview status always indicating the most critical status of all information within the respective section.



Route Monitoring / Passed Track Distance

eGlobe G2 offers measuring the distance sailed over a specified period of time. The values displayed are

Noon to Noon
Displays the distance covered starting from the last midday until the current point in time.

Last (noon to noon)
Displays the distance covered during the last full period from midday to midday.

Cumulative
Displays the distance covered since this value was last put to zero by tapping on *Reset*.

The system counts the sailed distance according to the sailed track.

After handing over the watch, it is possible to save the Watch Handover check list as a png file by tapping on *Save Report*. This report can later be exported from within the File Manager.

11 Master- Backup Arrangement

In most installations eGlobe G2 will be delivered as a dual ECDIS which to ensure a backup arrangement.

The configuration and network setup will be done by the service technician on board. All units are set up in a rank list. The highest rank will always be considered the Master station.

The Master station has the highest authority within the eGlobe G2 network. For example, it is not possible to activate a route for monitoring or switch the primary positioning source used for navigation from the Backup station or any third unit.

With few exceptions, such as mentioned above, all eGlobe G2 stations will almost work as standalone ECDIS (e.g. each unit has a sensor server service of its own running, ensuring that sensor data are always available).

The identification of the station's rank can be easily monitored in the very lower left part of the screen where either an M or a B is displayed in the centre of the activity indication widget.

In case one of the ECDIS stations is not working properly/suddenly shut down or a physical breakdown of the cable connection inhibits proper network communication a warning will be generated on all stations which are still online. This warning will appear in the Alert Panel.

Once the alert has been acknowledged it will be removed from the list and considered as noticed.

Note:

The Backup station will automatically become the Master station in case the original Master station is not accessible. The timeout is 30 seconds.

11.1 Loss of Network Connection

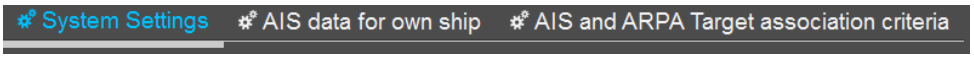
In case of physical or digital disconnection within the Master-Backup arrangement a warning will be generated as mentioned above. In addition, the Backup station will be assigned the same rights as a Master station because no station with a higher rank is connected.

The indication in the very lower left part of the screen will change respectively, displaying an M now.

Once the original Master station is recognized again, the previous Backup station will automatically be downgraded again.

12 Settings

eGlobe G2 is fitted with settings affecting the complete ECDIS system. For that reason, all these settings are located in a dedicated Task Bar button called *Settings*.



The settings page is divided into three subpages:

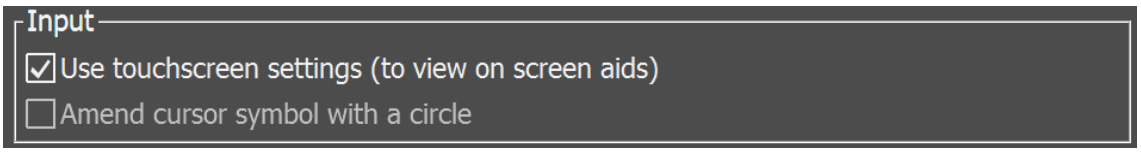
- System Settings
- AIS data for own ship
- AIS and ARPA Target association criteria

12.1 System Settings

This chapter presents the different system settings.



In the *Display* section the handedness can be defined. This allows for moving the Task Bar either to the left side of the screen (left-handed) or to the right side (right-handed).



This controls the input method and the display, e.g. an on-screen keyboard.

Virtual Input Devices

If *Use touchscreen settings* is ticked a virtual input device, e.g. a keyboard and/or a number pad, will be displayed whenever it comes to entering a name or a value. Otherwise these devices will not appear on the screen.

Mouse Cursor Display

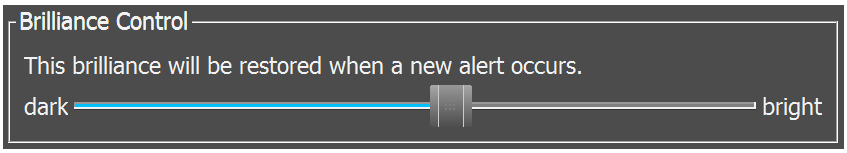
According to whether *Use touchscreen settings* is selected or not the mouse cursor is displayed differently.

If the function is not selected the cursor is displayed as crosshairs. In addition, the display of the cursor position at the bottom of the *Task Bar* is constantly changing, indicating the momentary cursor position.

If *Use touchscreen settings* is selected the display of the cursor position only changes when the screen is tapped, giving the current position.

For easier handling it is possible to select *Amend cursor symbol with a circle*. This will position a circle around the cursor on the screen.

> **Note:**
>
> *Amend cursor symbol with a circle* is only selectable / will only become effective in case *Use touchscreen settings* is not ticked.



Brilliance Control allows for setting the brilliance of the display via slide control. To avoid unnecessary setbacks of the brilliance eGlobe G2 is equipped with this new feature.

Please note that the slider button only works within limited brightness values:

Day: 50 – 255, Dusk: 25 – 200, Night: 25 – 200.

Furthermore, note that the slider button has to be adjusted and will be saved for each ambient light condition separately (day, dusk and night).

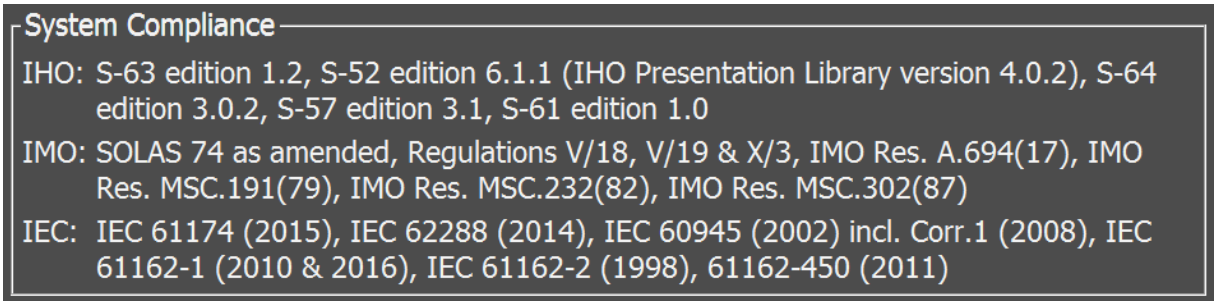
> **Note:**
>
> The adjusted brilliance cannot be saved in Profiles.



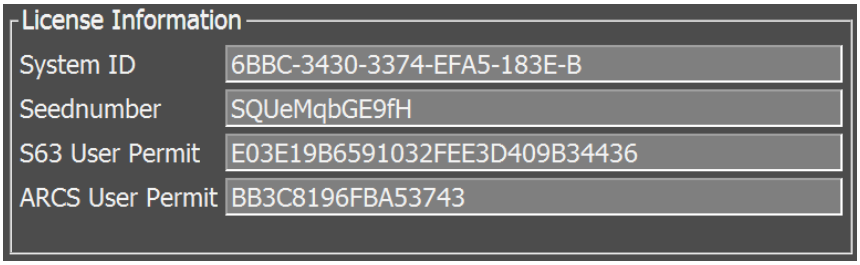
Time Settings offers to set the *UTC offset*, i.e. the difference in hours and minutes from the Coordinated Universal Time (UTC). This setting has to be done on EACH workstation in the eGlobe G2 network.



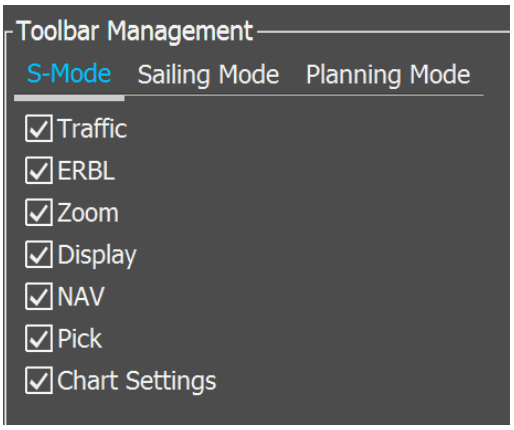
Wheel Over Line offers to enter the *F-distance*. This is the distance travelled by the vessel after giving wheel over and until the turn begins, i.e. the distance to overcome inertia.







The *System Compliance*, *Software Version* and *License Information* sections provide information about the IMO, IHO and IEC standards this version is compliant with, plus system identification. In case of support requests it will help to avoid misunderstandings.



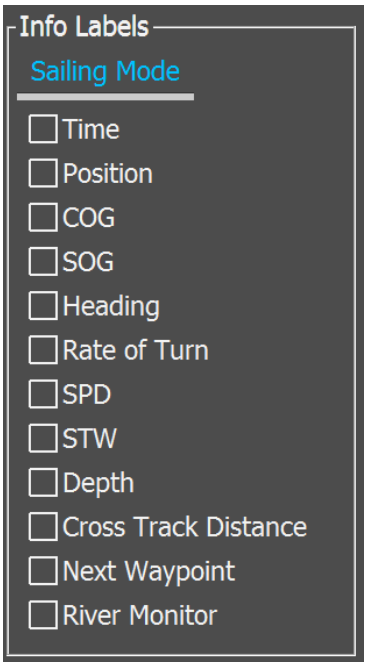
The *Toolbar Management* section allows for optimizing user friendliness while operating in the different tasks. The tools from the toolbar can be selected and deselected. This information can simply be saved in Profiles to allow fast switching of operational conditions.



In the *Safety Functions* the display of the MOB (Man Over Board) button can be enabled or disabled. See chapter MOB (Man over Board) Manoeuvre.

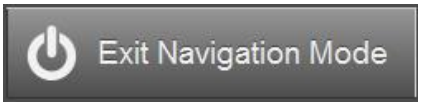
Note:

By default the display is disabled.



Info Labels provide all information equivalent to the information displayed in S-Mode panel. The benefit of using Info Labels in Sailing mode is to be able to display only information required in the current situation. They can also be located anywhere on the screen to enlarge the chart display which is currently most important.

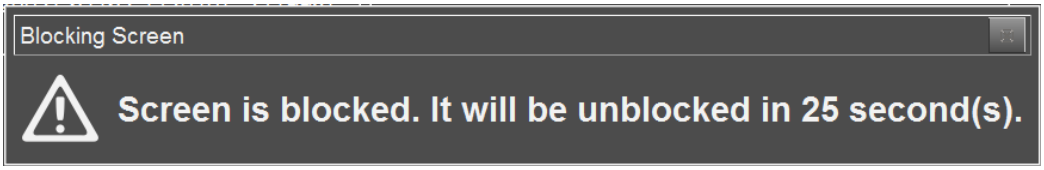
As per default the activated Info Labels will be displayed on the left hand side of the screen, arranged vertically. The location of each label can be changed. The position will be remembered after restart. Activeness and location will also be saved in a *Profile*.



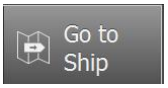
The *Exit Navigation Mode* button terminates eGlobe G2 navigation mode and returns to the Integrator page.



Block Screen allows for cleaning the screen while eGlobe G2 is in use. Once pressed, the touchscreen will be disabled for 30 seconds.



The countdown indicates the remaining time



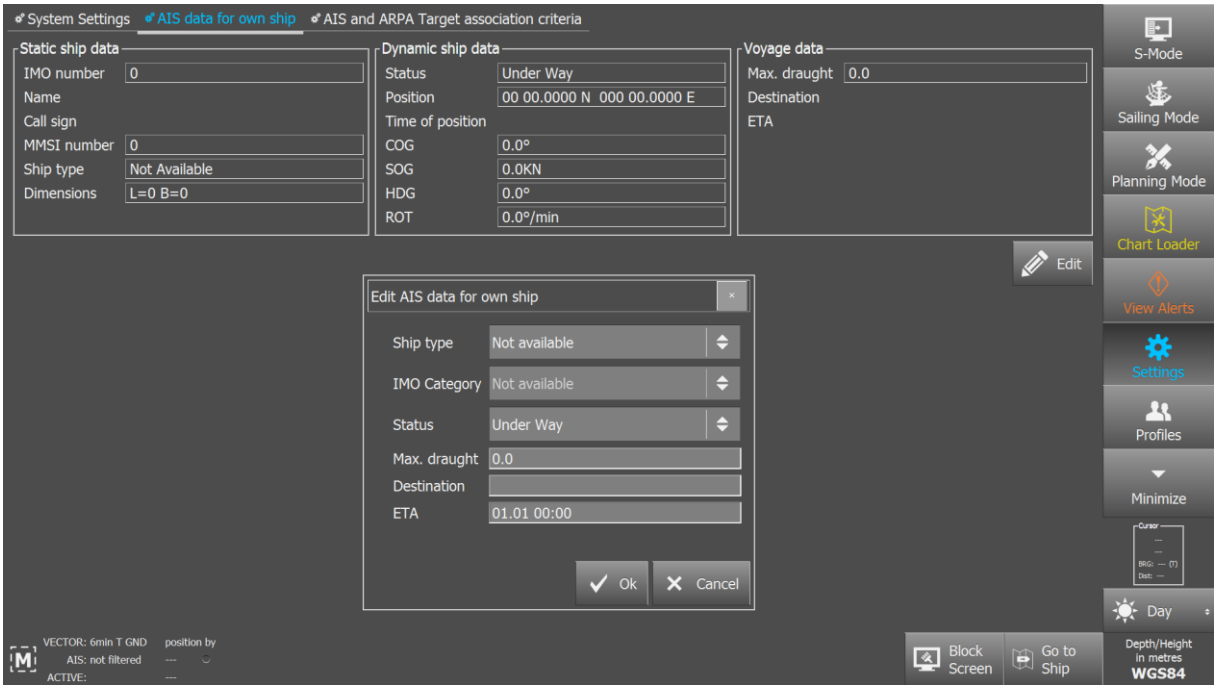
The tool button *Go to Ship* changes to *Sailing Mode* and centres the screen on the ship´s position.

12.2 AIS Data for Own Ship

AIS transmitters can send three types of data:

- Static data
- Dynamic data
- Voyage data

For fast double-checking the correctness of currently transmitted data it is possible to open the tab *AIS Data for Own Ship* in the *Settings* task. All data received by eGlobe G2 from the AIS board unit will be displayed on this page.



The tab *AIS data for own ship* displays the information which the on-board AIS transmits to the surrounding vessels. Which information shall be sent can be defined on the AIS unit UI itself.

In addition eGlobe G2 2.0 offers to actually write content (e.g. the destination) and, after confirmation, change the content of the AIS message transmission.

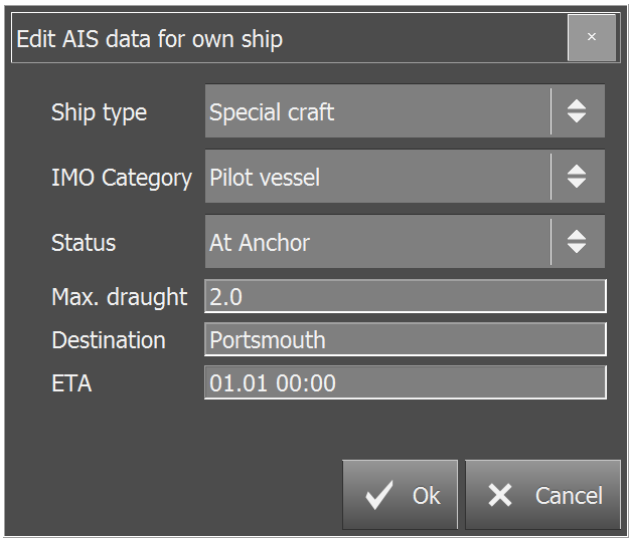
To enable this, a bi-directional cable from AIS to ECDIS has to be installed on the bridge - thus this feature may not necessarily be available with version 2.0.

The delivery message is called VSD (not necessarily all AIS units must conform to that message).

The AIS transmission content which can be changed from within eGlobe G2 comprises:

- Ship type
- IMO Category
- Status
- Max. draught
- Destination
- ETA

To change this information, go to the *Settings* task in *Navigation Mode*, select the tab *AIS data for own ship* and tap on the *Edit* button. A window will appear, offering the selectable information categories.



Note:

The *IMO Categories* available in the drop-down menu depend on the selected *Ship type*. Thus, it is required to select the *Ship type* first.

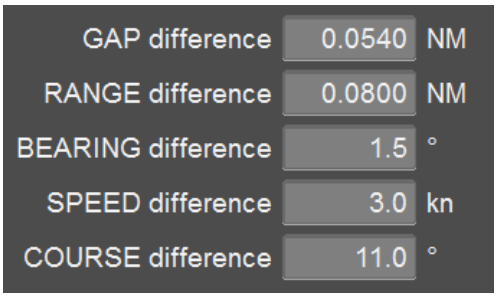
After entering, tap on *Ok* to confirm the changes and deliver the messages to the AIS. As soon as the messages were changed in the AIS and transmitted for the first time the eGlobe G2 AIS for own ship data will be changed accordingly.

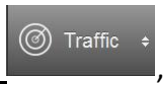
Note:

As the AIS transmission intervals vary in time the update on eGlobe G2 may take up to 5 minutes, depending on the kind of data changed.

The confirmation that the change on the AIS was successful can be verified in eGlobe G2 by having a look at the respective data field on this page. It always reflects the data received from the AIS unit.

12.3 AIS and ARPA Target Association Criteria



As described in chapter Traffic 

, the target association is a possibility to avoid multiple display of the same target if receiving it from AIS and ARPA. The criteria to associate the target and only display one can be changed in this tab of the *Settings* task.

The values mark the respective maximum difference. If any of these values is exceeded the target association will not be carried out, and the AIS as well as the ARPA target will be displayed.

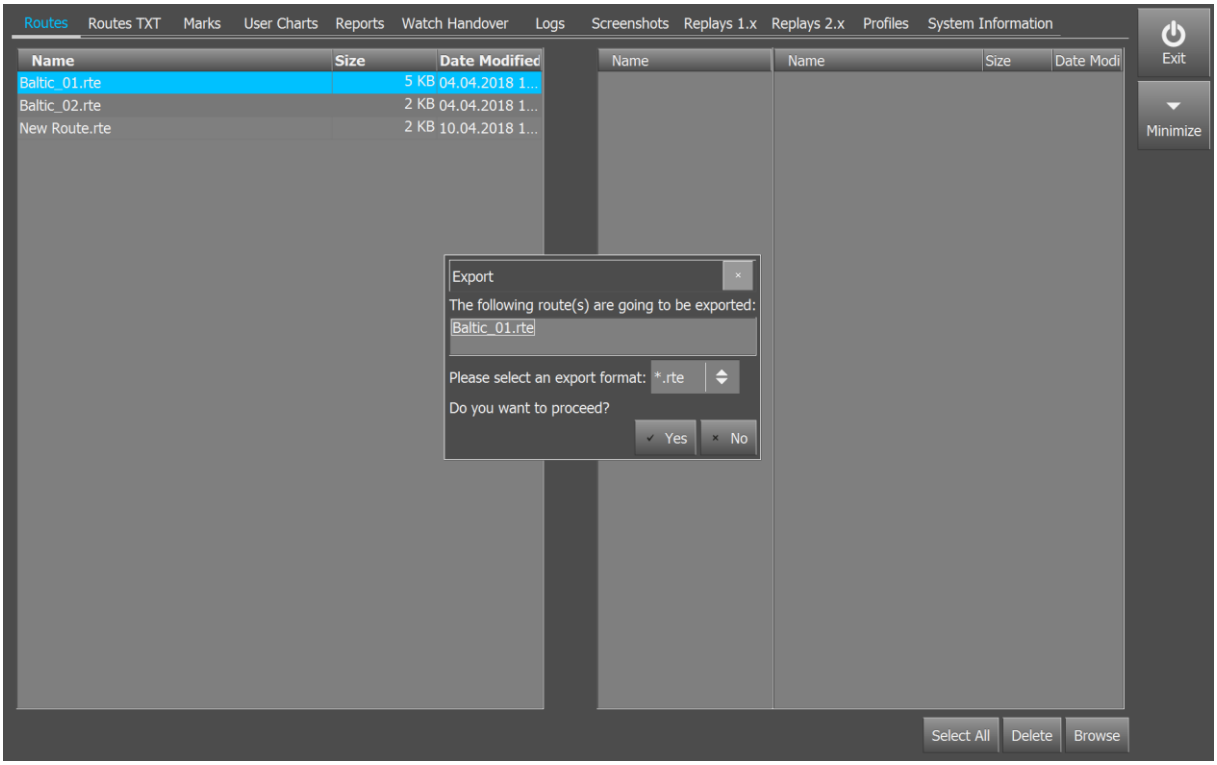
However, it is recommended to stick to the default values.

13 File Manager



This provides a tool for managing all user related data in the ECDIS. Such data may include routes, user profiles, etc.

To export and import files from the File Manager it is important to connect a removable device, e.g. external hard drives or a USB stick. The desired path on the removable device has to be selected via the Browse window. This is opened by tapping on the *Browse* button.



1. Left table lists the files contained in eGlobe G2.
2. Right table lists the files available on the removable device.
3. Arrow button left imports selected files from the right table (removable device).
4. Arrow button right exports selected files from the left table.
5. Dialogue is used for confirmation after performing either 3. or 4.
6. Select All.

Select All selects all files currently available in the active table (left or right). To activate a table, single tap/left click into right or left table.

At the top the tabs providing the files potentially available for file transfers in eGlobe G2 are displayed.

These tabs are (left to right):

Routes

Lists all routes available in eGlobe G2 (left table) and on the selected path on the removable device (right table).

Routes TXT

Lists all available route files in text format. To save a route in text format, open the route in *Planning Mode*, activate *Edit* and open the context menu on any route leg or waypoint handle, and select *Save as text*. After that the route's characteristics will be saved in clear text form on this tab in the *File Manager*.

Marks

All created marks can be exported to and reimported from other eGlobe G2 systems. Upon import they will be at the correct position and can be fully used in eGlobe G2. Marks can be deleted either in *File Manager* or from within the Navigation Application.

User Charts

Export user charts to share them with the fleet. They will be fully operational after importing into eGlobe G2 systems.

Reports

Chart collection reports can be exported for archiving purposes. It is not recommended to import reports created in another ECDIS as this will not reflect the chart collection status of the eGlobe G2 into which the report was imported.

Watch Handover

All created reports from the Watch Handover Check List will be saved here without a time limit. For external archiving purposes they can also be exported.

Logs

Chart installation logs can be exported, e.g. to improve communication between the user and the ChartWorld support team in case the collection did not show up as expected. The support team will be able to identify which cells were installed/not installed and can compare this information with the customer´s account.

Screenshots

Whenever screenshots were created (via context menu on the chart, select *Save Screen Copy*) they are available on this tab in *File Manager*.

Replays 1.x

Replays 2.x

There are two *Replays* tabs available. Replay files which were recorded with an older version of eGlobe G2 are displayed in Replays 1.x, while newer recordings are displayed in Replays 2.x.

Note:

Due to a restructuring of AIS target handling there are no AIS targets available in 1.x replay files which are viewed/played in 2.x software.

eGlobe G2 always records the voyage (recording starts on system start. Each time at 00:00 there will be a new recording started to keep the size of one file adequate). Replay files can be exported, and any eGlobe G2 of the same or higher version is capable of replaying such file after it has been imported.

Note:

Replay files will be automatically deleted after twelve months.

Profiles

Manually created *Profiles* can be managed on this tab. It is possible to export and share the created profiles within the community of eGlobe G2 users.

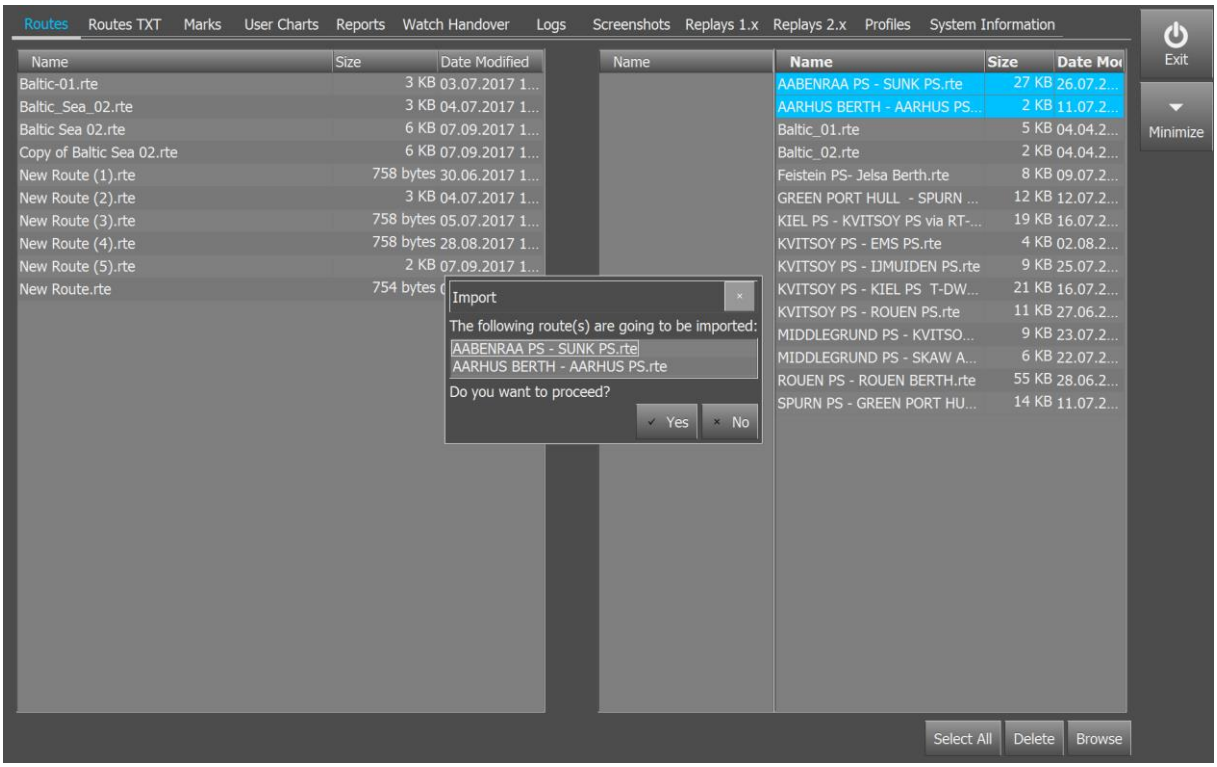
System Information

System Information can be exported and afterwards displayed via this tab.

13.1 Import Data into eGlobe G2

Insert a removable device via USB slot.

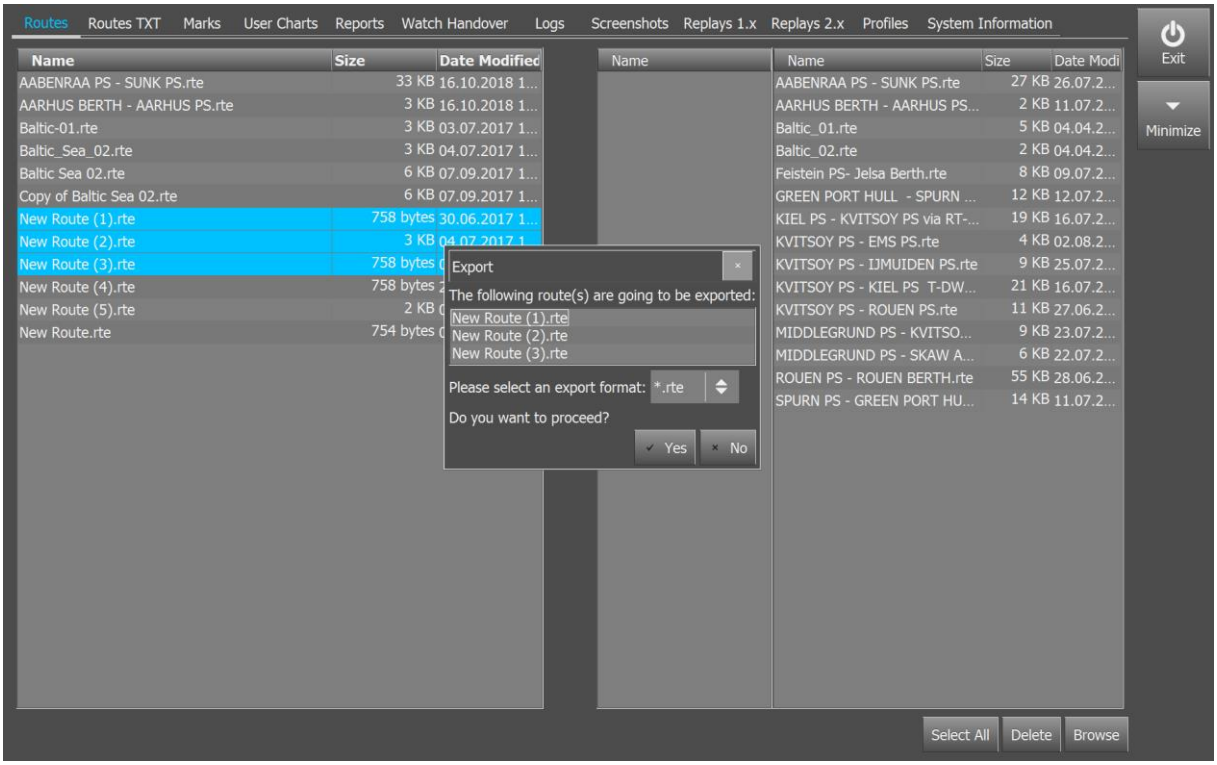
1. Open the *File Manager* from the *Integrator*.
2. Select the adequate tab (Routes User Charts, etc.).
3. Tap on *Browse* to select the path where the desired files are located.
4. Select the file(s) to be imported.
5. Copy them to the eGlobeG2 page via the arrow pointing at the left part of the screen.



13.2 Export Data from eGlobe to a Removable Device

1. Insert a removable device via USB slot.
2. Open the *File Manager* from the *Integrator* page.
3. Select the adequate tab for the operation (*Routes*, *User Charts*, etc.).
4. Tap on *Browse* to select the path where the desired files shall be exported to.
5. Select the file(s) to be exported.
6. Copy the files to the external path via the button pointing at the right part of the screen.

If the file does already exist on the selected path a notification will pop up asking for confirmation to proceed.



13.3 Delete Files via File Manager

One or more files can be deleted in the *File Manager*.

The file(s) have to be selected. When tapping on *Delete* they will be removed.

These files will be permanently removed from the system. Further note that replay files are preserved from being deleted for at least 92 days to ensure that the recorded tracks are available on the system. However, replay files will be automatically deleted after twelve months.

In case all files from a subpage shall be removed this action can be performed by tapping on *Select All*. A single tap into the respective window (left or right) will activate it, and tapping on *Select All* will mark all files. In case multiple ECDIS systems are configured over network the performed action will be synchronized and changes will be applied to all units within the network.

Note:

Route files and User Charts cannot be removed from within *File Manager* since they might currently be in use in *Navigation Mode*. Instead, these data have to be deleted from within the eGlobe G2 *Navigation Mode*.

13.4 Convert a Route for Import or Export

eGlobe G2 is capable of converting routes for means of using weather optimizing third party software outside the ECDIS. The *File Manager* assists with a semi-automatic conversion function.

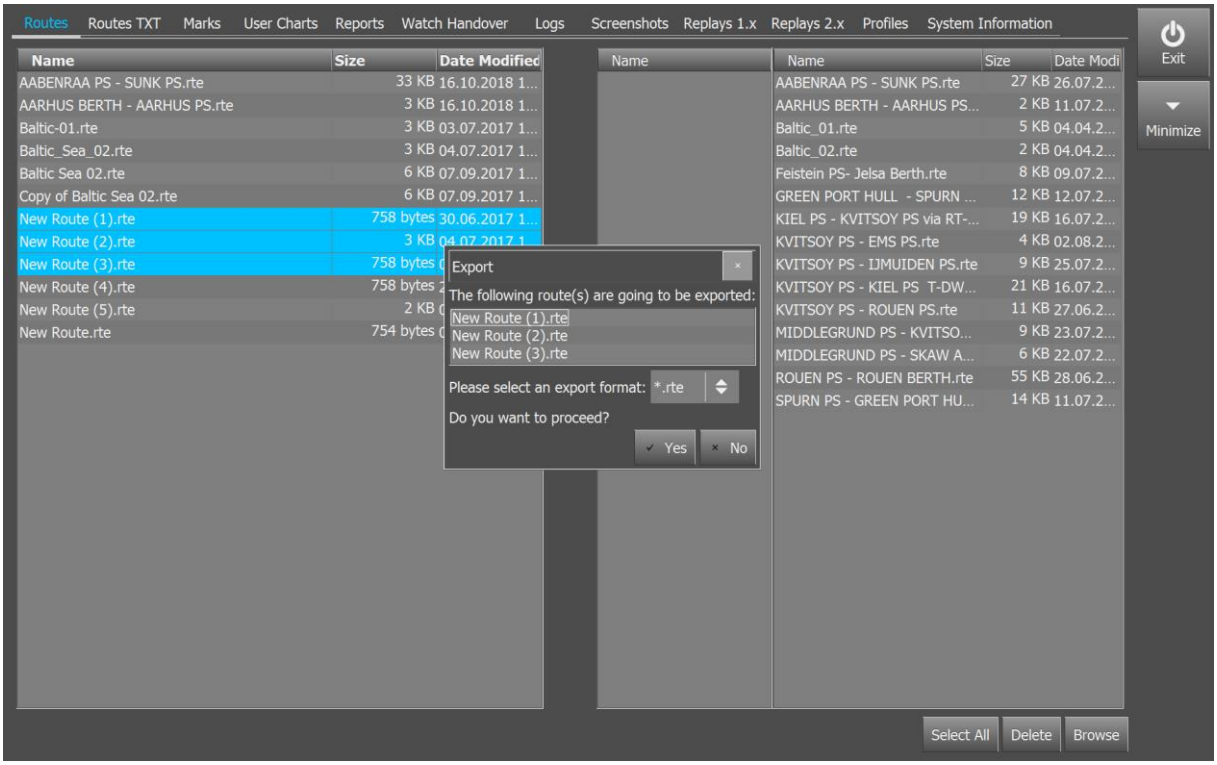
How to export an eGlobe G2 route (.rte) in another format:

1. Open the *File Manager* via the *Integrator* and select the tab *Routes.*
2. Insert a removable device (e.g. USB Flash Drive) and define the desired destination path via *Browse* button in the lower right corner of the *File Manager* interface.
3. Select the route which is to be exported from the left table and tap on the arrow button pointing to the right table.

eGlobe G2 will automatically ask for the desired output format (*.rte, *.spos, *.bvs).

4. Select the correct format and confirm the dialogue.

The destination path on the removable device will now contain the route in the correct format.



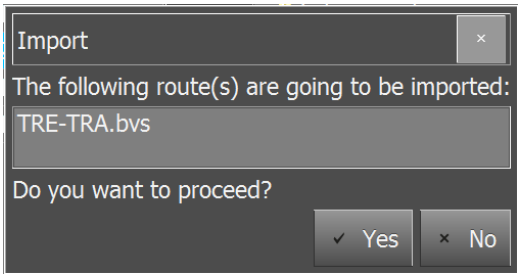
After the optimization based on the weather-optimizing database was performed, the route has to be re-imported into eGlobe G2 for further use.

> **Note:**
>
> If the weather-optimizing software already offers to output the route in eGlobe G2´s *.rte-Format, that should be used.

How to import the optimized route into eGlobe G2:

Open the *File Manager* via the *Integrator* and select the tab *Routes.*

1. Insert the removable device (e.g. USB Flash Drive) and define the destination path in which the route is located. To define the path, use the B*rowse* button.
2. Select the route which is to be imported from the right table and tap on the arrow button pointing to the left table.



eGlobe G2 will automatically convert the route into eGlobe G2´s *rte-Format.

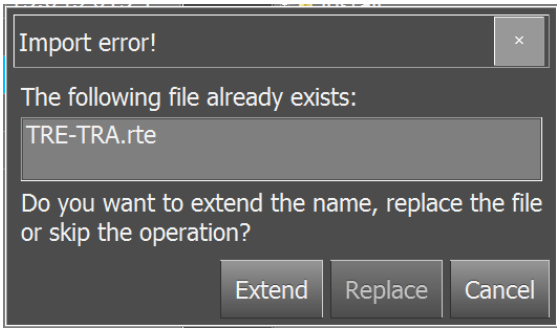
The left table now lists the imported route(s).

Note:

On the right table only routes in the supported formats will be displayed due to the fact that others could not get converted yet. Please contact ChartWorld support in case you want to import other route formats.

Additional Information:

The user will be guided in case the conversion was not successfully performed. A dedicated dialogue will appear.



If a route which shall be imported or exported already exists on the destination path (only the name will be taken into account) a dialogue will ask how to proceed. Once the *Extend* button is clicked eGlobe G2 will extend the file name by *(1).rte. If this extension already exists it will continue with (2), (3) et cetera.



Please note that at this stage manual renaming is not possible. In case the automatic extension is not carried out the process has to be cancelled, and the route must be manually renamed either in eGlobe G2´s *Route Planning* module or in the weather optimization software (if in use).

It is possible to share routes from other vessels using eGlobe G2. The routes can be imported regularly via the *File Manager* from a removable device. It is important to know that, for safety reasons, eGlobe G2 will remove the safety check status on the event of importing. Thus imported routes will always initially display the status `not checked`, and each newly imported route has to be checked in the Route Planning mode.

14 Output Data

14.1 Output to ARPA

eGlobe G2 is capable of transmitting data to other navigational devices on the bridge.

The information which can be sent is:

- GLL: Geographic position
- VTG: Course over ground (COG) and Speed over ground (SOG)
- ZDA: Date and Time

Please note that the position transmitted from ECDIS will be the position which ECDIS uses to locate the vessel on the chart.

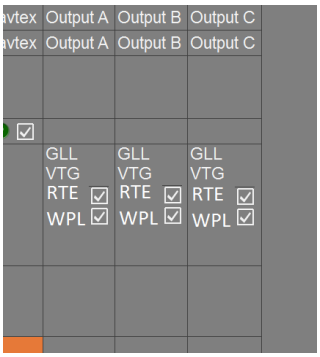
ECDIS has a referencing system of its own; CCRP (Consistent Common Reference Point). This is not necessarily the position of the main GPS antenna (for further information see the Installation Manual). In addition, eGlobe G2 transmits the position with a potential offset, if selected in eGlobe G2 (see chapter Selection of Main Position).

In other words, ECDIS transmits data to RADAR in a way it is interpreted and used by ECDIS itself.

The status of the data used in ECDIS; GPS in differential mode is transmitted as well. Furthermore, it is possible to use ECDIS in Echo Referencing mode, and the positions will be output as well.

- RTE: RTE is the route format of eGlobe G2. The ECDIS will transmit information about the waypoint passed last plus the next nine waypoints. So in total 10 waypoints can be transferred to the RADAR.
- WPL: WPL messages contain the information of the waypoint location, and is delivered in combination with RTE.

> Note:
>
> WPL as well as RTE can only be sent provided a route is activated (red dashed line in *Sailing* and *S- Mode*).



The configuration of output channels was carried out during the installation by the technical engineer.

Note:

This function is only available provided the hardware cabling was done.

14.2 BNWAS

Bridge Navigational Watch Alarm Systems (BNWAS) are to ensure the availability of the OOW on the bridge.

eGlobe G2 is to send a message to the BNWAS if the OOW touches one of the units used for navigation, placed at a position on the bridge from where a lookout can be performed.

On every touch event (or if a non-touch unit is used click event) the stations included in the BNWAS network are to send a message to the alarm system.

The station configuration is carried out by the technical engineer on installation. No user input is required.

15 eGlobe G2 Failure Handling

15.1.1 eGlobe G2 Failure Handling – Driver Failure of Touchscreen Device

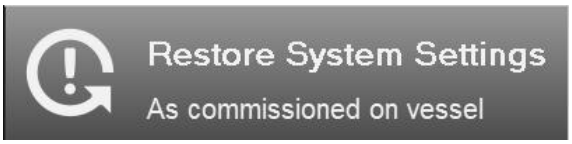
In a few cases it has been observed that after starting eGlobe G2 the touchscreen did not work. If this should occur, proceed as follows:

1. Shut down the system.
2. Reboot the system and check if the touchscreen is working. If not,
3. shut down the system again and
   switch off the power of the unit via switchboard.
4. Wait for at least 20 seconds then reboot the ECDIS.

15.1.2 eGlobe G2 Failure Handling – Software Failure

Action Plan (Process):

1. How to Identify: eGlobe G2 software gives a message like "Runtime error 53" or similar, the screen freezes, neither ship position nor parameters are updated. The software crashes and only the *Start* menu is visible on the screen.
2. If available, continue to navigate in *Navigation Mode* on the other unit.
3. If the navigation situation permits shut down both stations.
4. Start the *Master* station and, before it automatically continues in *Navigation Mode* within a 10 seconds timeout tap on *Restore System Settings*. This will reset the unit to the default settings as commissioned after the installation (or the last service) on board.



Tap on this button to run recovery.

5. Shut down the *Master Unit*.
6. Repeat steps 3 to 5 above on the *Backup Unit*.
7. Start the *Master Unit*, then the *Backup Unit* and let them automatically continue in *Navigation Mode*.
8. Observe the system after start whether it shows normal performance. If not, use the diagnostic utility (available from the eGlobe G2 documentation CD) and contact the ChartWorld support.

Control Procedures:

Not applicable.

Emergency Procedures:

Use eGlobe G2 backup or adequate ECDIS backup arrangements if different (e.g. paper charts, chart radar with loaded ENC) to continue navigation.

General recommendations:

- Stay calm and do not panic.
- Call a Backup Officer and/or Captain as applicable.
- Maintain an adequate visual lookout.
- With ECDIS working normally always assess and keep in mind safe waters around the vessel's current position. This awareness can help a lot in case of a sudden ECDIS failure.
- Reduce the speed or stop the vessel if the position cannot be reliably determined.
- Use Dead Reckoning position only as an emergency method with frequent LOP entry depending on the navigation situation. Use it with caution especially in areas with strong tidal currents.

Follow Up Requirements:

If you experienced any problems or abnormal system performance please contact the CW support:

Support Hotline (worldwide): +49-40-78805956

Service Support E-mail: support@chartworld.com

15.1.3 eGlobe G2 Failure Handling – Power Failure

Action Plan (Process):

1. How to Identify: eGlobe G2 PC has a multi power input and automatic switch over. So the loss of either power source (Main 220VA AC or Emergency 24VA DC) will not affect eGlobe G2 performance. Although not a part of minimum requirements we always suggest to implement electrical installation in a way where the loss of a power source should be monitored by power switch board indications on the bridge. Later versions of eGlobe will have alerts for a power source failure.
2. As soon as at least one of two connected power sources is available eGlobe G2 will operate normally and can still be used for navigation.
3. Take measures to restore the failed power supply source ASAP.

Control Procedures:

Not applicable.

Emergency Procedures:

Not applicable.

Follow Up Requirements:

If you experienced any problems or abnormal system performance please contact the CWI support:

Support Hotline (worldwide): +49-40-78805956

Service Support E-mail: support@chartworld.com

15.1.4 eGlobe G2 Failure Handling – Drive Failure

Action Plan (Process):

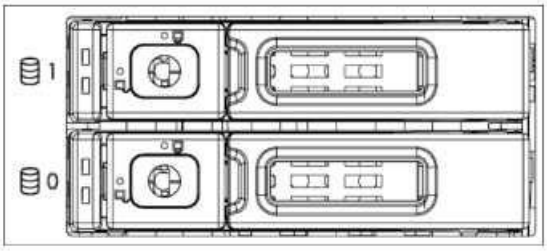
1. How to Identify: eGlobe G2 software operates normally but the message "Drive 1 failure" or "Drive 0 failure" is displayed on the screen.
2. **Note the number of the failed drive and make a record!**
3. eGlobe G2 is configured to use double drives in RAID1 mode and therefore no immediate action is required. Continue to use eGlobe G2 for navigation until you reach the port of destination.
4. If you have a spare blank drive in an on-board spare part kit the faulty drive can be changed as follows:

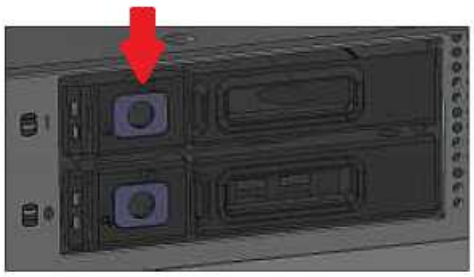
   Wait until the navigation situation allows to shut down eGlobe G2.

   Shut down the eGlobe G2 application using the *Exit Navigation Mode* button in the *Settings*. In the *Integrator* window, tap on *System Shutdown*.

   Continue to navigate on eGlobe G2 backup or use adequate ECDIS backup arrangements if different (e.g. paper charts, chart radar with loaded ENC).

Remove the faulty drive from eGlobe G2 by pressing the fix button and carefully pulling the lever.





Note that drive "0" is closer to the front side and drive "1" is closer to the rear side.

Start eGlobe G2 with one drive running. Observe that the system operates normally.

Insert a blank disk into running eGlobe G2 until the lever is fixed.

Reboot the system after 2 hours of operation. Observe that the system operates normally.

Control Procedures:

Not applicable.

Emergency Procedures:

Use eGlobe G2 backup or adequate ECDIS backup arrangements if different (e.g. paper charts, chart radar with loaded ENC) to continue navigation.

Follow Up Requirements:

Inform CWI support about the drive failure at the next opportunity. If you experienced any problems or abnormal system performance, please contact CWI support:

Support Hotline (worldwide): +49-40-78805956

Service Support E-mail: support@chartworld.com

15.1.5 eGlobe G2 Failure Handling – Software Settings Corrupted or Lost

Action Plan (Process):

1. How to Identify: eGlobe G2 software operates but some sensor input is lost, ship dimensions data is lost.
2. Continue to navigate on eGlobe G2 backup or use adequate ECDIS backup arrangements if different (e.g. Paper charts, Chart Radar with loaded ENC).
3. See item eGlobe G2 Failure Handling – Software Failure.

Control Procedures:

Not applicable.

Emergency Procedures:

Use eGlobe G2 backup or adequate ECDIS backup arrangements if different (e.g. paper charts, chart radar with loaded ENC) to continue navigation.

Follow Up Requirements:

If you experienced any further problems or abnormal system performance please contact CWI support:

Support Hotline (worldwide): +49-40-78805956

Service Support E-mail: support@chartworld.com

15.1.6 eGlobe G2 Failure Handling – Position System (Sensor) Input Lost or Invalid

Action Plan (Process):

Please refer to Position integration and monitoring (chapter Own Ship Position Integration).

16 Appendices

16.1 ECDIS and ENC Standards

For a survey of the standards currently in force and the respective edition numbers see http://iho.int/mtg_docs/enc/ECDIS-ENC_StdsIn_Force.htm

16.2 Abbreviations

%	Per cent
°	Degree
AIO	Admiralty Information Overlay
AIS	Automatic Identification System
AMETIAP	Association of Marine Educational and Training Institutes Asia-Pacific Region
AML	Additional Military Layer
ARCS	Admiralty Raster Chart Service
ARPA	Automatic Radar Plotting Aid
AUS	Australia
BNWAS	Bridge Navigational Watch Alarm System
BCR	Bow Cross Range
BCT	Bow Cross Time
bENC	Bathymetric ENC
BIMCO	The world's largest Association of ship-owners and others representing more than 65% of the world's tonnage
BSB	Raster data format used by USA and Canada and others (BSB comes from the first letter of the companies that joined together with NOAA to make the first NOAA raster charts)
BSH	Bundesamt für Seeschifffahrt und Hydrographie, Federal Maritime and Hydrographic Agency of Germany

CAM	Central Alert Management
CCRP	Consistent Common Reference Point
CEP	Circular Error Probability
CIE	International Commission on Illumination
CIRM	International Association for Marine Electronic Companies
Cm	Centimetre
COG	Course Over Ground
COLREGS	International Regulations for Preventing Collisions at Sea
COM	Communication
CPA	Closest Point of Approach
CTW	Course through Water
DAC	Designated Area Code
DE	Germany
DGPS	Differential Global Positioning System
DNC	Digital Nautical Chart
DNV	Det Norske Veritas
DR	Dead-Reckoning
DRMS	Distance Root Mean Square
DRMS DS	Distance Root Mean Square Data Server
e.g.	Exempli gratia
EBL	Electronic Bearing Line
ECDIS	Electronic Chart Display and Information System
ECS	Electronic Chart System (does not meet SOLAS requirements)
ECS charts	Non official (private) chart data (vector or raster)
ENC	Electronic Navigational Chart
EPFS	Electronic Position Fixing System

ERBL	Electronic Range Bearing Line
et al.	Et alii
ETA	Estimated Time of Arrival
ETC	ECDIS TRAINING CONSORTIUM
EUT	Equipment under Test
FI	Function Indicator
FMEA	Failure Mode and Effects Analysis
FR	France
GB	Great Britain
GDOP	Geometric Dilution of Precision
GIS	Geographic Information System
GMDSS	Global Maritime Distress And Safety System
GPS	Global Positioning System
GRT	Gross Tonnage
GSM	Global System for Mobile Communications
H	Hour
HCRF	Hydrographic Chart Raster Format
HDOP	Horizontal Dilution of Precision
HMI	Human Machine Interface
HO	Hydrographic Office
IAMI	International Association of Marine Institutes
IBS	Integrated Bridge System
ICE	International Centre of ENCs
ICS	International Chamber of Shipping
IEC	International Electrotechnical Commission
IENC	Inland ENC

IFO	Intermediate fuel oil
IHO	International Hydrographic Organization
IMO	International Maritime Organization
IMO CIRC	IMO Circular
INMARSAT	International Maritime Satellite Organization - Mobile Satellite Company
ISM	International Safety Management
ISM-Code	International Safety Management Code
ISO	International Organization for Standardization
kB	Kilo Byte
km/h	Kilometre/hour
Kn	Knots, nautical miles per hour
LAN	Local Area Network
LAT	Lowest Astronomical Tide
LAT	Latitude
LOP	Lines of Position
M	Metre
MB	Mega Byte
MCA	Marine & Coastguard Agency
MCA	Maritime and Coastguard Agency
Min	Minutes
MIO	Marine Information Overlay
MMSI	Maritime Mobile Service Identity
MOB	Man-over-Board
MSC	Marine Safety Committee
MSG	MarineServe GmbH
MSI	Maritime Safety Information

MV	Motor Vessel
NAVTEX	Navigational Text Messages
NM	Nautical Mile
NMEA	National Marine Electronics Association
NOAA	National Oceanic and Atmospheric Administration
NTM	Notice to Mariners
OBJ-NAM	Object Name
OOW	Officer of the Watch
LAT	Latitude
LON	Longitude
P&I club	Association of ship owners insurance demands
p.	Page
PENC	Port ENC
PRIMAR	A RENC operated by the Norwegian Hydrographic Service
PRN-Code	Pseudo Random Noise, Each satellite transmits a unique PRN code, which does not correlate well with any other satellite's PRN code. In other words, the PRN codes are highly orthogonal to one another. This is a form of code division multiple access (CDMA), which allows the receiver to recognize multiple satellites on the same frequency.
PSC	Port State Control
PSCO	Port State Control Officer
PSSA	Particularly Sensitive Sea Area
RAIM	Receiver Autonomous Integrity Monitoring
RCDS	Raster Chart Display System
RENC	Regional ENC Coordinating Centre
Rev.	Revised
RNC	Raster Navigational Chart
ROT	Rate of Turn

RTCM	Radio Technical Commission for Maritime Services
S	Second
SA	Selective Availability
SATCOM	Satellite Communications
SDME	Speed and Distance Measurement Equipment
SENC	System Electronic Navigational Chart
SMD	Safe Manning Document
SMS	Safety Management System
SOG	Speed over Ground
SOLAS	International Convention on the Safety of Life at Sea
SRNC	System Raster Navigational Chart
STCW	Standards of Training, Certification and Watchkeeping for Seafarers
STW	Speed through Water
T&P Note	Temporary & Preliminary Note
TADS	TRANSAS Admiralty Data Service
TCPA	Time to Closest Point of Approach
TOD	Tactical Ocean Data
TSS	Traffic Separation Scheme
TT	Target Tracking
UK	United Kingdom
UKHO	United Kingdom Hydrographic Office
UMTS	Universal Mobile Telecommunications System
US	United States
URI	Uniform Resource Identifier
USB	Universal Serial Bus
VAR	Value Added Resellers

VDL	AIS VHF Data Link
VDM	AIS VHF Data link Message
VDR	Voyage Data Recorder
VMap	Vector Map
VRM	Variable Range Marker
VTS	Vessel Traffic Service
WEND	World ENC Database
WEND	Worldwide Electronic Navigational Chart Database
WGS84	World Geodetic System 1984
WLAN	Wireless Local Area Network
WP	Waypoints
XTD	Cross Track Distance
ʎ	Longitude
ZOC	Zone of Confidence

16.3 AIS Messages Supported in eGlobe G2 ECDIS

01	Position Report Class A
02	Position Report Class A (Assigned schedule)
03	Position Report Class A (Response to interrogation)
04	Base Station Report
05	Static and Voyage Related Data
08	Binary Broadcast Message*
09	Standard SAR Aircraft Position Report
12	Addressed Safety Related Message
14	Safety Related Broadcast Message
18	Standard Class B CS Position Report
19	Extended Class B Equipment Position Report
21	Aid-to-Navigation Report
24	Static Data Report

* Supported Function Identifiers:

- Environmental
- Geographic Notice
- Waterway Management

16.4 Default Control Settings Used in eGlobe G2 Version 2.0.1.0

Table 3 – Control settings configured in response to 'Default' selection (Appendix 6 of IMO resolution MSC.252(83)

IMO Function	IMO Setting	eGlobe G2 Function	eGlobe G2 Setting
Display category	*ECDIS Standard display*	*Chart Setting/IMO Categories*	*Standard*
Chart related selector: Accuracy	Off	*Chart Setting/IMO Categories/Show Accuracy*	Deselected
Chart related selector: Date dependent objects	current date	*Chart Setting/Objects with time limits*	Current Date
Chart related selector: Highlight date dependent	Off	*Chart Setting/IMO Categories/Show Highlight Date Dependant*	Deselected
Chart related selector: Full light lines	Off	*Chart Setting/IMO Categories/Full Light Lines*	Deselected
Chart related selector: Highlight info	Off	*Chart Setting/IMO Categories/Show Highlight Info*	Deselected
Chart related selector: Highlight document	Off	*Chart Setting/IMO Categories/Show Highlight Document*	Deselected
Chart related selector: Unknown	On	*Chart Setting/IMO Categories/Define custom/Unknown*	Selected
Chart related selector: Scale min	Off	*Chart Setting/Filter/Enable SCAMIN*	Deselected
Chart related selector: Shallow pattern	Off	*Chart Setting/IMO Categories/Show shallow water*	Deselected
Chart related selector: Shallow water dangers	On	*Chart Setting/IMO Categories/Isolated dangers in shallow water*	Deselected
Chart related selector: Contour labels, if provided	Off	*Chart Setting/IMO Categories/Define Custom/Depth contour labels*	Deselected
Chart related selector: Four shades, if provided	Off	*Chart Setting/IMO Categories/Draw depth areas with two shades*	Selected
Chart related selector: National language, if provided	Remain unchanged	Not applicable	Not applicable
Chart related selector: Paper chart / Simplified symbols	Paper chart	*Chart Setting/Style/Points*	Traditional
Chart related selector: Plain / Symbolized boundaries	Plain	*Chart Setting/Style/Area boundaries*	Plain

IMO Function	IMO Setting	eGlobe G2 Function	eGlobe G2 Setting
Chart related selector: Text group layer	Important text	*Chart Setting/IMO Categories/Important text*	Selected
Selected sea area	*Around own ship with appropriate off-set*	*Go to Ship*	*Performed*
Range	*3 NM*	*Range widjet*	*3 NM*
Orientation	*True motion, north-up*	*Display/Orientation & RM/TM*	*North Up & TM*
10 % from display edge	True motion reset	*Display/Frame*	Respective adjustements of
WGS84	Geodetic datum, if selectable	Not applicable	Not applicable
If applied i.e. displayed if available	*Manual updates* (see 5.9.2)	Not applicable	Not applicable
If applied i.e. displayed if available	Mariner's *notes* (see 5.4.1)	*Chart Setting/User defined objects*	Selected
Last selected route, including route	*Selected route*	Not applicable	Not applicable
On	*Past track*	*NAV/Own Ship/Own Track*	*See below*
12 h	Past track length, if selectable (see Annex B, *1.1* and *1.2*)	*NAV/Own Ship/Own Track*	12 Hrs
On, 30 min	Past track time-labels	*NAV/Own Ship/Own Track*	30 min
6 min	*Look-ahead time*	*NAV/Antigrounding/Time*	*6 min*
Exit	Any edit window (for example route plan)	No action required	Not applicable
Remain unchanged	Position data source	*NAV/Own Ship/Main Position*	Remain unchanged
Remain unchanged	Safety contour	*NAV/Antigrounding/Safety Contour*	Remain unchanged
Remain unchanged	Safety depth	*NAV/Antigrounding/Safety Depth*	Remain unchanged
Remain unchanged	Cross track limit	From current route	Remain unchanged
On	Graphical indication of crossing safety contour during route planning, if selection provided	Not applicable	Not applicable
On	Graphical indication of prohibited areas, areas with special conditions and navigational hazards during route	Not applicable	Not applicable
Remain unchanged	Distance to prohibited areas, areas with special conditions and navigational hazards	From current route	Remain unchanged

IMO Function	IMO Setting	eGlobe G2 Function	eGlobe G2 Setting
On	Graphical indication of crossing safety contour during route monitoring, if selection provided	Not applicable	Not applicable
On	Graphical indication of prohibited areas and areas with special conditions during route monitoring, if selection provided	*NAV/Antigrounding/Safety Contour*	All Selected
On	Graphical indication of navigational hazards during route monitoring, if selection	Not applicable	Not applicable
Cleared from display	Object highlight, selected object, track display from log	No action required	Not applicable
Closed	Cursor pick	No action required	Not applicable
Closed	Any additional window (dual view, 3d, tides, etc.)	No action required	Not applicable
Cleared from display	Any additional information layer, proprietary layer (weather, tides, AML,	Not applicable	Not applicable
Aborted	Chart update, Chart information exchange	Not applicable	Not applicable
Closed	Colour differentiation test diagrams	No action required	Not applicable
Off	Update review	No action required	Not applicable
Closed	Chart 1	No action required	Not applicable
m, NM, kn	Units	Not applicable	Not applicable
Caution	Crossing a navigational hazard in route monitoring mode	Not applicable	Not applicable
6 min	Vector time (length)	*NAV/Own Ship/Speed Vector Size*	6 min
True	Vector mode	Not applicable	Not applicable
Ground	Vector stabilization	Not applicable	Not applicable
AIS	Symbol for target association, if provided	Not applicable	Not applicable

IMO Function	IMO Setting	eGlobe G2 Function	eGlobe G2 Setting
Collision warnings, if provided	ON (limits, CPA = 2 NM; TCPA = 12 min)	Traffic/CPA TCPA	CPA = 2 NM TCPA = 12 min
Radar and AIS target association, if provided	ON	Traffic/Target association	ON (AIS target display)
AIS target filtering, if provided	Off	Traffic/Hide sleeping AIS targets	Deselected
AIS true target outline	Off	Not applicable	Not applicable
Display of Radar image overlay, if provided	Off	Traffic/Radar Overlay	Deselected
Display of Radar tracked targets, if provided	Off	Traffic/Targets/ARPA1 & ARPA2	Off
Display of AIS reported targets, if provided	Off	Traffic/Targets/AIS	Off
Target past positions, if provided	Off	Traffic/Target Past Positions	Deselected
Target trails, if provided	Off	Not applicable	Not applicable
Lost target warning, if provided	Off	Not applicable	Not applicable
Lost target warning range, if provided	12 NM	Not applicable	Not applicable
AIS interrogation, if provided	Off	Not applicable	Not applicable
Own ship true outline	Off	NAV/Own Ship/Own ship symbol	Symbol
LOP source indication	Off	Not applicable	Not applicable
User selected time for warning escalation	60 s	Not applicable	Not applicable
Suppression of indication of user selected MSI messages based on first character of NAVTEX code field, if provided (see 4.12.6 b))	Remain unchanged	Not applicable	Not applicable
Suppression of indication of user selected messages based on time and distance from own ship, monitored route or planned route (4.12.6 c))	No	ChartLoader/NAVTEX/Use Filter	Deselected
Brightness and contrast controls, if software controlled	Calibrated setting	Not applicable	Not applicable

16.5 Alert Messages Handled in eGlobe G2 ECDIS version 2.0.2.X

Alert Titel	Alert Description	Priority	Category	CAM ID	Meaning	Required Actions
Safety contour	Safety Contour crossing	Alarm	A	3031	Risk of grounding. Unsafe waters, i.e. shallower than Safety contour, are detected by the system within watchdog sector as defined in NAV/Antigrounding	Check current position and course over ground as well as proximity to the detected dangers. Need of a manoeuvre is to be assessed.
Ves. is out XTD	XTD Limit	Alarm	A	3024	Risk of grounding. Deviation from the monitoring route exceeds the limit set in the route.	As above.
Approach to AREA	Area approach * (selectable)	Warning Or Caution	A	3035 3036	Charted area with a particular conditions (e.g. Restricted Area) is detected by the system within watchdog sector as defined in NAV/Antigrounding Note: Danger highlight of the object on the chart display is removed as soon as the warning is acknowledged. In case of caution the highlight stays on the chart display while the object is still in the safety sector.	Check current position and course over ground as well as proximity to the detected dangers. Need of a manoeuvre is to be assessed.
Approach to AtoN	AtoN * (Selectable)	Warning Or Caution	A	10002	Point object such as Aid to Navigation (e.g. buoy) is detected by the system within watchdog sector as defined in NAV/Antigrounding. Note: Danger highlight of the object on the chart display is removed as soon as the warning is acknowledged. In case of caution the highlight stays on the chart display while the object is still in the safety sector.	As above.

Alert Titel	Alert Description	Priority	Category	CAM ID	Meaning	Required Actions
Nav. hazard	Navigational Hazard * (Isolated dangers/ Dangerous Navtex objects/ User Chart Dangers)	Warning or Caution	A	3035 3036	Risk of grounding. Point object(s) with unsafe water depth, i.e. less than Safety Depth, is detected by system within the watchdog sector as defined in NAV/Antigrounding. Note: Danger highlight of the object on the chart display is removed as soon as the warning is acknowledged. In case of caution the highlight stays on the chart display while the object is still in the safety sector.	As above.
Waypoint Approach	Waypoint Approach * (Selectable)	Warning	A	3038	In a time set by User (or defined in route plan) Own ship will pass next Waypoint.	As above.
WOL Approach	WOL Approach * (Selectable)	Warning	A	3038	In a time set by user (or defined in route plan) Own ship will approach Wheel Over Line to turn to the next route leg.	As above.
Waypoint abeam	Waypoint abeam * (Selectable)	Warning	A	3038	Waypoint has been passed and the system automatically changes to the next waypoint.	As above.
Off schedule	Off schedule (Selectable)	Caution	B	10008	If current speed over ground is kept then ETA to the next defined (manually or in voyage plan) waypoint is late / ahead of schedule.	As above.
Check Datum	Datum difference	Warning	B	3005	If an EPFS is set to local datum different from WGS-84 datum a warning is generated.	Check settings of EPFS is use. Select WGS84 as datum in EPFS.
Position invalid	No Valid Position (source)	Warning	B	3005	The EPFS **(selected for navigation)** does NOT provide reliable fix for a period longer than 10seconds (No alert for non-selected source)	Check EPFS that caused the alert.
(source) Position Failure	EPFS/DR/ER Position Failure	Warning	B	3015	Position source/method **(selected for navigation)** does NOT provide any data for a period longer than 10seconds.	Select an alternative source for positioning in NAV/Own Ship menu as applicable to continue navigation. Check the source that has caused the alert.

Alert Titel	Alert Description	Priority	Category	CAM ID	Meaning	Required Actions
(source) Position Failure	EPFS/DR/ER Position Failure	Caution	B	3015	Position source/method (**OTHER than selected for navigation)** does NOT provide any data for a period longer than 10seconds.	Check the source that has caused the alert.
Power Supply failure	Power Supply fail on Master/Backup station	Warning	B	3022	The system has detected a failure either with the 230V or the 24V power supply.	Verify from the alert name (referencing Master station or Backup station) which station has the power failure, open its Watch Handover page from the NAV button dialogue and verify whether it is 24V or 230V connection. Check the power supply source and fuses. The system continues to operate normally while at least one power source is available.
Minimum sounder depth	Minimum Sounder Depth (selectable)	Warning	B	10007	Risk of grounding. Depth below keel from echo sounder is less than a set limit.	Check current position and course over ground as well as proximity to the detected dangers. Need of a manoeuvre is to be assessed.
Network – Lost station	Network – Lost station	Warning	B	3062	Network connection with at least one workstation in the ECDIS network cannot be established.	Check network whether some workstation(s) were shut down by purpose.
Network – New station	Network – New station	Warning	B	10005	New workstation has been detected on the ECDIS network.	Check that no unexpected Master-Backup rearrangements have been performed.
Heading invalid	Heading invalid	Warning	B	3005	The Heading data from one heading source **in use** is marked as INVALID. Caution if the heading sensor is NOT in use. (No alert for non-selected source).	Check if available heading sources still deliver a valid heading and select an alternative heading source, if available.

Alert Titel	Alert Description	Priority	Category	CAM ID	Meaning	Required Actions
Heading No Input	Heading No Input	Warning	B	3015	The Heading data from the Heading source **in use** is not available for a period longer than 10seconds. (No alert for non-selected source).	Select Alternative heading source if available. Keep in mind that CCRP calculations (correct sensor offsets, ship outline, etc.) are not available.
Log invalid (source)	Log Invalid	Warning	B	3005	The Log Speed data from the Speed source **in use** is marked as INVALID. (No alert for non-selected source).	Check if available speed log sources still deliver a valid speed and select an alternative speed log source if available.
Log no input (source)	Log No Input	Warning	B	3015	The Log Speed data from the speed source **in use** is not available for a period longer than 10 seconds. (No alert for non-selected source).	Select alternative Log speed source if available.
Corrupted Data Input (source)	Corrupted Data Input (source)	Warning	B	3005	Corrupted data input (invalid checksum) is detected from a connected sensor that is used for either Main Positioning or Heading or Log Speed source.	Select alternative source as far as practical. Check connection of the sensor to the system.
Anchor Watch	Anchor Watch	Waning or Alarm	A	3032 3031	Own ship is outside or has an intersection with the active anchor watch ring. Note: This warning is escalated to an alarm if not acknowledged within 2 minutes.	Check environmental traffic situation and perform required navigational actions.

Note 1: Alert is noted as (selectable) when the User can enable/disable alert at own discretion.

Note 2: Category A of alerts includes those where information at task station directly assigned to the function generating the alert is necessary, as decision support for the evaluation of the alert-related condition, e.g. either collision or grounding danger and therefore needs to be assessed at relevant graphical display (e.g. Radar/ARPA or ECDIS respectively). Category B alerts are specified as alerts where no additional information for decision support is necessary besides the information which can be presented at the alert information.

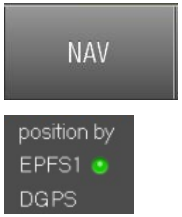
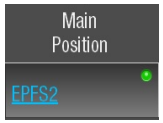
Note 3:. Category B alerts can be acknowledged from the CAMS itself while the Category A alerts can only be silenced on the CAMS and do need to be acknowledged on the ECDIS itself. The column `CAM ID` indicates ID of the alerts as used within CAMS interface.

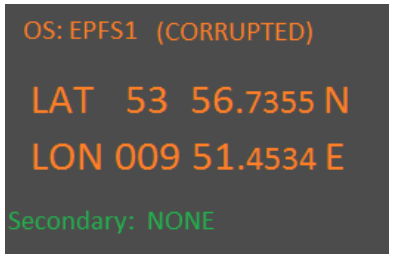
* - The alert is selectable by the operator to be either warning or caution (default set to warning)

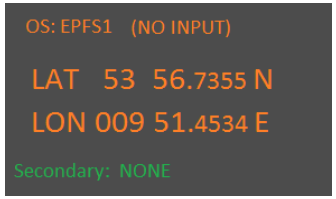
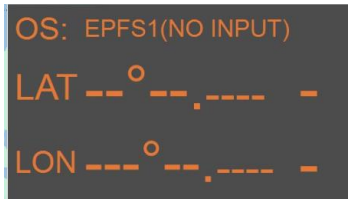
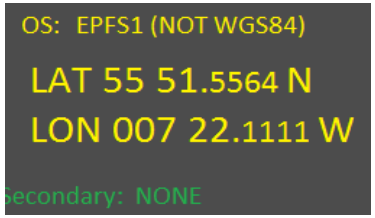
16.6 Position Sensor Data Handling

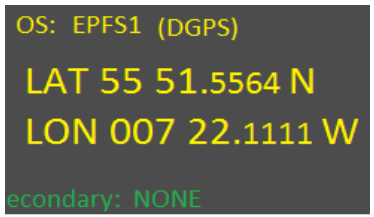
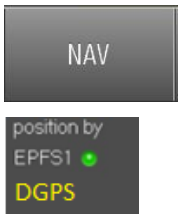
16.6.1 Own Ship Position Display. EPFS.

EPFS (no difference if EPFS1 or EPFS2 is selected as Main or Secondary in the examples below).

NN	Case	INFO LABEL	Toolbar	NAV page	Alarms	Note
A1	Main Selected EPFS1 OK diff mode (GGA: 2)				No warnings Received data is changing and displayed (Green) System data is changing	DGPS is shown only when diff mode is available.
A2	EPFS1 OK diff mode never received (GGA: 1,3,4)				No warnings Received data is changing and displayed (Green) System data is changing	
A3	Main Selected EPFS1 OK manual offset applied				Once manual offset for the data received by EPFS is applied there should be a permanent indication of offset value on the monitoring screen and a value of offset applied in orange.	

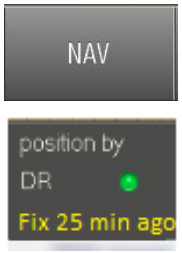
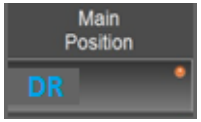
A4	Main Selected EPFS1 NOK invalid status (GGA: 0 or missing)	 Received data is changing and displayed (orange) System data is changing			**If Main:** If normal Dif mode/GPSmode is NOT coming back within 10s then alert "No Valid Position" (source EPFS1) **If Secondary or not selected:** warning "No Valid Position" (source EPFS2)	
A5	Main Selected EPFS1 NOK wrong checksum	 Received data is NOT changing and last good received displayed (Orange) for 30 seconds. Display changes then to A7. Then it is shown as  -- --.---- - and ship stays at the last known position.			**If Main:** If normal data is NOT coming back within 10s then alert " Corrupted data input" (source EPFS1) **If Secondary or not selected:** warning "Corrupted data input" (source EPFS1)	

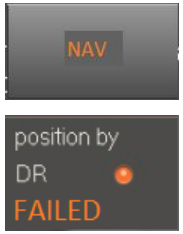
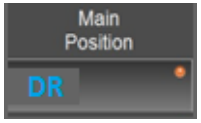
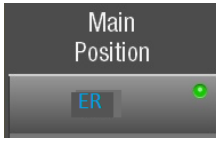
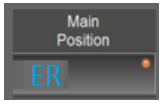
A6	Main Selected EPFS1 NOK no input	 Received data is NOT changing and last good received displayed (orange) for 30 seconds. Then it is shown as  -- --.---- - and ship stays at the last known position.	 		**If Main:** If normal data is not coming NOT coming back within 10s then alert "Position – No input" (source EPFS1) **If Secondary or not selected:** warning "No input" (source EPFS1)	
A7	Main Selected EPFS1 NOK not WGS84 (GGA: Not WGS84)	 Received data is changing and displayed (yellow) System data is changing	 		**If Main:** Alert "Check DATUM" (source EPFS1) **If Secondary or not selected:** warning "Check DATUM" (source EPFS2)	

A8	Main Selected EPFS1 LOW Integrity	 Received data is changing and displayed (yellow) System data is changing			No alert/N warning	
A9	Secondary NOT selected					
A10	Secondary Selected EPFS1 or EPFS2 Cases A1-A4 above				See Cases A1-A4 above	
A11	Secondary Selected EPFS1 or EPFS2 See Cases A5 above				See Cases A5 above	
A12	Secondary Selected EPFS1 or EPFS2 See Cases A6,A7 above				See Cases A6, A7 above	

A13	Secondary Selected Distance between Main and secondary is more than a limit.				If Distance between Main and secondary is more than a set limit Then alarm "Check position"	
A14	Secondary Selected EPFS1 or EPFS2 See Cases A8,A9 above				See Cases A8, A9 above	

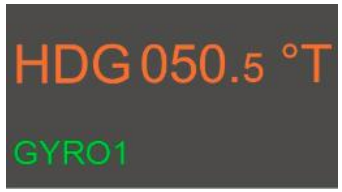
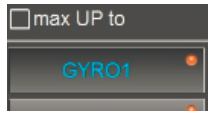
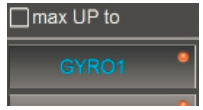
16.6.2 Dead Reckoning and ER

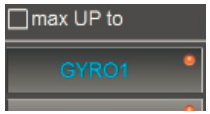
NN	Case	INFO LABEL	Toolbar	NAV page	Alarms	Note
A15	Main Selected DR with fix no older than 30 minutes				No warnings Calculated data is changing and displayed (Green/black) System data is changing	
A16	Main Selected DR with fix older than 30 minutes				Warning "Check DR position" Calculated data is changing and displayed (Green/black) System data is changing	

A17	Main Selected DR with fix with HDG/LOG HDG and/or LOG No input Wrong CS Invalid incl manual	 Received data is NOT changing and last good received/calculated displayed (orange) for 30 seconds. Then it is shown as -- --.---- - and ship stays at the last known position.			**If Main:** If normal data for DR is not coming back within 10s then alarm "DR Failure" (source System) **If Secondary or not selected:** warning "DR Failure" (source System)	
A18	Main Selected ER with valid target updated less than 10s ago.				No warnings Calculated data is changing and displayed (Green/black) System data is changing	
A19	Main Selected No update to target for longer than 10s (No input from ARPA, target lost)	 Received data is NOT changing and last good received displayed (red) for 30 seconds. Then it is shown as -- --.---- - and ship stays at the last known position.			**If Main:** If normal data for ER target is not coming back within 10s then alarm "ER Failure" (source System) **If Secondary or not selected:** warning "ER Failure" (source System)	ER stops until manually re-activated

16.6.3 Own Ship Heading/ROT, LOG Speed, Depth

NN	Case	INFO LABEL	Toolbar	NAV page	Alarms	Note
B1	Normal input valid data	     STW and SPD are two different labels getting information from LOG. If water or gnd speed is NOT available from log then --.- should be shown.			No warnings Received data is changing and displayed (Green/black) System data is changing	

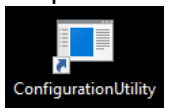
		 COG and SOG are taken from the same source as the Main Position EPFS1, EPFS2, ER (except DR). If DR then values are taken as Heading and speed used of DR but named CMG, SMG.				
B2	Invalid data	 Received data is changing and displayed (orange)	 **If Selected source of HDG or LOG**		**If Selected source of HDG or LOG.** If Heading input is back within 10s then alarm "Heading Invalid" (source GYRO1) **If not selected:** warning "Input Invalid" (source GYRO1)	
B3	Corrupted data- wrong CS	 Received data is NOT changing and last known is displayed (orange) and turn to ---.-T in 30 seconds 	 **If Selected source of HDG or LOG**		**If Selected source of HDG or LOG.** If Heading input is back within 10s then alarm "Corrupted data input" (source GYRO1) **If not selected:** warning "Corrupted data input" (source GYRO1)	

B4	Lost Input	 Received data is NOT changing and last known is displayed (orange) and turn to ---.-T in 30 seconds	 **If Selected source of HDG or LOG**		**If Selected source of HDG or LOG.** If Heading input is back within 10s then alarm "No input" (source GYRO1) **If not selected:** warning "No input" (source GYRO2)	

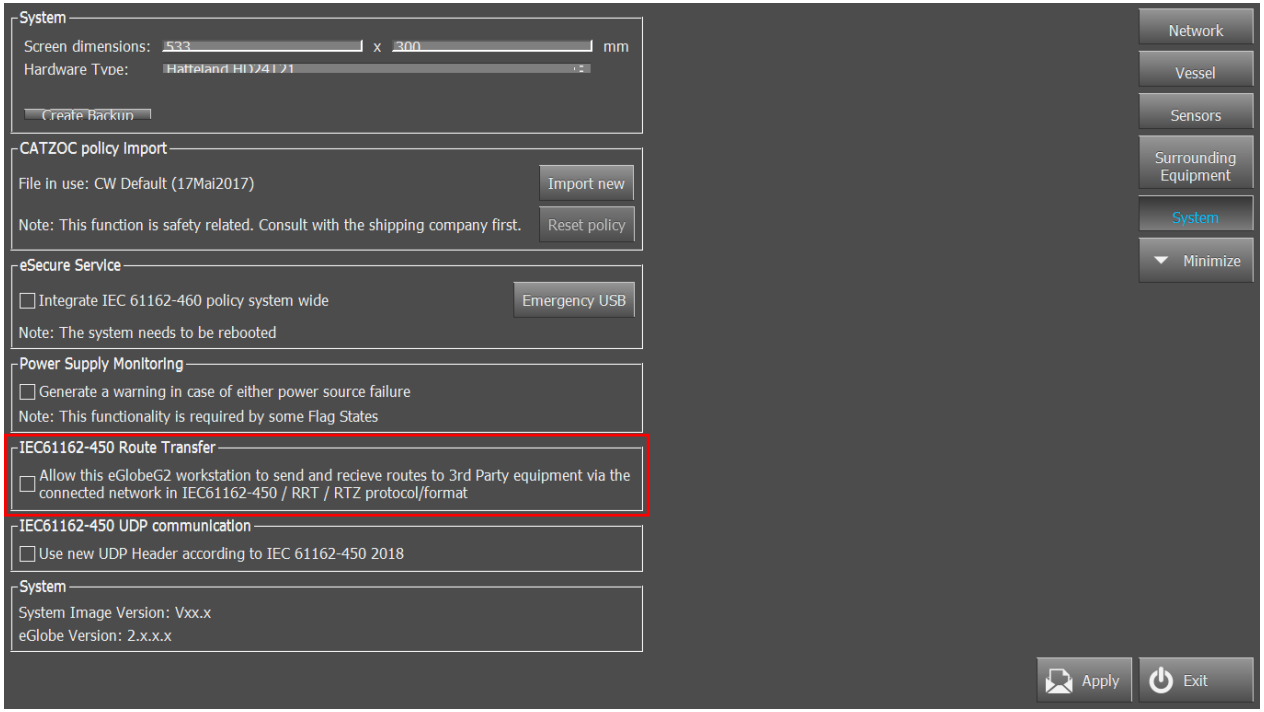
16.7 Route Transfer Protocol (RTZ)

16.7.1 Setup

For route transfer between eGlobe G2 and 3rd party equipment.

If you want to use the option to send and receive routes from 3rd parties you need to activate this function in the *System* section from the *ConfigurationUtility* 

To activate this function you need to tick the box *IEC61162-450 Route Transfer*.



Note:

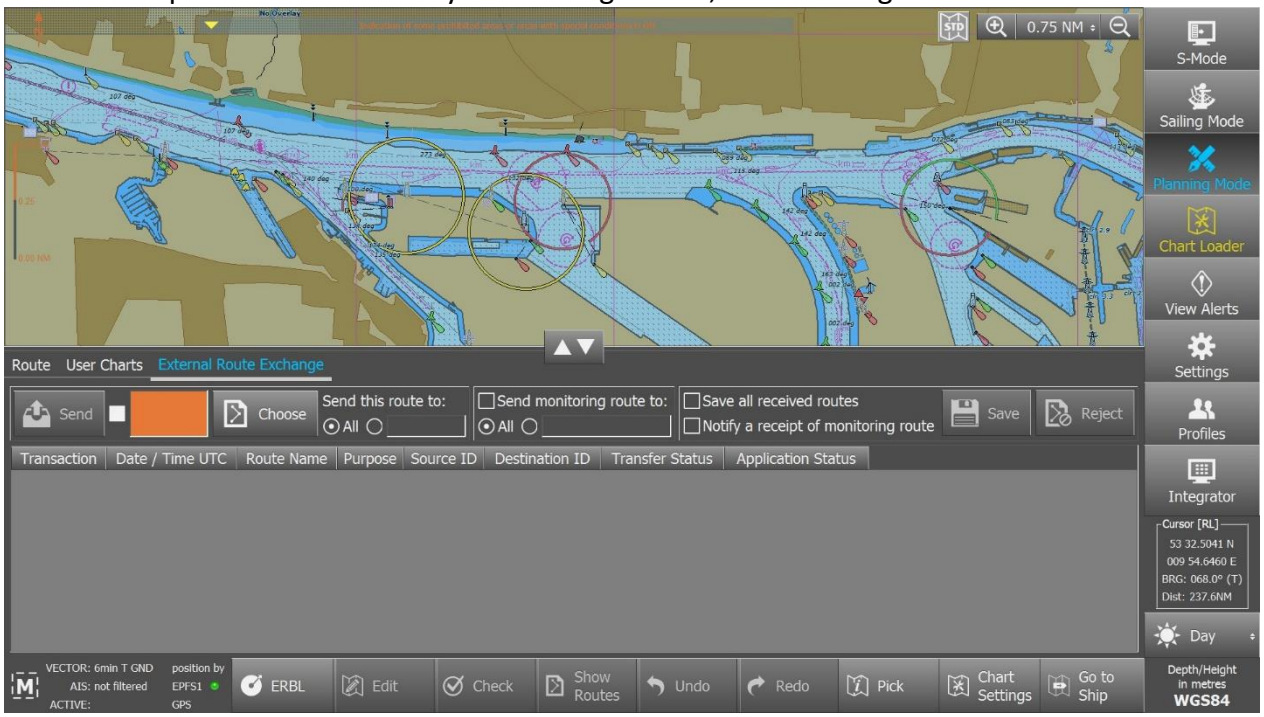
This function is NOT intended to be used for route transfer within a closed eGlobe G2 network.

By default, this function is not selected.

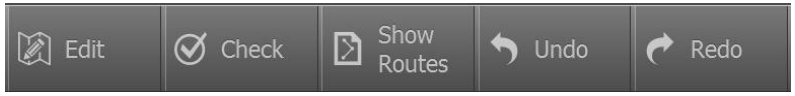
Once activated, the setting is recorded in the eGlobe Settings and does not affect the individual profile settings.

16.7.2 General

In case the option is activated in System Configuration, The Planning mode includes an additional Tab *External Route Exchange*.



The following buttons in the Tool Bar are NOT accessible (disabled):The others can be used as usual.



The Table includes last 30 transactions in the current eGlobe G2 run (since the last startup) and includes the following columns:

Transaction - RX stans for a received route, TX stands for a transmitted route.

Date Time UTC - Date and time of route sending/receipt

Route name - the name of the sending/receipt route

In case there a route with the same name is received twice, the existing route will be replaced by the newly received route after accepting the transmission.

Purpose – indicates if the route is for editing or for monitoring

Source ID - displays the source ID from the system the route was sent from and is only filled if it's a received route.

Destination ID - displays the source ID from the system the route was sent to and is only filled if it's a transmitted route.

Transfer status - displays if the transfer was successful/unsuccessful this will be:

For sent routes:

- OK – confirmed receipt status by destination (or at least one if for all)
- Error - confirmed error receipt status by destination (or at least one if for all)
- No response – no confirmation message received within the timeout of 12s.

For received routes:

- OK – file transfer delivered without errors
- Error - file transfer delivered with errors

Application Status – displays the status of the received or sent route, this will be:

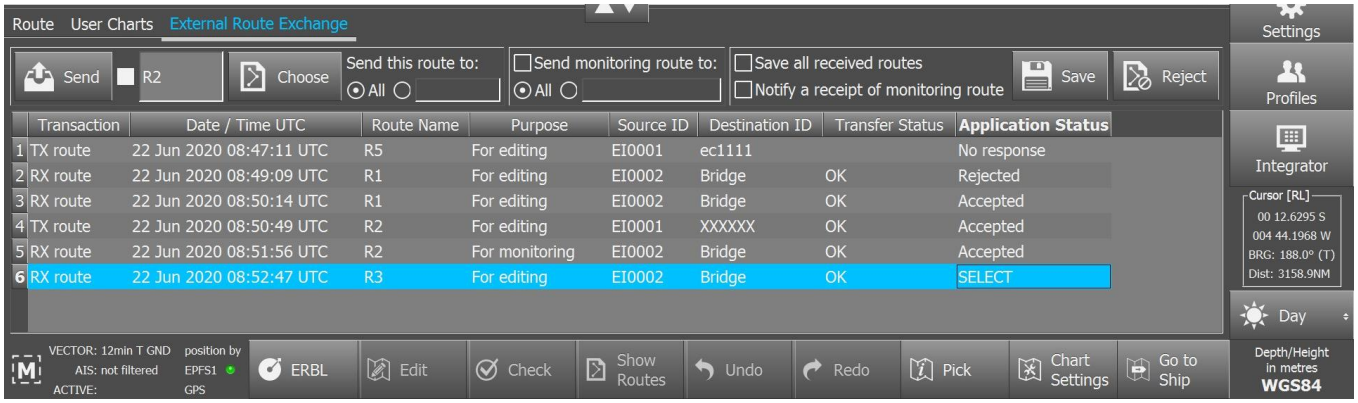
For sent routes:

- Accepted –the route was accepted by the other station.

- Rejected - the route was rejected by the other station.
- No response - no confirmation message received within the timeout.

For received routes:

- Accepted – if *Save all received routes* is selected the application status in the table will be changed automatically to *Accepted*. If it is not selected the application status in the table will be changed to *Accepted* after you pressed save.
- Rejected – result after you manual press the *Reject* button or if there was an error in the file transfer.
- SELECT – the last received route which is pending manual acceptance or rejection from the user.

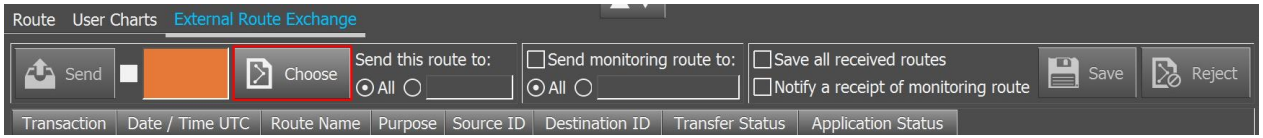


16.7.1 Start up

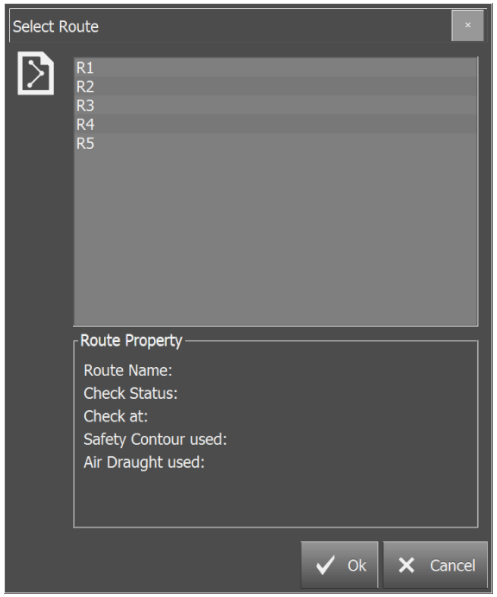
On start-up of the eGlobe will query all other equipment for any existing monitoring route as well as every other equipment can query the eGlobe for its existing monitoring route.

16.7.2 Sending Routes

To send a route to another station you need to click on *Choose*.



Then you choose the route, you want to send and click on *OK*.



Now you have two options, you can send a route for editing (Planning Mode) or for monitoring (by loading the route in the Sailing Mode for monitoring).



16.7.2.1 Transmission of routes for Editing

Select Send this route to: - you can choose either to send this route to all stations or a selected destination ID.

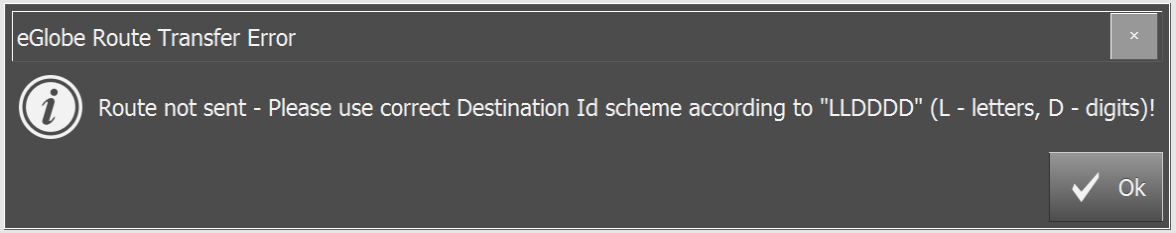
16.7.2.2 Transmission of routes for Monitoring

Select Send this route to: - you can choose either to send this route to all stations or a selected destination ID.

Click on *Send*.

Note:

In case the destination ID is not correct (two letters and four digits) a window will pop up:



This only applies if the option box for a specific destination ID is enabled.

16.7.2.3 Difference between receiving a route for monitoring or for editing

If you receive a route *for editing*:

This route will be saved to your disk for planning purposes.

If you receive a route *for monitoring*:

The received route will be loaded automatically for monitoring.

The previously loaded monitoring route, if any, will be unloaded.

A display message will appear: "A new monitoring route has been received from the other ECDIS and automatically loaded for monitoring". This message will disappear after 10 Minutes.



An acknowledgment is sent to the other system.

Note:

In case the received route for monitoring was not sent from an ECDIS, the user will only be notified and has to apply the manual process for necessary checks, option to modify the route, and load it for monitoring.

Important:

A route is only allowed to be loaded into monitoring when the following conditions are fulfilled:

- the routes is checked
- the check is not older than 10 days

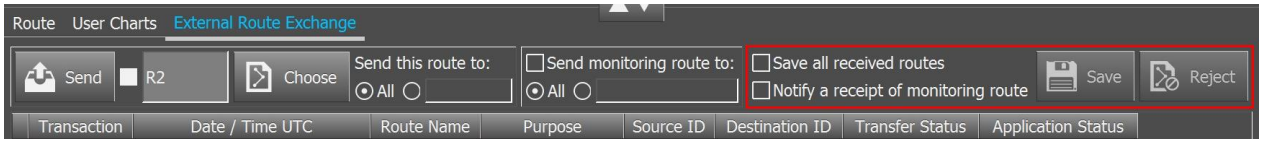
or the route is received by RTZ from another ECDIS

If *Notify a receipt of Monitoring* is selected the *eGlobe G2* displays a permanent message "*A route for Monitoring was received via IEC61162-450 interface. Please refer to Planning Mode/External Route exchange tap for further actions.* "

Note:

When a route is received with errors then it is rejected automatically, and the application status in the table will be changed automatically to *Rejected*.

16.7.3 Receiving Routes



If you receive a route from another station, the route will appear in the table and the application status will change to *SELECT*.

The buttons *Save* and *Reject* will be enabled.

If you press *Save*, the route will be saved to your disk.

If you press *Reject*, the route will be discarded.

The application status in the table will be changed to *Accepted* or *Rejected* respectively.

16.7.3.1 Save all received routes

If *Save all received routes* is selected, all routes received without errors are automatically saved to your disk.

The *Save* and *Reject* buttons will be disabled and the application status in the table will be changed automatically to *Accepted*