

NAVI-SAILOR
4000/4100 ECDIS
(VERSION 2.00.009)
USER MANUAL

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PREAMBLE

Preamble provides general information
on the work with document.

ANNOTATION

The aim of this book is to provide the user with guidelines in the solution of various tasks, which may arise during the voyage, and to give the user some ideas of the operating principles and capabilities of ECDIS task.

The description is divided into 11 parts:

- Chapter 1 ECDIS User Interface.
- Chapter 2 ECDIS Task Turning On/Off.
- Chapter 3 ECDIS Task Control.
- Chapter 4 Navigation Tasks.
- Chapter 5 Setting of Safety Parameters.
- Chapter 6 Using Logging Functions.
- Chapter 7 Manual Updating.
- Chapter 8 Handling of User Charts.
- Chapter 9 Handling of Routes.
- Chapter 10 Handling Radar Information and Target Designation Units.
- Chapter 11 Obtaining of Information in the ECDIS Task.

LIST OF DOCUMENTS

- Navi-Sailor 4000/4100 ECDIS (v. 2.00.009). User Manual.
- Navi-Sailor 4000/4100 ECDIS (v. 2.00.009). Functional Description.
- Navi-Sailor 4000/4100 ECDIS (v. 2.00.009). Additional Functions.
- Navi-Sailor 4000/4100 ECDIS (v. 2.00.009). Quick Reference.
- Navi-Sailor 4000/4100 ECDIS (v. 2.00.009). Installation Guide.
- Navi-Sailor 4000/4100 ECDIS (v. 2.00.009). Utilities.
- Navi-Sailor 4100 ECDIS (v. 2.00.009). Special Functions.

DEFINITIONS AND ABBREVIATIONS

Definitions

Cie Colour Calibration

Procedure to confirm that the colour specified in S-52, appendix 2 is correctly reproduced on the ECDIS display.

Common Reference System

Sensor input data, providing identical and obligatory reference pertaining to position, course, heading, bearing, speed, velocity, etc. and horizontal datum to different subsystems within an navigation system.

Compilation Scale

Scale with which the chart information meets the IHO requirements for chart accuracy. It is established by the producing hydrographic office and encoded in the ENC.

Corrupted Data

ENC data produced according to the S-57 ENC product specification, but altered or modified during production, transmission, or retrieval.

Degrade

Reduce the quantity or quality of information content.

Display Redraw Time

Interval from when the display starts to change until the new display is complete.

Display Regeneration Time

Interval from operator action until the consequent redraw is complete.

Display Scale

The Ratio between a distance on the display and a distance on the ground, normalised and expressed as, for example, 1:10 000.

ENC Cell

Geographic division of ENC data for distributing purposes. For further information, refer to the ENC product specification in S-57.

ENC Data

Electronic navigational chart (ENC) means the database, standardised as to content, structure and format, issued for use with ECDIS on the authority of government authorised hydrographic offices. The ENC contains all the chart information necessary for safe navigation and may contain supplementary information in addition to that contained in the paper chart (e.g. sailing directions) which may be considered necessary for safe navigation.

The content, structure and format of the ENC are specified in S-57, including the associated ENC product specification.

ENC Test Data Set

Standardised data set supplied on behalf of the IHO that is necessary to accomplish IEC testing requirements for ECDIS. This data set is encoded according to the S-57 ENC product specification and contains update information based on S-52, appendix 1.

Non-ENC Data

Data not conforming to ENC data.

Overscale

Display of the chart information at a display scale larger than the compilation scale. Overscaling may arise from deliberate overscaling by the mariner, or from automatic overscaling by ECDIS in compiling a display when the data included is at various scales.

Presentation Library

Implementation of the display specifications in S-52, appendix 2 “Colour and Symbol Specifications for ECDIS”, by de-coding and symbolising the SENC. It contains:

- the ECDIS symbol library, including the IEC navigation symbols;
- the ECDIS colour tables for day, dusk, and night viewing;
- look-up tables, linking SENC objects to the appropriate colour and symbology;
- conditional symbology procedures for:
 - cases where symbolising depends on circumstances, such as the mariner’s choice of;
 - safety contour;
 - cases where symbolising is too complex to be defined in a direct look-up table.
- description of symbology instructions;
- mariner’s navigation objects, specified in the same format as chart objects for convenience of processing in ECDIS;
- supplementary features, for example ECDIS chart colour differentiation test diagrams and colour calibration software.

The presentation library is available in hard-copy or in digital form. The symbols shall be replicated in size and shape, using any convenient format. The colour tables shall be reproduced within the tolerances given in S-52, appendix 2/5.2.3. The remaining items may be implemented in any convenient form which produces the same results as the presentation library.

Single Operator Action

Single operation shall be achieved by activating a hardkey or softkey, including any necessary cursor movement.

RNC Data

Raster Navigational Chart (RNC) means a facsimile of a paper chart originated by, or distributed on the authority of, a government-authorised hydrographic office. RNC is used in these standards to mean either a single chart or a collection of charts.

The content, structure and format of the RNC are specified in S-61.

RNC Test Data Set

Standardised data set supplied on behalf of the IHO that is necessary to accomplish IEC testing requirements for RCDS mode of operation. This data set is encoded according to the S-61 RNC product specification. Test RNC’s are specified by the HO providing the RNC service or on whose behalf the RNC service is provided.

Abbreviations

- AIS – Automatic Identification System;
- ARCS – Admiralty Raster Chart System;
- ARPA – Automatic Radar Plotting Aid;
- BWW – Bearing Waypoint to Waypoint;
- BTW – Bearing to Way Point;
- CPP – Controllable Pitch Propeller;
- CM – Chart Manager Utility;
- CMG – Course Made Good;
- COG – Course Over Ground;
- CPA – Closest Point of Approach;
- CTW – Course Through Water;
- DIST – Distance;
- DGPS – Differential Global Positioning System;
- DR – Dead Reckoning;
- DTW – Distance to Way Point;
- EBL – Electronic Bearing Line;
- ECDIS – Electronic Chart Display and Information System;
- ENC – Electronic Navigational Chart;
- EP – Estimated Position;
- EPFS – Electronic Position-Fixing System;
- ER – Echo Reference;
- ERBL – Electronic Range and Bearing Line;
- ETA – Estimated Time of Arrival;
- ETD – Estimated Time of Departure;
- FPP – Fixed Pitch Propeller;
- GLO (DGLO) – Global Orbiting Navigation Satellite System (Differential Global Orbiting Navigation Satellite System);
- GLONASS (DGLONASS) – Global Orbiting Navigation Satellite System (Differential Global Orbiting Navigation Satellite System);
- GMT – Greenwich Mean Time;
- GNSS (DGNSS) – Global Navigation Satellite System (Differential Global Navigation Satellite System);
- GPS – Global Positioning System;
- GZ – Guard Zone;
- HDG – Heading;
- HO – Hydrographic Office;
- IEC – International Electrotechnical Commission;
- IHO – International Hydrographic Organisation;
- IMO – International Maritime Organisation;

- INFO – Information;
- LOP – Line of Position;
- m – metre;
- min – minute;
- MFD – Multi Functional Display;
- MMSI – Maritime Mobile Service Identities;
- MOB – Man Overboard;
- MSF – Midship Frame;
- NAVTEX – Navigational Telex;
- NM – nautical mile;
- NMEA – National Marine Electronics Association;
- NS – Navi-Sailor;
- PS – Positioning System;
- PTA – Planning Time of Arrival;
- RIB – Radar Integrated Board;
- RL – Rhumb Line;
- RMS – Route Mean Square (error);
- RNC – Raster Navigational Chart;
- RPM – Revolution per Minute;
- SAR – Search and Rescue;
- s – second;
- SENC – System Electronic Navigational Chart;
- SMG – Speed Made Good;
- SOG – Speed over Ground;
- SOLAS – Safety of Life at Sea;
- Stand – standard;
- STG – Speed to Go;
- STW – Speed Through Water;
- TCPA – Time to Closest Point of Approach;
- TTG – Time to Go;
- UKC – Under Keel Clearance;
- UTC – Universal Time Coordinated;
- VRM – Variable Range Marker;
- WGS-84 – World Geodetic Datum;
- WPT – Way Point;
- XTD – Cross Track Distance.

PRINTING HOUSE CONVENTIONS

Sample of notation	Usage comments
NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION	To highlight names of documents
Alarm Management	To highlight sections of a document
Ahead	To highlight, in a printed document, user interface elements and the ECDIS task objects
* .pdf	To highlight messages, commands, files and other Windows OS information
<Enter>	To highlight names of keyboard keys
"Main"	To highlight names of windows, pages, buttons, etc.
TASKS LIST	To highlight menu items

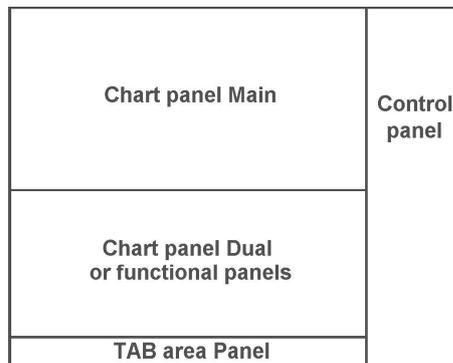
CHAPTER 1

ECDIS User Interface

This chapter describes principles of building
the ECDIS user Interface.

ECDIS USER INTERFACE STRUCTURE

In the ECDIS task, to enable the display of electronic charts and associated information, “Main” and “Dual” panels are used. The essential and other data and control tools are arranged on the Control panel. The rest of information and functionality for the control of the ECDIS environment is contained on functional panels. The panel layout can be presented diagrammatically as shown below:

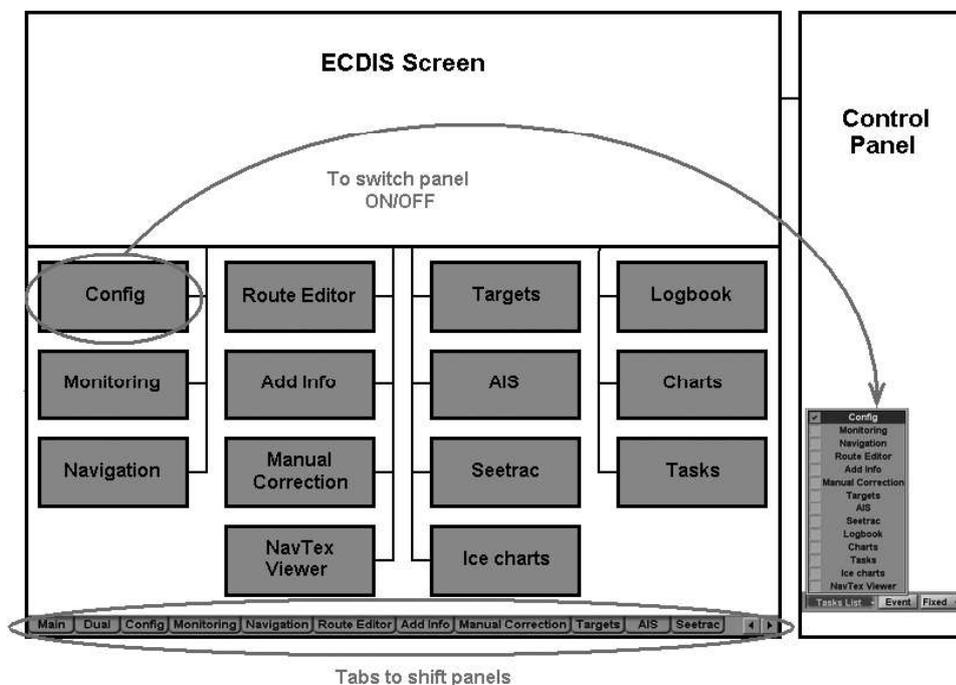


USER INTERFACE COMPONENTS

Panels

There is direct access to panels from the task. For ECDIS task, this is primarily the Control panel, which shows operational information and contains the most important task controls.

In ECDIS task, apart from the Control panel there are 14 functional panels, each designed for its special purpose within the ECDIS task:



Panels (except the Control panel) are switched with tabs in the bottom part of the screen.

For the operator's convenience, the system implements a function for saving the current condition of "Main" chart panel when the functional panels are switched. This function's operation can be shown in a table:

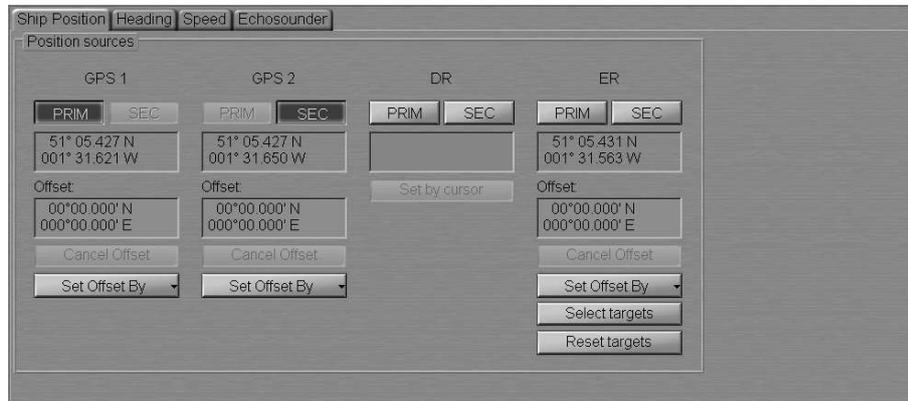
Panel name	To open panel	To switch the open panel with the tab
Add Info	L	K
AIS	S	H
Charts	P	K
Config	P	P
Ice Charts	L	K
Log Book	P	K
Manual Correction	L	K
Monitoring	P	P
Navigation	P	P
NavTex Viewer	L	K
Route Editor	L*	K
Seetrac	S	H
Targets	S	H
Tasks	L	K

where:

- H – the display (chart boundaries) of the Chart panel is saved, along with the last orientation (North/Head/Course) and motion (True/Relative) settings which were made on this panel before;
- K – the display (chart boundaries) of the Chart panel which was set on this panel before it is saved; orientation setting is North, motion setting is True;
- L – the display (chart boundaries) of the Chart panel which was set in the previous active functional panel is saved; orientation setting is North, motion setting is True;
- L* – for "Route Editor" panel only: if a route has been selected, the focusing on the edited route is made automatically;
- S – the ship is displayed on the screen, Ahead function performed automatically; the last Chart panel orientation (North/Head/Course) and motion (True/Relative) settings are retained;
- P – the display (chart boundaries) of the Chart panel is saved, along with the last orientation (North/Head/Course) and motion (True/Relative) settings which were made on the previous active functional panel.

Pages

If functionality, which the panel is intended for, is rather extensive, for the convenience sake it is divided into pages. The purpose of pages corresponds to the individual tasks within the panel functionality. In the ECDIS task panels are divided into pages. They are switched by using tabs in the top part of the panel, which they belong to. Shown below is “Navigation” panel with pages intended for selection of essential information sensors: “Ship Position”, “Heading”, “Speed” and “Echosounder”:



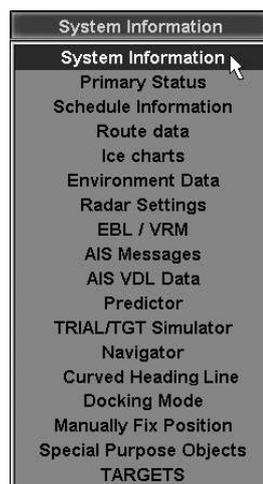
Control Panel Windows

The Control panel consists of windows. Each window serves for the display of some operational information, or contains the most frequently used task controls.

Graphically, windows are divided with special lines. The sample below shows some Control panel windows of the main tasks.

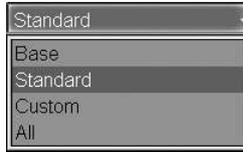
COG	GPS 1	090.0°
SOG		10.0 kn
HDG	GYRO 1	090.0°
STW	LOG 1	10.0 kn

ECDIS Control panel has the “Multipanel” window, which allows setting different displays serving for accomplishment of operational tasks. Displays are selected from the pull-down list opened by pressing the button with the name of the currently set panel.



List Box Menu

The list box menus serve for selecting the necessary name or value from the list. The list box menus have a form with a button with an arrow. A press on the button opens up a menu which the selection is made from. The selected name or value is shown on the button after the menu is closed:

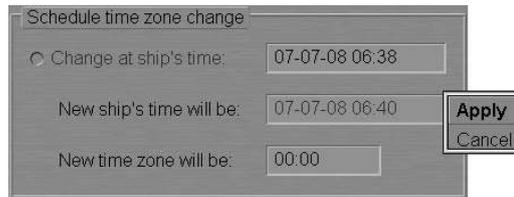


Text Boxes

Text boxes are used for entering values or names:



Input of names is made from ES6/ES4/ES3 keyboard. Values can be entered from the keyboard or by using the trackball. The trackball motion in the vertical direction produces fast change of a value in the text box, whereas the horizontal motion results in much slower change. In some text boxes, all you have to do after the input of the necessary value is press the left trackball button for the program to accept the entered value. In other text boxes, to exit from the input mode it will be necessary to press the right trackball button and confirm the entered value:



Buttons

Buttons are designed for activating some functions. If a button is greyed, the operation of the corresponding function is not available in the mode in question. Buttons may be of the following types:

	Button pressed	Button released	Button greyed
Push-to-lock buttons	 	 	
Buttons without locking			

If to be turned on, certain functionality needs input of a parameter value, which will be monitored, the button will be greyed until this parameter is value is entered.

Parameter value is not entered	Parameter value is entered, the function is not switched on	Function is switched on

Radio Buttons

These buttons serve for selecting one function only from the offered set:



Indicators

Indicators show a level for the value set by using the buttons placed next to them:



Progress Bars

The progress bars show the degree to which the program has completed the operation run by the user:



ECDIS TASK CONTROL PANEL

The ECDIS task Control panel consists of a number of windows. Windows are displayed in the right-hand part of the ECDIS task screen. In addition, all the displayed windows can be moved (by dragging them with the cursor or by double clicking the left trackball/mouse button in the window area) onto the Chart panel. To return the window to its place, press  button. If the Control panel does not contain any windows, the area is filled with chart information.

Control panel contains the Display Panel window, which is intended for the display of various data types. The window consists of seventeen displays:

- System Information;
- Primary Status;
- Schedule Information;
- Route Data;
- Ice charts;
- Environment Data;
- Radar Settings;
- EBL/VRM;
- AIS Messages;
- AIS VDL Data;
- Predictor;
- TRIAL/TGT Simulator;
- Navigator;
- Curved Heading Line;
- Docking Mode;
- Manually Fix Position;
- Special Purpose Objects;
- TARGETS;
- MOB (Man Over Board).

The displays are selected from the list opened by pressing the button with the name of one of displays in the top part of the window (except “MOB” display).

Button to the right of the “Display Panel” window is intended for displaying additional the “Multipanel” window on the ECDIS task Chart panel. The system enables simultaneous independent operation with information displays selected in both windows.



Applications Window



The Applications window is intended for loading/switching NS 4000 ECDIS applications:

- **ECDIS** – to turn on/switch to the ECDIS task;
- **Radar** – to turn on/switch to the RADAR task;
- **Conning** – to turn on/switch to the CONNING task;
- **AMS** – to turn on/switch to the AMS task.

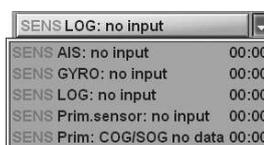
Sensors and Network Window



The “Sensors and Network” window is intended for the display of information from different sources. The window contains the following controls:

- TX-1 – to select a scanner which the radar picture is supplied by;
- Overlay – to turn on display of radar overlay information on electronic chart in ECDIS;
- ARPA – to turn on display of information on targets processed by the ARPA;
- AIS – to turn on display of AIS targets;
- MASTER – to display the station status in the network and, in the case of MASTER status, also the transfer of rights to other stations in the network.

Alarms Window

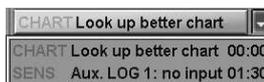


The “Alarms” window is intended for displaying the alarms and their status. The window contains the following units:

- SENS – alarm source;
- LOG: no input – alarm name.

For more detailed description of the alarms display, see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 4.**

Warnings Window



The “Warnings” window is intended for displaying the warnings and their status. The window contains the following units:

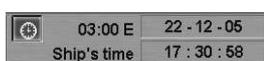
- CHART – warning source;
- Look up better chart – warning name.

For more detailed description of the alarms display, see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 4.**

Time Window



The “Time” window is intended for the display of the current time. There may be two types of time values in the window: UTC and ship’s time. To switch between them, press the button with a picture of the clock face (ship time if the button is pressed, UTC if it is released):



The window contains the following elements:

- UTC/Ship's – information on which time is currently displayed;
- 00:00 W/E – time zone or the difference between the ship time and UTC (not displayed if UTC is selected); the format is hh:mm;
- 01-01-01 – display of the current date according to the selected time type; the format is dd-mm-yy;
- 00:00:00 – display of the current time; the format is hh:mm:ss.

Primary Window

Prim	50° 00.212 N
GPS 1	001° 00.459 E

The “Primary” window is intended for the display of the primary positioning system and coordinates obtained from it. For the principles of displaying primary positioning data, see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009)**.

FUNCTIONAL DESCRIPTION, Chapter 2, section Navigational Sensors, paragraph Display of Navigational (Essential) Information.

Prim	50° 00.000 N
GPS 1	000° 57.472 W

GARMIN

The position source is specified in the left bottom part of the window. As a free cursor is positioned on the position source name, the source alias entered in the System Configuration utility is displayed on the pop-up prompt window.

Prim	50° 00.212 N
DGPS 1	001° 00.459 E

In case of GPS work in differential mode, the prefix “D” is added before its name.

Prim	51° 06.661 N
GPS 1	000° 00.011 E

Offset:
00° 00.219 N
000° 00.745 E

If there is an offset to the ship position coordinates, the window displays corrected coordinates and a special symbol: the red triangle. As a free cursor is positioned on this triangle, the correction value is displayed on the pop-up prompt window.

Secondary Window

Sec:GPS 2	68.2° - 5 m
-----------	-------------

The “Secondary” window is intended for the display of the secondary positioning system, and of the bearing and range to the position obtained for the Primary positioning system. For the principles of displaying secondary positioning system data see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009)**. **FUNCTIONAL DESCRIPTION, Chapter 2, section Navigational Sensors, paragraph Display of Navigational (Essential) Information.**

Sec:GPS 2	90.0° - 178 m
-----------	---------------

TRIMBLE

The position source is specified in the left part of the window. As a free cursor is positioned on the position source name, the source alias entered in the System Configuration utility is displayed on the pop-up prompt window.

Sec:DGPS 2	267.4° - 5 m
------------	--------------

In case of GPS work in differential mode, the prefix “D” is added before its name.

Sec:GPS 2	113.5° - 0.0 nm
-----------	-----------------

Offset:
00° 00.213 N
000° 00.779 E

If there is an offset to the ship position coordinates, the window displays corrected coordinates and a special symbol: the red triangle. As a free cursor is positioned on this triangle, the correction value is displayed on the pop-up prompt window.

COG\SOG\HDG\STW Window

“COG\SOG\HDG\STW” window is designed for the display of ship motion parameters. The panel displays the following parameters:

- HDG – course from gyrocompass;
- STW – ship speed through the water.

Note: Only longitudinal part if DLOG selected.

- COG – ship course over the ground;
- SOG – ship speed over the ground.

Note: Calculated part (longitudinal and transversal) if DLOG selected.

COG	GPS 1	090.0°
SOG		10.0 kn
HDG	GYRO 1	090.0°
STW	LOG 1	10.0 kn

The data source is specified to the right of the own ship motion parameter name:

- GYRO1 – gyrocompass with a digital input, its number specified;
- GPS1 – GPS (DGPS), its number specified;
- ER – echo reference mode;
- DR – dead reckoning mode;
- MAN – manual input;
- LOG1 – log (Speed Through Water) with a digital output, its number specified;
- DLOG1 – Doppler log, its number specified;
- NONE – no source available.

COG	GPS 1	090.0°
SOG		10.0 kn
HDG	GYRO 1	090.0°
STW	LOG 1	10.0 kn

As a free cursor is positioned on the source name, the source alias entered in the System Configuration utility is displayed on the pop-up prompt window.

For the data display principles see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 2, section Navigational Sensors**, paragraph **Display of Navigational (Essential) Information**.

Charts Area Window



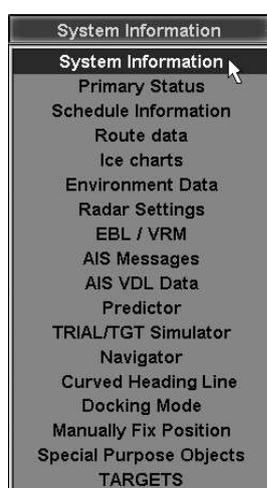
The “Charts Area” window is designed for the adjustment of the chart display on the chart panel:

- Chart number – to call a menu with a list of charts under the ship position (if the ship symbol is displayed on the chart) or the list of all the charts available in the ship folio; shown on the button is the current chart number;
- 1:75,000 – to call a menu listing fixed scale values; the button shows the current screen scale;

- **Autoload** – to turn on the function for the automatic loading of charts, there is an indicator to the right of the button:
 - **ON** – the function is turned on (**Autoload** button is greyed);
 - **OFF** – the function is turned off;
 - **FIX** – to fix the current chart.
- **Man. Corr.** – to turn on the display of the updating layer; the display is “ON” if the button is pressed, “OFF” if released; if the button is greyed, there are no updating objects on the chart.
- **Stand DISP** – to turn on the display of objects included in the standard display.

Note: Which button, **Man.Corr.** or **Stand DISP** will be displayed, depends on the configuring during the installation.

Display Panel Window



The “Display Panel” window is intended for the display of various data types. In the maximum configuration, the window consists of eighteen displays which are selected from the list opened by pressing the button with the name of one of the displays in the top part of the window.

Button to the right of the “Display Panel” window is intended for displaying additional the “Multipanel” window on the ECDIS task chart panel. The system enables simultaneous independent operation with information displays selected in both windows.



Operational Panel Window



The window contains the following functional buttons:

- **Tasks List** – to display a list of functional panels; functional panels are displayed when the appropriate menu lines are selected;
- **Event** – to make a manual entry of data in the electronic ship logbook for the current moment, and to place a special mark on the ownship track;
- **Vectors** – to call a menu for setting the lengths of the own ship and target motion vectors; **Fixed** option allows a constant vector length to be set (in proportion to the screen size), the rest – by the set time value (in minutes, 1–24 min).

Lower Data Group

Depth in Metres WGS-84

This window includes:

- **Depth in meters** – information on the depth measurement units used in the ECDIS task;
- **WGS-84** – to warn that the ECDIS uses charts based on WGS-84 datum;
- **Show** – to turn on/off the constant display of the Control panel.

ABBREVIATIONS USED IN THE USER INTERFACE

ECDIS task use the following abbreviations:

Abbreviation	Full Name	Abbreviation	Full Name
AIS	Automatic Identification System	HDG	Heading
ARPA	Automatic Radar Plotting Aid	LOG (DLOG)	Log (Doppler Log)
BRG	Bearing	LOP	Line Of Position
BTW	Bearing to Way Point	N Up	North Up
BWW	Bearing Waypoint to Waypoint	POSN	Position
C Up	Course Up	PS	Positioning System
COG	Course Over Ground	PTA	Planning Time of Arrival
CPA	Closest Point of Approach	RAD	Radius
DIST	Distance	R	Range LOP's
DR	Dead Reckoning	RM	Relative Motion
DTW	Distance to Way Point	RNG	Range
DTWOL	Distance to Wheel over Line	ROT	Rate Of Turn
ENC	Electronic Navigational Chart	SOG	Speed Over Ground
ETA	Estimated Time of Arrival	Stand	Standard
EBL	Electronic Bearing Line	STG	Speed To Go
EP	Estimated Position	STW	Speed Through the Water
ER	Echo Reference	TCPA	Time to Closest Point of Approach
ECHO	Echosounder	TM	True Motion
GLO (DGLO)	Global Orbiting Navigation Satellite System (Differential Global Orbiting Navigation Satellite System)	TTG	Time To Go
GLONASS (DGLONASS)	Global Orbiting Navigation Satellite System (Differential Global Orbiting Navigation Satellite System)	V	Visual Bearing LOP's
GPS (DGPS)	Global Positioning System (Differential Global Positioning System)	VR	Visual/Range LOP's
GYRO	Gyrocompass	VRM	Variable Range Marker
GZ	Guard Zone	WPT	Way Point
H Up	Head Up	XTD	Cross Track Distance

USE OF UNIFORM MEASUREMENT UNITS

In the ECDIS task, measurement units are set by default and can be changed by the operator on “Multiunits” page in the System Configuration utility (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). INSTALLATION GUIDE, Chapter 2, section NS 4000 Configuration, paragraph Workstation Settings**). The following units and their shortened names are used:

Physical Value	Measurement Units	Abbreviation
Distances	Nautical miles	NM
	Kilometres	km
	Statute miles	stm
Direction	Degrees	°
Ship and target speed	Knots	kn
	Kilometres per hour	km/h
Depth/Height	Meters	m
	Feets	ft
	Fathoms	fms
Draught	Meters	m
	Feets	ft
Wind speed	Meters per second	m/s
	Knots	kn
	Kilometres per hour	km/h
Temperature	Degrees	°C
	Fahrenheit	°F
Pressure	Hectopascals	hPa

The ECDIS task uses geographic coordinates calculated on the basis of WGS 84 datum only.

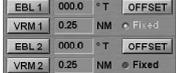
KEYBOARD

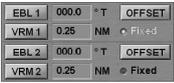
The ECDIS task ES4/ES6 keyboard is intended for the information input and task control. Optional ES3 keyboard is intended for the information input and task control and has additional controls for the RADAR task.

The ECDIS task ES6 keyboard is presented below:



Provided below is a table which specifies the ECDIS tasks and ES3/ES4/ES6 keyboard corresponding controls.

Function	Keyboard ES6	Keyboard ES4	Keyboard ES3	ECDIS GUI
Ownship motion modes		N/A		
Zoom In				
Zoom Out				
Ahead				
Event				
Overlay				
Targets				 
MOB		N/A		
Ownship presentation modes				  
EBL		N/A		

Function	Keyboard ES6	Keyboard ES4	Keyboard ES3	ECDIS GUI
VRM		N/A		
Gain		N/A		
Sea		N/A		
Rain		N/A		
Standard Display				
Show All Layers				

Function	Keyboard ES6	Keyboard ES4	Keyboard ES3	ECDIS GUI
Tasks				
Alarm				
Palette				
Target Table	N/A		N/A	

Function	Keyboard ES6	Keyboard ES4	Keyboard ES3	ECDIS GUI
Trial Manoeuvre	N/A		N/A	
Opening of Transas Integrator toolbar				

CHAPTER 2

ECDIS Task Turning On/Off

This chapter describes the procedure used for starting/exiting from the NS 4000 MFD.

TURNING THE ECDIS TASK ON

Each WS is started by pressing “On/Off” button on its console.



The Transas Integrator window will be loaded.



Tasks can be equally well switched and started from ES6/ES4/ES3 keyboard and “Transas Integrator”:

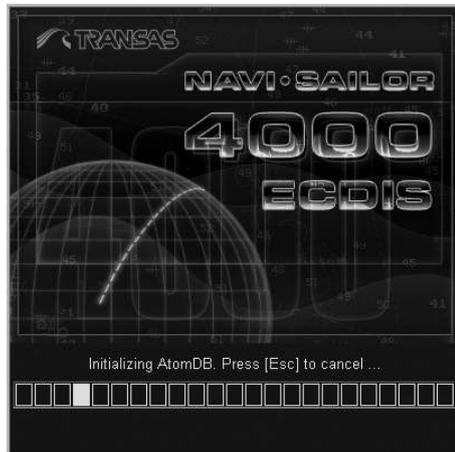
1. To turn on the ECDIS task, press <A> key on ES3/ES4 keyboard or <ECDIS> key on ES6 keyboard.
2. All the tasks use identical task-switching user interface implemented as buttons with task names.

ECDIS	RADAR
CONNING	AMS

3. To turn on the ECDIS task from the Transas Integrator utility, press ECDIS button.



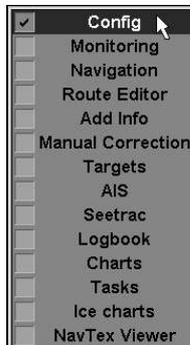
The following window will be displayed on WS upon start of ECDIS task loading.



After the program loading, the ECDIS task screen will be displayed.

TURNING THE ECDIS TASK OFF

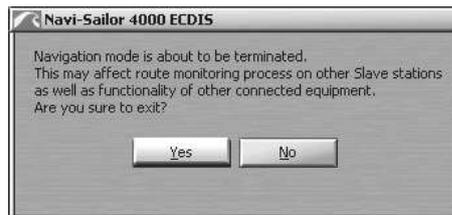
Open “Config” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Config” panel, which will open up, to switch to “General” page.



Press Exit button in the right-hand part of the panel: confirmation window will appear.



Press "Yes" button to confirm exit from the program.

The program will be closed.



The Transas Integrator window will open.

CHAPTER 3

ECDIS Task Control

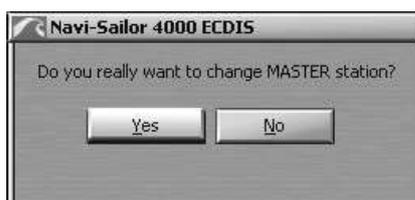
This chapter describes the general procedure used
in the operation of the ECDIS task.

TRANSFER OF RIGHTS

On ECDIS task with MASTER status in the “Sensors and Network” window of the Control panel, press MASTER button and select Change MASTER station line from drop-down list.



Press the “Yes” button in the window which will appear to confirm the transfer of rights to another WS.



On ECDIS task with SLAVE status, press Take over control button in the “Sensors and Network” window of the Control panel.



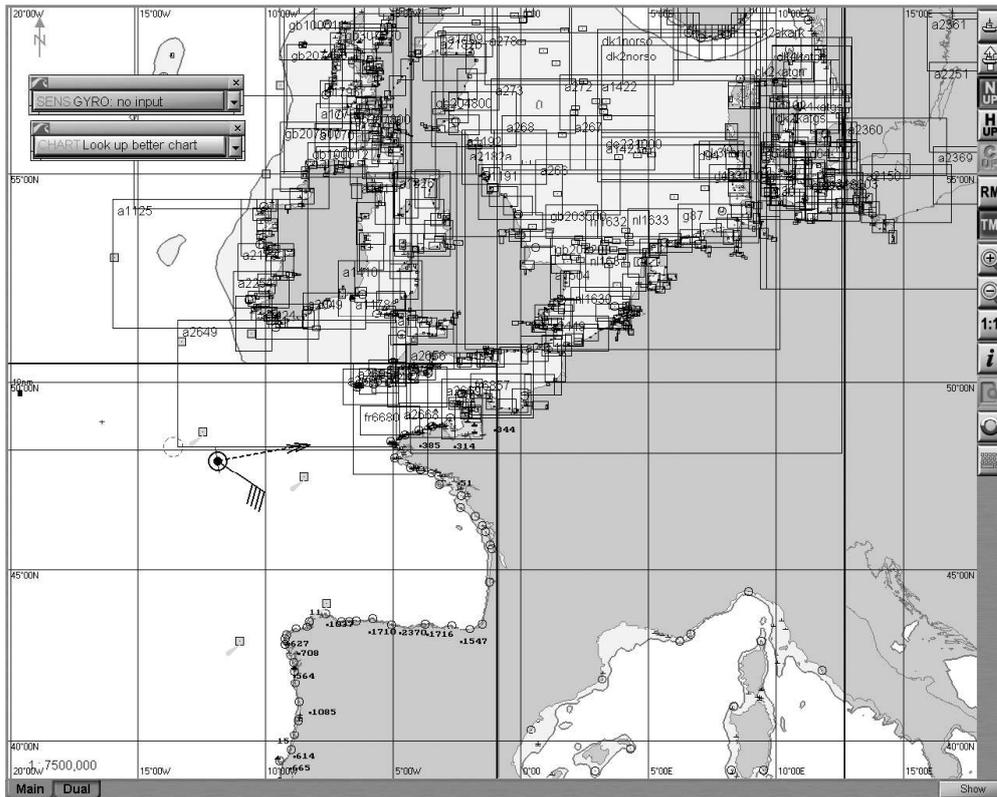
As this button is pressed on one of WS's, all the rights are transferred to this station. The former station with MASTER status will have SLAVE status. If Take Over Control button was not pressed on any of the stations during the transfer of rights, all the rights remain with the station, which the transfer of rights was initiated from (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION**).

TURNING ON/OFF CONTROL PANEL DISPLAY ON THE ECDIS TASK SCREEN

To turn off the Control panel display on the ECDIS task screen, press the nameless button in the right bottom corner of the Control panel.

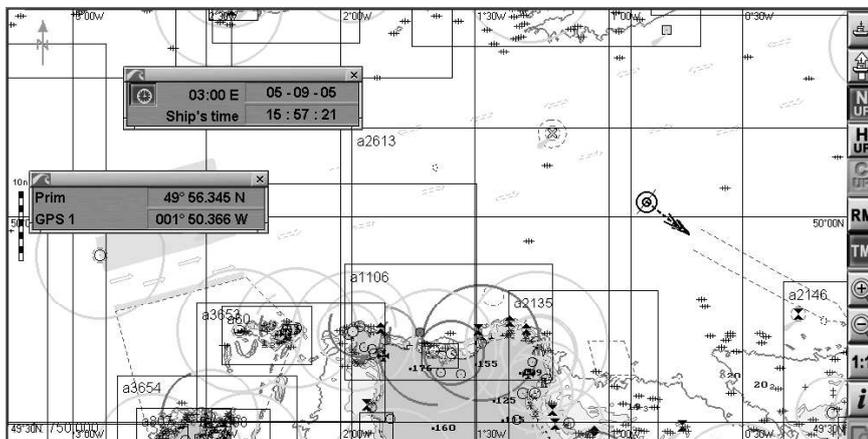


To re-display the Control panel, press the activated Show button in the right bottom corner of the ECDIS task screen.



SETTING CONTROL PANEL WINDOWS DISPLAY

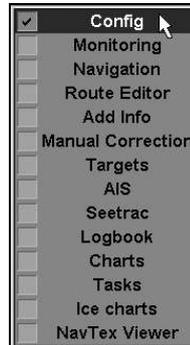
Set the order of the panel windows display by “dragging” them as required to the Chart panel.



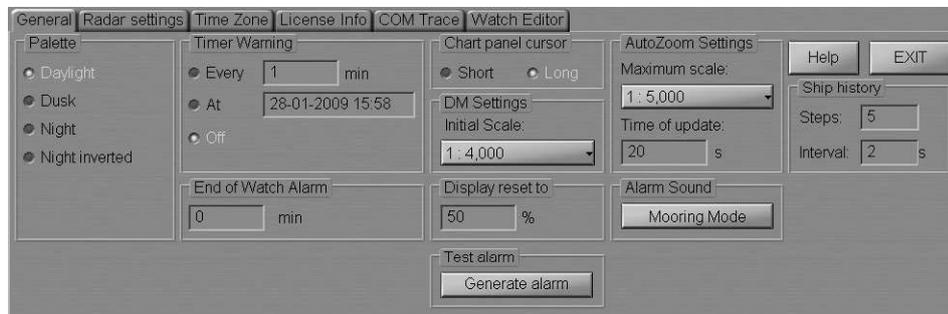
To return windows to the Control panel, press  button in the top right corner of each window.

ECDIS TASK SCREEN CONFIGURATION

Open “Config” panel by selecting the appropriate line of TASKS LIST menu on the Control panel:



Use the tab in the top part of “Config” panel, which will open up, to switch to “General” page:



Setting of Screen Colour Palette

Palette group is designed for selecting the screen colour palette to suit the outside illumination:

- Daylight;
- Dusk – night with moon;
- Night – moonless night;
- Night inverted – moonless night (Control panel text inverse colour).

For S-57 format charts, three palettes are used: “Daylight” (Daylight button), “Dusk” (Dusk button) and “Night” (Night and Night inverted buttons).



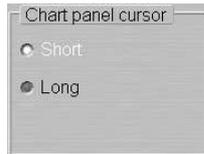
In Palette group, check the appropriate checkbox to select the ECDIS task screen colour palette.

There is another way to switch the palettes. Press successively the <NIGHT/DAY> key on the ES3/ES4 keyboard or <DAY/NT> on ES6 keyboard. Palettes will be switched in the order of their arrangement in the Palette group of “General” page.

Switching the Graphic Cursor Type

The graphics cursor is used during the operation of some of ECDIS task functions and represents an intersection of lines corresponding to the latitude and longitude of the given point, but the form of the graphics cursor can be changed as required. Chart panel cursor group serves for setting the following types of the graphics cursor:

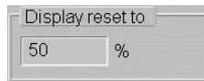
- Short – the cursor is shown in the form of a small cross;
- Long – the cursor is shown in the form of an intersection of two lines across the entire Chart panel.



In Chart panel cursor group, check the appropriate checkbox to select the graphic cursor type.

Setting of Screen Boundaries Re-Draw as the Ship Symbol Approaches Them

Display Reset to group is used for setting the calculated screen redraw boundaries – percentage ratio of the screen length and distance from the ship symbol to the screen boundary (30–70 per cent).



Use the input window in Display reset to group to set the ratio (in per cent) between the screen length and distance from the ship symbol to the screen boundary.

As the ship symbol approaches the screen boundary so that the set ratio is fulfilled, the screen will be re-drawn.

CHART PANEL SETTINGS

Setting of Main and Dual Panel Displays

To enable the display of electronic charts and associated information, “Main” and “Dual” panels are used.

You can change vertical dimensions of “Main” and “Dual” chart panel by using the cursor. As the cursor is positioned on the bottom boundary of the “Main” panel, it will change its form, then get hold of the boundary and set it at the desired height. If the two Chart panels are arranged vertically, this functionality is retained for altering horizontal dimensions (this arrangement is possible for Chart panels only).

Use the tab in the lower part of ECDIS task screen to switch to “Dual” panel.

This panel is an additional Chart panel where the ship symbol is permanently displayed. The panel is not displayed if any of functional panels are turned on (activated), and vice versa: when it is displayed, no functional panels can be seen.

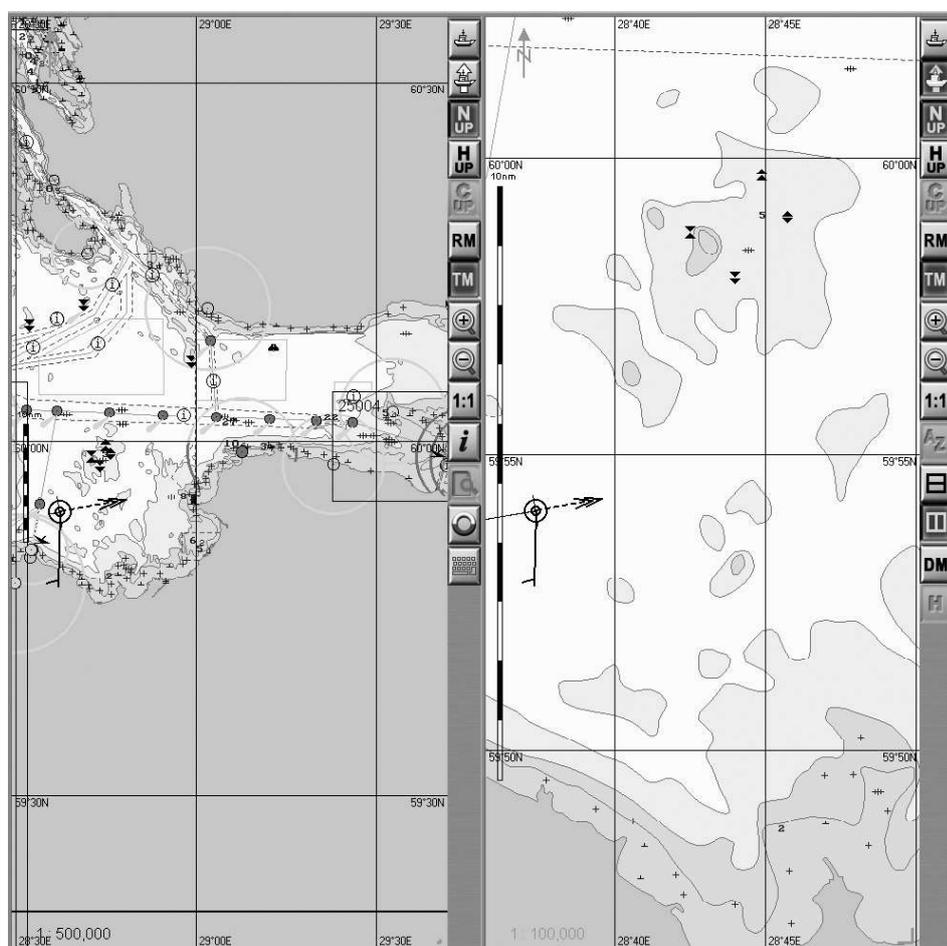
The Chart Area of “Main” and “Dual” panels is designed for the following purposes:

- to display electronic charts showing classes of chart information (determined on “Charts” Panel);
- to display the ownship symbol with motion vectors;
- to display the route loaded for proceeding by in the Navigation mode;
- to display the targets and AIS objects.

Displayed in the top left corner of the Chart area is the panel orientation symbol: an arrow showing direction to the north.

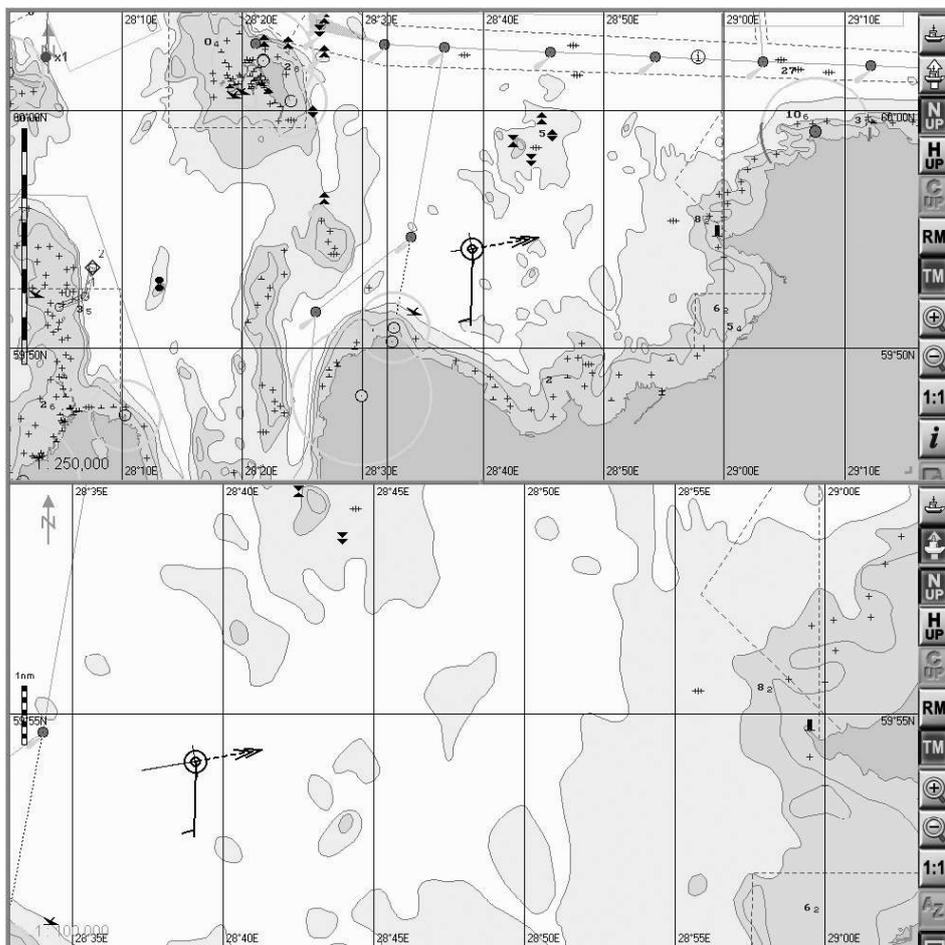


By default, “Main” and “Dual” panels are displayed vertically, that corresponds to pressed button in “Dual” panel.



To change the order in which the Chart panels are displayed, press button in the “Dual” panel.

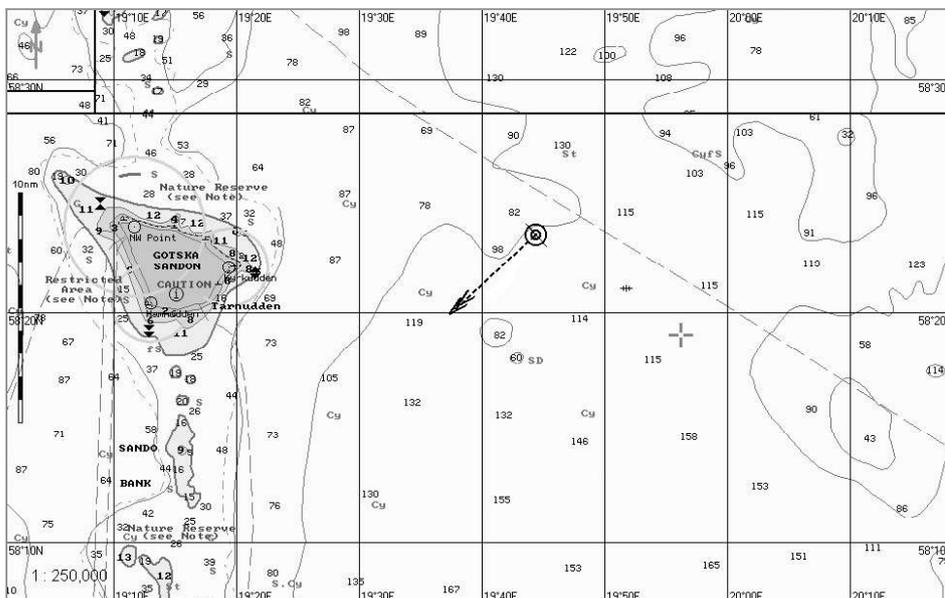




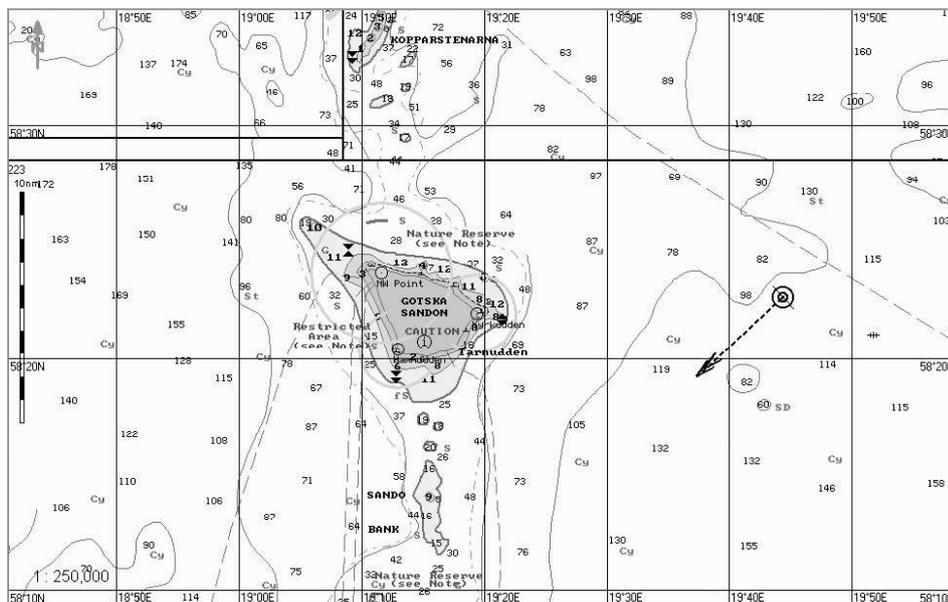
The display of panels will change.

Setting of Ship Symbol on the Chart Panel by the Cursor Position

To set the ship symbol in the relative motion mode in any point of the Chart panel, press  button. Position the graphic cursor, which will appear, in the place within the Chart panel convenient for the ship symbol display.



Press the left trackball/mouse button. The Chart panel will be re-drawn so that the ship symbol is in the place indicated with the cursor.



Setting Chart Panel Orientation

Set the Chart panel orientation by pressing one of the following buttons in the control button group of the Chart panel:

- for the orientation to the north; 
- for the orientation by the compass heading; 
- for the orientation by the direction of the current leg of the monitored route. 

There is another way of setting the Chart panel orientation. Press successively the <N/H/C UP> key on the ES3/ES4/ES6 keyboard. The Chart panel orientation will be switched in the specified order.

Setting Ship Symbol Motion Modes

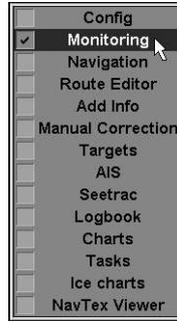
To select the ship symbol motion mode, press the appropriate button in the control button group of the Chart panel:

- to select relative motion mode; 
- to select true motion mode. 

There is another way to select the ship symbol motion mode. Press successively the <TM/RM> key on the ES3/ES6 keyboard. The ship symbol motion mode will be changed to the reverse.

Setting Ship Display and Its Motion Parameters on the ECDIS Task Screen

Open “Monitoring” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Monitoring” panel, which will open up, to switch to “Route Monitoring” page.



To turn on/off the display of own ship and its motion parameters, press the following buttons in the Ship group:

- **Head line** – to display own ship compass course line;
- **COG vector** – to display motion vector (over the ground);
- **HDG vector** – to display vector of motion relative to the water (log speed and compass course).



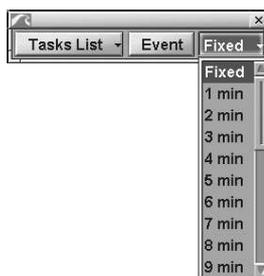
Select from the drop-down lists the following settings:

- **Ship by ...** – to display of the own ship (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 3**, section **Own Ship Motion Data**, paragraph **Ship Symbol on the Electronic Charts**) on the Chart panel as:
 - **symbol** – the ship symbol (regardless of the scale);
 - **contour** – the ship contour (when the current screen scale is commensurate with the ship dimensions).
- **Align by ...** – to switching orientation (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 3**, section **Own Ship Motion Data**, paragraph **Own Ship Motion Vectors**) of the own ship symbol display along:
 - **HDG** – the vector of the ship’s motion as per the course detector (gyro) reading;
 - **COG** – the ship’s true motion (COG) vector.

- **Wind vector** – to select true wind vector display mode (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 2**, section **Other Sensors**, paragraph **Wind Interface**);
- **Course/Leg/Spd** – to turn on the display of course, range and speed for each route leg with the monitored route loaded.

Setting of the Lengths of the Own Ship and Targets Vectors

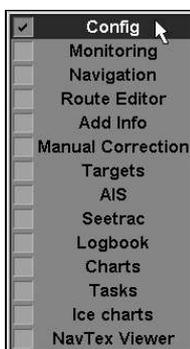
Press vectors button in the Operational Panel window on the Control panel (the button shows the current vector length).



Select the required vector length (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 3**, section **Own Ship Motion Data**, paragraph **Own Ship Motion Vectors**) from the list, which will open up and press the left trackball/mouse button.

SETTING TIME ZONE

Open “Config” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Config” panel, which will open up, to switch to “Time Zone” page.



Setting Current Time Zone

Current time zone settings group contains the following elements:

- **UTC time** – line for the display of the current UTC time;
- **Ship's time** – line for the display of the current ship time;
- **Time zone** – line for the display of the time zone (difference between the current ship and UTC time).

Use **Time Zone** line to enter the ship's time zone. Press <Enter> key: the time zone value will be set, whereas the ship time value in **Ship's time** line will change to suit the entered time zone.

As the ship time is entered in **Ship's time** line, the time zone will change in **Time zone** line.

Setting Time Zone Change

Schedule time zone change group contains the checkbox for enabling (checkbox checked) the change of time zone function and a line for change settings:

- **Change at ship's time** – line for the input and display of the ship time when the time zone is required to be changed (clock put forward/back);
- **New ship's time will be** – line for the input and display of the new ship time;
- **New time zone will be** – line for the input and display of the new time zone.

Use **New time zone will be** line of **Schedule time zone change** group to set the new time zone value. Press <Enter> key. Use **Change at ship time** line to set the ship time value when the time zone is expected to change.

Press <Enter> key. Check the activated **Change at ship time** checkbox. At the set time, the time zone will be changed to suit the value entered for it.

USE OF ECDIS TASK TOOLS

Return of Own Ship Symbol Display to the ECDIS Task Screen

There are three ways to return the own ship symbol display to the ECDIS task screen:

1. Press "Ahead" button on the Chart panel toolbar. 
2. Press <AHEAD> key on the ES3/ES4/ES6 keyboard.
3. Press the **Standard DISP** button in the Charts Area window of the Control panel (if this button is presented in the configuration, see **Chapter 1**, section **ECDIS task**, paragraph **Charts Area Window**).



The own ship symbol will appear on the ECDIS task screen: the screen is re-drawn so that the ship symbol moves in the direction opposite to the current course.

ATTENTION!

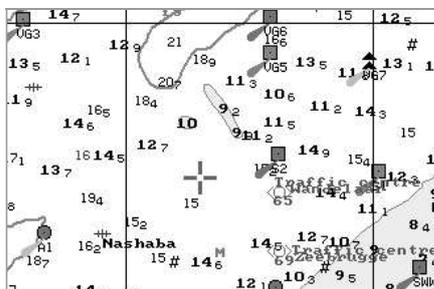
In true motion mode, even if the ship symbol is available on the ECDIS task screen, the screen is re-drawn relative to the ship symbol.

Viewing Charts

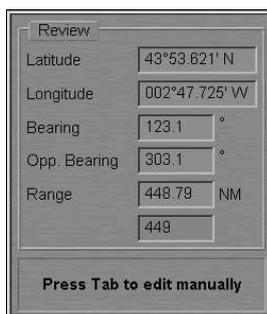
Standard **View** cursor (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 3**, section **ECDIS Task Cursors**, paragraph **Free Cursor**) appears on the Chart panel by pressing the right trackball/ mouse button. 

As the left trackball/mouse button is pressed, **Review** function is turned on, whilst the cursor acquires the form of a graphics cursor. 

By moving the cursor with the trackball/mouse, view the necessary charts beyond the ECDIS task screen boundary. At this stage, **Autoload** function is required to be ON (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 1**, section **Chart Control**, paragraph **Autoload**).

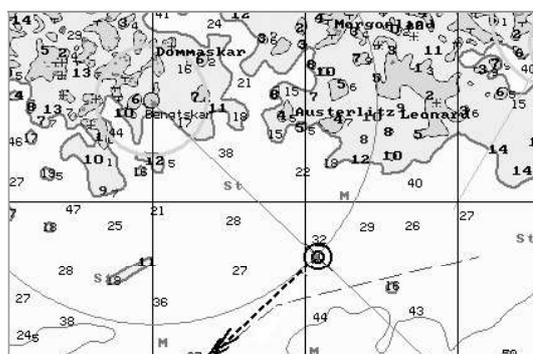


The graphic cursor coordinates are displayed in **Review** information window in the bottom part of the Control panel.

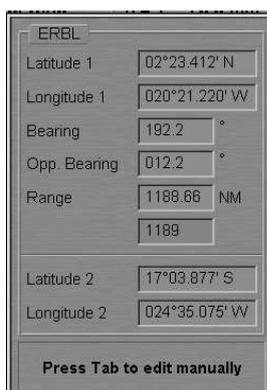


ERBL

Standard ERBL cursor (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 3, section ECDIS Task Cursors**, paragraph **Free Cursor**) appears on the Chart panel by pressing the right trackball/mouse button.



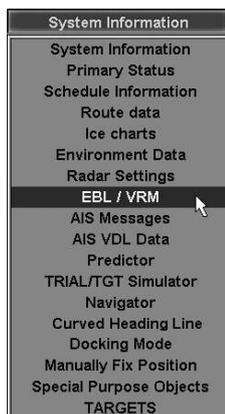
Coordinates from the ERBL (bearing and range to the selected point) are displayed in the information window in the bottom part of the panel.



EBL/VRM

“EBL/VRM” display is intended for turning on and adjusting two independent electronic measurement tools. EBL 1/VRM 1 are shown on the Chart panel as a dashed lines. EBL 2/VRM 2 are shown on the Chart panel as a dashed lines with another length of the dash:

1. For the variable range marker (VRM) and electronic bearing line (EBL) to be displayed on the ECDIS task Chart panel, press the button with the name of the set display in the “Display Panel” window of the Control panel.



In the list, which will open up, select **EBL/VRM** line and press the left trackball/mouse button.



To display the first EBL/VRM pair on the ECDIS task Chart panel, press **EBL 1** and **VRM 1** buttons respectively.

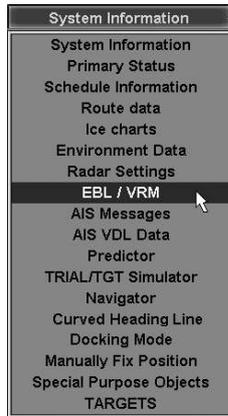
To display the second EBL/VRM pair on the ECDIS task Chart panel, press **EBL 2** and **VRM 2** buttons respectively.

To set the base point offset of the first EBL/VRM pair relative to the ship position, press **OFFSET** button. The base point will move relative to the current ship position in bearing and distance specified in **EBL** and **VRM** boxes. By default (the **Fixed** button is depressed), the EBL/VRM during offset will be referenced to the selected point on the ground, i.e., it will be moving relative to the own ship at a SOG speed in the direction opposite to the COG. If it is necessary that the EBL/VRM centre move together with the own ship, release the **Fixed** button.

2. By turning <EBL> and <VRM> keys on ES3/ES6 keyboard, set the required values of EBL and VRM. Press on <EBL/VRM> key to change between EBL/VRM 1 and 2.

Index Lines

Press the button with the name of the set display in the Display Panel window of the Control panel.



In the list, which will open up, select EBL/VRM line and press the left mouse button.



Press the button with index line number. Position the free cursor in the Range input field and press the left mouse button.



By rolling the mouse, set the required value of distance from the centre of the own ship mark, or enter it from the keyboard. Press the left mouse button. The index line will be set at the specified distance.

Note: Distance to the index line is measured along the perpendicular dropped from the own ship mark centre to the index line.

Position the free cursor in the T BRG input field and press the left mouse button.



By rolling mouse, set the required value of the index line bearing or enter it from the keyboard. Press the left mouse button. The index line will be set in the specified direction.

Note: 0° bearing corresponds to the line direction to the north. The index line bearing varies from 0° to 360°. On the reciprocal bearings, the line direction is the same, but it is located on different sides of the own ship mark.

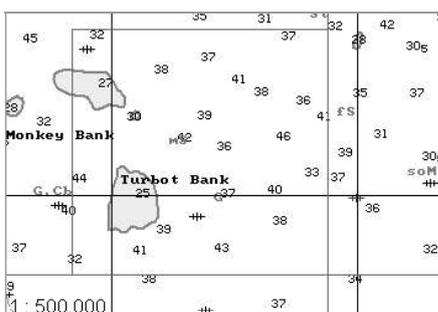
To set the index line bearing value equal to the current ship course, press the **Reset** button.

Zoom

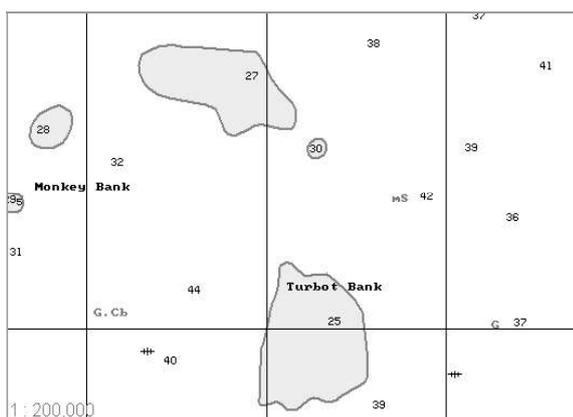
Standard **Zoom** cursor (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 3, section ECDIS Task Cursors, paragraph Free Cursor**) appears on the Chart panel by pressing the right trackball/mouse button. A press on the left trackball/mouse button turns on **Zoom** function, whilst the cursor assumes the form of graphics cursor.



Position the graphic cursor, which will appear, in the corner of the chart fragment required to be viewed. Press the left trackball/mouse button. Select the required chart fragment by moving the cursor with the trackball/mouse.



Press the left trackball/mouse button. The Chart panel scale will change so that the selected chart fragment is fully displayed on the Chart panel.



Manual Entry in the Ship Log

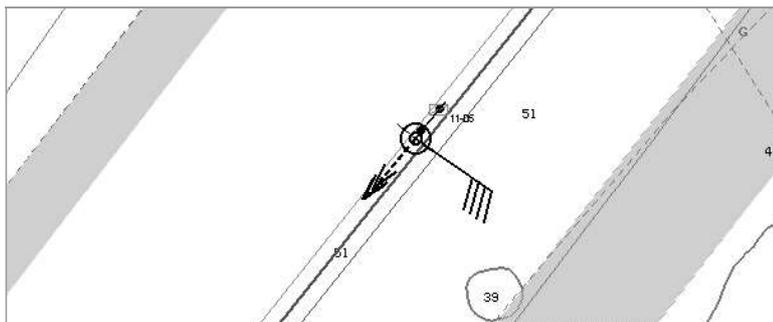
There are two ways to make a ship log entry on the entire set of events as of the current moment:

- Press **Event** button in the “Operational Panel” window on the Control panel;



- Press <EVENT> key on the ES3/ES4/ES6 keyboard.

An entry will be made on the ship log, and a special mark will be made on the own ship track.



CHAPTER 4

Navigation Tasks

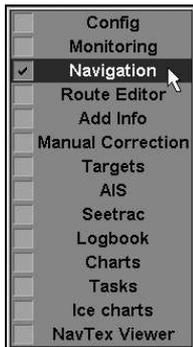
This chapter describes the procedure used during the operation in the navigation mode.

SETTING POSITION SOURCES

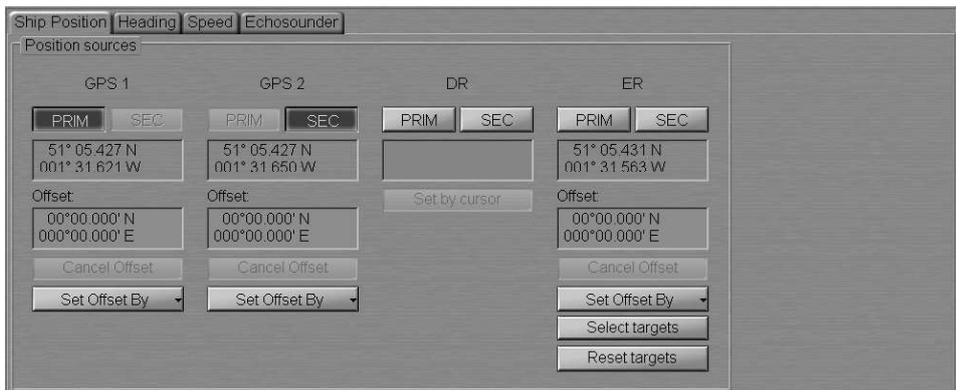
ATTENTION!

Setting of position sources is available only at station with the status MASTER.

Open “Navigation” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Navigation” panel, which will open up, to switch to “Ship Position” page.



“Ship Position” page is designed for selection of position source. “Ship position” page displays all the connected coordinates sensors, as well as Dead Reckoning (DR) and Echo Reference (ER) modes.

Setting Electronic Position Fixing System (EPFS)



The group of each EPFS source contains the following elements:

- **PRIM** – to select the source as primary positioning system; the window is intended for display of the current coordinates received from the positioning system;
- **SEC** – to select the source as secondary positioning system; the window is intended for display of the current coordinates received from the positioning system;

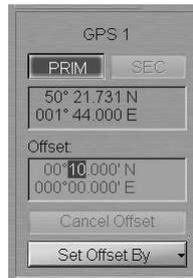
Setting Position Sources

- Position window for the coordinates display;
- **Offset** – window for the input and display of the ship position coordinates offset;
- **Cancel Offset** – to cancel the entered corrections;
- **Set Offset By** – to enter the correction by specifying new coordinates with the ECDIS task graphic cursor.

Press **PRIM** and **SEC** buttons to select the primary and secondary positioning systems.

To enter the EPFS offset, use the following procedure:

1. To manual input. Position the cursor in **Offset** window on the minute value and press the left trackball/mouse button to activate the window. Enter the coordinate offset and press <Enter> key.

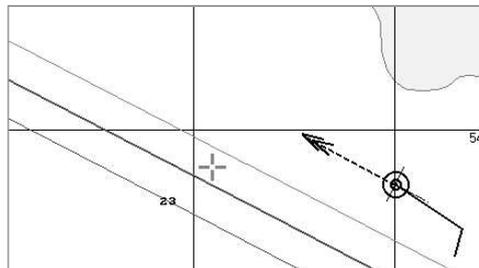


The ship symbol will move to the corrected coordinates, the coordinate offset will be displayed in **Offset** window, whilst position window will show corrected coordinates from position source.

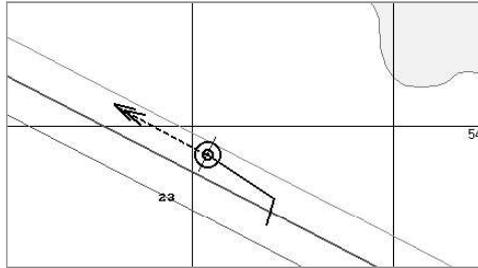
2. Input EPFS offset by the cursor. Press **Set Offset By** button position source group and select **Cursor**.



Move the graphic cursor, which will appear, to the corrected ship position coordinates.



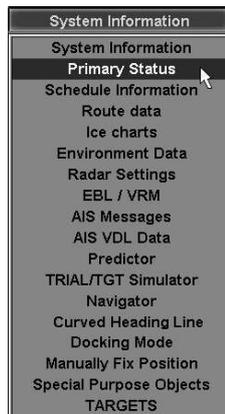
Press the left trackball/mouse button. The ship symbol will move to the specified coordinates.



The coordinate offset will be shown in **Offset** window, whilst position window will display corrected coordinates from position systems.



To monitor parameters of the EPFS used for the primary positioning system, press the button with the name of the set display in the Display Panel window of the Control panel.



In the list, which will open up, select **Primary Status** line and press the left trackball/mouse button.

Primary Status	
Fixed UTC	22 : 25 : 00
Latitude	53° 46.099 N
Longitude	006° 05.108 E
Quality	DGPS SPS
Satellites	5
HDOP	1.0
Data age	10.0
Station ID	0000

“Primary Status” display is used for presenting the following data from EPFS, which used as primary positioning system:

- **Fixed UTC** – UTC time which the data is provided for;
- **Latitude** – latitude coordinate;
- **Longitude** – longitude coordinate;
- **Quality** – positioning quality indicator (GPS operating mode);
- **Satellites** – number of satellites used for the positioning;
- **HDOP** – HDOP (Horizontal Dilution of Precision) value;
- **Data age** – age of differential corrections;
- **Station ID** – name of the station, which transmits differential corrections for the DGPS used by the primary positioning system (where the differential mode is used).

In the absence of data from PS positioning systems (or in absence of valid GGA sentence), there are empty fields on the display.

Setting ER Mode



ER group contains the following elements:

- **PRIM** – to select ER mode as primary positioning system;
- **SEC** – to select ER mode as secondary positioning system;
- Position window for the coordinates display;
- **Offset** – window for the input and display of the ship position coordinates offset;
- **Cancel Offset** – to cancel the entered corrections;
- **Set Offset By** – to enter the correction by specifying new coordinates with the ECDIS task graphic cursor;
- **Select targets** – to select targets as fixed reference points (button is enabled if at least one steadily tracked target is available);
- **Reset targets** – to cancel reference points.

To set the ER mode, it is first necessary to set the reference points. Press the **ARPA** button in the top part of the Control panel to turn on the display of targets.



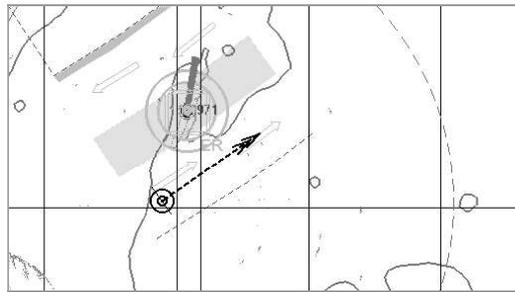
Note: If the ARPA tracks some targets, **Select targets** button will be activated.

Press **Select targets** button.

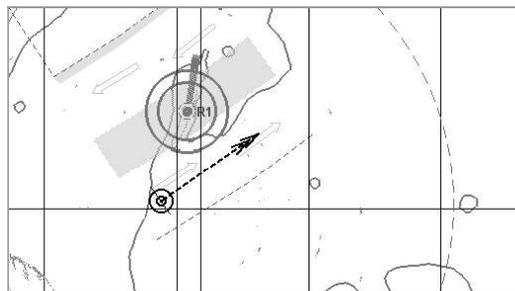
Position the free cursor on the tracked target, which will serve as a reference point.

Note: Any ARPA tracked stationary target can serve as a reference point.

As this is done, the cursor will assume the following form:



Press the left trackball/mouse button.



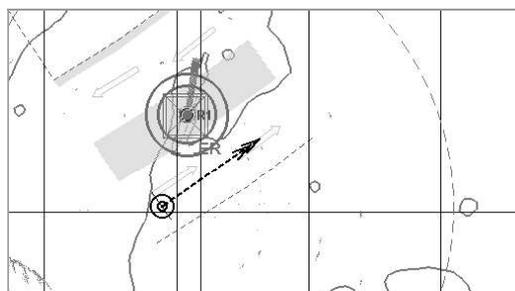
“R” index will show up next to the reference point. Set the necessary number of reference points (up to 5).

To use position determined with the aid of reference points in ER group, press PRIM or SEC button.



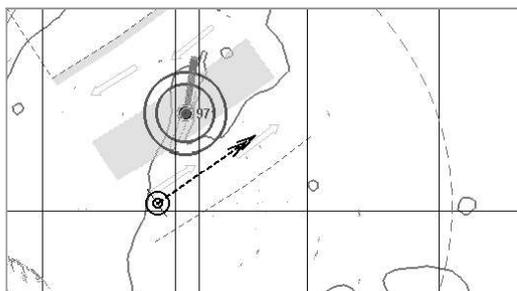
To cancel the reference point, press **Reset targets** button.

Position the free cursor on the reference point, which will cancel. As this is done, the cursor will assume the following form:



Press the left trackball/mouse button.

“R” index will stop show up next to the reference point.



The position offset for the ER is entered in much the same way as for the EFFS (see the previous paragraph).

Setting DR Mode



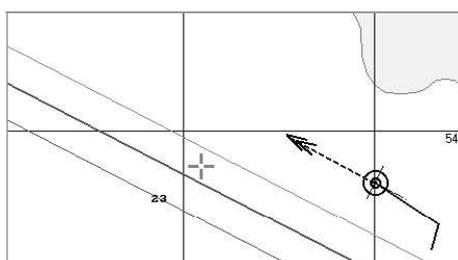
DR group contains the following elements:

- **PRIM** – to select DR mode as primary positioning system;
- **SEC** – to select DR mode as secondary positioning system;
- Position window for the display and input of coordinates;
- **Set by cursor** – to enter the position by specifying new coordinates with the ECDIS task graphics cursor.

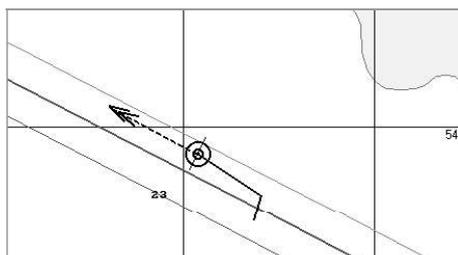
In DR group press **PRIM** or **SEC** button. Enter current ship position in the input window.

To input DR by cursor, press **Set by cursor** button.

Move the graphic cursor, which will appear, to the corrected ship position coordinates.



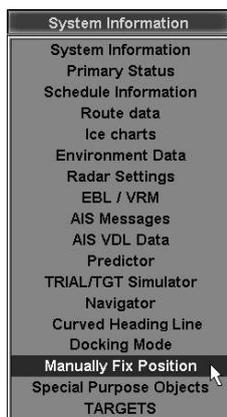
Press the left trackball/mouse button. The ship symbol will move to the specified coordinates.



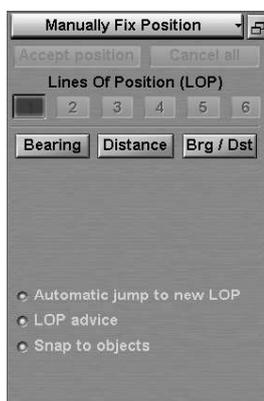
Position window will display new coordinates from DR.

Use of Manually Fix Position for Determining Ship Position

Press the button with the name of the set display in the “Display Panel” window of the Control panel.



In the list which will open up, select **Manually Fix Position** line and press the left trackball/mouse button.



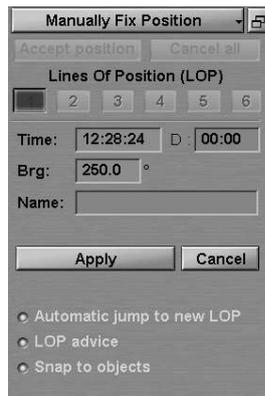
“Manually Fix Position” display is intended for constructing the ship line of position (LOP) by measuring bearing and/or range to one or more visible objects whose coordinates are known in advance (or the object can be uniquely identified on the chart).

The display contains the following items:

- **Accept position** – to record the calculated ship position on the chart and in the Ship Logbook (when the DR positioning system is used, to enter calculated coordinates for further computation);
- **Cancel all** – to cancel all the measurements which have been made;
- **1..6** – to switch bearing and/or range measurements. That number of buttons is active which is equal to the number of measurements which have been made, the rest are disabled. Depending on the measurement status, the buttons have the following colours:
 - black – bearing/range determined and referenced to the chart conspicuous point;
 - red – measurement taken and referenced, but the system considers it incorrect on the basis of LOP being at a distance of more than one mile from the reckoned position (with LOP advice function ON only);
 - blue – free cell for setting the measurement;
 - white – the data is entered, but the position line is not referenced by the user.

- **Bearing** – to enter bearing;
- **Distance** – to enter range;
- **Brg/Dist** – to enter simultaneously the bearing and distance to one object;
- **Automatic jump to new LOP** – to turn on automatic transfer to the next measurement after the input of LOP data without referencing to an object;
- **LOP advise** – to turn on the function providing a warning that the position line is more than 1 mile away from the reckoned position. In this case, the button with the measurement number turns red;
- **Snap to objects** – LOP automatic referencing to objects.

Press **Bearing** button. After the selection of the measurement type, “Manually Fix Position” display looks like shown in the drawing below:



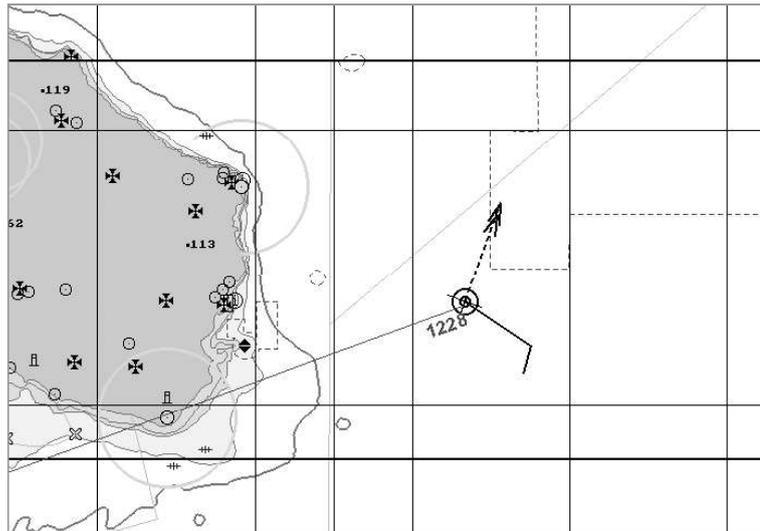
In this case, depending on the measurement type, the display contains the following items:

- **Time** – time of the current measurement data input;
- **D** – difference between the input of the first and current measurement data in minutes and seconds;
- **Brg** – to enter bearing to the object;
- **Name** – name or type of the object which is referenced to with the Snap to Object function turned on (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 3, section Manually Fix Position, paragraph Line of Position Referencing**);
- **Apply** – to confirm the entered current measurement data. With **Automatic jump to new LOP** function ON, there is an automatic transfer to the input of the next measurement;
- **Cancel** – to cancel the entered current measurement data.

Enter the bearing to the object in **Brg** input box by using the trackball/mouse or keyboard. Press the left trackball/mouse button.

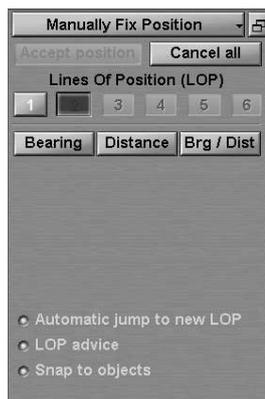
Note: Measurement time in **Time** box is set at the current time minus 5 seconds.

Press the activated **Apply** button.



A red coloured line will be drawn on the chart panel, with the measurement time specified.

Use the button in the top part of “Manually Fix Position” display to switch to the next measurement (if Automatic jump to new LOP function is ON, the switching is made automatically).

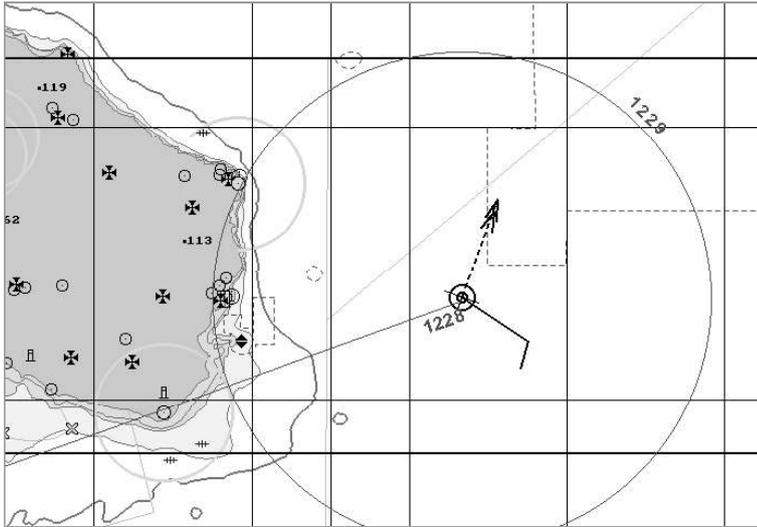


Press Distance button.



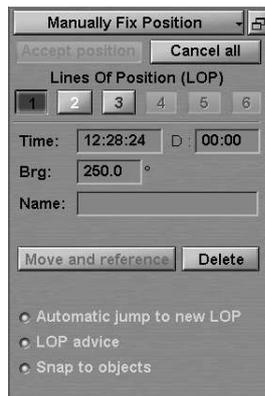
Enter the distance to the object in Dist input box by using the trackball/mouse or keyboard. Press the left trackball/mouse button.

Press the activated Apply button.



A red coloured position line will appear on the chart panel.

To reference the position lines, press the button with the first measurement number in “Manually Fix Position” display. After the confirmation of the entered current measurement data, “Manually Fix Position” display looks like shown below:

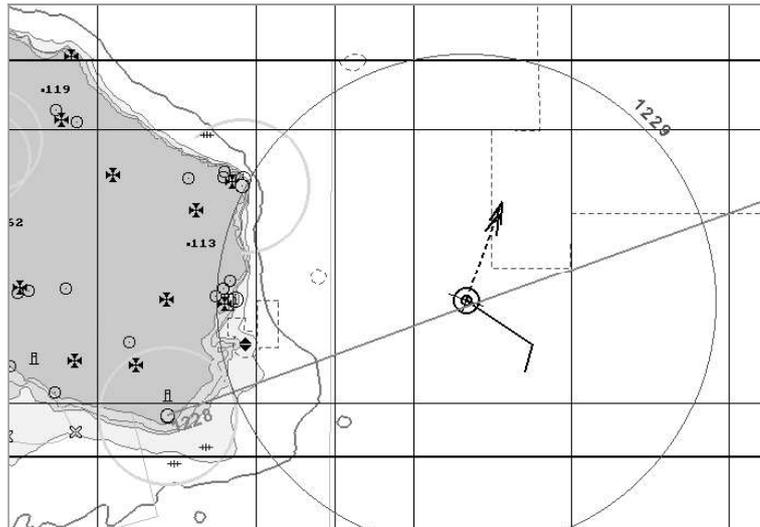


In this case, the display contains the following items:

- **Move and reference** – to reference the position line to a chart object;
- **Delete** – to cancel the entered current measurement data.

Press **Move and reference** button.

On the chart panel, bring the beginning of the position line in coincidence with the object which the bearing was measured to (if the **Snap to object** checkbox is checked, the LOP will be referenced to the object automatically if it is not farther than 0.5 mile from its beginning). Press the left trackball/mouse button.

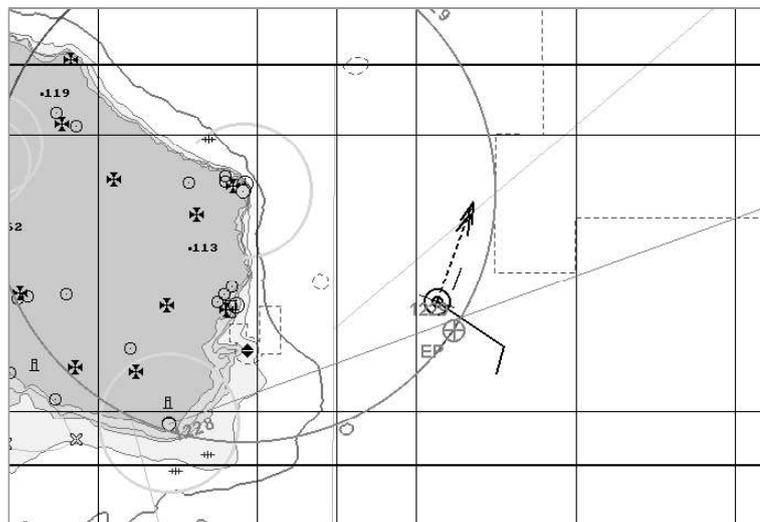


To bind the next position line, press the button with the next measurement number in “Manually Fix Position” display.



Press Move and reference button.

On the chart panel, bring the centre of the position line circle into coincidence with the object which the distance was measured to (if the **Snap to object** checkbox is checked, the LOP will be referenced to the object automatically if it is not farther than 0.5 mile from its centre). Press the left trackball/mouse button.



The position line will be bound to the object and will be displayed in the orange colour. After the binding of two position lines, the orange coloured  symbol will appear on the chart panel in the point with coordinates of the calculated ship position. Specified next to the symbol are the letters “EP” and the most recent calculation time.

Construct the necessary number of position lines.

If it is necessary to accept the results of manually fix position, use **Accept position** button (see also document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009)**.

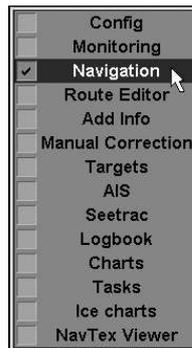
FUNCTIONAL DESCRIPTION, Chapter 3, section Manually Fix Position).

SETTING HEADING SOURCE

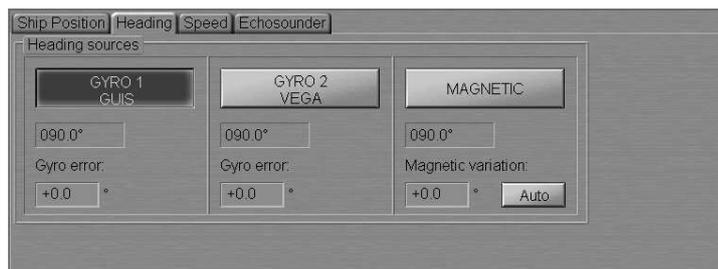
ATTENTION!

Setting of heading sources is available only at station with the status MASTER.

Open “Navigation” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Navigation” panel to switch to “Heading” page.



“Heading” page is designed for selection of heading source. “Heading” page shows all the connected heading sensors.

The group of each heading source contains the following elements:

- **GYRO 1** – to select this sensor as heading source; the window is intended for display heading value from the sensor;
- **Gyro error** – for the manual input of the gyro error (for gyro compass);
- **Magnetic variation** – for the input of the magnetic variation from the database (**Auto** button), or manually in the input window (for magnetic compass).

Press the button with the source name to select the main source of heading whose data will henceforth be used for making all the calculations in the system.

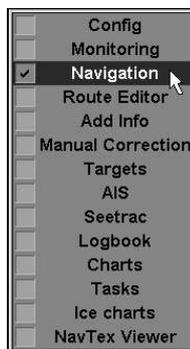
If necessary, enter errors (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 2**, section **Navigational Sensors**, paragraph **Compensations for Navigational Data**) for gyro and variation for magnetic compass.

SETTING SPEED SOURCES

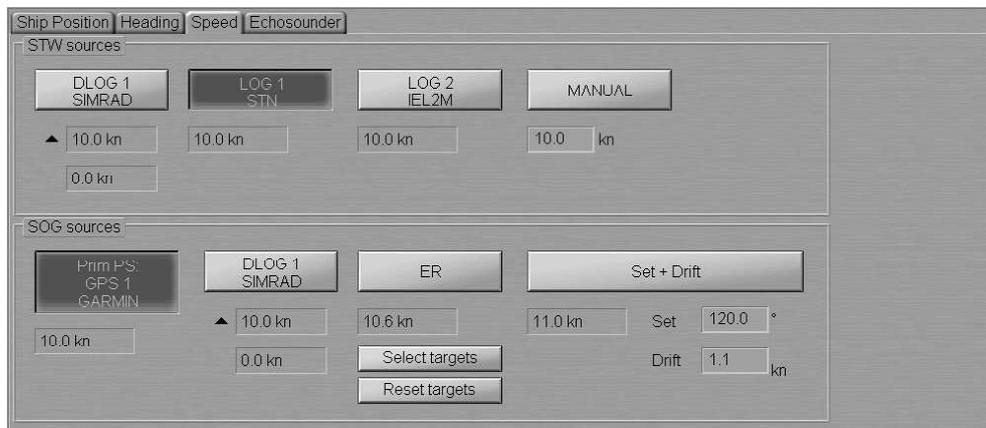
ATTENTION!

Setting of speed sources is available only at station with the status MASTER.

Open “Navigation” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Navigation” panel to switch to “Speed” page.



“Speed” page is designed for selection of speed source.

Setting Speed Source Through the Water



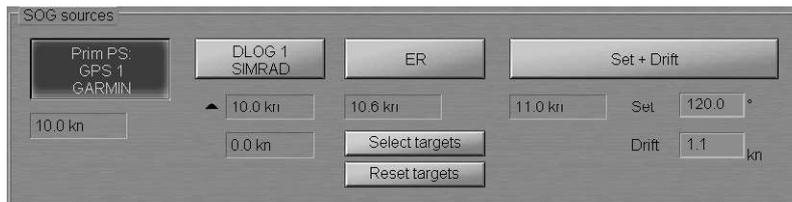
STW sources group is designed for selection a source of speed through the water. The group shows all the connected speed through the water sensors.

The group of each speed through the water source can contain the following elements:

- **DLOG** – to select DLOG as a source of STW; the windows are intended for display longitudinal and transverse component of the speed-through-water vector, the arrows showing the direction of components;
- **LOG** – to select LOG as a source of speed through the water; the window is intended for display STW value from log;
- **MANUAL** – to select the use of manual STW input; the window is intended for speed input.

Press the button with the source name to select the source of speed through the water, whose data will henceforth be used for making all the calculations in the system.

Setting Speed Source Over the Ground



SOG sources group is designed for selection a source of speed over ground. The group shows all the connected speed over ground sensors.

The group of each speed over ground source can contain the following elements:

- **Prim PS: GPS 1** – to select EPFS as a source of SOG; the window is intended for display SOG value from EPFS;
- **DLOG** – to select DLOG as a source of SOG; the windows are intended for display longitudinal and transverse component of the SOG vector, the arrows showing the direction of components;
- **ER** – to select ER mode as a source of SOG; the window is intended for display SOG value; the buttons is intended for:
 - **Select targets** – to select targets as fixed reference points (button is enabled if at least one steadily tracked target is available);
 - **Reset targets** – to cancel reference points.
- **STW + Drift** – to select STW as SOG, manual drift input taken into account. The window is intended for display SOG value. The input windows are intended for:
 - **Set** – to display and manually enter the set;
 - **Drift** – to display and manually enter the drift.

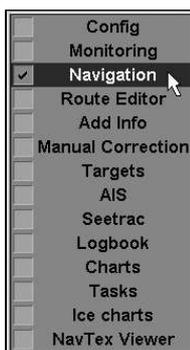
Press the button with the source name to select the source of speed over ground whose data will henceforth be used for making all the calculations in the system.

SETTING DEPTH SOURCE

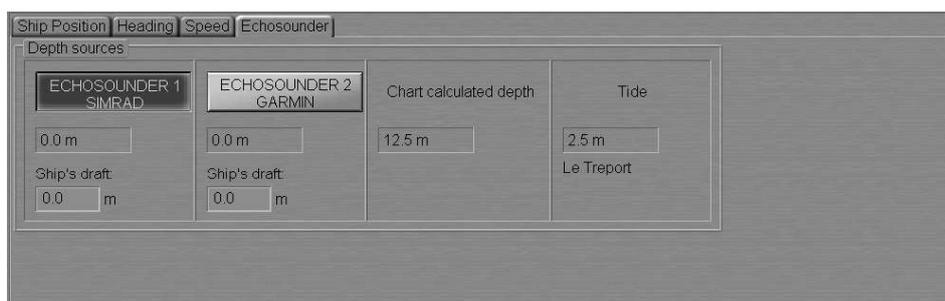
ATTENTION!

Setting of depth sources is available only at station with the status MASTER.

Open “Navigation” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Navigation” panel to switch to “Echosounder” page.



“Echosounder” page is designed for selection of depth source. “Echosounder” page shows all the connected depth sensors.

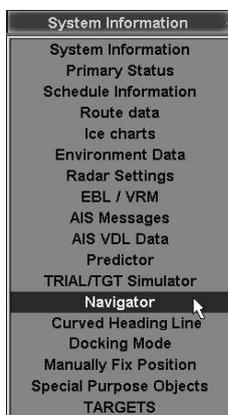
The group of each depth source can contain the following elements:

- **ECHOSOUNDER 1** – to select this sensor as depth source; the window is intended for display depth value from the sensor;
- **Ship's draft** – to enter ship's draft in the place of echosounder transducer location;
- **Chart calculated depth** – depth from electronic chart(s);
- **Tide** – expected tidal height value calculated for the current time at the reference point closest to the ship position, and the name of this reference point.

Press the button with the source name to select the main source of depth whose data will henceforth be used for making all the calculations in the system. Enter ship's draft for each echosounder.

OBTAINING CURRENT INFORMATION ABOUT NAVIGATIONAL DATA

Press the button with the name of the set display in the “Display Panel” window of the Control panel.



In the list, which will open up, select **Navigator** line and press the left trackball/mouse button.

Navigator	
HDG	296.7°
STW	9.0 kn
COG	295.5°
SOG	9.0 kn
RAD	0.10 NM
BTW	201.8°

“Navigator” display is intended for enlarged presentation of the following selectable data:

- HDG (Heading);
- STW;
- COG;
- SOG;
- ROT;
- XTD;
- BTW (Bearing to Waypoint);
- BWW (Bearing Waypoint to Waypoint);
- DTW (distance to waypoint);
- ETA;
- TTG (time to go);
- Radius (turn radius at the next waypoint);
- Turn Radius.

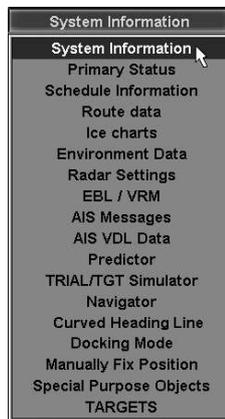
Only six values could be displayed simultaneously at the display.

Press the button in the left-hand part of the display and from the pull-down list, select navigational data which is required to be shown on the display.

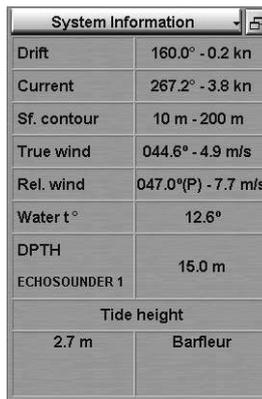


Make up the “Navigator” display configuration which suits you best.

To display depth from the echosounder on the ECDIS task screen, press the button with the name of the set display in the “Display Panel” window of the Control panel.



In the list, which will open up, select **System Information** line and press the left trackball/mouse button.



In DPTH row it is displayed value of water depth under the keel (from the sounder data).

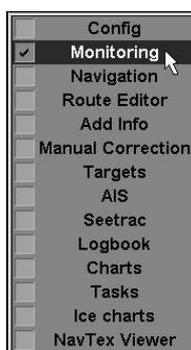
LOADING OF ROUTE AND SCHEDULE IN THE NAVIGATION MODE

ATTENTION!

Loading of route and schedule in the navigation mode is available only at station with the status MASTER.

Loading Route

Open “Monitoring” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Monitoring” panel, which will open up, to switch to “Route Monitoring” page.



Route group enables loading and unloading of monitored routes and a schedule by using the following buttons:

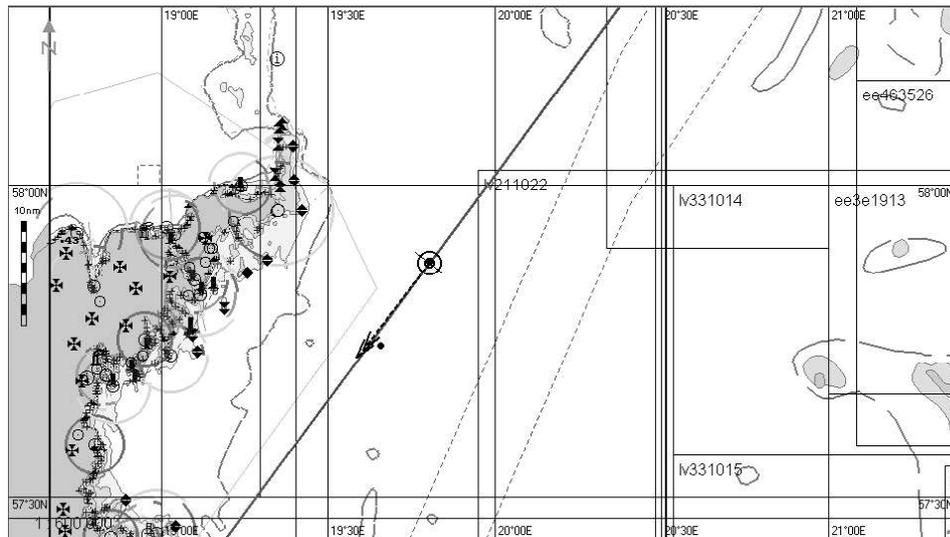
- **Load route** – to select and load a route from the offered list;
- **Set schedule** – to select and load a schedule for the loaded route from the offered list;
- **Unload** – to unload the previously loaded route and/or schedule.



Press Load route button in Route row of buttons.

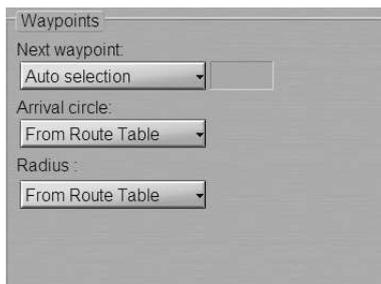


Select the required route and press the left trackball/mouse button. The selected route will be loaded for sailing in the Chart panel, and its name will be displayed on the button. The route loaded for sailing will be shown in red colour.

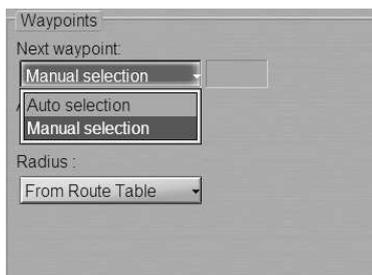


Waypoints group contains buttons and windows for the input values used for calculating mutual positions of the route elements and the ship:

- **Next Waypoint** – to select the mode of setting the next WPT for calculating parameters of motion along the route:
 - **Auto selection** – to switch WPT's successively in the automatic mode; the WPT closest to the ship position is selected automatically;
 - **Manual selection** – to set the next WPT number manually; input of the next WPT number is made in the appropriate window.
- **Arrival Circle** – to set the radius of the WPT change circle for the generation of an alert about the arrival in the WPT and switching to the next one:
 - **Same for All WPT's** – to set manually for all the route points in the window to the right;
 - **From Route Table** – to set automatically form the data entered in the route.
- **Radius** – to set parameters of the turn radius arc for the display of an approximate track on the turn on another route leg:
 - **Same for All WPT's** – to set manually for all the route points in the window to the right;
 - **From Route Table** – to set automatically form the data entered in the route.



For the manual setting of the next WPT, press Next Waypoint button.



In the list, which will open up, select **Manual selection** and press the left trackball/mouse button. Use the activated input line to enter the next WPT number.

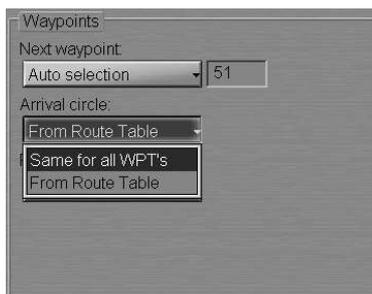


Press the left trackball/mouse button.

ATTENTION!

In the automatic mode, it is the next WPT of the route leg which the ship is proceeding by which is set. If some other WPT is selected manually for the next one, all the calculations are made relative to the route leg adjacent to the selected WPT.

For the manual setting of the WPT change circle radius, press Arrival circle button.

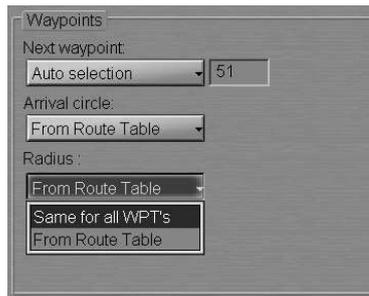


In the list, which will open up, select **Same for all WPT's** and press the left trackball/mouse button. Use the activated input line to enter the WPT change circle radius. Press the left trackball/mouse button.



The set radius will be set for all the point of the monitored route.

For the manual setting of the turn arc parameters, press **Radius** button.



In the list, which will open up, select **Same for all WPT's** and press the left trackball/mouse button. Use the activated left-hand input line to enter a new turn arc radius.



Press the left trackball/mouse button. The set parameters will be fixed for all the points of the monitored route.

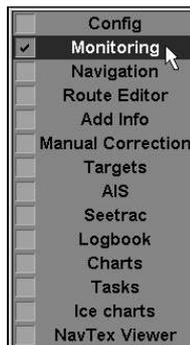


To turn on the display on the ECDIS task screen monitoring route elements, press following:

- **XTD** – to display deviation from the route line (set during the route generation see chapter **Handling of Routes**, section **Creating a Route**);
- **Arrival circle** – to display set WPT change circle;
- **Radius** – to display set turn radius arc on the turn to another route leg;
- **WPT names** – to display the names of waypoints set in the route plan.

Loading Schedule

Open “Monitoring” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Monitoring” panel, which will open up, to switch to “Route Monitoring” page.



Route group enables loading and unloading of monitored routes and a schedule by using the following buttons:

- **Load Route** – to select and load a route from the offered list;
- **Set schedule** – to select and load a schedule for the loaded route from the offered list;
- **Unload** – to unload the previously loaded route and/or schedule.

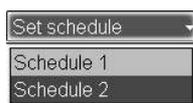


Press **Load route** button in **Route** row of buttons.



Select the required route and press the left trackball/mouse button. The selected route will be loaded for sailing on the Chart panel, and its name will be shown on the button.

Press **Set schedule** button in **Route** row of buttons.

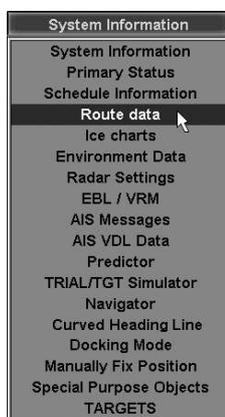


The list of schedules created for this route will open up. Select the necessary schedule. Press the left trackball/mouse button. The selected schedule will be loaded.

Obtaining Current Information about Monitoring Route and Schedule

Route Data

Press the button with the name of the set display in the “Display Panel” window of the Control panel.



In the list, which will open up, select **Route data** line and press the left trackball/mouse button.

Route data	
Route	St-Petersburh-Hamburg
To WPT 53	Pilot buoy
BWW	112.9°
XTD	100 m - STBD
BTW	112.5°
DTW	9.47 NM
ETA (UTC)	22-12-2008 15:12:46
TTG	47 m 22 s
Next WPT 54	
BWW	088.6°

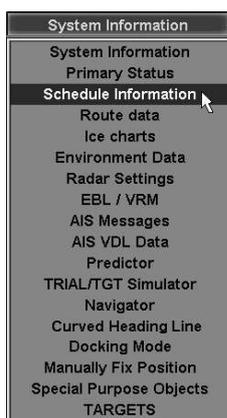
“Route Data” display is intended for the display of data as the ship is proceeding along the route to the next waypoint (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 5**, section **Route Monitoring**, paragraph **Sailing Along the Route**). The display contains the following data:

- **Route** – name of the monitored route; as **Last WPT passed** alarm is generated, the word “Route” is shown in the red colour;
- **To WPT** – number and name of the current WPT which the ship is proceeding to; the WPT name is shown in black colour if the WPT is selected automatically, and in the blue colour if selected manually;
- **BWW** – direction of the monitored route leg which the ship is proceeding by if the leg is of RL type; or the current course in case of the GC leg; as **Course difference** alarm is generated, the letters “BWW” is shown in the red colour;
- **XTD** – actual distance from the current route leg; as **Out of XTD** alarm is generated, the letters “XTD” are shown in red colour;
- **BTW** – bearing to the current WPT;
- **DTW** – distance to the current WPT;

- **ETA** – the estimated time (UTC/Ship depending on the setting made in the Control panel) of arrival in the current WPT, the remaining distance and current speed (SOG) taken into account;
- **TTG** – time to go to the current waypoint calculated with regard to the actual speed (SOG);
- **Next WPT** – number of the next WPT;
- **BWW** – direction of the next route leg.

Schedule Information

Press the button with the name of the set display in the “Display Panel” window of the Control panel.



In the list, which will open up, select **Schedule Information** line and press the left trackball/mouse button.



“Schedule Information” display serves for presenting information connected with sailing according to the selected schedule (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 5, section Route Monitoring, paragraph Sailing Along the Route**). For the display of data, it is necessary to load a route on “Route Monitoring” page of “Monitoring” panel (see above **Loading Route** item). The schedule elements whose values differ from those set on “Route Monitoring” page of “Monitoring” (**Out of Schedule**) panel are shown in red colour.

The display contains the following data:

- **To WPT** – to select a WPT number for the display of associated schedule elements; the line to the right shows the name of the WPT if any was given by the operator;
- **Schedule** – to turn on the display of ETA and TTG calculated with regard to the prepared schedule;

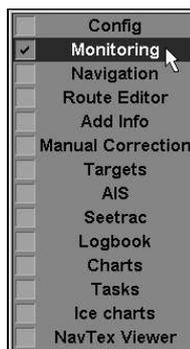
- **Current SOG** – to turn on the display of ETA and TTG calculated with regard to the current speed (SOG);
- **ETA (UTC)** – estimated time of arrival in the selected WPT calculated from the remaining distance and set speed (UTC/Ship depending on the setting made in the Control panel);
- **TTG** – time to go to the specified WPT calculated with regard to the actual ETA;
- **DTW** – distance to the specified waypoint;
- **PTA** – planned time of arrival in the specified WPT taken from the schedule.

In the bottom part of the display there is a calculator for calculating speed to go (STG) to the specified waypoint or planned time of arrival (PTA) in the specified waypoint:

- **STG** – operator-entered planned speed of proceeding to the specified point for the PTA calculations in the window on the right;
- **Planned time of arrival** – operator-entered planned time of arrival (PTA) to the specified point for the STG calculations in the window on the left.

Unloading Route and Schedule

Open “Monitoring” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Monitoring” panel, which will open up, to switch to “Route Monitoring” page.



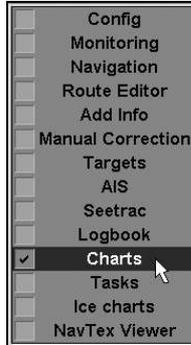
In Route group press Unload button. The route and/or schedule loaded for sailing will be unloaded.



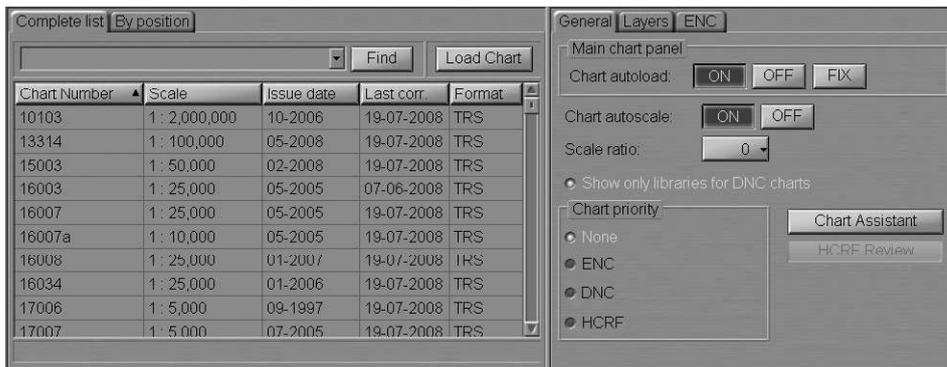
HANDLING CHARTS AND CHART INFORMATION

Prompt Search and Load Charts

Open “Charts” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the left part of “Charts” panel, which will open up, to switch to “Complete list” or “By position” page depending on which chart is required to be found. All the functions of these pages are identical, the only difference between them being in the set of charts available for work.



The aforementioned pages contain the following:

- Chart number input window and Find button activate the chart search function by the number entered in the window.
 If the chart with the required number has not been found, the prompt bar in the bottom part of the area displays the following message:
 - No charts found – no charts with this number have been found;
 - Partial match found – a group of charts has been found, whose numbers start with the entered characters.
- Manual chart selection window. Charts in the list can be sorted by the following parameters:
 - Chart Number – chart number;
 - Scale – chart scale;
 - Issue date – chart issue date;
 - Last Correction – latest correction date;
 - Format – chart format.

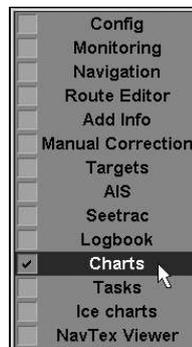
Type the number or the first characters of a chart from the ship folio in the input field, and press Find button.

Chart Number	Scale	Issue date	Last corr.	Format
N71	1 : 60,000	07-1993	31-10-2001	TRS
NL 101	1 : 60,000	11-2000	10-11-2001	TRS
NL 101A	1 : 20,000	11-2000	10-11-2001	TRS
NL 101B	1 : 15,000	11-2000	10-11-2001	TRS
NL 102	1 : 60,000	11-2000	10-11-2001	TRS
NL 102A	1 : 15,000	11-2000	10-11-2001	TRS
NL 102B	1 : 20,000	11-2000	10-11-2001	TRS
NL 110	1 : 75,000	11-2000	10-11-2001	TRS
NL 110A	1 : 40,000	11-2000	10-11-2001	TRS
NL 110B	1 : 50,000	11-2000	10-11-2001	TRS
NL 11_5B1	1 : 20,000	07 2001	10 11 2001	TRS

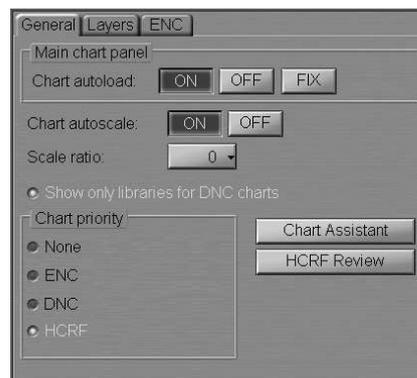
The necessary chart will be highlighted in the table. Press Load Chart button, the selected chart will be loaded in the Chart panel.

Loading and Scaling Charts under Own Ship Position

Open “Charts” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the right-hand part of “Charts” panel, which will open up, to switch to “General” page.



This page is intended for the control of chart automatic loading and scaling which are determined by the following parameters:

- **Chart Autoload** – chart loading modes switching buttons:
 - **ON** – to turn on the chart autoload mode whereby the largest scale chart will be automatically loaded;
 - **OFF** – to turn off the autoload mode; as this is done, the current chart under the ship position or the chart loaded manually is fixed until the loading mode switch;
 - **FIX** – to turn on the chart fixing mode; as the ship symbol crosses the boundary of such chart, the chart loading mode is automatically switched to ON position.

- **Chart Autoscale** – chart scaling modes switching buttons:
 - **ON** – to load the chart on its original scale;
 - **OFF** – to load the chart on the screen current scale.
- **Scale Ratio** – to set the loaded chart scale differing from its original scale by the number of fixed scale values (± 5);
- **Show only libraries for DNC charts** – to enable displaying of DNC library name instead of DNC tiles names (if DNC charts used);
- **Chart priority** – to set the chart loading priority under the ship position:
 - **None** – to load charts most suitable to the set scale. In this case, if there are several charts on the same scale, priority is given to the TX-97 (TRX) format charts;
 - **ENC** – to load ENC format vector charts;
 - **DNC** – to load DNC vector charts;
 - **HCRF** – to load ARCS and Seafarer format raster charts;
 - **Chart Assistant** – to open the Chart Assistant window;
 - **HCRF Review** – to open the window for viewing ARCS and Seafarer format charts.

Chart Loading

To turn on chart autoloading:

1. Press **ON** button in **Charts Autoload** row of buttons (if not depressed).



2. Press **Autoload** button in the **Charts Area** window of the Control panel.



This window is designed for the adjustment of the chart display on the Chart panel:

- **Chart number** – to call a menu with a list of charts under the ship position (if the ship symbol is displayed on the chart) or the list of all the charts available in the ship folio. The button shows the current chart number;
- **Autoload** – to turn on the function for the automatic loading of charts. There is an indicator to the right of the button:

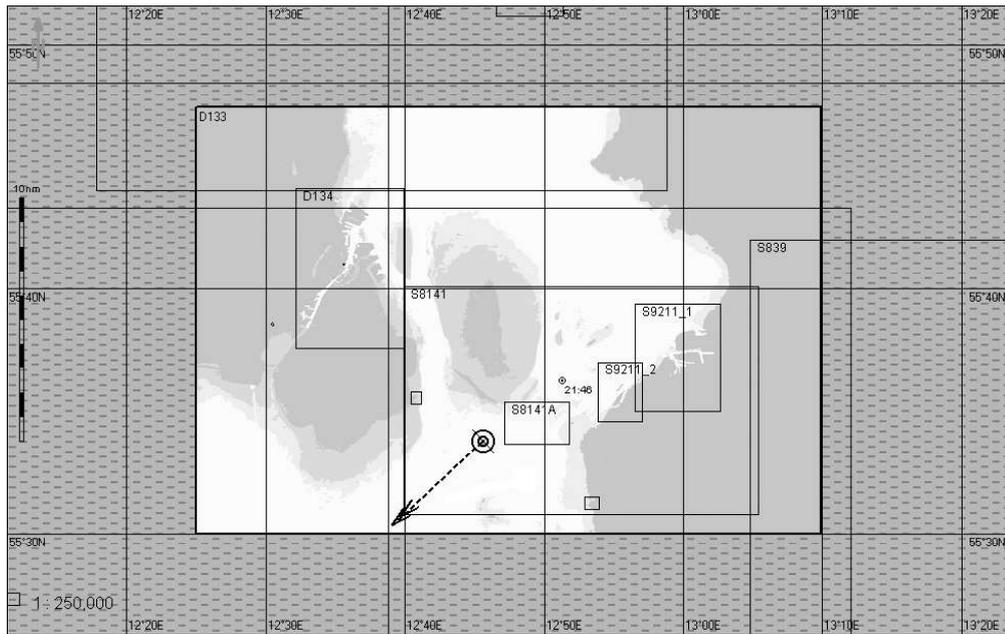
- ON** – the function is turned on (**Autoload** button is greyed);
- OFF** – the function is turned off;
- FIX** – to fix the current chart.

The chart autoloading mode is set.

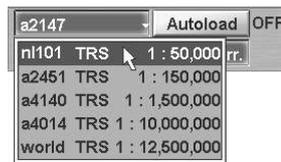
To manual loading of the required chart, press **OFF** button in **Charts Autoload** row of buttons (if not depressed).



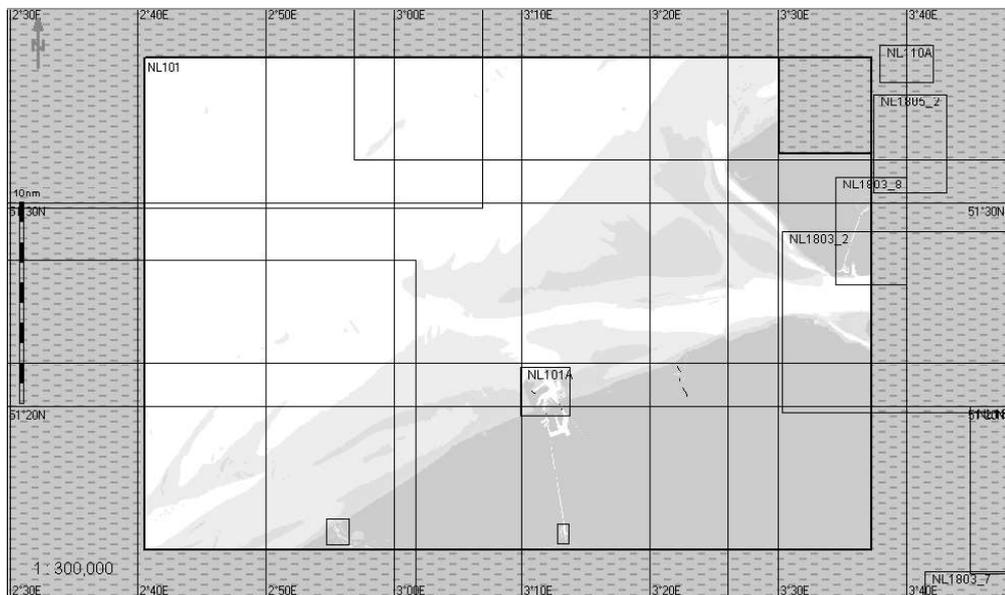
The chart autoloading mode is OFF, and the screen displays the current chart only.



In the Charts Area window of the Control panel, press button with the current chart number.

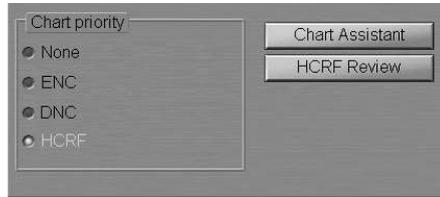


Select the necessary chart from the list. The ECDIS task screen will display the required chart.

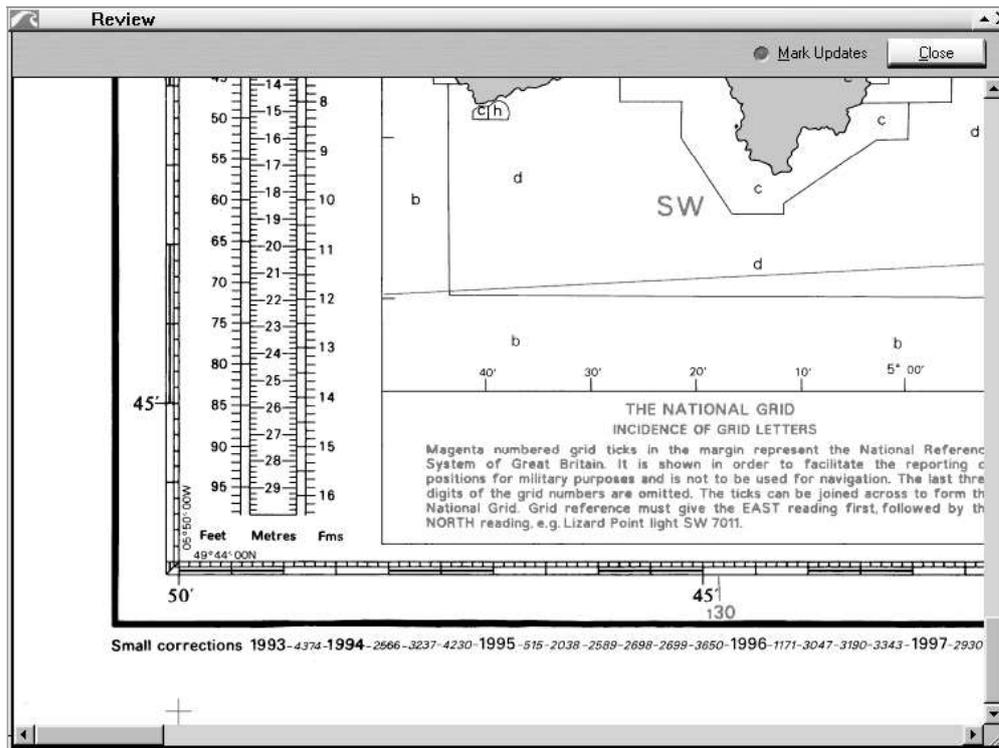


Selecting Loading Priority of Various Format Charts

Where ARCS and Seafarer format charts are available in the ship folio, you can set their loading priority. In **Chart priority** group check **HCRF** checkbox to set the loading priority for charts of ARCS and Seafarer formats.



To view ARCS and Seafarer format charts, press **HCRF Review** button or  button. The chart is displayed in the window, which opens up.



To display the updating which may have been done, check **Mark Updates** checkbox.

If necessary to set loading priority of ENC format charts, check **ENC** checkbox.



If necessary to set loading priority of DNC format charts, check **DNC** checkbox.



Chart Scaling

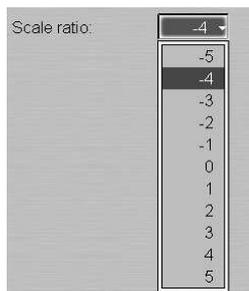
To automatic scaling press **ON** button in **Chart autoload** row of buttons (if not depressed).



Press **ON** button in **Chart autoscale** row of buttons (if not depressed).



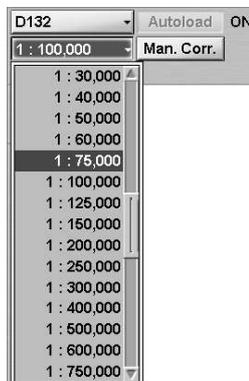
If it is necessary to turn on manual change of scale in the transfer to the next chart, use **Scale ratio** window to set the number of fixed values (from 1 to 5), which the scale should be increased/decreased by.



To manual scaling press **OFF** button in **Chart autoscale** row of buttons.



Press **scale** button in "Chart Area" window on the Control panel (the button shows the current screen scale).



Select the required scale from the list, which will open up, and press the left trackball/mouse button. The ECDIS task graphic screen will display all the charts on the set scale.

There are two ways to decrease the chart display scale by the fixed scale value:

- Press button on the Chart panel toolbar;
- Press <ZOOM OUT> key on the ES3/ES4/ES6 keyboard.



There are two ways to increase the chart display scale by the fixed scale value:

- Press button on the Chart panel toolbar;
- Press <ZOOM IN> key on the ES3/ES4/ES6 keyboard.

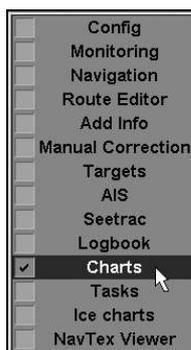


To display the chart on the original scale, press button on the Chart panel toolbar.

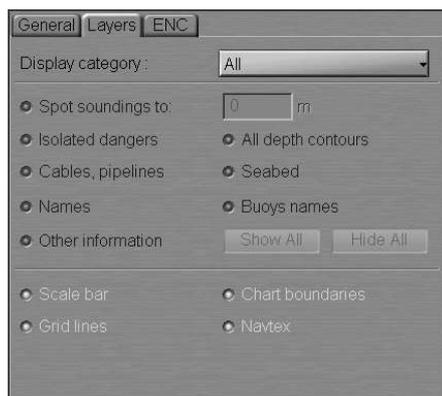


Switching Chart Information Layers

Open “Charts” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the right-hand part of “Charts” panel, which will open up, to switch to “Layers” page.

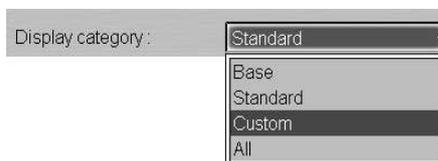


This page is intended for controlling the display of individual chart information classes by using the following controls:

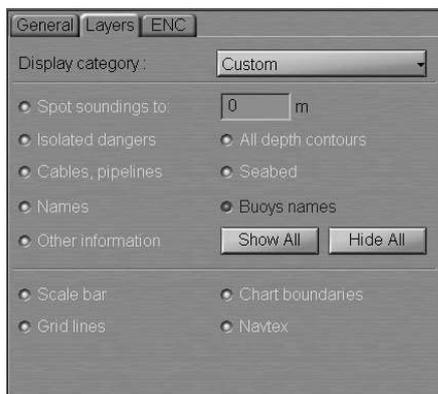
- **Display category** – to switch presentations of different display types:
 - **Base** – to turn on presentation of objects included in the Base Display;
 - **Standard** – to turn on presentation of objects included in the Standard Display;
 - **Custom** – to turn on presentation of objects included in the Additional Information Display at the user discretion;
 - **All** – to turn on presentation of all the objects included in the Additional Information Display.
- **Spot soundings to** – to turn on the display of depth values smaller than the setting made in the relevant window (if the setting is “0”, all the soundings are displayed);
- **Isolated dangers** – to turn on the display of isolated dangers with depths over them larger than the safety depth;
- **Cables, pipelines** – to turn on the display of submerged cables and pipeline;

- **Names** – to turn on the display of names;
- **Other information** – to turn on the display of other information;
- **All depth contours** – to turn on the display of all the depth contours;
- **Seabed** – to turn on the display of ground characteristics;
- **Buoys names** – to turn on the display of buoys names;
- **Show All** – to turn on the display of the aforementioned chart layers;
- **Hide All** – to turn off the display of the aforementioned chart layers;
- **Scale bar** – to turn on the display of chart scale graphic presentation (in the left-hand part of the screen);
- **Grid lines** – to turn on the display of the coordinate grid;
- **Chart boundaries** – to turn on the display of ship folio chart boundaries;
- **Navtex** – to turn on the display of NAVTEX message symbols.

To set the necessary layer, press **Display Category** button and select it from the drop-down list.



Select **Custom** function from the list.



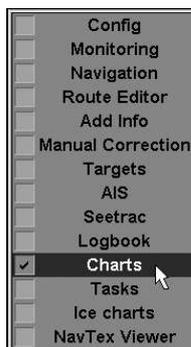
All the checkboxes for turning on the display of necessary additional information classes will be checked by default. Uncheck the appropriate checkboxes to turn off the display of unnecessary information classes. There is another way to set the necessary layer.

Press the **<Standard DISPLAY>** key on ES3/ES4/ES6 keyboard to set the Standard Display.

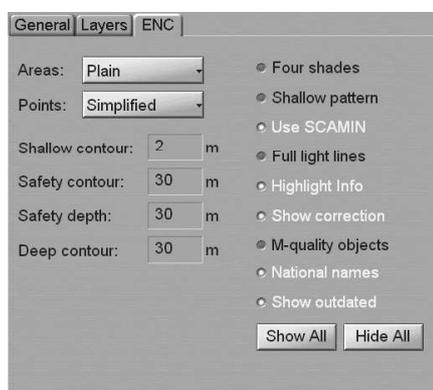
Press **<ALL LAYERS>** key on ES3/ES4/ES6 keyboard to turn on presentation of all the objects included in the Additional Information Display.

Handling ENC Format Charts

Open “Charts” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the right-hand part of “Charts” panel, which will open up, to switch to “ENC” page.



This page is intended for the adjustment of ENC format chart display and handling.

From **Areas** drop-down list, select the style of area type object boundary display (**Plain** and **Symbolised**).

From **Points** drop-down list, select the style of the point type object display (**Paper chart** and **Simplified**).

Check the following checkboxes for turning on the display of necessary additional information classes:

- **Four shades** – to turn on the colour highlighting of the set depth areas;
- **Shallow pattern** – to turn on the display of hatching in the presentation of areas with depths smaller than the safety contour on ENC format charts;
- **Use SCAMIN** – to turn on the display of an object on inadmissible scales to it (generalisation method selection);
- **Full light lines** – to switch the lengths of lines delimiting the light visibility sectors;
- **Highlight info** – to turn on the display of highlighting for objects with “Inform” attribute;
- **Show correction** – to turn on colour highlighting for the objects which have undergone some modification in the process of the latest accepted correction;
- **M-quality objects** – to turn on the display of accuracy symbols for the ship positioning and sounding during seabed contour survey on ENC format charts;
- **National names** – to turn on the display of national names;
- **Show outdated** – to turn on the display of temporary objects regardless of their effective time.

If it is necessary, press **Show All** button to turn on the display of all the parameters or **Hide All** button to turn off them.

In **Shallow contour** input window, enter the value of the deep water contour delineating the colour highlighting of the shallow area for ENC format charts.

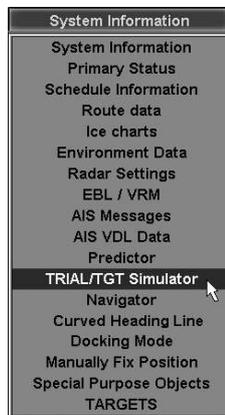
In **Deep contour** input window, enter the value of the shallow water contour delimiting the colour highlighting of the deep water area for ENC format charts.

The following windows used for information only:

- **Safety contour** – to display the safety contour value for vector format chart;
- **Safety depth** – to display the safety depth value for vector format chart.

TRIAL MANOEUVRE

Press the button with the name of the set display in the “Display Panel” window of the Control panel.



In the list, which will open up, select **TRIAL/TGT Simulator** line and press the left trackball/mouse button.

Use the tab in the top part of the “TRIAL/TGT Simulator” panel which will open up, to switch to the “Trial Manoeuvre” page.



Press **Loaded** or **In Ballast** button depending on the ships loading.

Position the free cursor on **Trial line** input field and press the left trackball/mouse button. Set the required length of the expected ship motion line (EML) by rolling the trackball, or enter it from the keyboard. Press the left trackball button.

Use a similar procedure to enter the required turn radius in the **Radius** input field.

For trial manoeuvre taking speed alteration into account, press **Set SPD** button.

Use buttons to set the engine telegraph position after the manoeuvre start in the **Set SPD** input box.



ATTENTION!

During trial manoeuvring with speed alteration, the calculation error may run up to 15%.

A trial manoeuvre can be performed in two ways:

1. By entering values via the keyboard.

Press **Show** button. The ECDIS task screen displays the own ship motion line with parameters of the intended manoeuvre and the targets' motion lines changed to assume the value set in **Trial line** box.

Position the free cursor on **Set CTW** input field and press the left trackball/mouse button.



Set the required next course by rolling the trackball/mouse, or enter it from the keyboard. Press the left trackball/mouse button.

You can also use  buttons.

The start of the manoeuvre is determined by the **Delay** parameter which can be entered in both minutes and miles. Re-calculations use the current ship speed. Press the **min** or **NM** button to select the manoeuvre start setting. Position the free cursor on **Delay** input field and press the left trackball/mouse button. Set the required delay time (distance) before the start of the manoeuvre by rolling the trackball/mouse, or enter it from the keyboard.

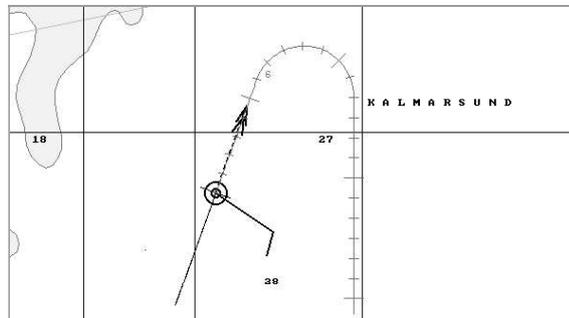


Press the left trackball/mouse button.

If the data set by the operator does not allow the turn with the set radius and delay time to be inscribed in the set EML length, the program will produce an appropriate warning, and the EML is not displayed on the PPI any more.



The settings you are making are displayed automatically on the ECDIS task screen.



To accept the manoeuvre press **Drop** button. The selected optimum manoeuvre parameters will be record. In this case, the count off of the selected time before the manoeuvre start will begin exactly at the moment when this button is pressed. A second press on **Drop** button cancels the recording of parameters.

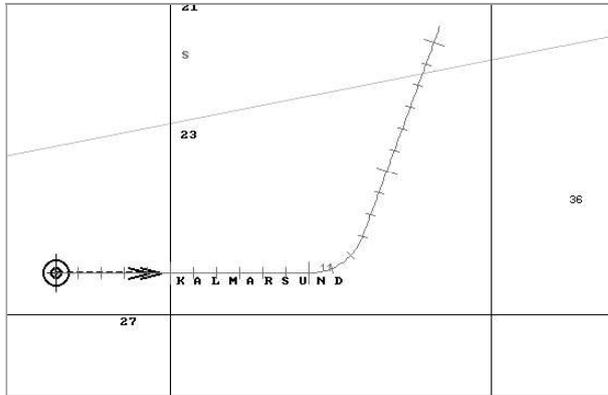


2. The ECDIS task has an alternative mode for entering the intended manoeuvre parameters by using the trackball.

Press **Play** button. As this is done, **Show** button will be pressed automatically and values of the own ship new course and time to the manoeuvre start can be edited with the trackball straight on the ECDIS task screen.



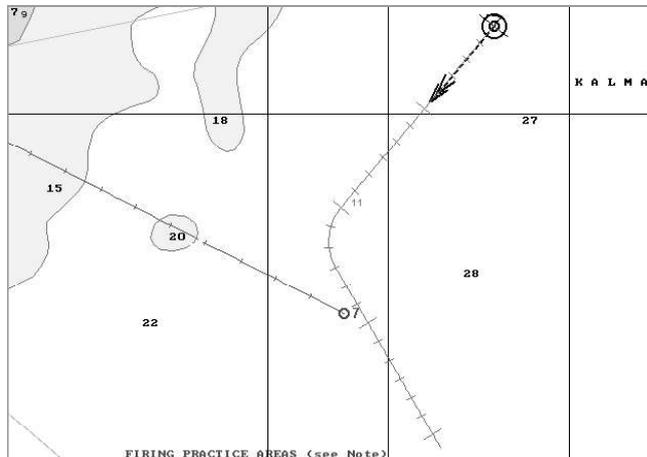
By rolling the trackball horizontally, set the next course. Roll the trackball vertically to set the delay time before the start of the turn. The expected ship motion time is shown dynamically on the ECDIS task screen. The Chart panel displays the own ship motion line with parameters of the intended manoeuvre and the targets' motion lines changed to assume the value set in Trial line box.



To accept the manoeuvre, press the left trackball button. The expected ship motion line will be attached to the PPI, and Drop button will be automatically pressed on "Trial Manoeuvre" page.

To exit from the trial manoeuvre mode, release Show button or switch to another panel.

If in the course of a trial manoeuvre, in approaching a certain target CPA value assume value smaller than those set in "Targets" panel, the corresponding segments of the own ship and target motion line will turn red.



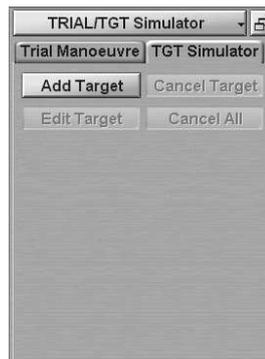
SIMULATOR ARPA TARGETS

Press the button with the name of the set display in the “Display Panel” window of the Control panel.



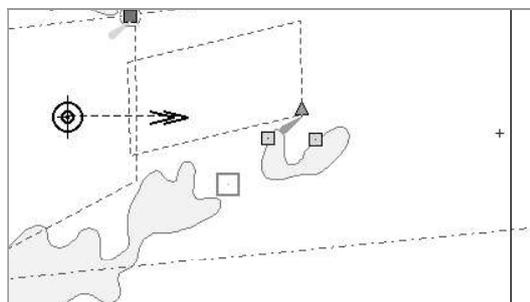
In the list, which will open up, select TRIAL/TGT Simulator line and press the left trackball/mouse button.

Use the tab in the top part of the “TRIAL/TGT Simulator” display which will open up, to switch to the “TGT Simulator” page.

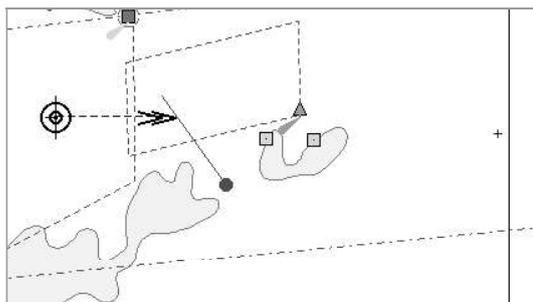


Setting Training Targets

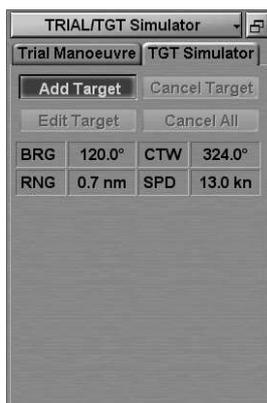
Press the **Add Target** button on the “TGT Simulator” page. An acquisition marker will appear on the PPI. Move the acquisition marker to the simulator target position.



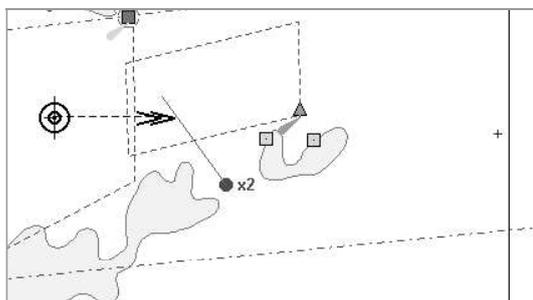
Press the left trackball button. By rolling/moving the trackball, set the target motion vector.



Parameters of the target which is being set, are displayed dynamically on the “TGT Simulator” page.



Press the left trackball button.



The PPI will display an ARPA tracked simulator target in the form of a circle with a pre-calculated motion vector.

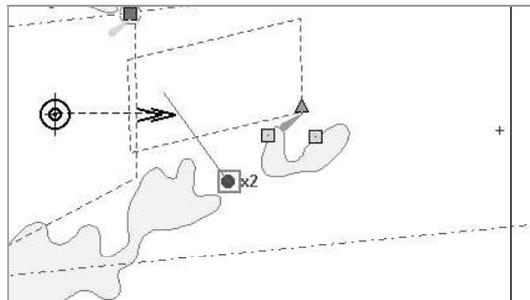
Press the right trackball button to exit from the simulator target setting mode.

Editing Simulator Target Motion Vectors

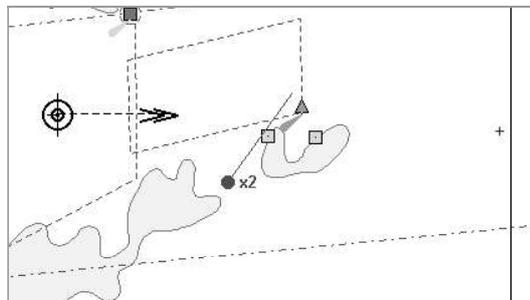
To edit simulator target motion vectors, press the **Edit Target** button on the “TGT Simulator” page.



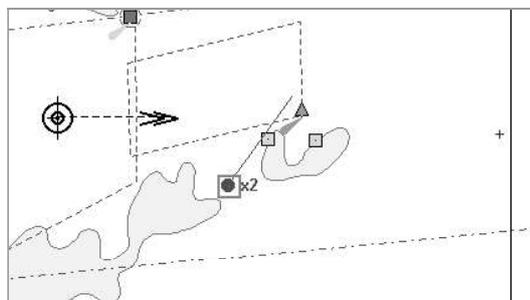
Position the acquisition marker which will appear on the PPI, on the simulator target whose motion vector should be edited.



Press the left trackball button. By rolling/moving the trackball, set a new target motion vector.



Press the left trackball button.



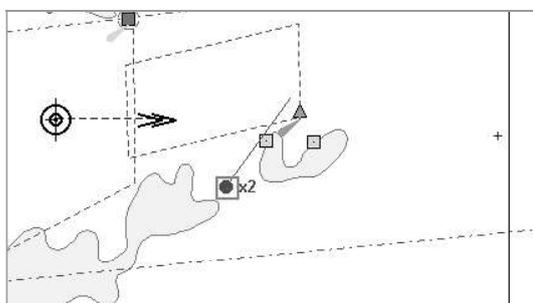
Press the right trackball button to exit from the editing mode.

Deleting Simulator Targets

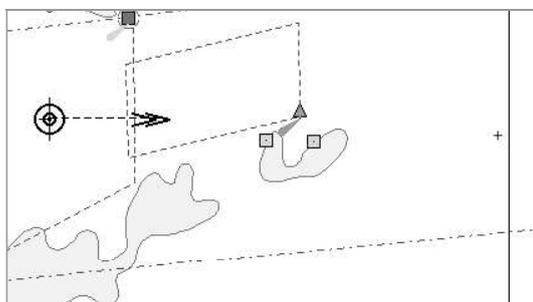
To delete a simulator target, press the **Cancel Target** button on the “TGT Simulator” page.



Position the acquisition marker which will appear on the PPI, on the simulator target, which should be deleted.



Press the left trackball button.



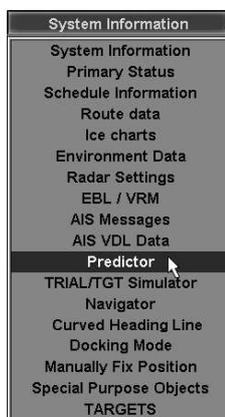
The simulator target will be deleted.

Press the right trackball button to exit from the simulator target deleting mode.

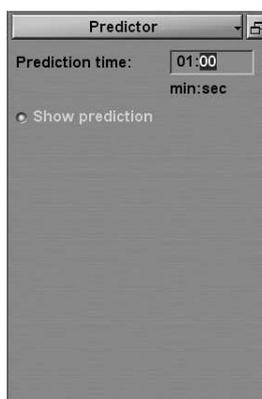
To delete all the simulator targets, press the **Cancel All** button.

USING THE PREDICTOR

Press the button with the name of the set display in the “Display Panel” window of the Control panel.

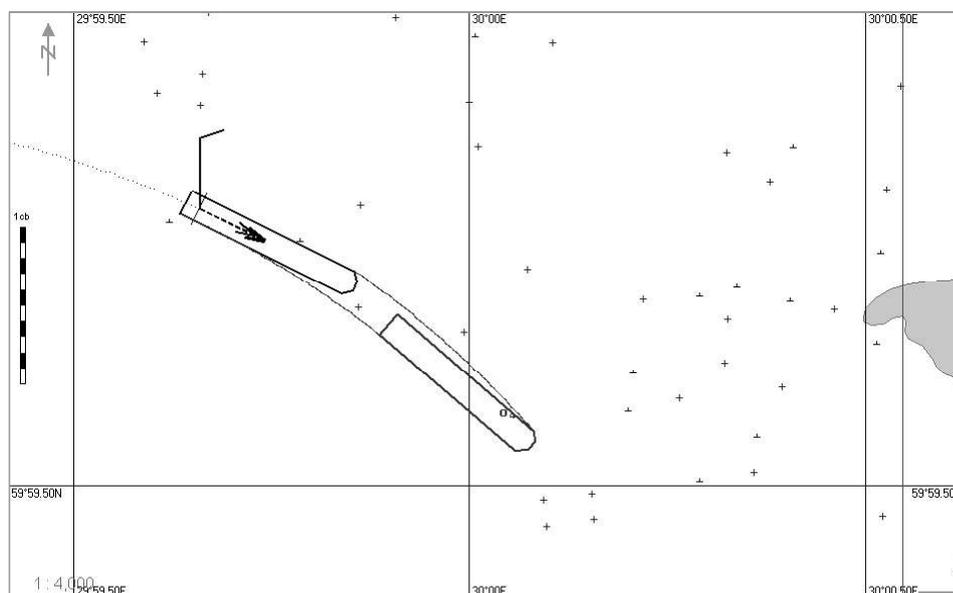


In the list which will open up, select Predictor line and press the left mouse button.



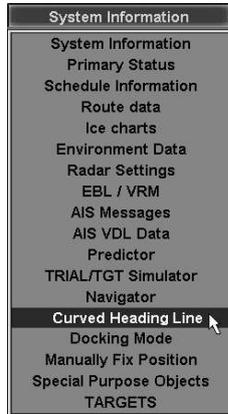
Use Prediction time input window to specify the time (from 1 to 6 min, step 30 s) necessary for calculating the estimated ship position.

Press the Show prediction button. The Chart panel will display the estimated position where the ship is expected to be after the set time interval. In this case, the current SOG, ROT and HDG are used for calculations.

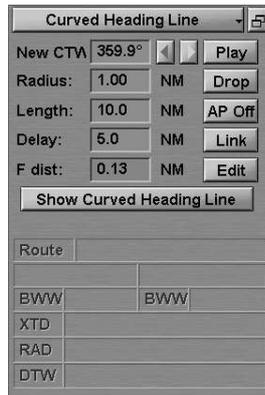


USING THE CURVED HEADING LINE

Press the button with the name of the set display in the “Display Panel” window of the Control panel.



In the list, which will open up, select **Curved Heading Line** and press the left trackball/mouse button.



The “Curved Heading Line” display is intended for planning the ship’s turning in to another course or a route.

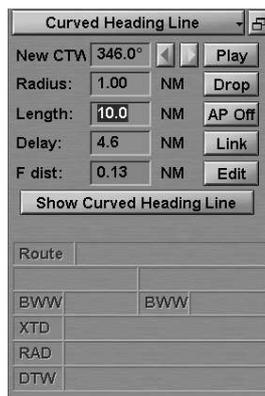
The display contains the following parameters:

- **New CTW** – ship course after the turn;
- **Radius** – ship turn radius;
- **Length** – length of the expected ship motion line (EML);
- **Delay** – distance from the own ship position to the manoeuvre (wheel-over) point (WOP);
- **F dist** – distance from the WOP to the beginning of the turn;
- **Play** – trial manoeuvre (the Carry mode);
- **Drop** – to accept the manoeuvre (the Drop mode);
- **AP Off** – to turn on control of the Curved Heading Line functionality from the autopilot (not used in the current version);
- **Link** – to connect the Curved Heading Line to the monitored route;
- **Edit** – to edit the **F distance** input field protected with the password;
- **Show Curved Heading Line** – to turn on the display of the Curved Heading Line on the ECDIS task screen.

The Curved Heading Line functionality includes two modes: Carry and Drop. The Carry mode corresponds to the trial manoeuvre, whereas the Drop mode corresponds to its accepting (for more details see the **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 3**, in the **Curved Heading Line** section).

Planning Turn with the Aid of Curved Heading Line

Position the free cursor on Length input field and press the left trackball/mouse button. Set the required length of the expected ship motion line (EML) by rolling the trackball (from 0 to 10 NM), or enter it from the keyboard.



Press the left trackball button.

Use a similar procedure to enter the required turn radius in the Radius input field.

The F dist parameter is set by default, if it is required to be changed, press the Edit button.

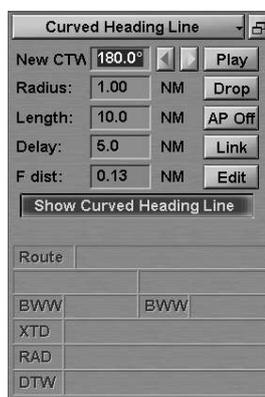


Enter the password and press the "OK" button. After this, the F dist input field will be available for editing.

The trial manoeuvre for making a turn (the Carry mode) can be performed in two ways:

1. By entering values via the keyboard.

Press **Show Curved Heading Line** button. Position the free cursor on **New CTW** input field and press the left trackball/mouse button.



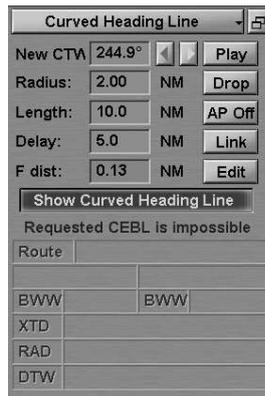
Using the Curved Heading Line

Set the required next course by rolling the trackball/mouse, or enter it from the keyboard. Press the left trackball/mouse button.

You can also use  buttons.

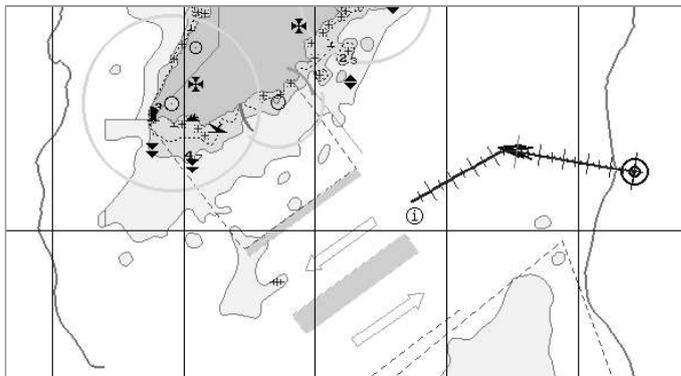
The start of the manoeuvre is determined by the **Delay** parameter. Position the free cursor on **Delay** input field and press the left trackball/mouse button. Set the required delay distance before the start of the manoeuvre by rolling the trackball/mouse, or enter it from the keyboard.

If the data set by the operator does not fulfil certain conditions, the program will produce an appropriate warning, and the EML is not displayed on the ECDIS task screen any more.

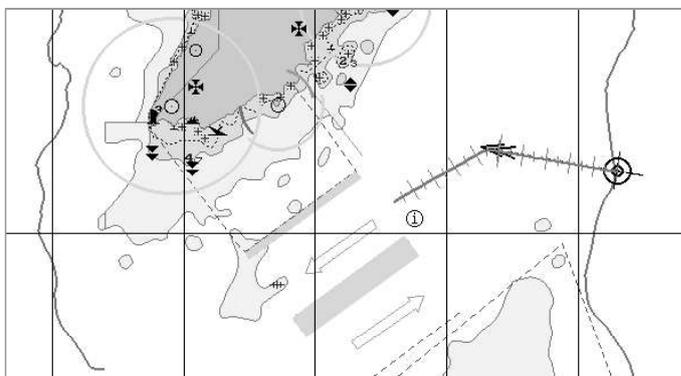


Curved Heading Line		
New CTA	244.9°	Play
Radius:	2.00 NM	Drop
Length:	10.0 NM	AP Off
Delay:	5.0 NM	Link
F dist:	0.13 NM	Edit
Show Curved Heading Line		
Requested CEBL is impossible		
Route		
BWW	BWW	
XTD		
RAD		
DTW		

The settings you are making are displayed automatically on the ECDIS task screen. The EML is shown in blue on the ECDIS task screen.

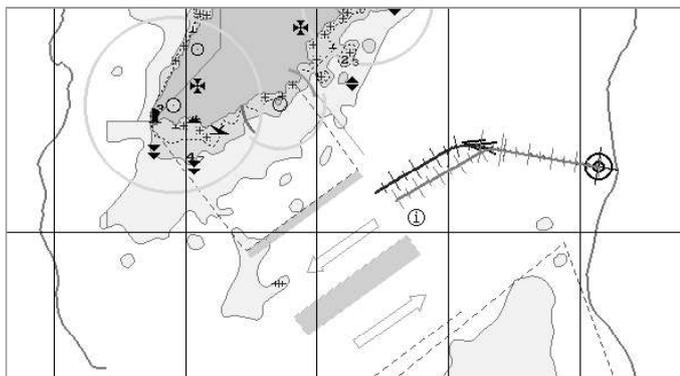


To accept the manoeuvre, press **Drop** button. The EML is shown in pink on the ECDIS task screen.



The selected optimum manoeuvre parameters will be record. In this case, the count off of the selected time before the manoeuvre start will begin exactly at the moment when this button is pressed (see also document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 3**, in the **Curved Heading Line** section).

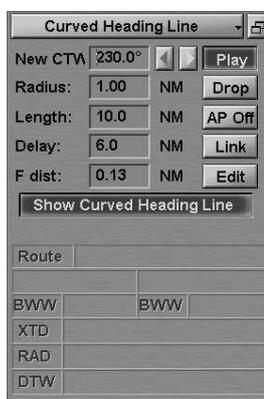
Where an alternative manoeuvre should be planned, change some parameter. On the ECDIS task screen the blue coloured EML will re-appear in the Carry mode.



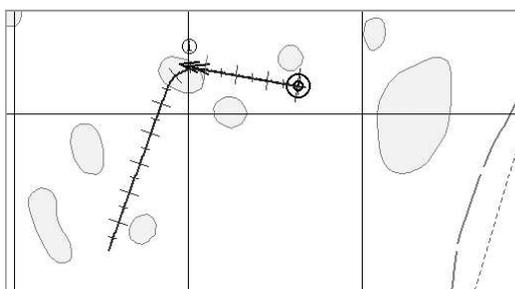
A second press on **Drop** button accept new manoeuvre.

- The ECDIS task has an alternative mode for entering the Curved Heading Line parameters by using the trackball/mouse.

Press **Play** button. As this is done, **Show Curved Heading Line** button will be pressed automatically, and values of the own ship new course and time to the manoeuvre start can be edited with the trackball straight on the ECDIS task screen.



By rolling the trackball horizontally, set the next course. Roll the trackball vertically to set the delay time before the start of the turn. The expected ship motion time is shown dynamically on the ECDIS task screen.



To accept the manoeuvre, press the left trackball button. The expected ship motion line will be attached to the PPI, and **Drop** button will be automatically pressed on "Curved Heading Line" display.

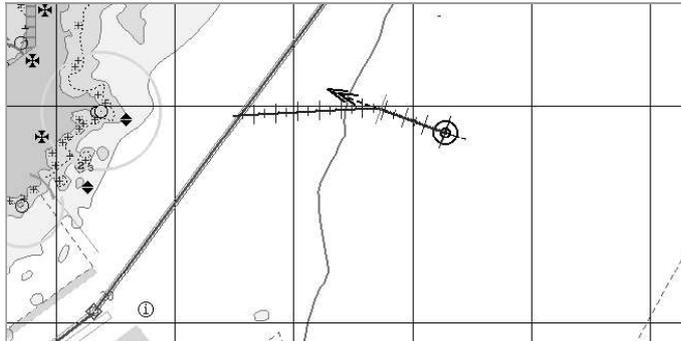
Use of Curved Heading Line for Turning in to a Route

Load the route which you should turn in to, in the monitoring mode. For the current waypoint select the end WPT on the leg of the route which should be turned in to (see above section **Loading of Route and Schedule in the Navigation Mode**, paragraph **Loading Route**).

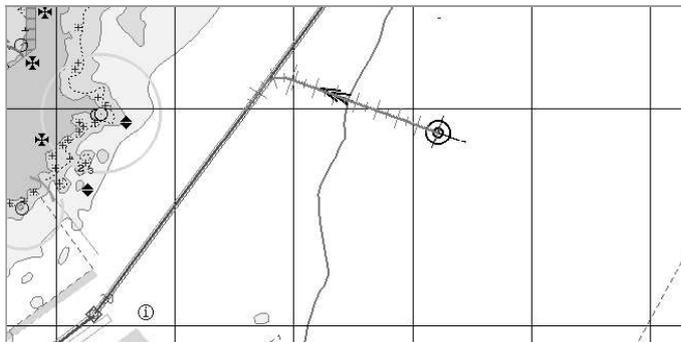
The “Curved Heading Line” display will show the name of the route and waypoints (WPT) of the current route leg.

Curved Heading Line	
New CTA	048.0° <input type="button" value="Play"/>
Radius:	0.50 NM <input type="button" value="Drop"/>
Length:	10.0 NM <input type="button" value="AP Off"/>
Delay:	3.1 NM <input type="button" value="Link"/>
F dist:	0.13 NM <input type="button" value="Edit"/>
<input type="button" value="Show Curved Heading Line"/>	
Route St-Petersburh-Hamburg	
To WPT	20
Next WPT	21
BWW	216.5°
BWW	232.5°
XTD	8.9 - PORT
RAD	0.30 NM
DTW	18.79 NM

Set the EML parameters so that the curve is directed to the current route leg and the ship motion direction after the turn is coincident with the route direction. The current route leg direction should not be more than 145 degrees different from the current course.



Press Drop button. After that press Link button.



The EML will attach to the current route leg.

If the manoeuvre is impossible with the selected parameters, the “Requested CEBL is impossible” message is displayed.

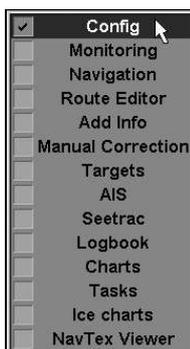
USING DOCKING MODE

This mode is intended for mooring operations, sailing in the restricted waters at low speeds. For the Docking Mode to function, the DLOG should be available, which sends to the ECDIS valid VBW messages along with the valid own ship heading and position.

ATTENTION!

The use of the Docking Mode (DM) is possible on scales of 1:7500 and larger.

Open “Config” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Config” panel, which will open up, to switch to “General” page.



In DM Settings group from the drop-down list select the scale, which will be set on the “Dual” panel as the Docking Mode is turned on.



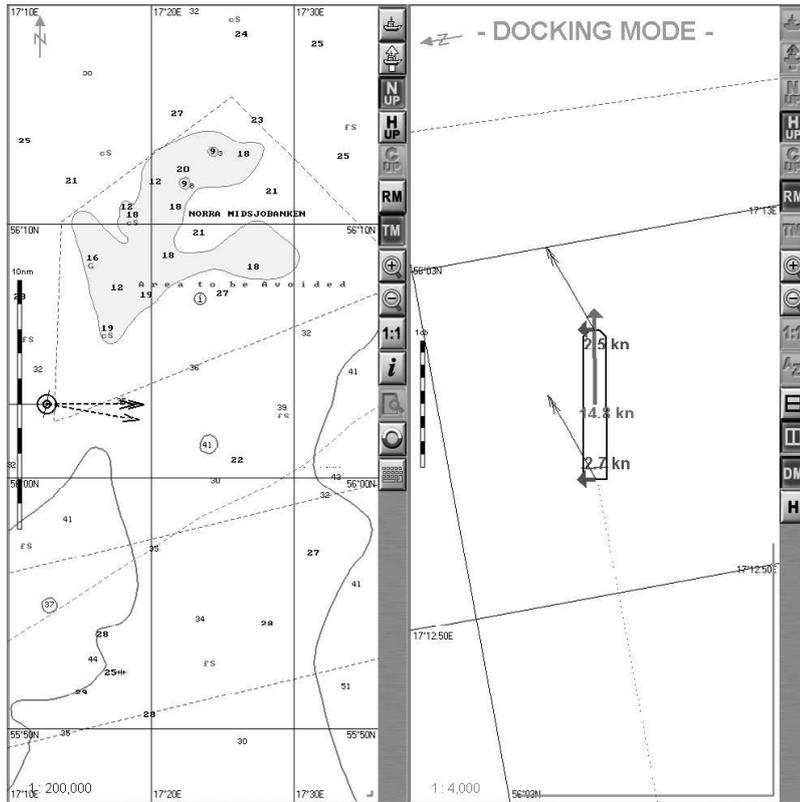
In Ship history group set the following parameters of History functionality in DM:

- Steps – setting of the number of displayed symbols;
- Interval – setting of the time plots between displayed symbols.

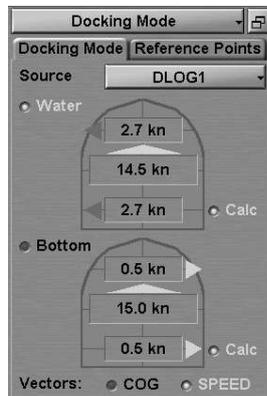


There is a capability to adjust the number of displayed symbols and time plots between them: from 1 to 15 symbols and from 1 to 30 seconds respectively.

Use the tab in the lower part of ECDIS task screen to switch to “Dual” panel and press button on its toolbar.



At the same time, the “Docking Mode” display opens up in the Control panel; it serves for the Docking Mode control.



Press the Source button and select the speed source.



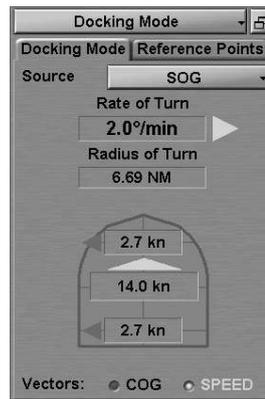
When DLOG is selected, the display will show the speed vector components taken from the VBW sentence.

To display components of vectors of the speed through the water and speed over the ground on the "Dual" panel, press the **Water** or **Bottom** radio button respectively.

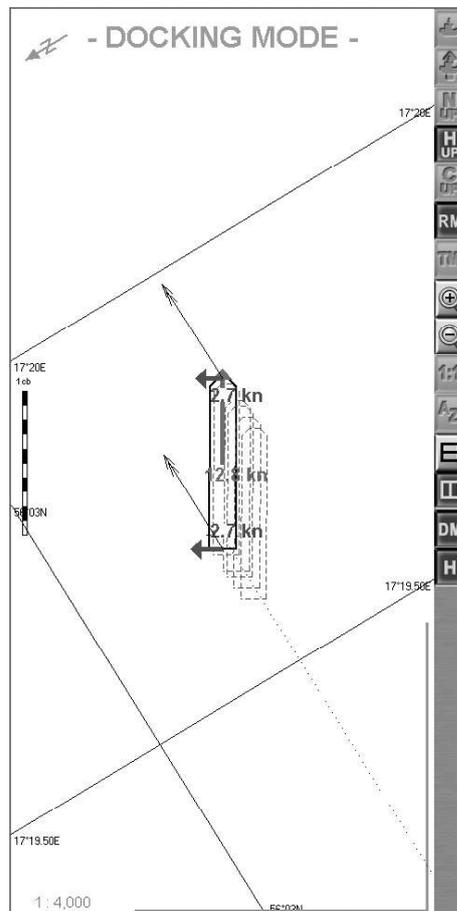
If there is no stern speed sensor on the ship, press the **Calc** button to calculate the relevant (water or ground) stern transverse speed.

If the SOG sensor is selected for the speed source, the bow and stern component values which are displayed in the "Dual" panel, are automatically calculated in the NS 4000 MFD (see also **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009)**.

FUNCTIONAL DESCRIPTION, Chapter 3, in the **Docking Mode** section under **Calculation**).

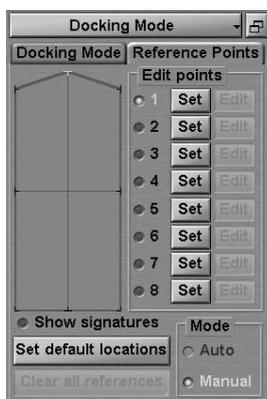


Press button to turn on History functionality.



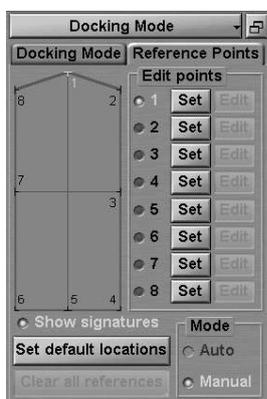
Symbols of the previous ship contour positions will be shown on the “Dual” panel.

Switch to “Reference Points” page.

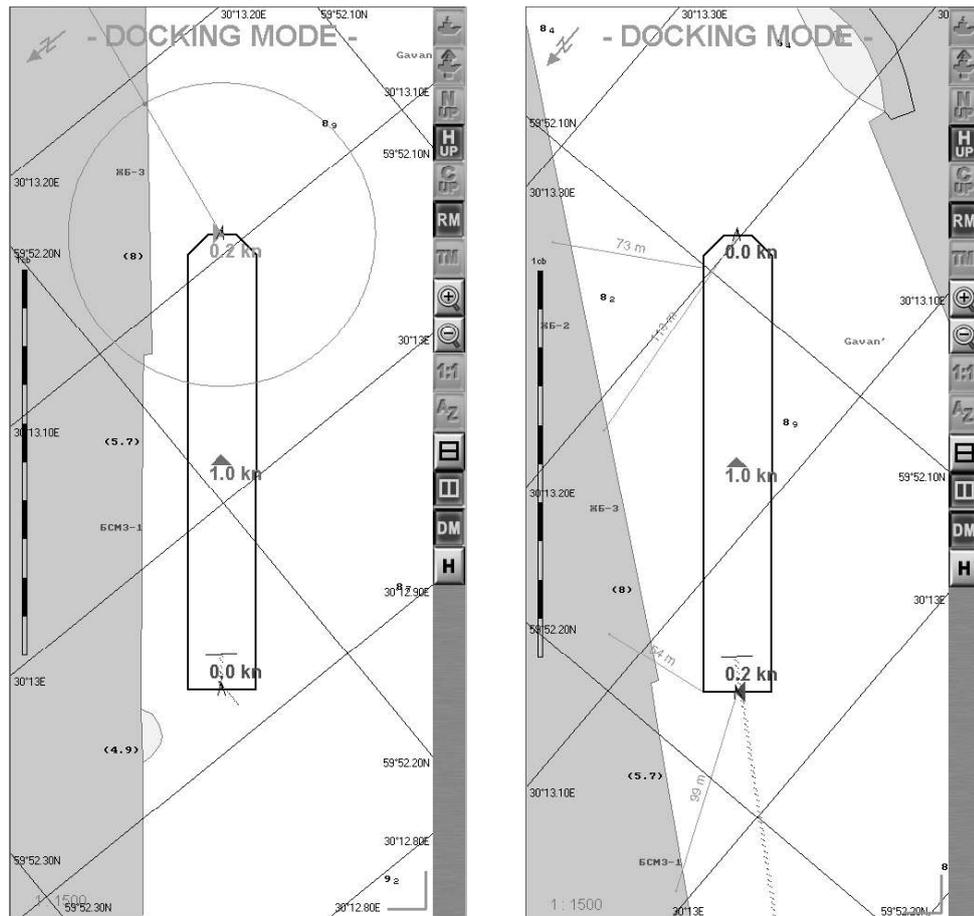


Reference points enables displaying the length to relevant points on screen from 8 positions of ship.

Check **Show signatures** checkbox to display point numbers.

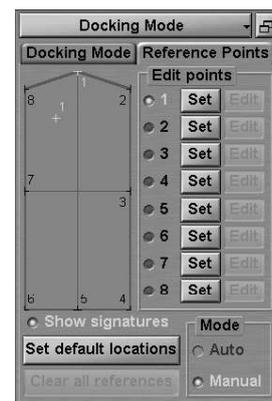
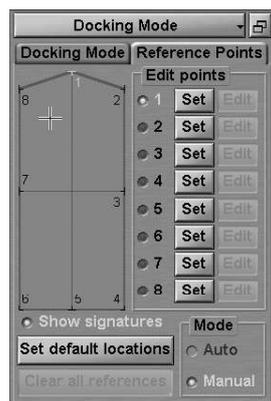


Press the **Set** button next to the necessary reference point. In the “Dual” panel, use the ERBL to set the fastening point for a reference point. Set the necessary number of reference points.



To change positions of fastening points for reference points, use the Edit buttons. To cancel the fastening for all the reference points, press the Clear all references button.

You can shift reference point positions on the ship contour by using the cursor. To do this, use the radio button to select the necessary reference point (this point is shown in green on the ship contour). Position the free cursor on the ship contour; as this is done, the cursor changes its form. Press the left trackball button: the reference point will be set in the new position.

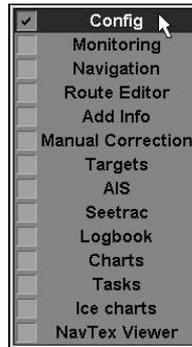


For the default setting of reference points, press the Set default location button.

USING AUTO ZOOM FUNCTION

Auto Zoom mode enables the automatic increase of scale as the next waypoint is approached (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 3, section Split Screen**). This mode is available on “Dual” panel only.

Open “Config” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Config” panel, which will open up, to switch to “General” page.



In **AutoZoom Settings** group from the drop-down list, select the maximum scale as the ship is passing the current WPT on “Dual” panel. In **Time of update** input window set the DTW analysis interval.



To turn on Auto Zoom mode, press button on “Dual” Chart panel toolbar.



Note: The ship should be proceeding in the route monitoring mode.

In this case, as DTW is decreasing, the ECDIS task increases the scale by one fixed scale value so that the ship position remains within “Dual” panel. With the ship approaching the boundary of “Dual” panel in the process of manoeuvres, the scale may be reduced by one fixed scale value. With a change of the WPT, the scale is set so that “Dual” panel displays the ship symbol, current leg of the monitored route and the current WPT.

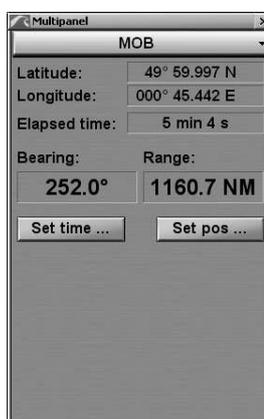
SEARCH AND RESCUE OPERATIONS

Using Man Overboard (MOB) Mode

MOB mode enables the display of information on a geographic point saved at a certain time. There are three ways to turn on MOB mode:

1. Press button on the Chart panel toolbar. 
2. Press <MOB> key on the ES3/ES6 keyboard.
3. Press external MOB button (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). INSTALLATION GUIDE, Annex B**, section **Adjustment of NS 4000 MFD Operation with WAGO Modules**, paragraph **Connection of External MOB Button**).

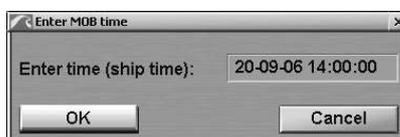
As this is done, the system makes an logbook entry which contains the name of the event: "MOB ENABLED" and a full set of recorded parameters. Control panel displays a panel shown below:



The following parameters can be displayed:

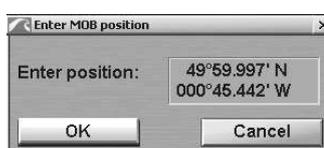
- coordinates of MOB mode activation;
- time elapsed since MOB mode was activated;
- bearing from the ship current position to the activation point;
- distance from the ship current position to the activation point.

If you know the MOB event time, press on **Set time...** button.



In the input window enter the MOB event time, MOB point is set in the own ship track point closest to the entered time.

If you know the MOB event coordinates, press **Set pos...** button.



In the input window enter the MOB coordinates, MOB display is re-drawn to suit the entered data (e.g. upon receipt of coordinates from another ship).

To turn the MOB mode off second, press button on the Chart panel toolbar or <MOB> key on the ES3 or ES6 keyboard.

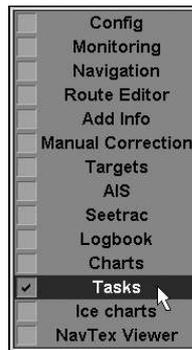


Press “Yes” button. Electronic log entry containing “MOB DISABLED” event name, is made.

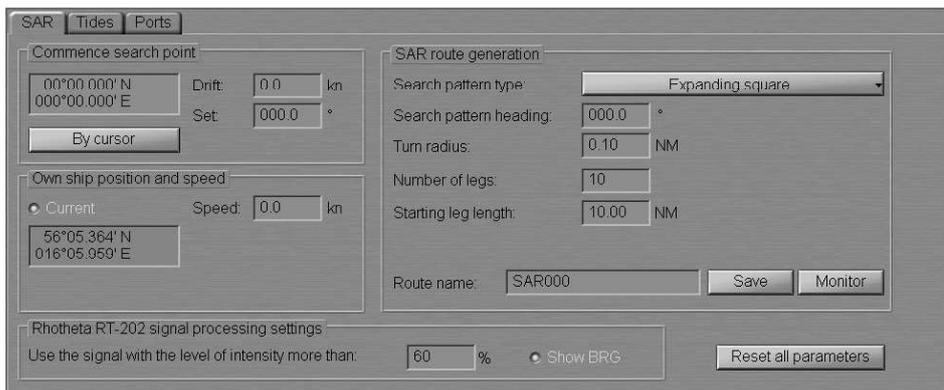
For the operation of MOB over the AIS, see **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). ADDITIONAL FUNCTIONS** document, **Chapter 1, MOB mode with use of RDF Rhothetta RT-202** section.

Creating SAR Routes

Open “Tasks” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.

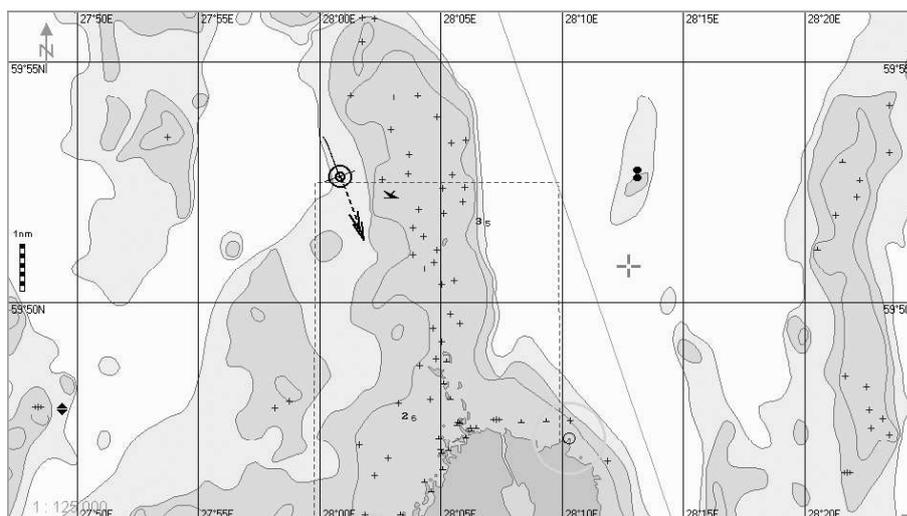


Use the tab in the top part of “Tasks” panel to switch to “SAR” page.



There are two ways to set the SAR route start point coordinates in the **Commence search point** group:

1. Enter the SAR route start point coordinates in the input window.
2. Press **By Cursor** button. Move the graphic cursor, which will appear, to the SAR route start point coordinates.



Press the left trackball/mouse button.

In **Drift** and **Set** input windows, set the expected drift and set at the SAR operation site.

In **Own Ship Coordinates** group, set the coordinates of the point of turn to the SAR route start point. If the current ship coordinates are obtained from the positioning system and are then updating until the route save moment check **Current** checkbox.

In **Speed** set the expected speed of proceeding along the SAR route.

Expanding Square Route

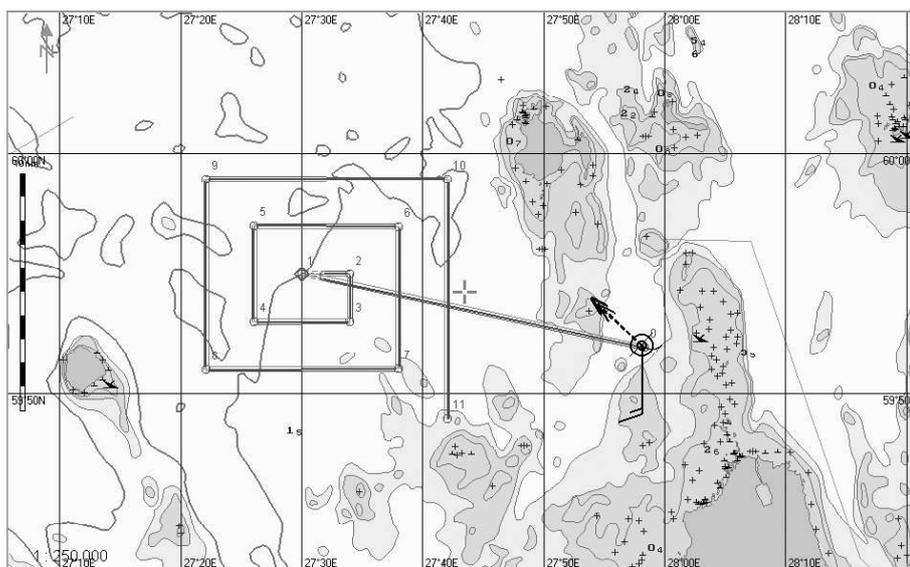
Press the button **Search pattern type** in **SAR route generation** group. In the list, which will open up, select **Expanding square** line and press the left trackball button (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 5, section SAR Routes**).

Set the following SAR route parameters:

- **Search pattern heading** – search direction;
- **Turn radius** – turn radius between the route legs;
- **Number of legs** – number of successive route legs;
- **Starting leg length** – start leg length.

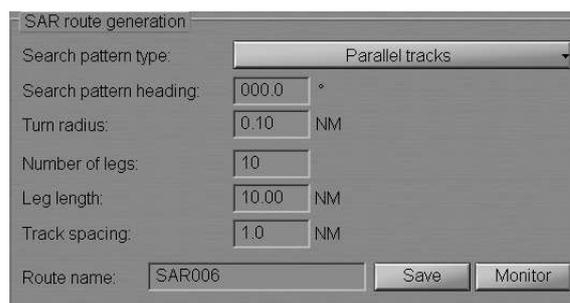
Enter the SAR route name in the **Route name** line and press the **Save** button to save the route.

To quick load this SAR route to monitoring mode, press **Monitor** button.



Parallel Tracks Route

Press the button **Search pattern type** in **SAR route generation** group. In the list, which will open up, select **Parallel tracks** line and press the left trackball button (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 5, section SAR Routes**).

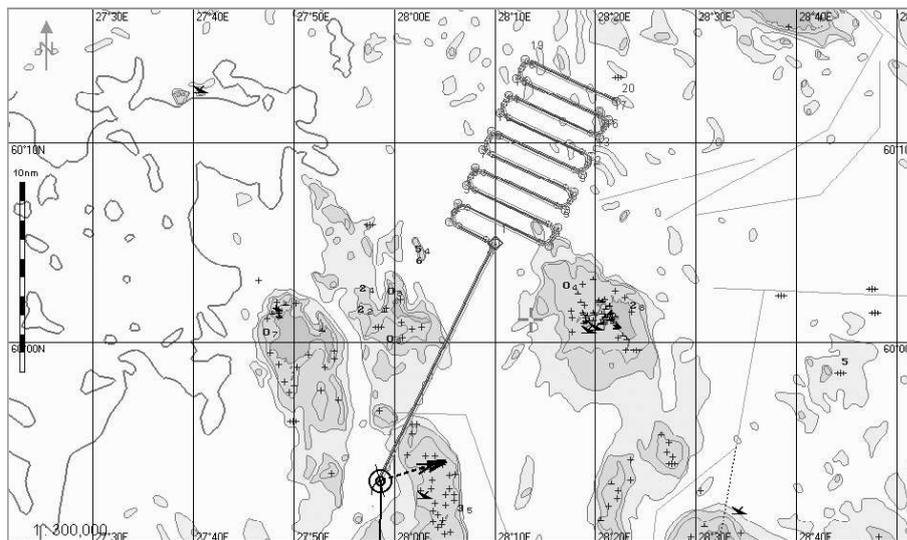


Set the following SAR route parameters:

- **Search pattern heading** – search direction;
- **Turn radius** – turn radius between the route legs;
- **Number of legs** – number of successive route legs;
- **Leg length** – length of each leg;
- **Track spacing** – width of zone between the parallel tracks.

Enter the SAR route name in the **Route name** line and press **Save** button to save the route.

To quick load this SAR route to monitoring mode, press **Monitor** button.



Sector Search Route

Press the button **Search pattern type** in **SAR route generation** group. In the list, which will open up, select **Sector search** line and press the left trackball button (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 5**, section **SAR Routes**).

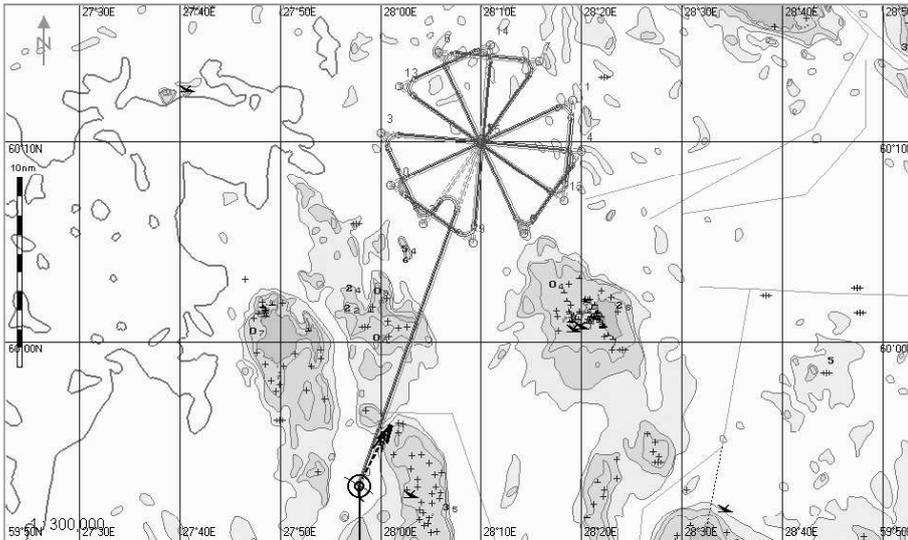
SAR route generation	
Search pattern type:	Sector search
Search pattern heading:	000.0 °
Turn radius:	0.10 NM
Number of sectors:	6
Search radius:	10.0 NM
Turn angle:	030.0 °
Route name:	SAR006
	Save Monitor

Set the following SAR route parameters:

- **Search pattern heading** – search direction;
- **Turn radius** – turn radius between the route legs;
- **Number of sectors** – number of sectors;
- **Search radius** – search area radius (sectors);
- **Turn angle** – sector turn angle.

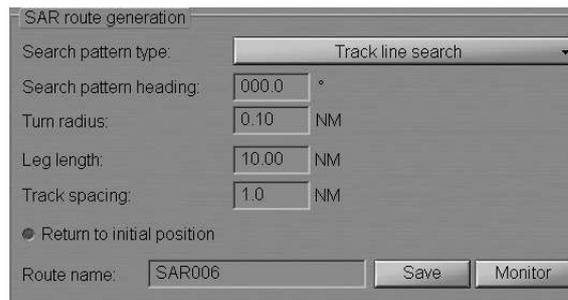
Enter the SAR route name in the **Route name** line and press **Save** button to save the route.

To quick load this SAR route to monitoring mode, press **Monitor** button.



Track Line Search Route

Press the button **Search pattern type** in SAR route generation group. In the list, which will open up, select **Track line search line** and press the left trackball button (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 5, section SAR Routes**).

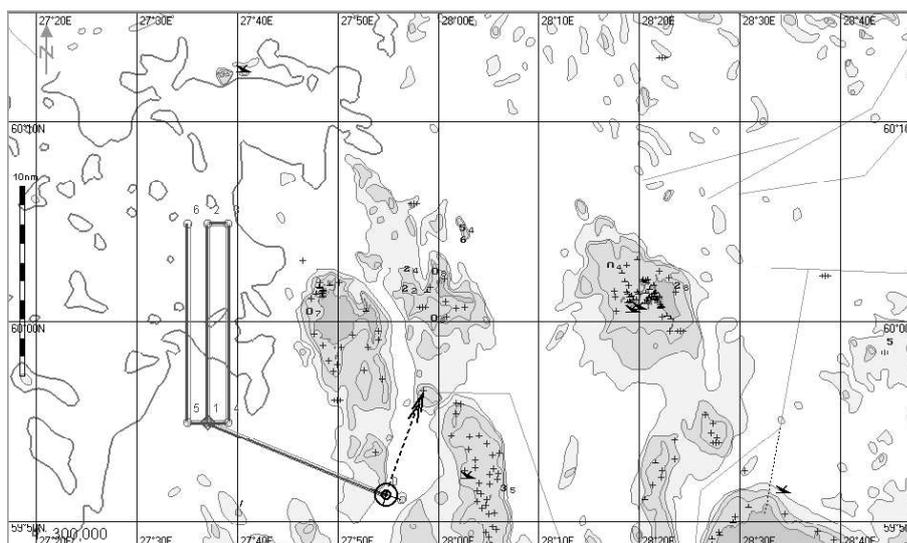


Set the following SAR route parameters:

- **Search pattern heading** – search direction;
- **Turn radius** – turn radius between the route legs;
- **Leg length** – length of each leg;
- **Track Spacing** – width of zone between the parallel tracks;
- **Return to initial position** – to plot the SAR route with a return to the initial position.

Enter the SAR route name in the **Route name** line and press **Save** button to save the route.

To quick load this SAR route to monitoring mode, press **Monitor** button.



Creeping Line Search Route

Press the button **Search pattern type** in **SAR route generation** group. In the list, which will open up, select **Creeping line search line** and press the left trackball button (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 5, section SAR Routes**).

Set the following SAR route parameters:

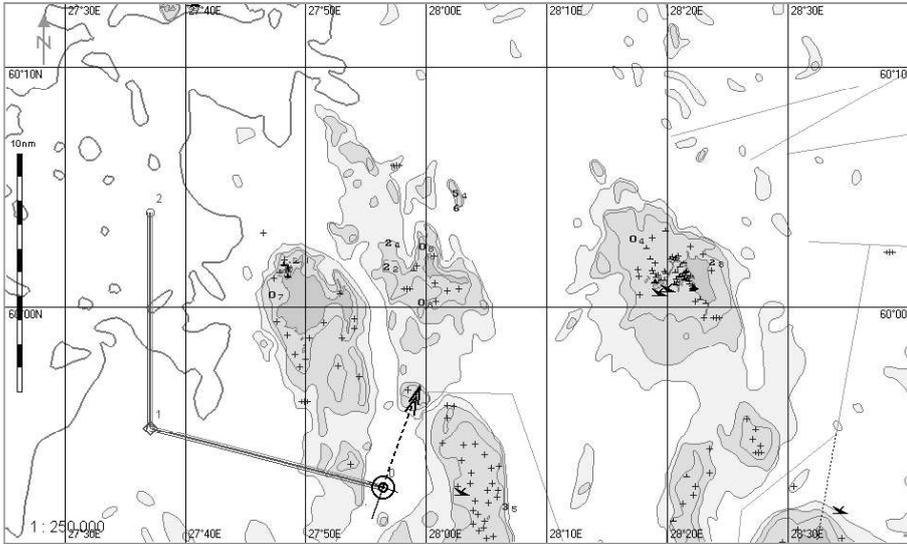
- **Search pattern heading** – search direction;
- **Turn radius** – turn radius between the route legs;
- **Leg length** – length of each leg;
- **Track spacing** – width of zone between the parallel tracks.

Select a rescue facility whose speed is known and enter it in the input box to the right:

1. If the **Aircraft speed** is selected, the recommended ship speed, calculated from a certain formula, will be displayed automatically in the **Ship speed** box:

Enter the SAR route name in the **Route name** line and press **Save** button to save the route.

For quick loading of this SAR route to the monitoring mode, press the **Monitor** button. In this case, the recommended route for a ship engaged in search will look like follows:



2. If the **Ship speed** is selected, the recommended aircraft speed, calculated from a certain formula, will be displayed automatically in the **Aircraft speed** box:

SAR route generation

Search pattern type: Creeping line search

Search pattern heading: 000.0 °

Turn radius: 0.10 NM

Number of legs: 10 Aircraft speed: 165.0 kn

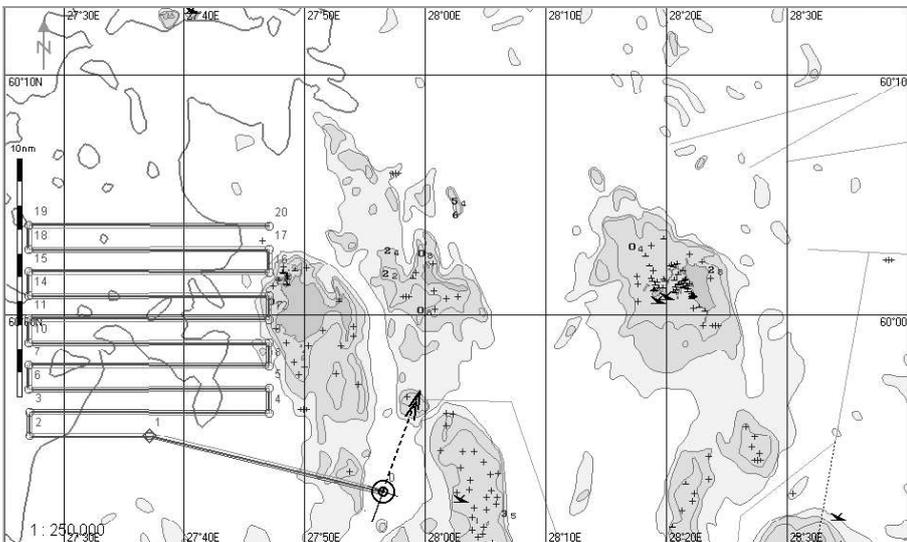
Leg length: 10.00 NM Ship speed: 15.0 kn

Track spacing: 1.0 NM

Route name: SAR006 Save Monitor

Enter the SAR route name in the **Route name** line and press the **Save** button to save the route.

For quick loading of this SAR route to the monitoring mode, press the **Monitor** button. In this case, the recommended route for the aircraft engaged in search will look like follows:

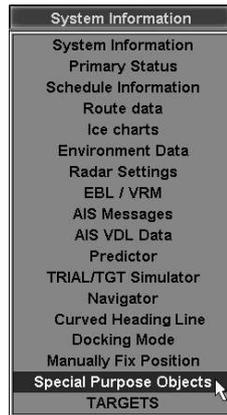


USING SPECIAL PURPOSE OBJECTS

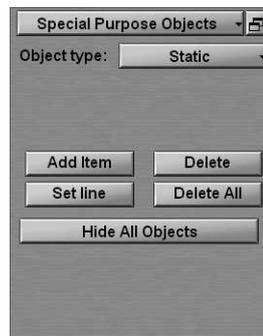
ATTENTION!

Work with Special Purpose Objects is only available at a station with the MASTER status.

Press the button with the name of the set display in the “Display Panel” window of the Control panel.



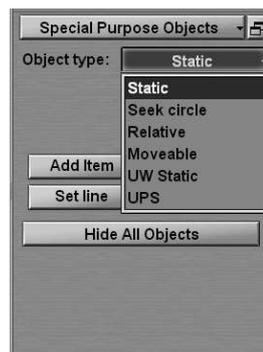
In the list, which will open up, select **Special Purpose Objects** line and press the left trackball/mouse button.



This NS 4000 MFD functionality enables special purpose objects (SPO), mobile and fixed, with certain features to be created and referenced to an electronic chart with the purpose of their further monitoring and obtaining of auxiliary information.

SPO Creating

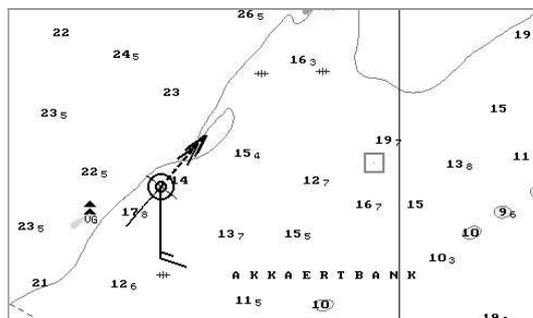
Select the type of SPO to be created. Press the button **Object type** and select the appropriate item from the drop-down list:



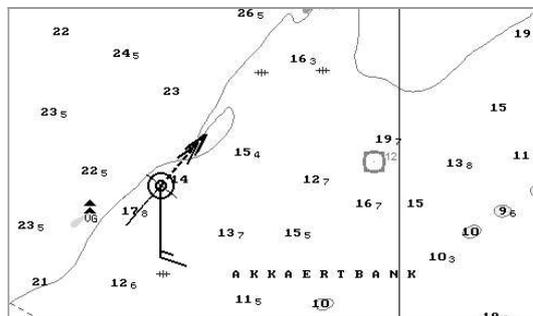
The following types of SPO are available for selection:

- **Static** – the fixed surface object: Target with constant coordinates;
- **Seek circle** – the search circle: Target with constant coordinates around which a circle is formed at the specified moment of time, increasing in accordance with settings made by the user;
- **Relative** – the “satellite”: Target with motion parameters identical to the own ship’s course and speed;
- **Moveable** – the mobile object: Target with arbitrary motion parameters;
- **UW Static** – the fixed submerged object: Target with constant coordinates and depth;
- **UPS** – the UPS: Target with constant coordinates, reference point.

Press **Add Item** button. Position the acquisition marker (graphics cursor) on the point where the SPO is required to be plotted.



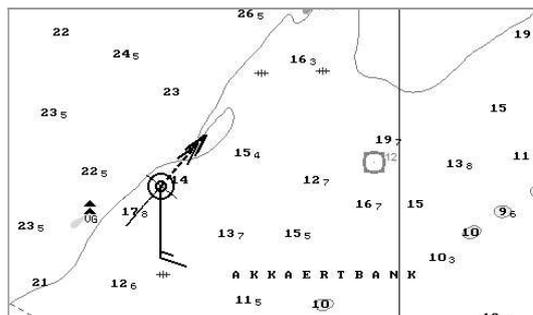
Press the left trackball/mouse button: SPO will be set in the specified coordinates.



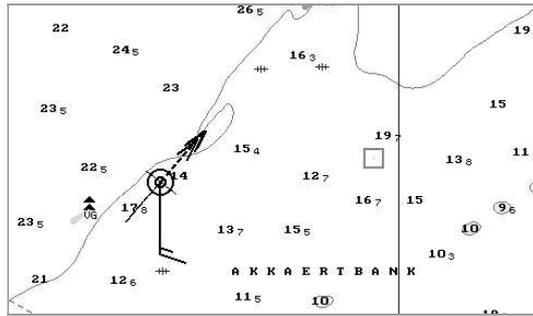
Repeat the procedure until you set the required number of SPO. After the input of the last SPO, press the right trackball/mouse button to exit from the SPO setting mode.

SPO Deleting

Press **Delete** button. Position the marker on the SPO is required to be deleted.



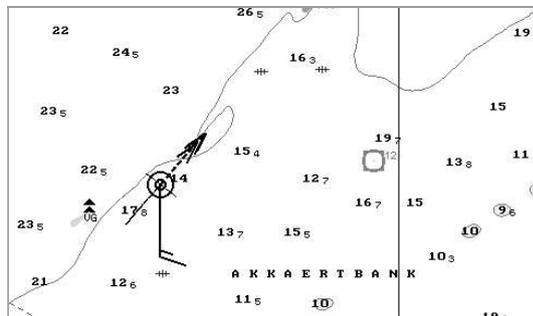
Press the left trackball button.



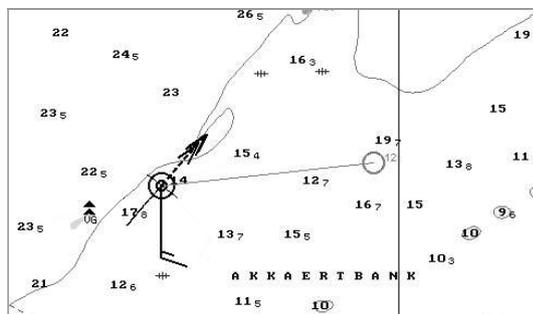
If it is necessary to delete all the previously plotted objects simultaneously, including when the SPO is not displayed on the screen, use **Delete all** button.

Other Functions

To plot the line connecting the own ship symbol and selected SPO, press **Set line** button. Position the marker on the required SPO.



Press the left trackball button.



To hide all the SPO, press **Hide All Objects** button. Repeated pressing this button results in re-appearing of all the hidden SPO.

CHAPTER 5

Setting of Safety Parameters

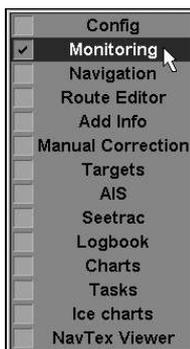
This chapter describes the procedure used in the setting of safety parameters.

MONITORING OF SAILING ALONG THE ROUTE AND BY THE SCHEDULE

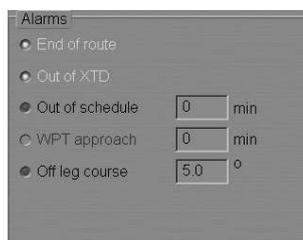
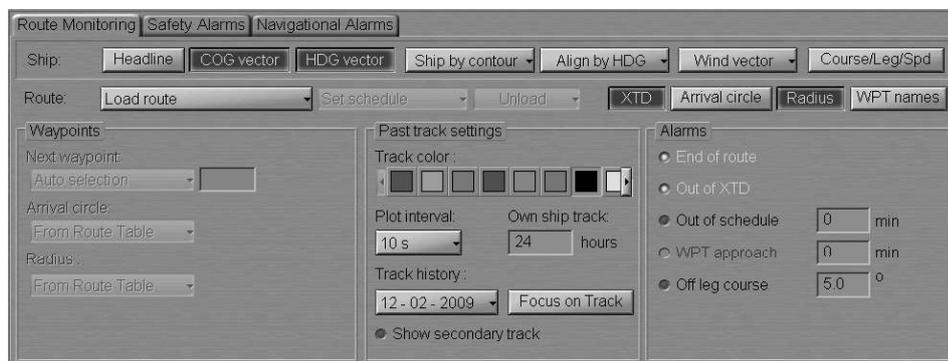
ATTENTION!

Setting of safety parameters in the sailing along the route and by the schedule is available only at station with the status MASTER.

Open “Monitoring” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Monitoring” panel, which will open up, to switch to “Route Monitoring” page.



Alarms group is intended for turning on/off and setting of safety parameters for the alarm generation during the sailing along the route and according to the schedule:

- **End of route** – to enable alarm generation as the last WPT of the monitored route is passed;
- **Out of XTD** – to enable alarm generation when the ship deviation from the route line is larger than the value set during the route planning;
- **Out of schedule** – to enable and set of alarms generated when the ship is behind or ahead of the schedule;

- **WPT approach** – to enable alarm generation as a set period of time before the approach to the WPT;
- **Off leg course** – to enable and set parameters of the alarm generated if the deviation between the current course (HDG) and the route leg line direction exceeds the set value.

Check **End of route** checkbox in **Alarms** group to turn on the alarm generation as the last point of the route is passed.

End of route

The parameter of tracking the ship position relative to the current route leg is set by default. XTD value is set at the time when the route is created in "Route Editor" panel. The alarm is generated when the ship sails beyond the XTD limits.

Out of XTD

Use **WPT approach** line to enter the alarm generation time value as the next WPT is approached. Check the activated **WPT Approach** checkbox to turn on the alarm generated if the value of time of approach to the next WPT is less than the set one.

WPT approach | 5 | min

Use **Off leg course** line to enter the value of difference between the ship course and route leg direction. Check the activated **Off leg course** checkbox to turn on the alarm generation as the difference between the courses exceeds the set value.

Off leg course | 5.0 | °

Use **Out of schedule** line to enter the behind-the-schedule or ahead-of-the-schedule time relative to the loaded schedule. The alarm is generated when the set value is exceeded. Check the activated **Out of schedule** checkbox.

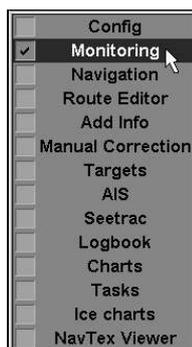
Out of schedule | 10 | min

MONITORING OF SAFETY ALARMS

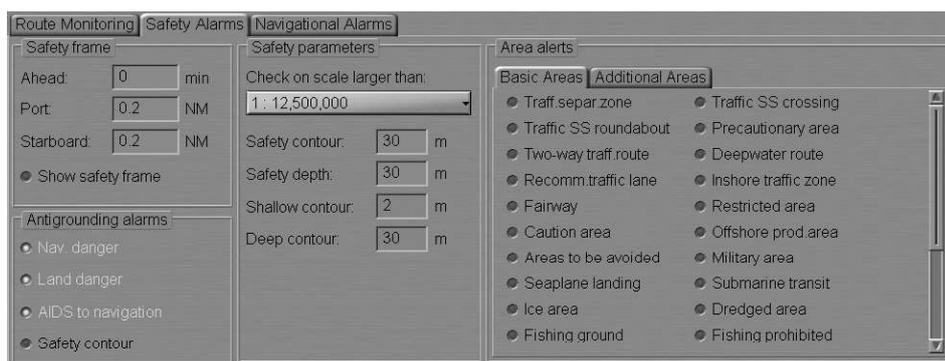
ATTENTION!

Setting of safety parameters for the detection objects representing danger to navigation is available only at station with the status MASTER.

Open “Monitoring” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Monitoring” panel, which will open up, to switch to “Safety Alarms” page.



Setting of Safety Parameters for the Detection of Dangerous Objects

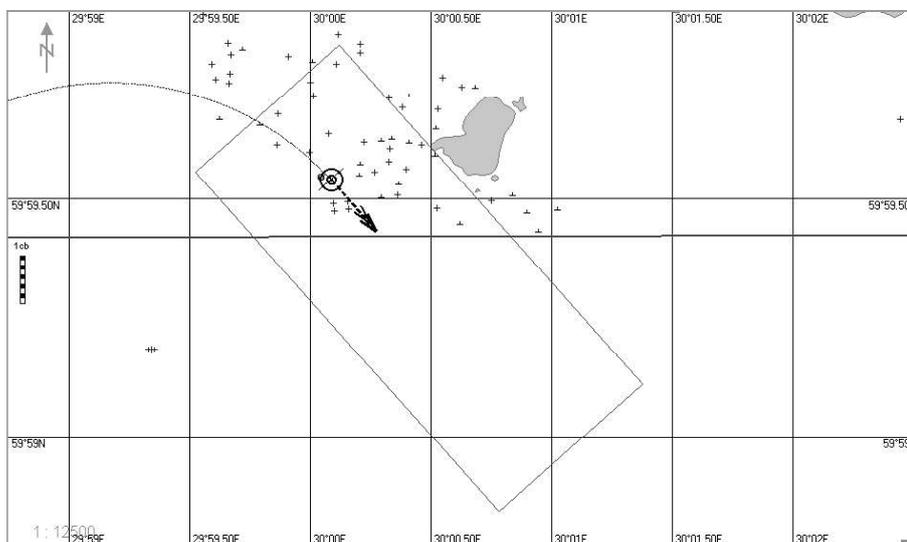
The **Safety frame** group is intended for setting the size of the frame, which will be used for the chart data analysis and for the generation of the Antigrounding alarms, Area alerts and Navigational alarms.



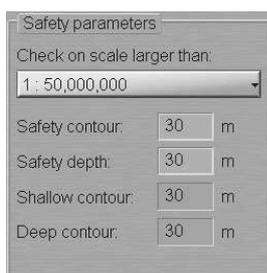
- **Ahead** – window for the input of advance time for alarm/warning generation. The time value determines the length equal to the distance covered by the ship proceeding at the current SOG. If the zero value is set, warnings are generated when the ship symbol crosses the area limits;
- **Port** – to set the width of the corridor to the left of the ship;
- **Starboard** – to set the width of the corridor to the right of the ship;
- **Show safety frame** – to turn on the display of a safety frame on the ECDIS task screen.

In the **Ahead**, **Port** and **Starboard** input boxes set the necessary values which will determined the shape of the safety frame.

Check the **Show safety frame** checkbox to show the safety frame. The safety frame is displayed with a red outlined rectangle:

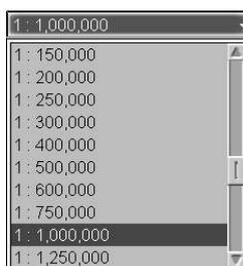


Safety parameters group is intended for the setting and viewing of safety parameters in the Navigation Mode:



- **Check on scale larger than** – to take into account all the charts with a scale larger than the set one for a check for the availability of dangers to navigation;
- **Safety contour** – window for the input of the safety contour parameter value;
- **Safety depth** – window for the input of the safety depth parameter value;
- **Shallow contour** – window for displaying value of the deep water contour delineating the colour highlighting of the shallow area for ENC format charts;
- **Deep contour** – window for displaying the parameter value of the shallow water contour delimiting the colour highlighting of the deep water area for ENC format charts.

Press **Check on scale large than** button and select the minimum scale value.



The selected value will be shown on the button. All the charts on the scales larger than the set one, will be taken into account. By default, 1:300,000 is set.

Use **Safety contour** line to enter the safety contour value.

Safety contour: m

Use **Safety depth** line to enter the safety depth value.

Safety depth: m

Setting of Safety Parameters in the Sailing in the Vicinity of Dangerous Objects

Antigrounding alarms group contains checkboxes for enabling/disabling the following safety parameters:



- **Nav. danger** – to enable the alarm generated upon the approach to the isolated danger;
- **Land danger** – to enable the alarm generation upon the approach to the objects with “Land” attribute;
- **AIDS to navigation** – to enable the alarm generation upon the approach to the fixed point objects (buoys etc.);
- **Safety contour** – to enable the alarm generated upon the approach to the depth line less than the **Safety contour** value.

Check the activated **Nav. danger** checkbox to enable the alarm generation when an isolated danger to navigation, updating objects with “danger”/“depth” attributes or a danger NAVTEX object turns up within the safety frame.

Check the **Land danger** checkbox to enable the alarm generation triggered off by the detection of land objects in the safety frame.

Check the **AIDS to navigation** checkbox to enable the alarm generation triggered off by the detection of fixed point objects in the safety frame.

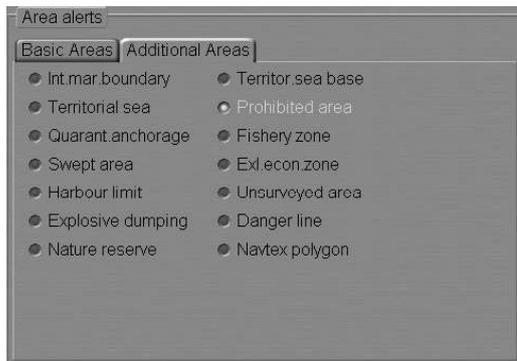
Check the **Safety contour** checkbox to turn on the alarm generation as the safety contour is crossed by the safety frame.

Monitoring of Crossing of Area Limits in Basic and Additional Groups

“Basic Areas” tab containing checkboxes for the selection (assigning danger-to-navigation status) from the main group of those areas which will be tracked by the ECDIS task.



“Additional Areas” tab containing checkboxes for the selection (assigning danger-to-navigation status) from the additional group of those areas, which will be tracked by the ECDIS task.



Select the required areas by checking the appropriate checkboxes in “Basic Areas” tab.

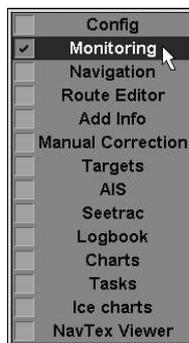
Switch to “Additional Areas” tab. Select the required areas by checking the appropriate checkboxes in “Additional Areas” tab.

MONITORING OF NAVIGATIONAL ALARMS

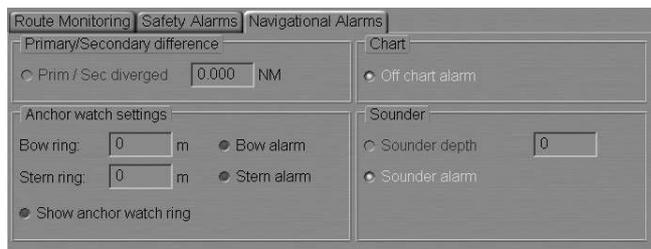
ATTENTION!

Setting parameters for navigational alarms is available only at station with the status MASTER.

Open “Monitoring” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Monitoring” panel, which will open up, to switch to “Navigational Alarms” page.



Primary/Secondary difference group is used for entering the maximum difference between the readings of positioning systems, and for turning on their monitoring.



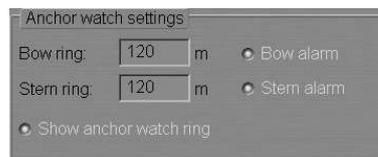
In **Prim/Sec diverged** line, enter the divergence distance between the coordinates from the primary and secondary positioning methods. Check the activated **Prim/Sec diverged** checkbox for the alarm to be generated when the set value is exceeded.

The **Chart** group is used for turning on the monitoring of electronic charts under the own ship.



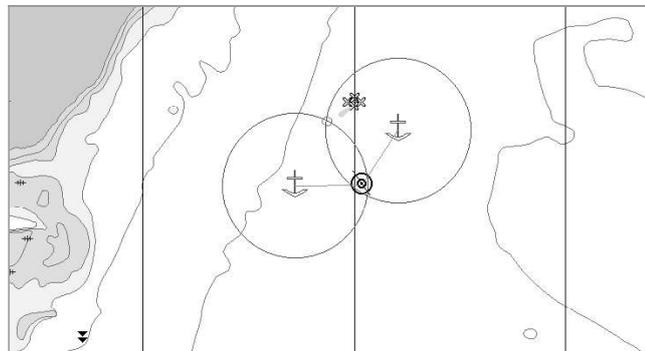
Check the **Off chart alarm** checkbox to enable the alarm generation if the ship sails beyond the chart boundary with the Chart Autoload mode off.

Anchor watch setting group is used for setting the maximum distance (radius) from the anchoring point to the bow and/or stern. As the ship moves beyond any of the formed circles, an alarm is generated.



In **Bow ring** line enter the maximum distance (radius) from the anchoring point to the bow. Check the **Bow alarm** checkbox to turn on the warning generation as the ship sails beyond the set distance. In **Stern ring** line enter the maximum distance (radius) from the anchoring point to the stern. Check the **Stern alarm** checkbox to turn on the warning generation as the ship sails beyond the set distance.

Check the activated **Show anchor watch ring** checkbox to show anchor watch ring around the ship position at the time when the **Bow alarm** or the **Stern alarm** was set.



Sounder group is used for turning on monitoring of the echo sounder readings and contains the following checkboxes:

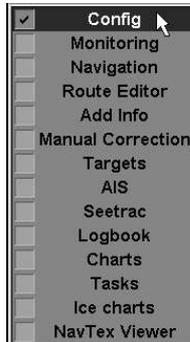
- **Sounder depth** – to enable and enter the minimum depth value for an alarm generated upon the reception of data from the echo sounder;
- **Sounder alarm** – to enable/disable **Sounder: no input alarm**.



Use **Sounder depth** line to enter the safety depth value from the echo sounder. Check the activated **Sounder depth** checkbox for turning on the alarm generation as a depth smaller than the set one is detected.

MONITORING OF TIME

Open “Config” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Config” panel, which will open up, to switch to “General” page.



Setting of End-of-Watch Alerts

End of Watch Alarm group is intended for setting the period of time before the end of the current watch when an alert will be generated. The order of watches is set in the System Configuration utility (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). INSTALLATION GUIDE, Chapter 2, NS 4000 Configuration** section, **NS 4000/4100 Settings** paragraph).



Use End of Watch Alarm input line to enter the time before the end of the current watch when the warning should be generated.

Setting of the Timer



Timer Warning group is designed for the control of the timer functions:

- **Every** – setting of the alarm to be generated over the time specified in the line to the right;
- **At** – setting of the alarm to be generated at the time specified in the line to the right;
- **Off** – to turn off timer functions.

To set the alarm generation over equal time intervals, check **Every** checkbox and enter value of the alert generation time interval in the input line.

 Every min

To set the alert generation at the certain time, check **At** checkbox and enter the alert generation time (ship time) to the right.

 At

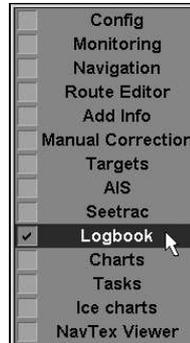
CHAPTER 6

Using Logging Functions

This chapter describes the procedure used for handling information archived in the course of the NS 4000 MFD operation.

USING SHIP LOGBOOK

Open “Logbook” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Logbook” panel, which will open up, to switch to “Ship LogBook” page.

Ship LogBook | Archive | Print Settings | System Log

Date:

Time UTC	Event	LAT LON	Source	Chart Track	GYRO (ERR)	MAG (ERR)	Press hPa	Temp. air, °C sea, °C	Wind dir. speed, m/s	DIST_NM by LOG, SMG	RPM
23/12/08 11:16:54	Out of XTD	54° 00.946 N 008° 00.283 E	GPS1 GYRO1	110.0°	113.0° +0.0	113.0° +0.0	***	***	124.0° 5.6	4.0 4.4	***
23/12/08 11:09:20	Chart	54° 01.539 N 007° 57.821 E	GPS1 GYRO1	112.7°	113.0° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	2.4 2.7	***
23/12/08 11:03:40	Out of XTD	54° 01.979 N 007° 55.994 E	GPS1 GYRO1	104.7°	113.0° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	1.2 1.5	***
23/12/08	Chart	54° 02.121 N	GPS1	112.6°	113.0°	113.0°	***	***	124.0°	1.0	***

Event: Date/Time/Time Zone:

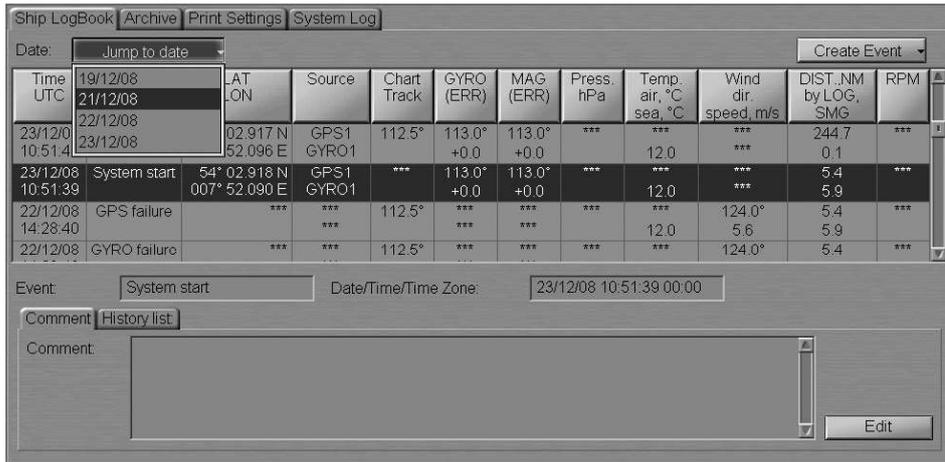
Comment:

Comment:

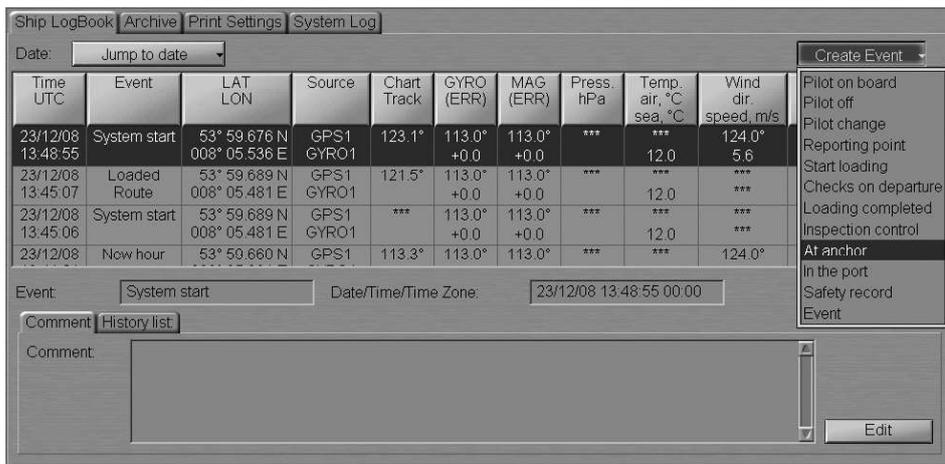
“Ship LogBook” page is designed for recording events which occurred during the ECDIS task operation. The table is a set of rows (events) and of columns (event parameters). For the set of events which are automatically shown in the Ship Logbook, see **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 6, section Ship Logbook, paragraph Ship Logbook Fomation Principles**). Besides, the operator can enter events manually, edit events and enter comments on the events. The events editing and input of comments is password protected.

Press the **Jump to date** button and select the date which the Ship Logbook entries will be shown for.

Note: The “Ship LogBook” page stores date-by-date events for the last 90 days.



To manually enter an event in the Ship Logbook, press the **Create Event** button.



Select the necessary event from the list box.



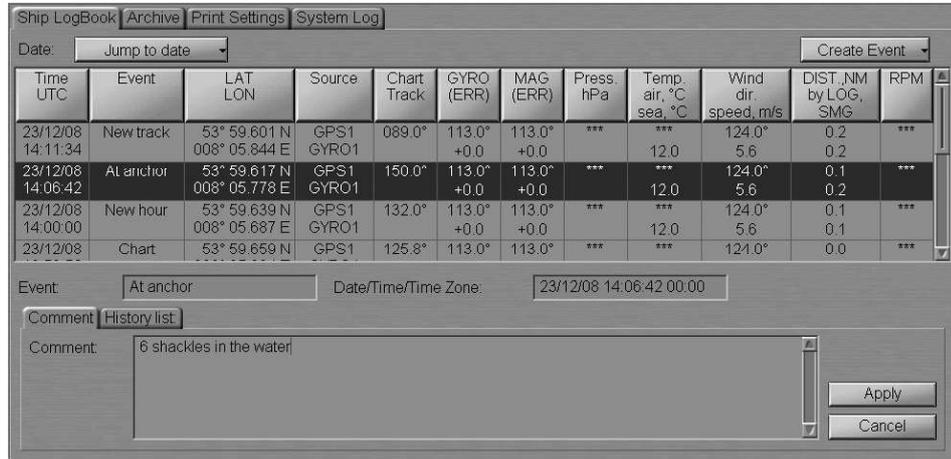
The event is shown in the Ship Logbook. The data available in the table columns as of the event occurrence time are shown in the Ship Logbook automatically.

To enter comments on the event, select it in the Ship Logbook with the cursor and press the **Edit** button on the “Comment” tab.

In the “Logon” window which will appear, enter the password (user and password settings are made in the System Configuration utility, see **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). INSTALLATION GUIDE, Chapter 2**, section **NS4000 Configuration**, paragraph **Security Settings**).

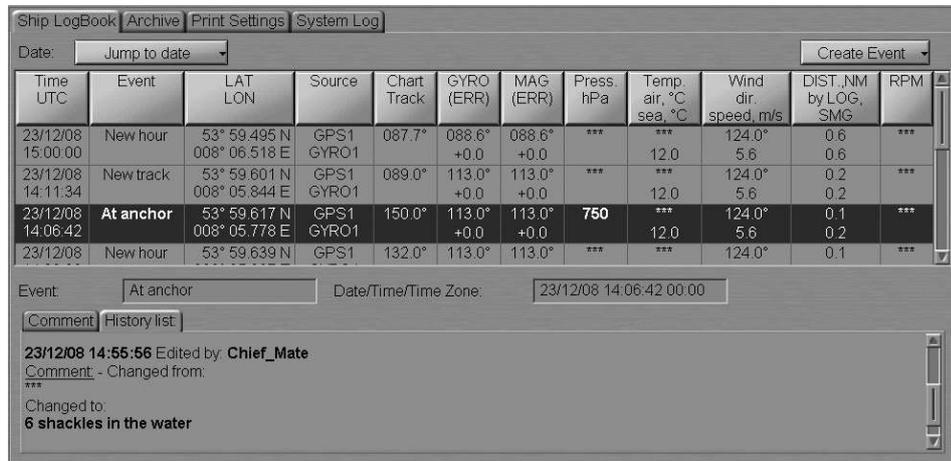


Press the “OK” button. In the “Comment” tab, enter the necessary comments on the event.



Press the Apply button. Comments will be entered in the Ship Logbook.

To view comments entered for the event in question, switch to the “History list” tab.



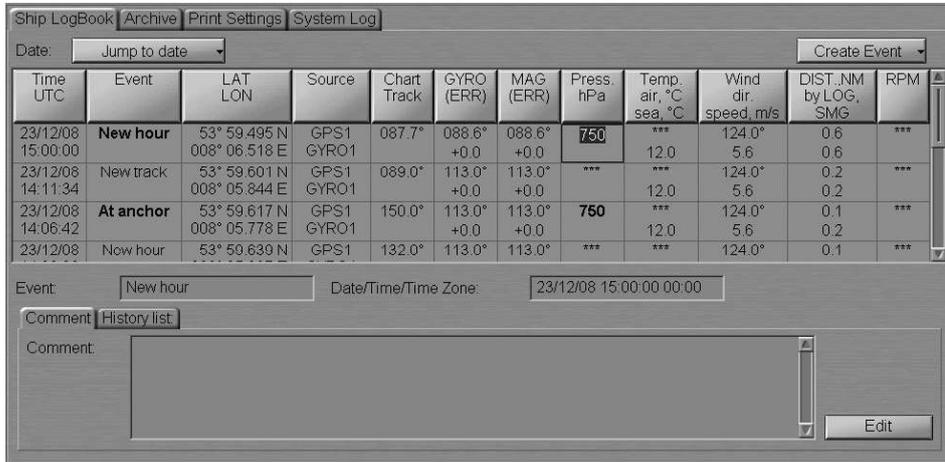
For rules for the input and display of comments in the Ship Logbook, see **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 6, section Ship Logbook, paragraph Making Corrections and Safety.**

The Ship Logbook enables editing of the event parameters from “Chart Track” to “RPM” columns only. Use the trackball to position the cursor on the cell which should be edited and make a double left click.

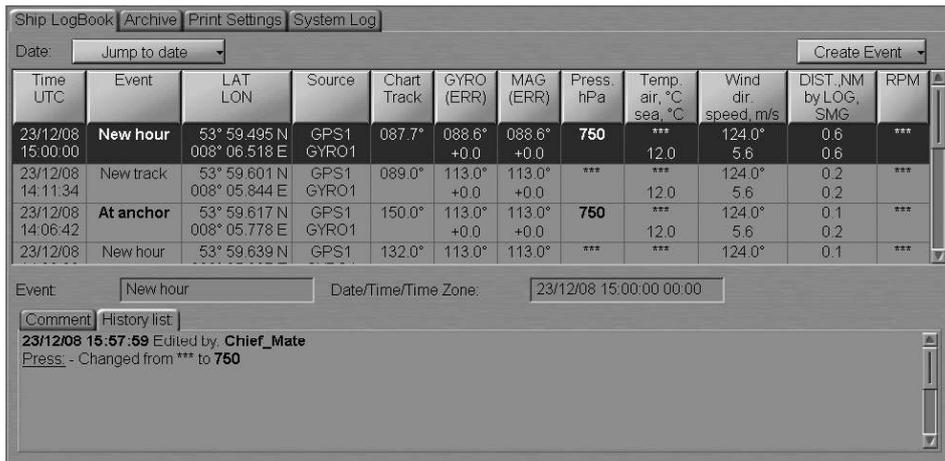
In the “Logon” window which will appear, select the user and enter the password (the users and passwords are set in the System Configuration utility, see **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). INSTALLATION GUIDE, Chapter 2, section NS4000 Configuration, paragraph Security Settings.**)



Press the “OK” button.

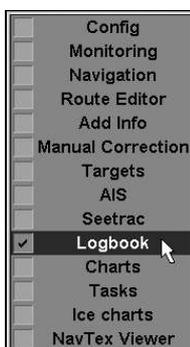


Roll the trackball or use the keyboard to enter the necessary value and press the left trackball button or the <Enter> key. To cancel input of the correction, press the right mouse button. To view the corrections entered for the given event, switch to the “History list” tab.

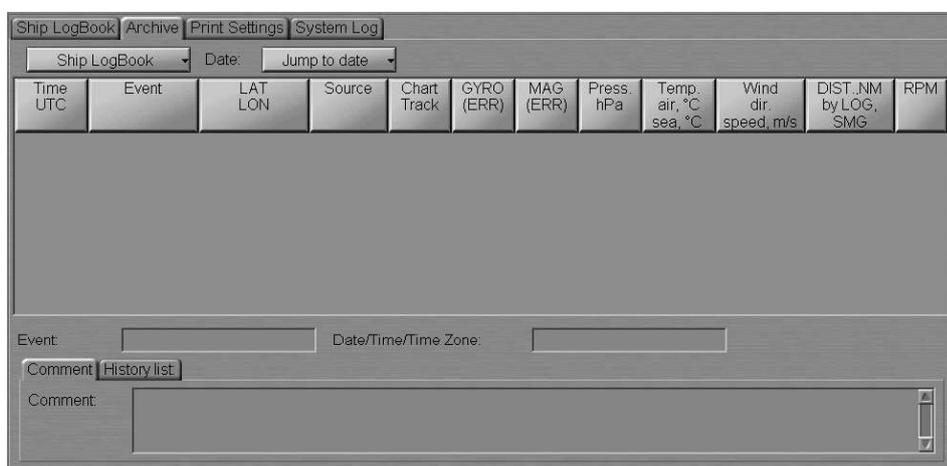


WORK WITH ARCHIVE

Open “Logbook” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



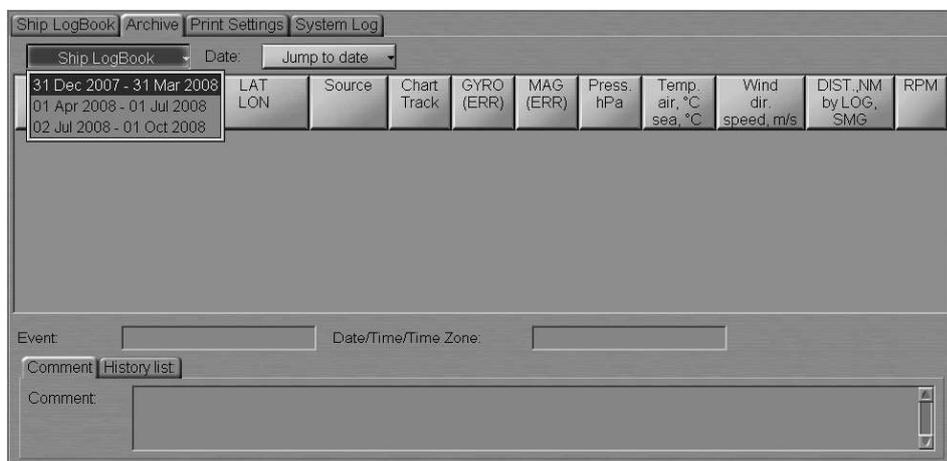
Use the tab in the top part of “Logbook” panel, which will open up, to switch to “Archive” page.



The “Archive” page is designed for displaying archived Ship Logbooks. For the archiving rules see **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 6, section Ship Logbook**, paragraph **Archiving Ship Logbook**.

Press the **Ship LogBook** button and select the necessary archive from the list box.

Note: Each archive stores 90 day records. Archives are named after the months whose entries are included in them.



The page will display records contained in the archive. Press the **Jump to date** button and select the date which the Ship Logbook records will be displayed for.

The screenshot shows the 'Ship LogBook' interface with a 'Jump to date' dropdown menu open, displaying a list of dates: 31/12/07, 01/01/08, and 02/01/08. Below the menu is a table of logbook events.

Time UTC	Event	LAT LON	Chart track	GYRO (ERR)	MAG (ERR)	Press. hPa	Temp. air, °C sea, °C	Wind dir. speed, m/s	DIST. NM by LOG, SMG	RPM
31/12/07 20:59:13	Pilot off	53° 59.685 N 008° 05.500 E	GYRO1	113.3° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	0.0	***
31/12/07 20:59:10	Pilot on board	53° 59.684 N 008° 05.500 E	GYRO1	113.3° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	0.0	***
31/12/07 20:59:02	End of watch	53° 59.685 N 008° 05.498 E	GYRO1	113.3° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	99.7	***
31/12/07 20:59:02	New hour	53° 59.685 N 008° 05.498 E	GYRO1	113.3° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	99.7	***

The table will display Ship Logbook events starting from the first event of the selected date. It should be noted that on the “Archive” page you can only view the Ship Logbook.

SHIP LOGBOOK PRINTOUT

Open “Logbook” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Logbook” panel, which will open up, to switch to “Print Settings” page.

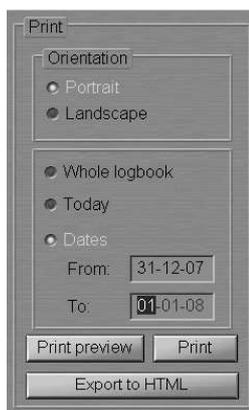
The screenshot shows the 'Print Settings' page with the following fields and options:

- Header:** Name of vessel: KOLA, Call Sign: UCKB, MMSI: 273130500, IMO No: 882854216, Master: Henry Morgan.
- Voyage:** Voyage No.: 12, From: St - Petersburg, To: Hamburg.
- Print:** Orientation: Portrait (selected), Landscape; Whole logbook (selected), Today, Dates; From: 31-12-07, To: 31-12-08.
- Buttons: Print preview, Print, Export to HTML.

Enter the following information in the input lines:

- Master – captain’s name;
- Voyage No.;
- From – port of departure;
- To – port of destination.

In the Orientation group select the text orientation on the page during the printout: Portrait or Landscape.



Select the printout range: Whole logbook, Today or Dates. In the case of Dates, use From and To input boxes to set the time interval for the printout of the Ship Logbook.

Note: By using the Data filter you can also print out an archive Ship Logbook.

For the Ship Logbook print preview, press the Print preview button.

Print Preview

Page 2 of 6

Ship name: KOLA Date: 31 December 2007
 Voyage N: 12 From: 27.31.30.500 To: 88.28.54.21.6

Time UTC	LAT LON	Source	Chart Track	GYRO (ERR)	MAG (ERR)	Press. hPa	Temp. air, °C sea, °C	Wind dir. speed, m/s	DIST. NM by LOG, SWS	RPM	Comment
20:59:02	53° 59.685 N 008° 05.498 E	GPS1 GYRO1	113.3°	113.0° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	99.7 0.0	***	
20:59:02	53° 59.685 N 008° 05.498 E	GPS1 GYRO1	113.3°	113.0° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	99.7 0.0	***	Chart under the ship "q2" Alarms: * Out of XTD * Nav danger * Safety contour changed * AIS: Name wrong * AIS: CALL wrong * Aux: EPFS 2: no input * Aux: LOG 2: no data * NMEA Custom 1 sensor no input Monitorino route "St-Petersburh-Hamburg" Total watch distance 0.0 nm Total voyage distance 373.1 nm Watch officer: J. Sparrow(Chief mate)
20:59:10	53° 59.684 N 008° 05.500 E	GPS1 GYRO1	113.3°	113.0° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	0.0 0.0	***	Pilot on board
20:59:13	53° 59.684 N 008° 05.500 E	GPS1 GYRO1	113.3°	113.0° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	0.0 0.0	***	Pilot off
20:59:20	53° 59.683 N 008° 05.503 E	GPS1 GYRO1	113.3°	113.0° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	0.0 0.0	***	Pilot on board
20:59:28	53° 59.683 N 008° 05.504 E	GPS1 GYRO1	113.3°	113.0° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	0.0 0.0	***	
20:59:41	53° 59.683 N 008° 05.506 E	GPS1 GYRO1	113.3°	113.0° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	0.0 0.0	***	Pilot change
20:59:47	53° 59.682 N 008° 05.508 E	GPS1 GYRO1	113.3°	113.0° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	0.0 0.0	***	
20:59:56	53° 59.682 N 008° 05.510 E	GPS1 GYRO1	113.3°	113.0° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	0.0 0.0	***	
20:59:59	53° 59.682 N 008° 05.511 E	GPS1 GYRO1	113.3°	113.0° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	0.0 0.0	***	
21:00:00	53° 59.682 N 008° 05.511 E	GPS1 GYRO1	113.3°	113.0° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	0.0 0.0	***	
21:01:38	53° 59.678 N 008° 05.533 E	GPS1 GYRO1	113.3°	113.0° +0.0	113.0° +0.0	***	12.0	124.0° 5.6	0.0 0.0	***	Pilot change

Printed 23/12/08 17:20:43 Checked by Master: Page 1

Close the “Print Preview” window and press the Print button.

To convert the Ship Logbook to the *.pdf file, press the Export to PDF button.

USING ELECTRONIC SYSTEM LOGBOOK

ATTENTION!

The Electronic System log is not synchronised in the net among WS's.

Open "Logbook" panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of "Logbook" panel, which will open up, to switch to "System Log" page.

Settings	Date	23-12-08	23-12-08	
23-12-2008	Time	10:51:44(UTC)	10:55:33(UTC)	10:56:00(UTC)
Fields	Event	NS START	NS STOP	
Filter	Primary Sensor	GPS 1	GPS 1	
Reset Dist.	Secondary Sensor	None	None	
Print	L/L	54°02'911 N, 007°52'120 E	54°02'613 N, 007°53'359 E	54°02'509 N, 007°53'359 E
	Offset L/L	01°25'018 S, 000°31'718 W	01°25'018 S, 000°31'718 W	01°25'018 S, 000°31'718 W
	Prim/Sec Diverge			
	COG - SOG	113.0°-12.0 kn	113.0°-12.0 kn	113.0°-12.0 kn
	HDG - LOG	113.0°-12.0 kn	113.0°-12.0 kn	113.0°-12.0 kn
	Average speed			
	WatchDist-Log			
	DAY DIST-LOG			
	WINDY DIST-LOG			

"System Log" page is designed for the recording of events, which occurred during the ECDIS task operation. The table is a set of columns (events) and of rows (event parameters). By default, the table reflects the following event parameters:

- **Date** – date of the event;
- **Time** – time of the event (UTC);
- **Event** – name of the event;
- **Primary Sensor** – primary positioning system;
- **Secondary Sensor** – secondary positioning system;
- **L/L** – event latitude/longitude coordinate;
- **Offset L/L** – event latitude/longitude offset;
- **Prim/Sec Diverge** – distance and direction to the secondary positioning system (large – distance exceeding the limit set in the safety parameters);
- **COG - SOG** – course and speed values received from the positioning system;

- **HDG - LOG** – course and speed values received from the compass and log;
- **Average speed** – average speed in the last 10 minutes;
- **WatchDist-Log** – distance covered during the watch (by chart – by log);
- **DAY DIST-LOG** – distance covered in 24 hours (by chart – by log);
- **VOY DIST-LOG** – summary distance passed (by chart – by log);
- **Echo Sounder** – depth from the sounder or entered manually if the sounder is not connected in the System Configuration utility;
- **Charts displayed** – charts loaded for proceeding in Navigation Mode, the source specified (ARCS, BSB – BSB/NDI, ENC, TRS – TX-97, SRF – Seafarer);
- **Wind direction** – true wind direction;
- **Wind speed** – true wind speed;
- **Water temperature** – water temperature.

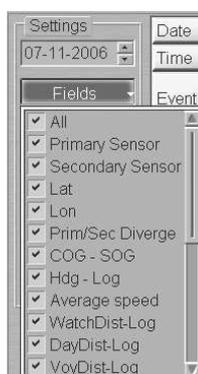
The following system log fields are filled in by the operator manually:

- **Remarks** – operator notes;
- **Wave direction** – wave direction value entered by the operator;
- **Wave Height** – wave height value entered by the operator;
- **Air temperature** – air temperature value entered by the operator;
- **Pressure** – atmospheric pressure value entered by the operator;
- **Visibility** – visibility range value entered by the operator;
- **Engine RPM** – main engine rpm value entered by the operator.

To do this, position the free cursor on the necessary cell and press the left trackball button. Type the necessary message and press the left trackball button or the <Enter> key:

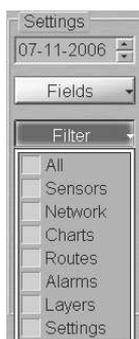
Remarks		The drifting container is found
Wind direction	120°	120°
Wind speed	12.7 m/s	12.7 m/s

To change contents of the electronic system logbook (delete unnecessary event parameters), press **Fields** button in **Settings** group:



Uncheck checkboxes of the unnecessary event parameters.

By default, it is only “Main” group of events which is displayed in the system log (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 6, section Electronic System Logbook**, paragraph **Electronic System Logbook Formations Principles**). To display other groups of events in the system log, press **Filter** button in **Settings** group.



Check checkboxes of the necessary parameter groups.

By default, the rate of recording the TIME event (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 6**, section **Electronic System Logbook**, paragraph **Electronic System Logbook Formations Principles**) is set at 1 hour. To change it, press **Entry** button in **Settings** group.



Check the checkbox next to the necessary TIME event recording rate.

To set the value of the total covered distance to zero, press **Reset Dist.** button in **Settings** group.

To print out the electronic system logbook, press **Print** button in **Settings** group.

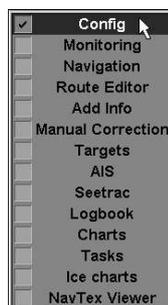
Note: The printer is required to be connected to the LTP of one of WS's.



Use **From** and **To** input boxes to set the time interval for the printout of the electronic system logbook events, and press **Print** button.

WATCH SCHEDULE EDITING

Open “Config” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Config” panel, which will open up, to switch to “Watch Editor” page.



The page displays the watch schedule which was set in the System Configuration utility during the installation (see **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). INSTALLATION GUIDE, Chapter 2, section NS4000 Configuration, paragraph System Settings**).

Press the Edit button. In the “Logon” window which will appear, select the user and enter the password (users passwords are set in the System Configuration utility, see **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). INSTALLATION GUIDE, Chapter 2, section NS4000 Configuration, paragraph Security Settings**).



Press the “OK” button. Use cells of the Rank column to enter the watch officer’s rank, in the cell of the Family name column enter his/her family name.

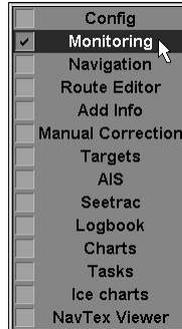


Fill in the rest of table cells. Press the Apply button. The watch officer’s position and name will be shown in the Ship Logbook in the “End of watch”.

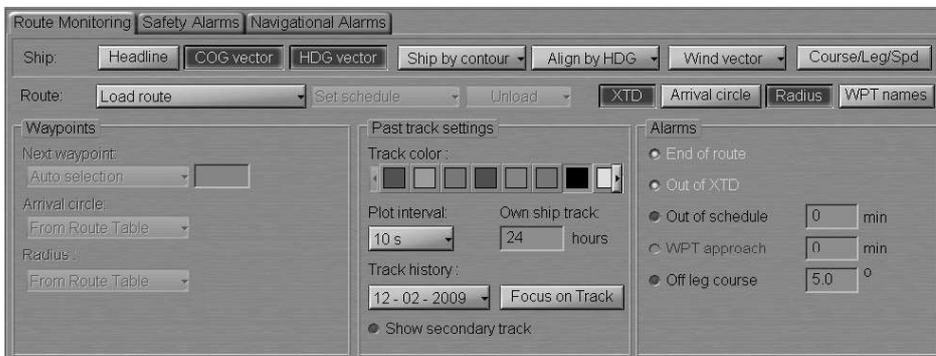
OWN SHIP TRACK IN THE ECDIS TASK

Setting Track Display Elements

Open “Monitoring” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Monitoring” panel, which will open up, to switch to “Route Monitoring” page.



In Past track settings group of “Route Monitoring” page, which will open up, set the colour of the track segment, which is being formed, by selecting it from the offered Track colour palette.

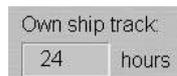


Press Plot interval button.



In the list, which will open up, select the track plot interval and press the left trackball/mouse button.

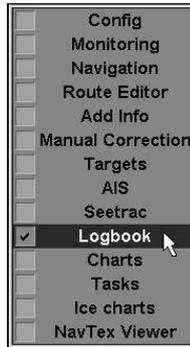
Use Own ship track input line to enter the time value which the length of the displayed own ship track will correspond to.



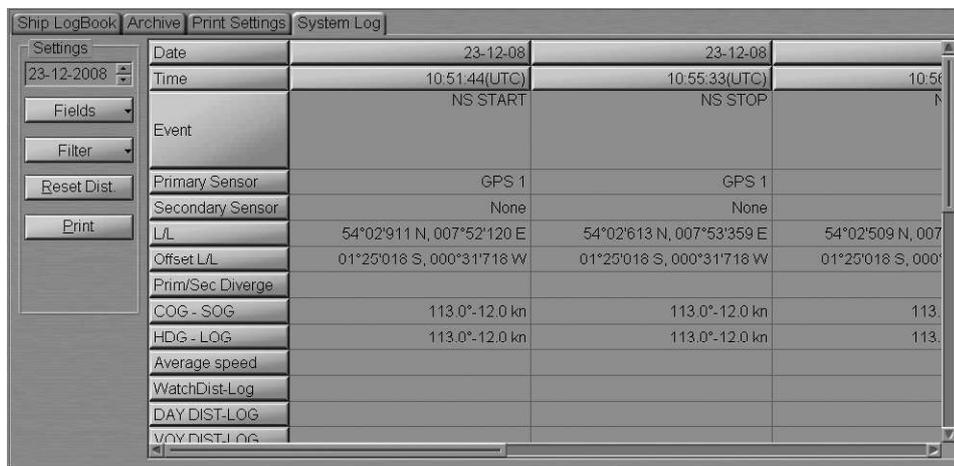
If it is necessary to turn on the display of a track from the secondary positioning system, check the Show secondary track checkbox.



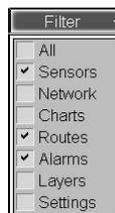
Open “Logbook” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Logbook” panel, which will open up, to switch to “System Log” page. In the left-hand part of “System Log” page, press Filter button.



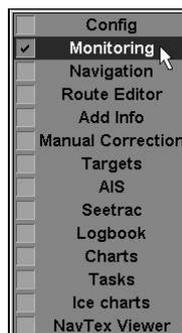
Check the checkboxes of the event groups, which are required to be displayed on the track.



These events will be shown in the form of time tags on the set own ship track.

Viewing Archive Tracks

Open “Monitoring” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Monitoring” panel, which will open up, to switch to “Route Monitoring” page.



In Past track settings group of “Route Monitoring” page, which will open up, press Plot interval button:



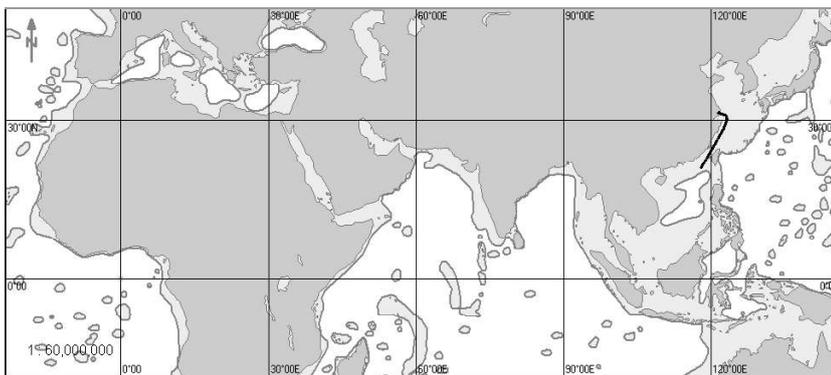
In the list, which will open up, select the track plot interval and press the left trackball/mouse button.

Press Track history button:



In the list, which will open up, select the date of the track required to be displayed, and press the left trackball/mouse button. The selected date track is displayed on the Chart panel.

To display the entire own ship track for the selected date on the Chart panel, press Focus on Track button.



CHAPTER 7

Manual Updating

This chapter describes the procedure used in the handling of updating objects.

TURNING ON/OFF THE DISPLAY OF UPDATING OBJECTS AND THEIR ATTRIBUTES

ATTENTION!

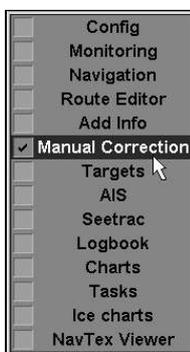
Point type objects cannot be displayed on scales smaller than 1:600,000.

There are two ways to turn on/off the display of updating objects on the ECDIS task screen:

1. Press **Man. Corr.** button in the Charts Area window of the Control panel.



2. Open "Manual Correction" panel by selecting the appropriate line of **TASKS LIST** menu on the Control panel.



Press **ON** button.



To turn on/off the display of updating objects attributes on the ECDIS task screen, press the following buttons:

- **Attachments** – to turn on highlighting of objects with attached files;
- **Deleted** – to turn on highlighting of deleted objects;
- **Colour** – to turn on orange coloured highlighting of updating objects;
- **Show temporary timed objects** – to turn on the display of temporary updating objects until the time when they become effective.

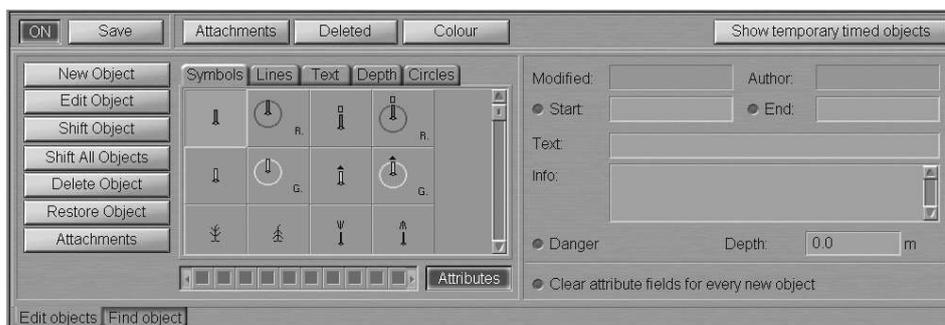
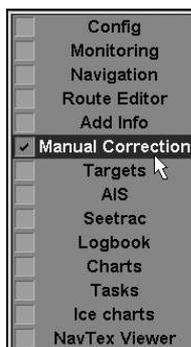


CREATING AND PLOTTING UPDATING OBJECTS

ATTENTION!

Point type objects cannot be displayed on scales smaller than 1:600,000.

Open “Manual Correction” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



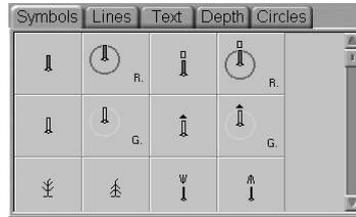
The updating object creating and plotting procedure consists of four stages:

- selection of the object category and type;
- assigning of attributes to the object (except attached files);
- plotting of an object;
- assigning of “attached file” attribute.

Selection of the Object Category and Type

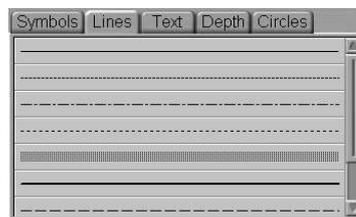
Use the tab in the updating object selection area, to select the updating object category:

- Symbols category:



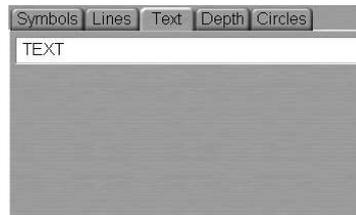
To select the object type in “Symbols” tab, which will open up, press the button with its picture.

- Lines category:



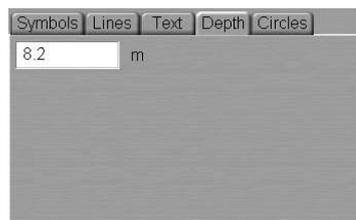
To select the object type in “Lines” tab, which will open up, press the button with its picture.

- Text category:



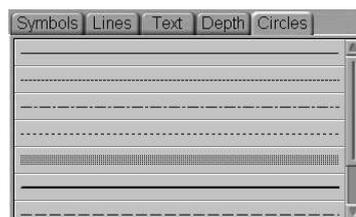
Use the input line of “Text” tab, which will open up, to enter the required text.

- Depth category:



Use the input line of “Depth” tab, which will open up, to enter the required distinctive depth value.

- Circles category:



To select the necessary object in “Circles” tab, press the button with its picture.

Assigning Attributes to the Selected Object

For **Line**, **Text** or **Depth** category objects, select the colour (“Object colour” attribute) in the palette under the category selection group. For **Symbol** category, the selection of colour is not available, as the objects already have a special colouring.



Open attribute group (if not yet displayed on the panel) by pressing **Attributes** button to the right of the palette.

Modified: Author:
 Start: End:
 Text:
 Info:
 Danger Depth: m
 Clear attribute fields for every new object

Set the updating display time (“Temporary updating” attribute). To do this, check **Start** checkbox and set the start date and time of the updating object display. Check **End** checkbox and set the updating object display end date and time.

Start: End:

Enter the required text (“Text” attribute) in **Text** input line (information will be displayed on the chart).

Text:

Enter the required information (“Object information” attribute) in **Info** field (information will not be displayed unless Info function is used).

Info:

Check **Danger** checkbox (“Danger to navigation” attribute) as required.

Danger

Set the required depth value (“Object depth” attribute) in **Depth** line.

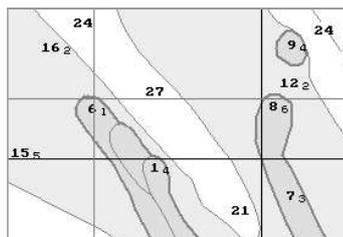
Depth: m

Files are attached (“Attached file” attribute) after the plotting of the updating object.

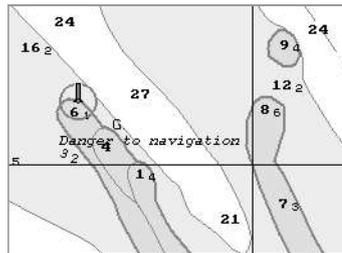
Plotting of the Selected Object

To plot the selected object on the chart, press **New Object** button.

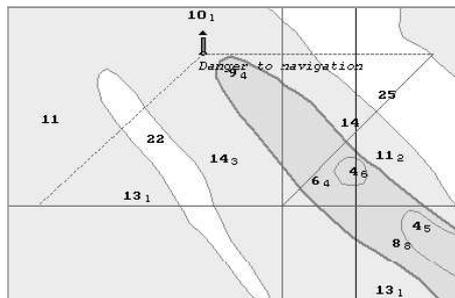
Position the cursor, which will appear on the graphic screen, in the required coordinates.



Press the left trackball/mouse button: the point type object will be set in the specified coordinates.

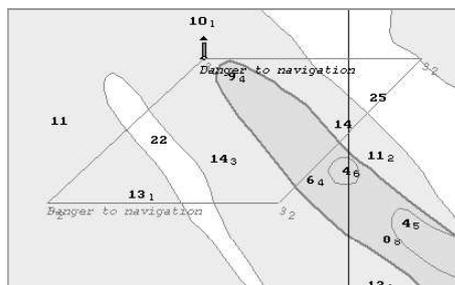


To set lines and areas, after the plotting of the initial point, move the cursor to the next point and press the left button again. Repeat the procedure until you set the required number of point.

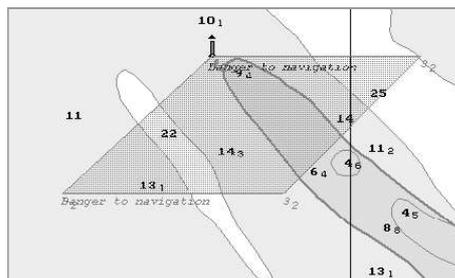


After the input of the last point of the line or area, press the right trackball/mouse button: the cursor will change its form, and the object will be set in the specified coordinates:

- line by the specified points;



- area by the points, the first and the last of them connected.

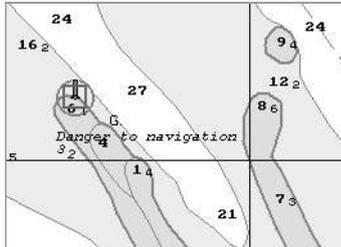


Assigning “Attached File” Attribute

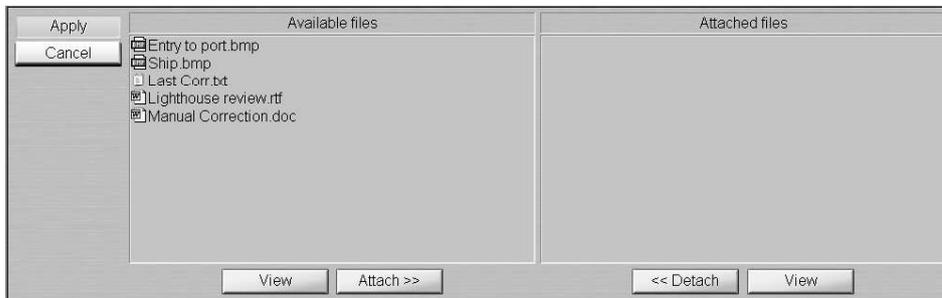
To assign “Attached file” attribute, the selected object should be plotted on the chart.

To attach files (*.txt, *.rtf, *.bmp, *.doc, *.gif, *.jpg, *.tif, *.pdf), press **Attachments** button in the left bottom part of the panel.

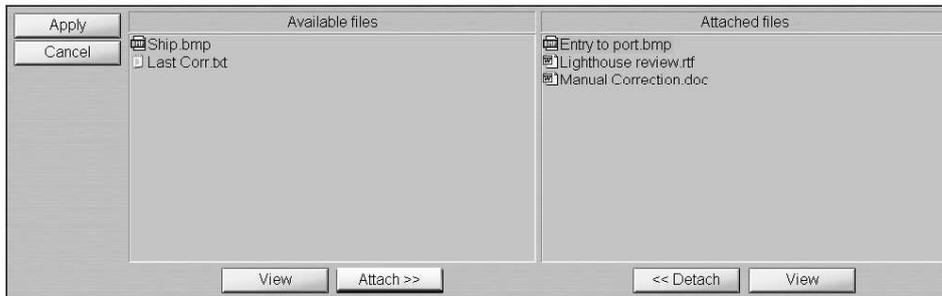
Position the acquisition marker, which will appear, on the object and press the left trackball/mouse button.



The screen will display a window with lists of all the files available for attaching (to view the contents of the selected file, press **View** button on the appropriate panel). The list of files available for attaching is formed in the Data Tool utility.



To attach a file (group of files) to the updating object, select it in **Available files** group and press **Attach >>** button.



The file (group of files) will move to **Attached files** group. Press **Apply** button to confirm the changes you have made.

To detach a file (group of files), select the necessary files in **Attached files** group and press **<< Detach** button. The file (group of files) will move to **Available files** group. Press **Apply** button to confirm the changes you have made.

Press **Save** button.

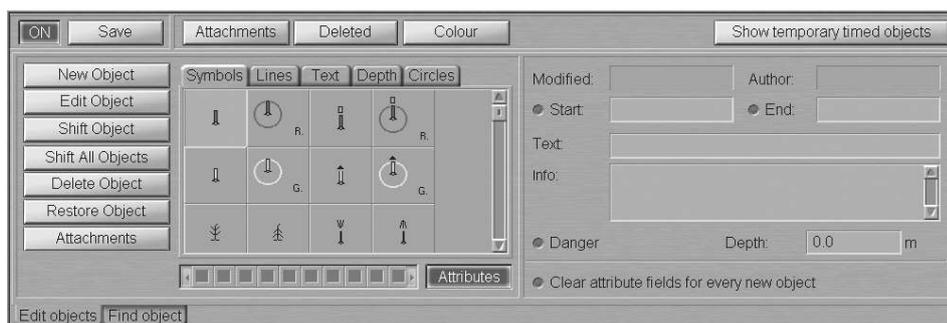
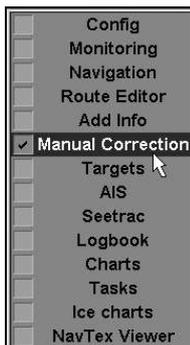
EDITING UPDATING OBJECTS

Editing Point Type Objects

ATTENTION!

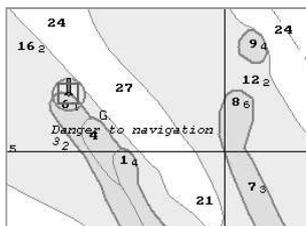
Point type objects cannot be displayed on scales smaller than 1:600,000.

Open “Manual Correction” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.

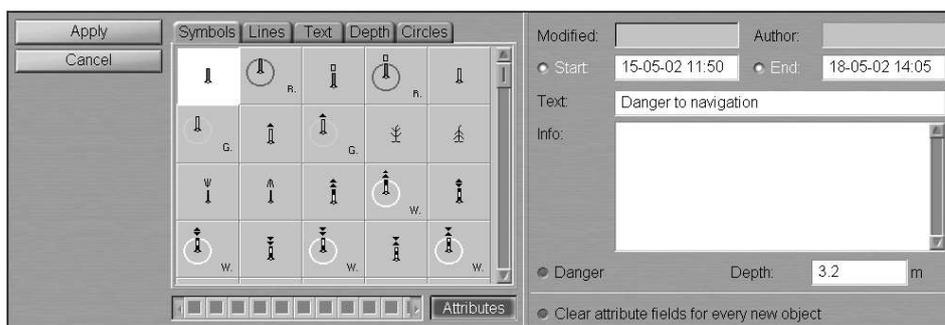


Press **Edit Object** button in the top left corner of the panel.

Position the acquisition marker, which will appear, on the object (in case of text objects, the acquisition point is the first character) and press the left trackball/mouse button.

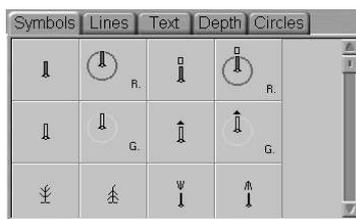


The bottom part of the screen will display a panel for editing updating objects.



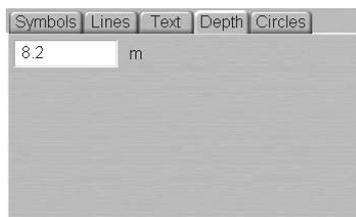
Change the object type as required; to do this, use the tab in the updating object selection area to select the updating object category:

- Symbols category:



In “Symbols” tab, which will open, select the new object type by pressing the button with its picture.

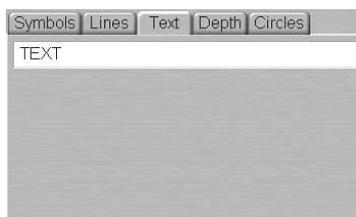
- Depth category:



Use the input line of “Depth” tab, which will open up, enter the required distinctive depth value.

- Text category.

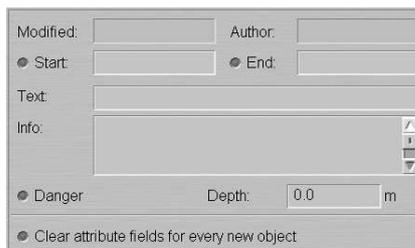
Use the input line of “Text” tab, which will open up, to enter the required text:



For Depth and Text category objects, select the colour (“Object colour” attribute) from the palette under the object category selection area. For Symbol category, the selection of colour is not available, as the object already have a special colouring.



Open the attribute area (if not yet displayed on the panel) by pressing **Attributes** button to the right of the palette.

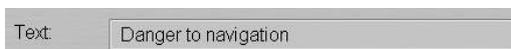


Edit the necessary attributes of the updating object.

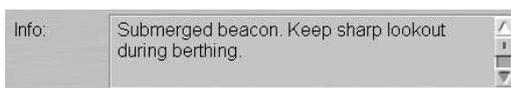
Set the updating display time (“Temporary updating” attribute). To do this, check **Start** checkbox and set the start date and time of the updating object display. Check **End** checkbox and set the updating object display end date and time.



Enter the required text (“Text” attribute) in Text input line (information will be displayed on the chart).



Enter the required information (“Object information” attribute) in Info field (information will not be displayed unless Info function is used).



Set the required depth value (“Object depth” attribute) in Depth line.

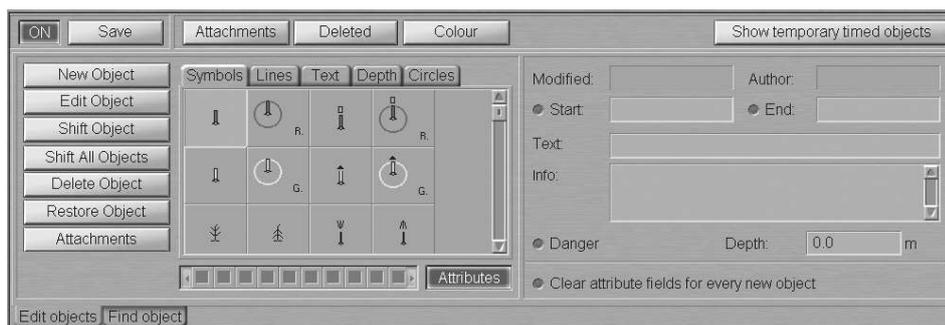


Check **Danger** checkbox (“Danger to navigation” attribute).



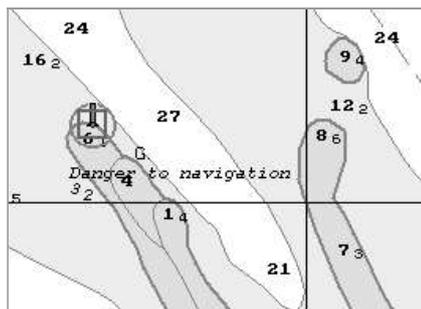
Files are attached/detached (“Attached file” attribute) in a separate step.

Press **Apply** button to confirm the changes you have made: “Manual Correction” panel will open up.

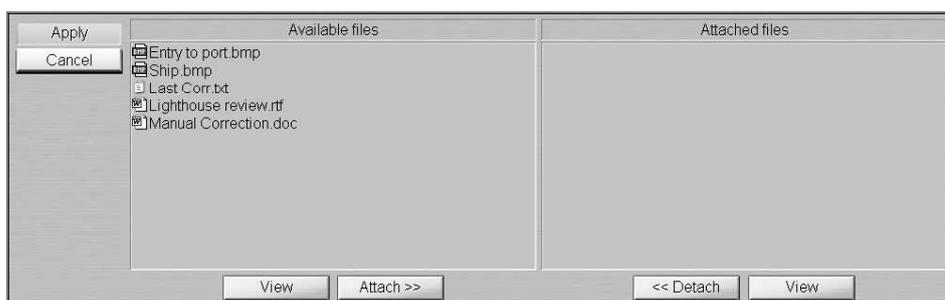


To attach files to the updating object (“Attached file” attribute) press **Attachments** button in the left bottom corner of the panel.

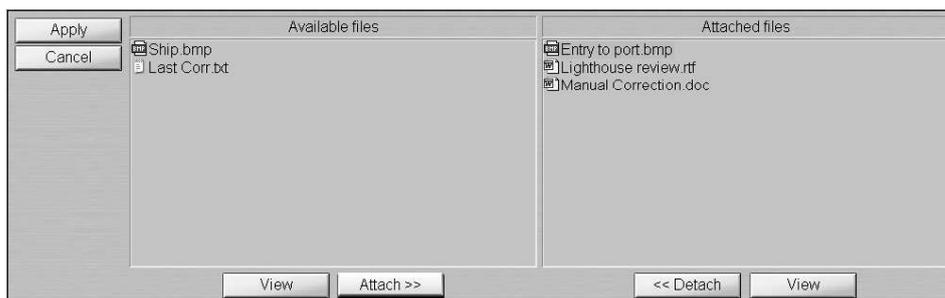
Position the acquisition marker, which will appear, on the edited object and press the left trackball/mouse button.



The screen will display a window with a list of files available for attaching/detaching (to view the contents of the selected file, press **View** button on the pertinent panel). The list of files available for attaching is formed in the Data Tool utility.



To attach a file (group of files) to the updating object, select it in **Available files** group and press **Attach >>** button.



The file (group of files) will move to **Attached files** group. Press **Apply** button to confirm the changes you have made.

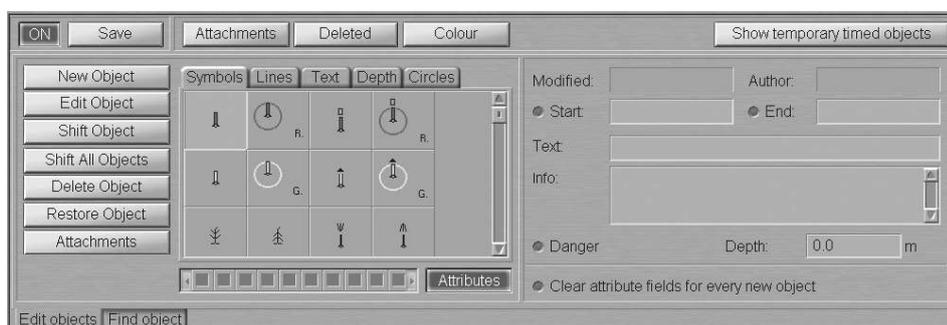
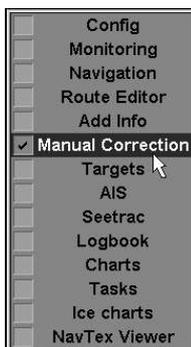
To detach a file (group of files), select the necessary files in **Attached files** group and press **<< Detach** button. The file (group of files) will move to **Available files** group. Press **Apply** button to confirm the changes you have made.

Press **Save** button.

The procedure of a editing a point type object is completed.

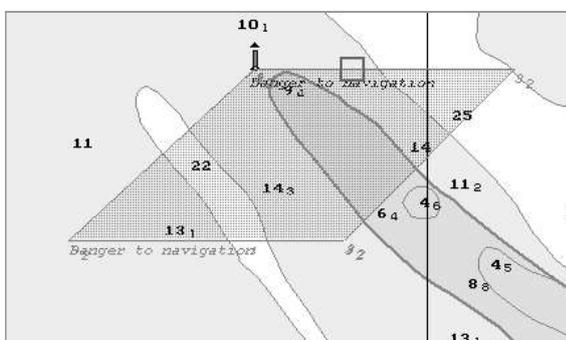
Editing Line, Area and Circle Type Objects

Open “Manual Correction” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.

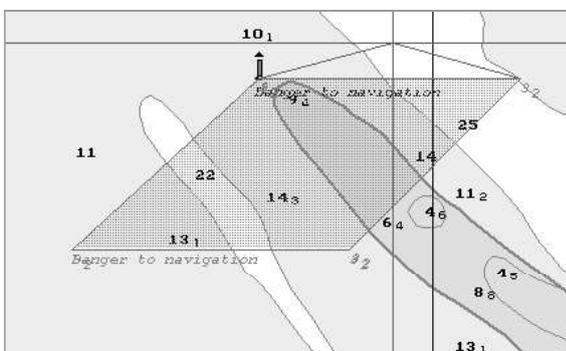


Press **Edit Object** button in the top left corner of the panel.

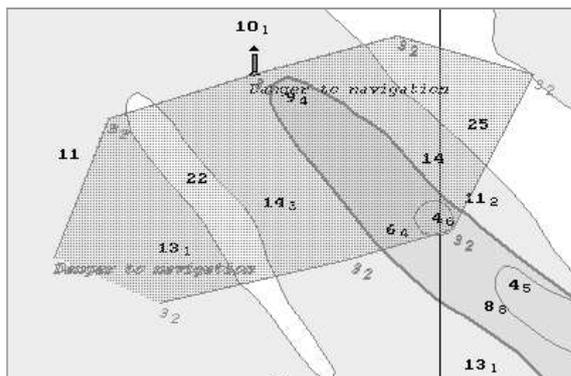
Position the acquisition marker, which will appear, on the line (object boundary) and press the left trackball/mouse button.



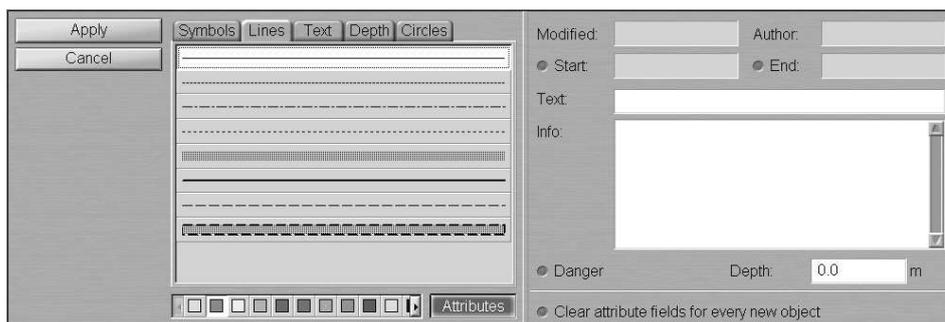
The acquisition marker will “acquire” the object and change own form.



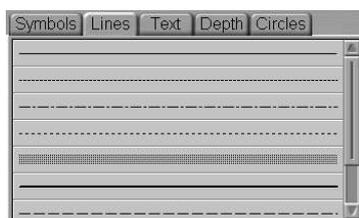
If the object configuration is required to be changed, move the cursor to the required coordinates. Press the left trackball/mouse button and repeat this operation until the necessary configuration is set.



Press the right trackball/mouse button. The bottom part of the screen will display a panel for the editing of updating objects. Edit the object type and its attributes.



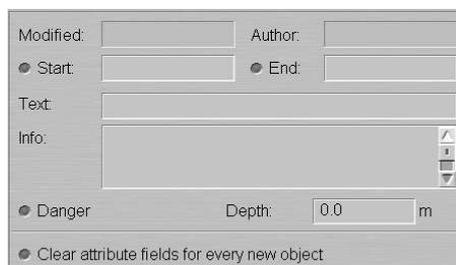
Change the object type as required in "Lines" tab; to do this, press the button with its picture in the updating object selection area.



In the palette under the object category selection area, select the colour of the line or area type object ("Object colour" attribute).



Open the attribute area (if not yet displayed on the panel) by pressing **Attributes** button to the right of the palette.



Edit the necessary attributes of the updating object.

Set the updating display time ("Temporary updating" attribute). To do this, check **Start** checkbox and set the start date and time (UTC) of the updating object display. Check **End** checkbox and set the updating object display end date and time.



Enter the required text (“Text” attribute) in Text input line (information will be displayed on the chart).

Text:

Enter the required information (“Object information” attribute) in Info field (information will not be displayed unless Info function is used).

Info:

Set the required depth value (“Object depth” attribute) in Depth line.

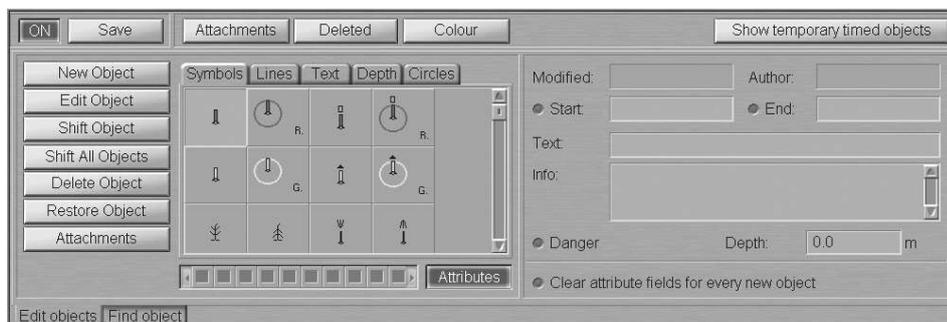
Depth: m

Check **Danger** checkbox as required (“Danger to navigation” attribute).

Danger

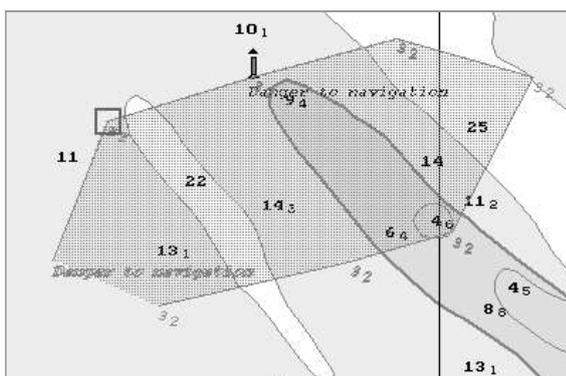
Files are attached/detached (“Attached file” attribute) in a separate step.

Press **Apply** button to confirm the changes you have made: “Manual Correction” panel will open up.

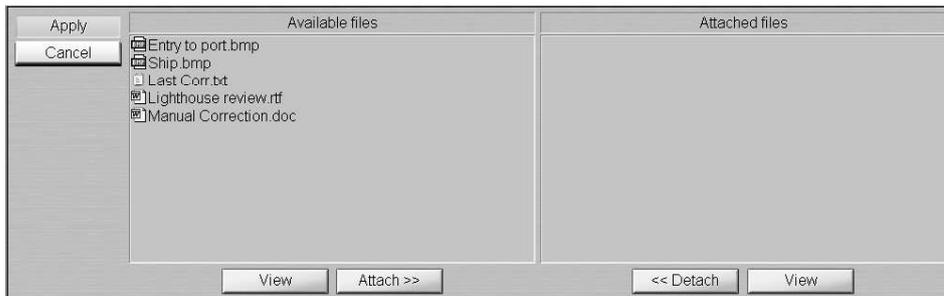


To attach files to the updating object (“attached file” attribute), press **Attachments** button in the left bottom corner of the panel.

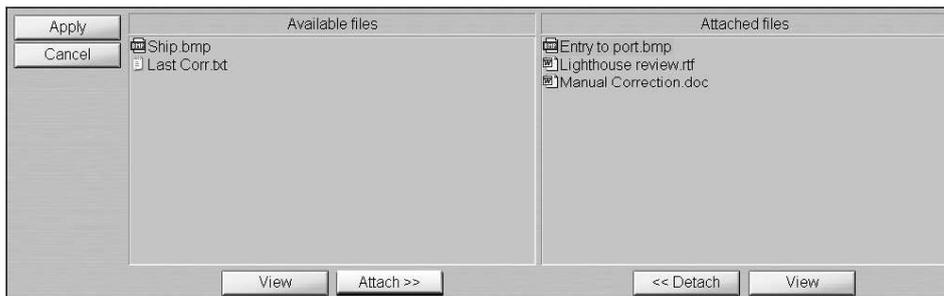
Position the acquisition marker, which will appear, on the edited object and press the left trackball/mouse button.



The screen will display a window with a list of files available for attaching/detaching (to view the contents of the selected file, press **View** button on the pertinent panel). The list of files available for attaching is formed in the Data Tool utility.



To attach a file (group of files) to the updating object, select it in **Available files** group and press **Attach >>** button.



The file (group of files) will move to **Attached files** group. Press **Apply** button to confirm changes you have made.

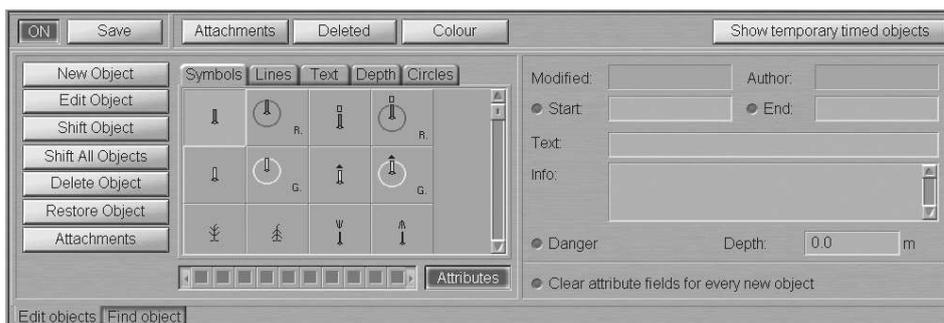
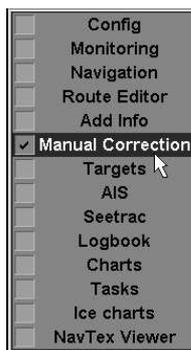
To detach a file (group of files), select the necessary files in **Attached files** group and press **<< Detach** button. The file (group of files) will move to **Available files** group. Press **Apply** button to confirm the changes you have made.

Press **Save** button.

The procedure of a editing a line or area type object is completed.

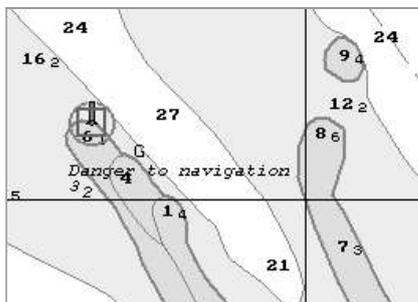
Editing Object Coordinates

Open “Manual Correction” panel by selecting the appropriate line of **TASKS LIST** menu on the Control panel.

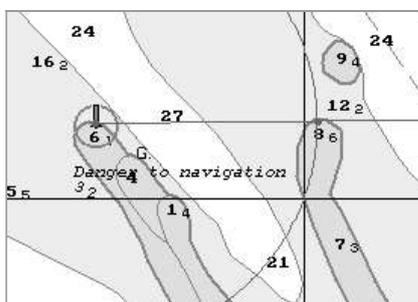


Press **Shift Object** button in the top left part of the panel.

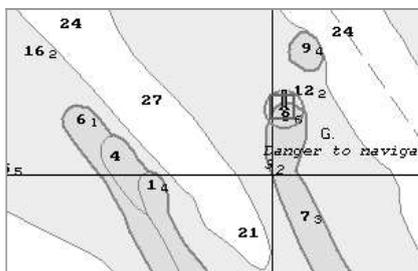
Position the acquisition marker which will appear, on the object to be shifted (the first character of a text object or a point in a line or area type object).



Press the left trackball/mouse button. Position the marker, which will appear, in the new object coordinates within the displayed Chart panel.



Press the left trackball/mouse button: the object will move to the specified coordinates.

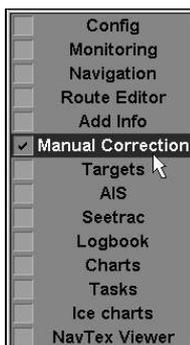


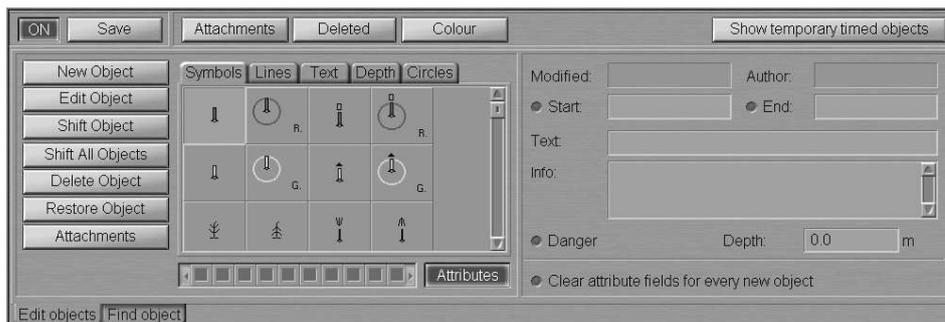
Press the right trackball/mouse button to exit from the mode of editing of the updating object coordinates.

Press **Save** button.

Deleting Updating Object

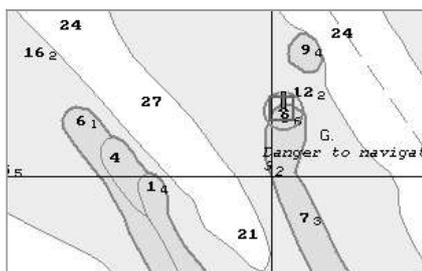
Open "Manual Correction" panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



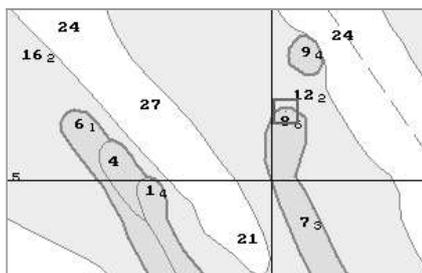


Press **Delete Object** button in the left part of the panel.

Position the acquisition marker, which will appear, on the object to be deleted (the first character of a text object or a point in a line or area type object).



Press the left trackball/mouse button: the presentation of the object will be removed from the Chart panel.

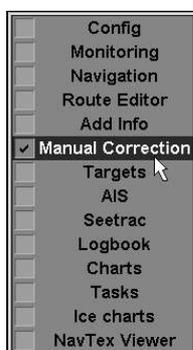


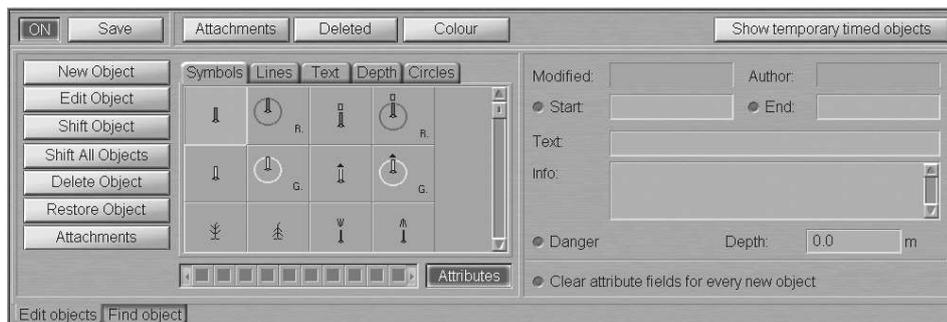
Press the right trackball/mouse button to exit from the updating object deleting mode.

Press **Save** button.

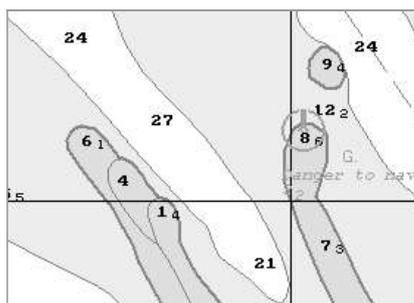
Restore the Deleted Object

Open “Manual Correction” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



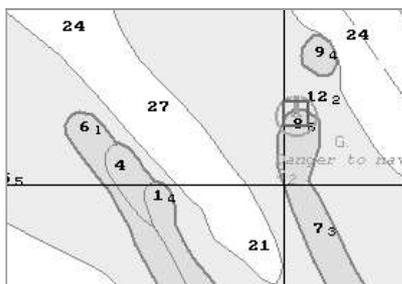


Press **Deleted** button in the top part of the panel. The screen will display all the previously deleted objects shown in the grey colour.

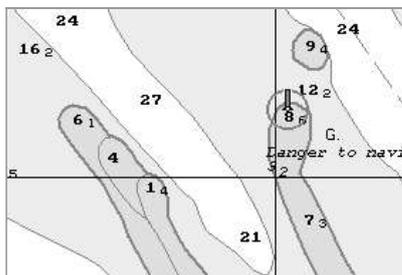


Press **Restore Object** button in the left bottom part of the panel.

Position the acquisition marker, which will appear, on the deleted object (the first character of a text object or a corner point of a line or area type object).



Press the left trackball/mouse button: “Deleted object” attribute is removed, and the object is highlighted in accordance with the previously made settings.



Press the right trackball/mouse button to exit from the deleted object restore mode.

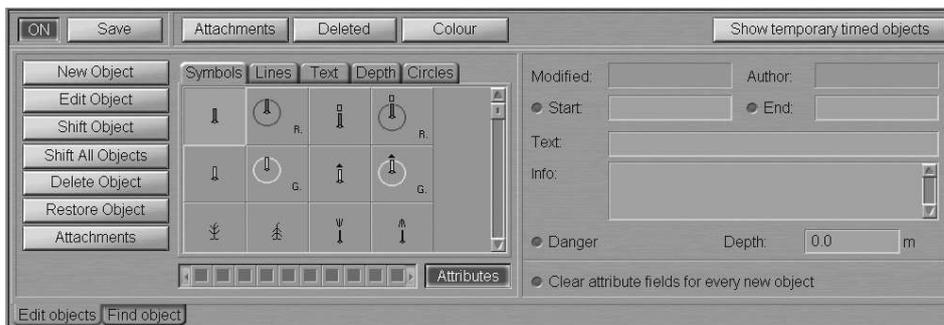
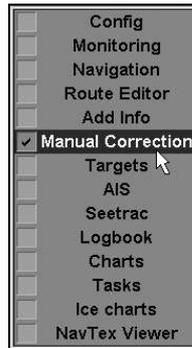
Press **Save** button.

SEARCH FOR UPDATING OBJECTS

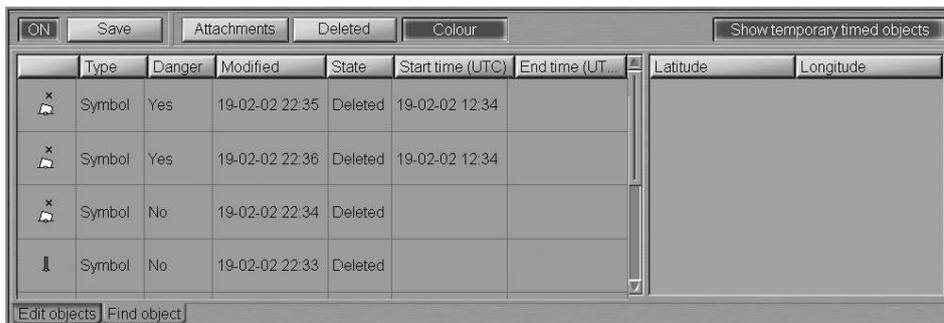
ATTENTION!

Point type objects cannot be displayed on scales smaller than 1:600,000.

Open “Manual Correction” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



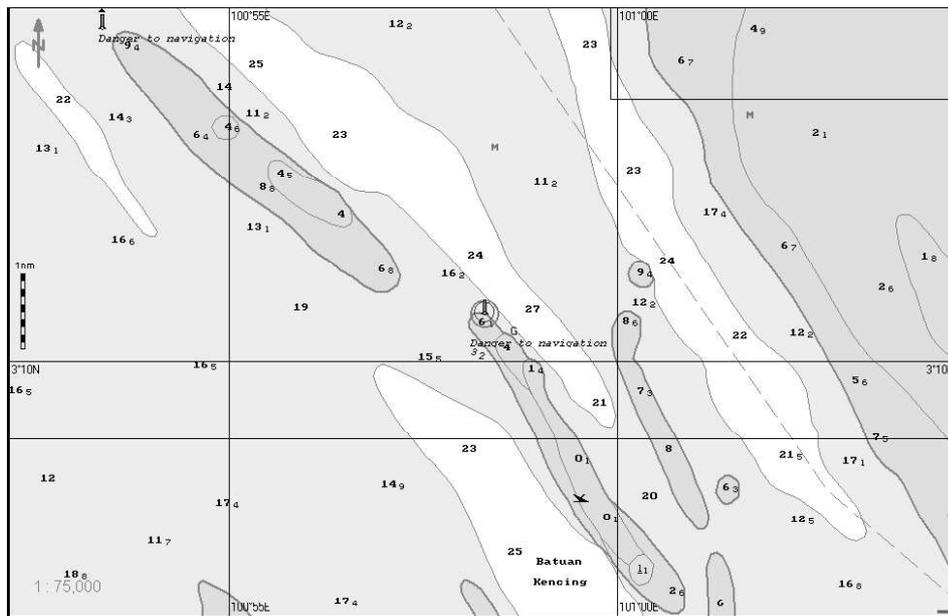
Use the tab in the bottom part of the panel to switch to “Find object” page.



Select the required updating object in the left-hand part of the page and press the left trackball/mouse button. Coordinates of the selected object will be displayed in the right-hand part of the page.

Type	Danger	Modified	State	Start time (UTC)	End time (UT...)	Latitude	Longitude
	Symbol	Yes	15-05-02 13:09	Normal		49° 29.945 N	000° 40.616 W
	Symbol	No	15-05-02 10:10	Normal	15-05-02 14:07	18-05-02 14:07	
	Symbol	No	16-05-02 05:03	Normal	15-05-02 14:07	18-05-02 14:07	
	Line	No	15-05-02 11:24	Deleted	15-05-02 14:07	18-05-02 14:07	

A double click of the left trackball/mouse button on the selected object line or its coordinates displays this object in the centre of the Chart panel highlighted with a flashing circle for 10 seconds.



With the selection of line or area type objects, the right-hand part of the page displays coordinates of all the points, which the line/area type object consists of.

Type	Danger	Modified	State	Start time (UTC)	End time (UT...)	Latitude	Longitude
	Symbol	No	15-05-02 10:10	Normal	15-05-02 14:07	18-05-02 14:07	
	Symbol	No	16-05-02 05:03	Normal	15-05-02 14:07	18-05-02 14:07	
	Line	No	16-05-02 06:20	Normal	15-05-02 14:07	18-05-02 14:07	
	Line	No	16-05-02 05:06	Deleted	15-05-02 14:07	18-05-02 14:07	

A double click of the left trackball/mouse button on the coordinates of any point which the line/area type object consists of, displays this point in the centre of the Chart panel highlighted with a flashing circle for 10 seconds.

CHAPTER 8

Handling of User Charts

This chapter describes the procedure used
in the handling of user charts.

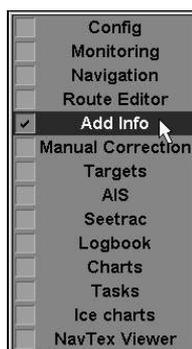
CREATING AND SAVING USER CHARTS

Creating and Plotting User Chart Objects

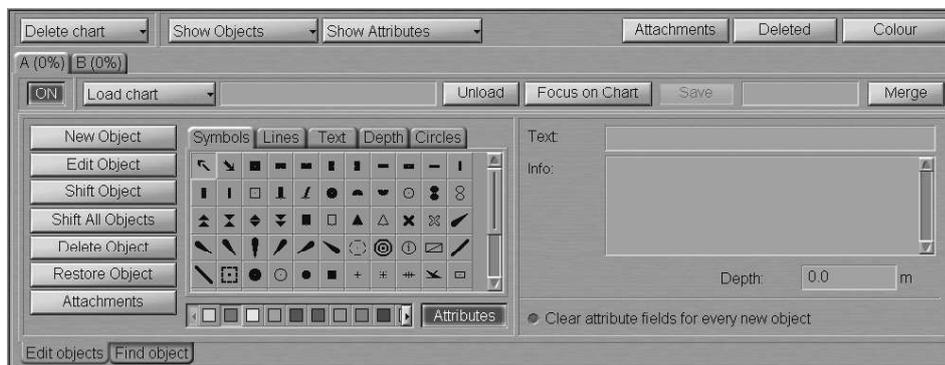
ATTENTION!

Point type objects cannot be displayed on scales smaller than 1:600,000.

Open “Add Info” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



In “Add Info” panel, which will open up, use the tab in the top left part of the panel to select A or B active layer window. Press ON button to activate it.



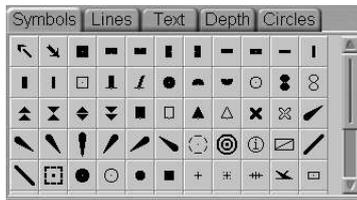
The user chart creating procedure consists of four stages:

- selection of the object category and type;
- assigning of attributes to the object (except “Attached files”);
- plotting of an object;
- assigning of file attribute “Attached file”.

Selection of the Object Category and Type

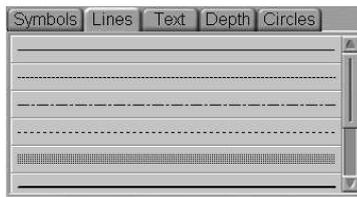
Use the tab in the user chart object selection area, to select the object category:

- Symbols category:



To select the object type in “Symbols” tab, which will open up, press the button with its picture.

- Lines category:



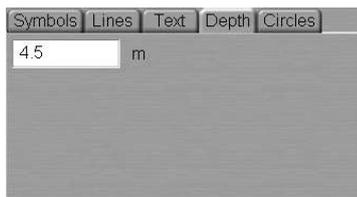
To select the object type in “Lines” tab, which will open up, press the button with its picture.

- Text category:



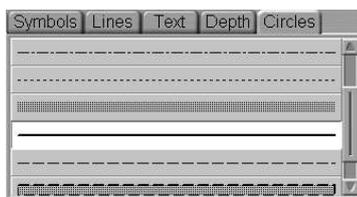
Use the input line of “Text” tab, which will open up, to enter the required text.

- Depth category:



Use the input line of “Depth” tab, which will open up, to enter the required distinctive depth value.

- Circles category:



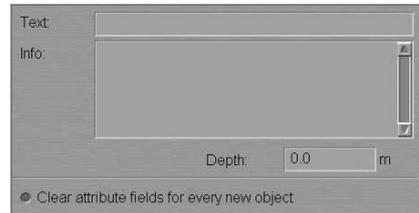
To select the necessary object in “Circles” tab, press the button with its picture.

Assigning Attributes to the Selected Object

Select the colour (“Object colour” attribute) in the palette under the category selection group.



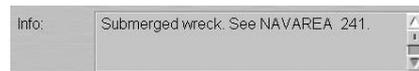
Open attribute group (if not yet displayed on the panel) by pressing **Attributes** button to the right of the palette.



Enter the required text (“Text” attribute) in **Text** input line (information will be displayed on the chart).



Enter the required information (“Object information” attribute) in **Info** field (information will not be displayed unless Info function is used).



Set the required depth value (“Object depth” attribute) in **Depth** line.

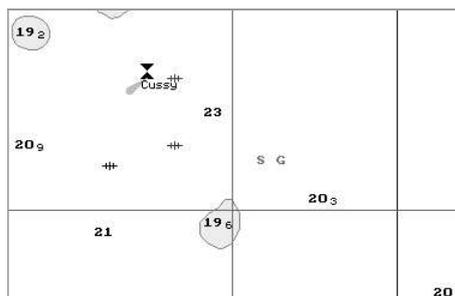


Files are attached (“Attached file” attribute) after the plotting of the user chart object.

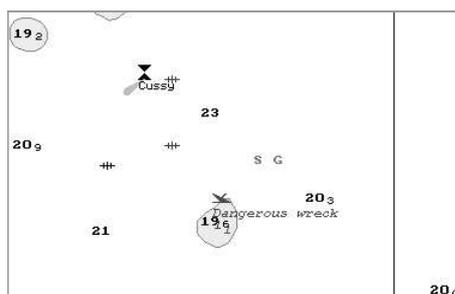
Plotting of the Selected Object

To plot the selected object on the chart, press **New Object** button.

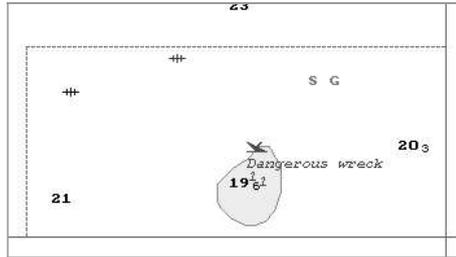
Position the cursor, which will appear on the graphic screen, in the required coordinates.



Press the left trackball/mouse button: the point type object will be set in the specified coordinates.

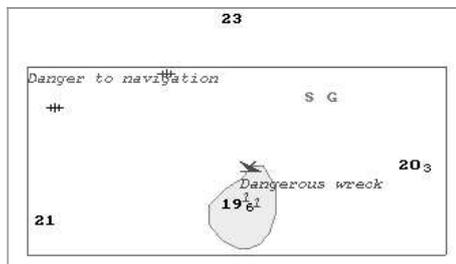


To set lines and areas, after the plotting of the initial point, move the cursor to the next point and press the left button again. Repeat the procedure until you set the required number of point.

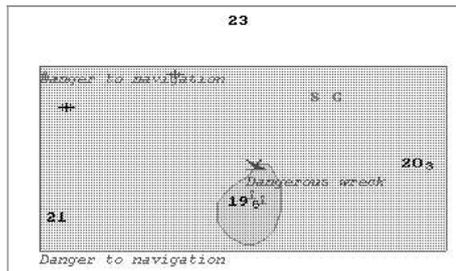


After the input of the last point of the line or area, press the right trackball/mouse button: the cursor will change its form and the object will be set in the specified coordinates:

- line by the specified points;



- area by the points, the first and the last of them connected.

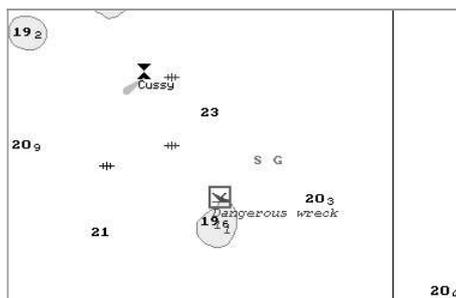


Assigning “Attached File” Attribute

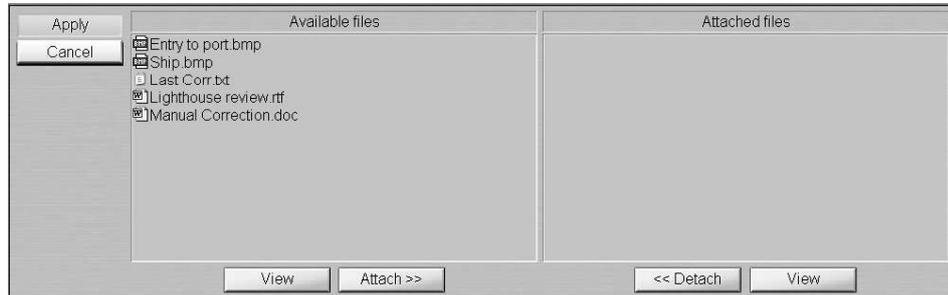
To assign “Attached file” attribute, the selected object should be plotted on the chart.

To attach files (*.txt, *.rtf, *.bmp, *.doc, *.gif, *.jpg, *.tif, *.pdf) to the user chart object (“attached files” attribute), press **Attachments** button in the left bottom part of the panel.

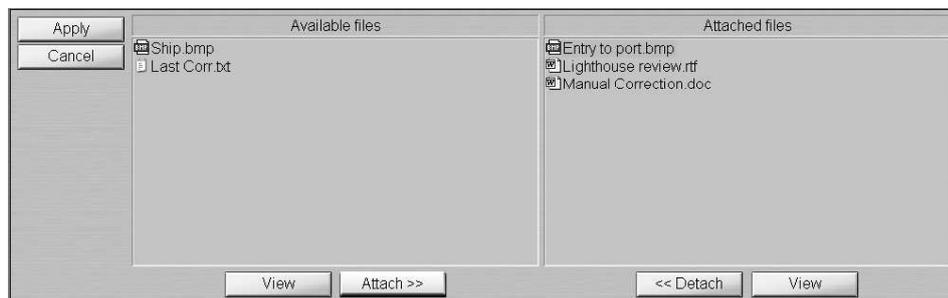
Position the acquisition marker, which will appear, on the object and press the left trackball/mouse button.



The screen will display a window with lists of all the files available for attaching (to view the contents of the selected file, press **View** button on the appropriate panel). The list of files available for attaching is formed in the Data Tool utility.



To attach a file (group of files) to the user chart object, select it in **Available files** group and press **Attach >>** button.



The file (group of files) will move to **Attached files** group. Press **Apply** button to confirm the changes you have made.

To detach a file (group of files), select the necessary files in **Attached files** group and press **<< Detach** button. The file (group of files) will move to **Available files** group. Press **Apply** button to confirm the changes you have made.

The procedure of creating and plotting a user chart object is completed.

Saving the User Chart

Use the procedure detailed above to create and plot the required number of user chart objects.

Enter comments on the created chart as required, in the comment input line.



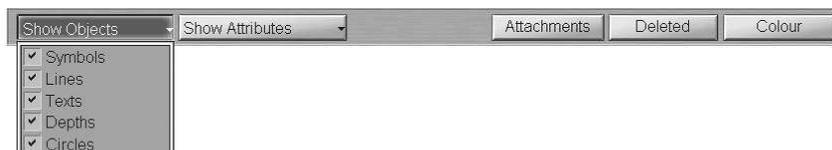
Enter the user chart name in the name input line and press **Save** button, which will be enabled.



The user chart will be saved, **Load Chart** button will display the name of the saved chart.

Turning On/Off the Display of Updating Objects and Their Attributes

To turn on/off the display of user chart objects categories on the ECDIS task screen, press **Show Objects** button.



Check the checkboxes of necessary user chart objects categories.

To turn on/off the display of user chart objects attributes on the ECDIS task screen, press the following buttons:

- **Show Attributes** – to turn on the display of “Text” and “Depth” attributes (selected from the list);
- **Attachments** – to turn on the highlighting of objects with attached files;
- **Deleted** – to turn on the highlighting of deleted object;
- **Colour** – to turn on the orange coloured lighting of all the user chart objects.

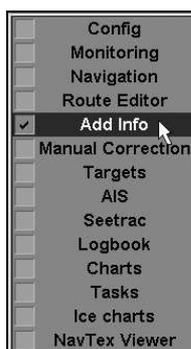
EDITING USER CHART OBJECTS

Editing Point Type Objects

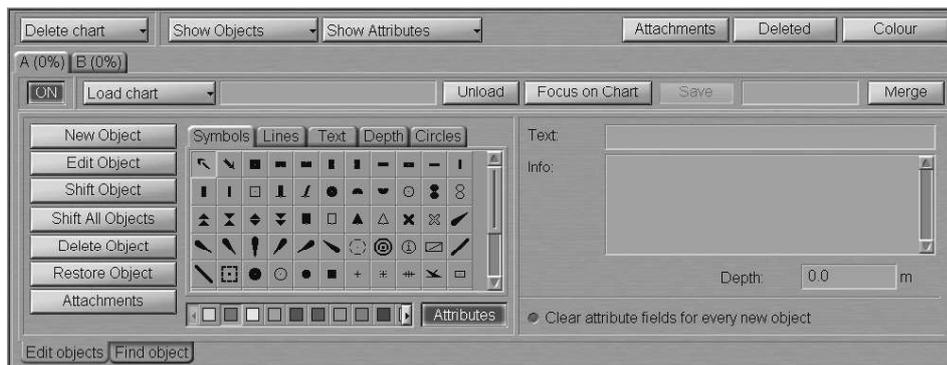
ATTENTION!

Point type objects cannot be displayed on scales smaller than 1:600,000.

Open “Add Info” panel by selecting the appropriate line of **TASKS LIST** menu on the Control panel.



In “Add Info” panel, which will open up, use the tab in the top left part of the panel to select **A** or **B** active layer window. Press **ON** button to activate it.

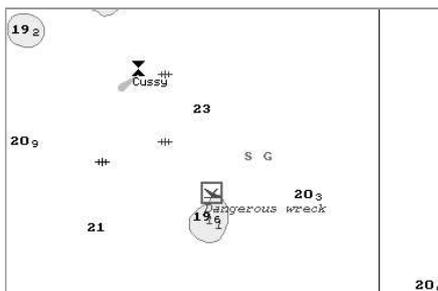


Load the user chart containing the object you are going to edit. To do this, press **Load Chart** button and select the chart name from the list, which will open up.

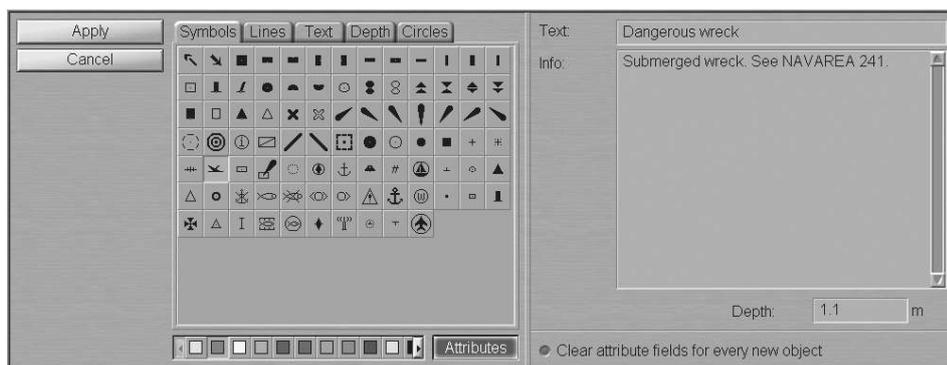


The screen will display presentations of the previously plotted user chart objects. Press **Edit Object** button in the top left corner of the panel.

Position the acquisition marker, which will appear, on the object (in case of text objects, the acquisition point is the first character) and press the left trackball/mouse button.

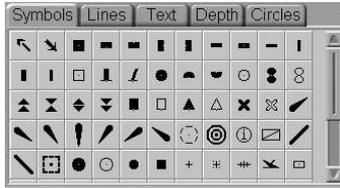


The bottom part of the screen will display a panel for editing user chart objects.



Change the object type as required; to do this, use the tab in the user chart object selection area to select the object category:

- Symbols category:



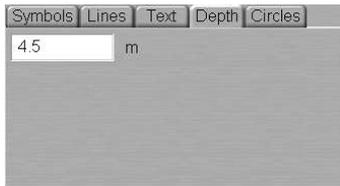
In “Symbols” tab, which will open, select the new object type by pressing the button with its picture.

- Text category:



Use the input line of “Text” tab, which will open up, to enter the required text.

- Depth category:

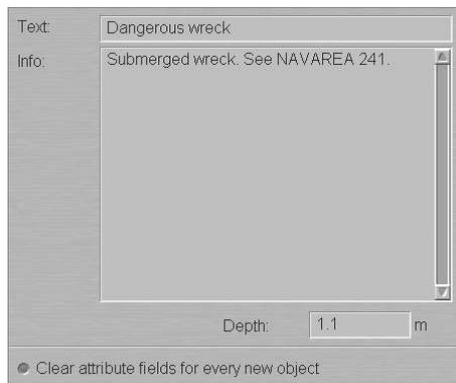


Use the input line of “Depth” tab, which will open up, enter the required distinctive depth value.

Select the user chart object colour (“Object colour” attribute) from the palette under the object category selection area.



Open the attribute area (if not yet displayed on the panel) by pressing **Attributes** button to the right of the palette.

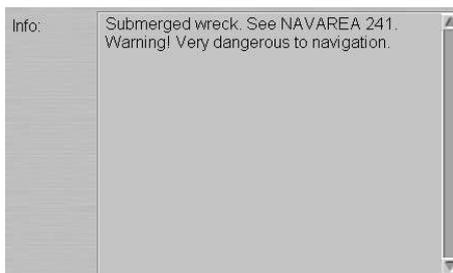


Edit the necessary attributes of the user chart object.

Enter the required text (“Text” attribute) in **Text** input line (information will be displayed on the chart).



Enter the required information (“Object information” attribute) in Info field (information will not be displayed unless Info function is used).

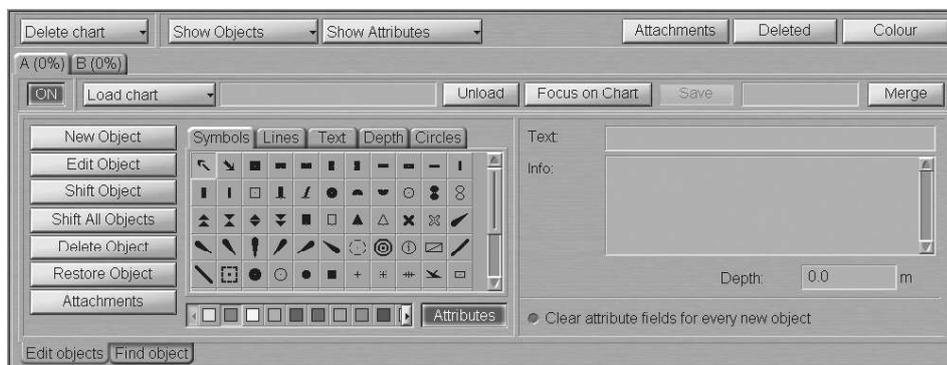


Set the required depth value (“Object depth” attribute) in Depth line.



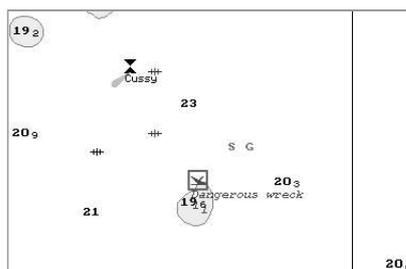
Files are attached/detached (“Attached file” attribute) in a separate step.

Press Apply button to confirm the changes you have made: “Add Info” panel will open up.



To attach files to the user chart object (“Attached file” attribute), press Attachments button in the left bottom corner of the panel.

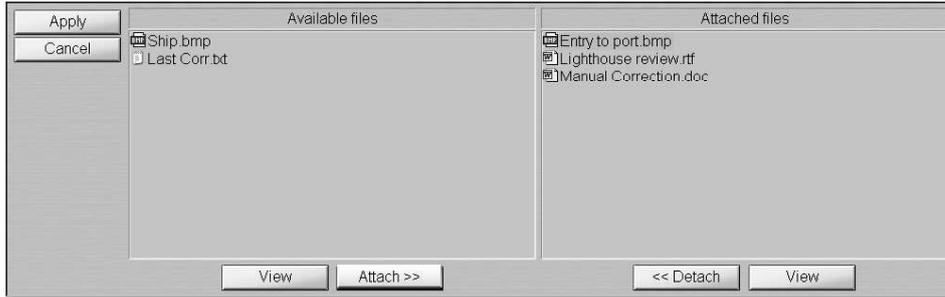
Position the acquisition marker, which will appear, on the edited object and press the left trackball/mouse button.



The screen will display a window with a list of files available for attaching/detaching (to view the contents of the selected file, press View button on the appropriate panel). The list of files available for attaching is formed in the Data Tool utility.



To attach a file (group of files) to the user chart object, select it in **Available files group** and press **Attach >>** button.



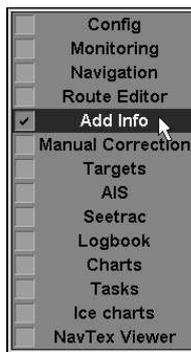
The file (group of files) will move to **Attached files group**. Press **Apply** button to confirm the changes you have made.

To detach a file (group of files), select the necessary files in **Attached files group** and press **<< Detach** button. The file (group of files) will move to **Available files group**. Press **Apply** button to confirm the changes you have made.

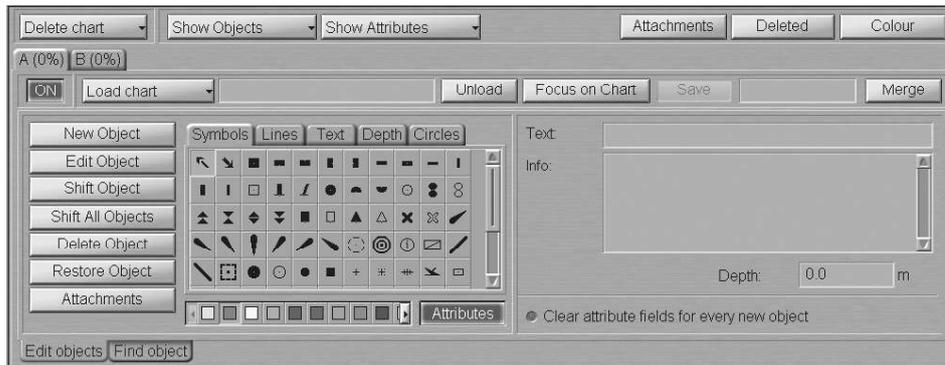
Press **Save** button.

Editing Line, Circle and Area Type Objects

Open “Add Info” panel by selecting the appropriate line of **TASKS LIST** menu on the Control panel.



In “Add Info” panel, which will open up, use the tab in the top left part of the panel to select **A** or **B** active layer window. Press **ON** button to activate it.

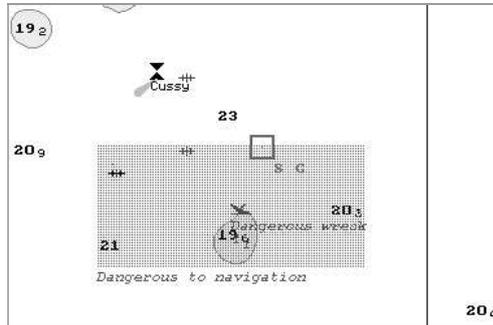


Load the user chart containing the object you are going to edit. To do this, press **Load chart** button and select the chart name from the list, which will open up.

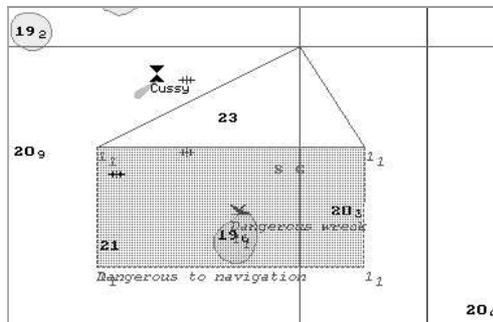


The screen will display presentations of the previously plotted user chart objects. Press **Edit object** button in the top left corner of the panel.

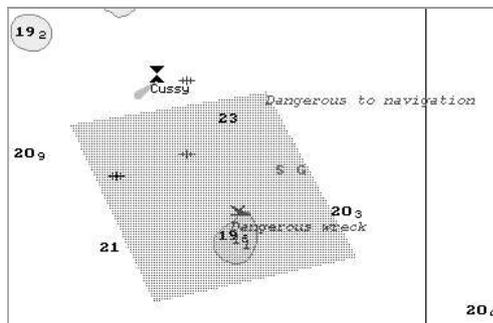
Position the acquisition marker, which will appear, on the line (object boundary) and press the left trackball/mouse button.



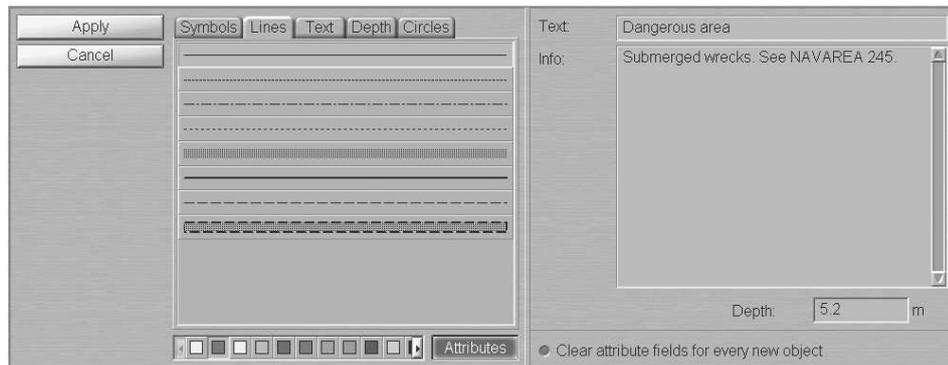
The cursor will “acquire” the object and change own form.



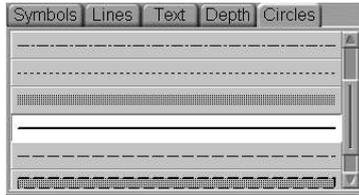
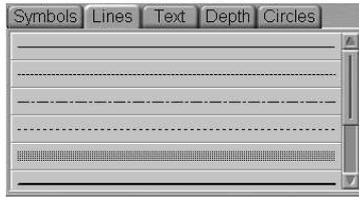
If the object configuration is required to be changed, move the cursor to the required coordinates. Press the left trackball/mouse button and repeat this operation until the necessary configuration is set.



Press the right trackball/mouse button. The bottom part of the screen will display a panel for the editing of user chart objects. Edit the object type and its attributes.



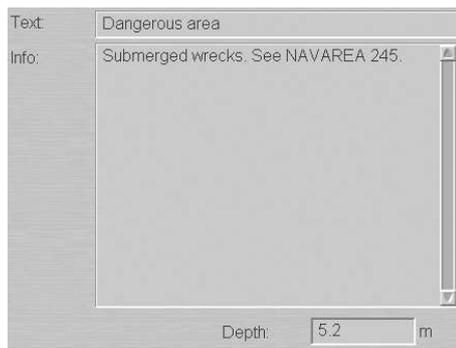
Change the object type as required in “Lines” or “Circles” tab; to do this, press the button with its picture in the user chart object selection area.



In the palette under the object category selection area, select the colour of the line or area type object (“Object colour” attribute).



Open the attribute area (if not yet displayed on the panel) by pressing **Attributes** button to the right of the palette.

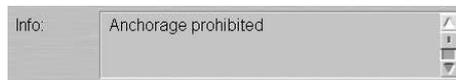


Edit the necessary attributes of the user chart object.

Enter the required text (“Text” attribute) in Text input line (information will be displayed on the chart).



Enter the required information (“Object information” attribute) in Info field (information will not be displayed unless Info function is used).

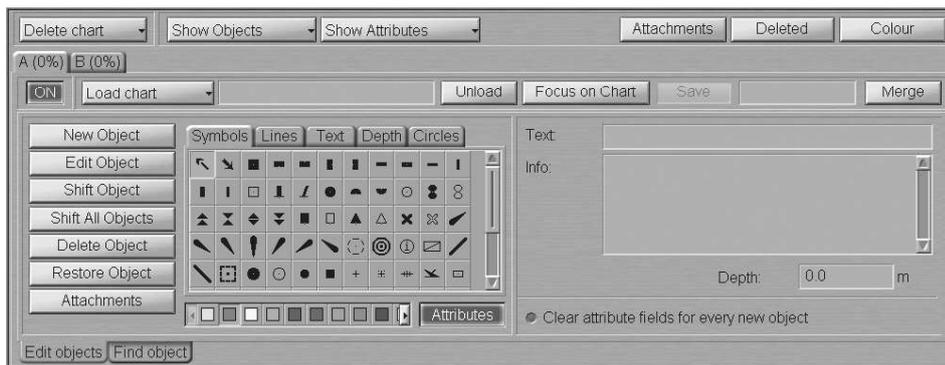


Set the required depth value (“Object depth” attribute) in Depth line.



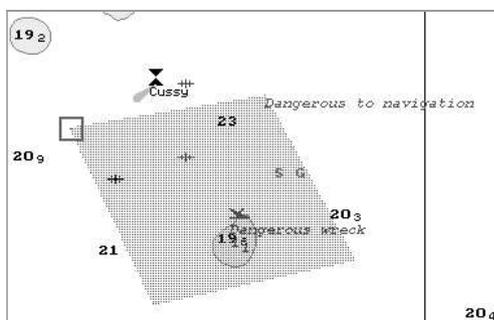
Files are attached/detached (“Attached file” attribute) in a separate step.

Press **Apply** button to confirm the changes you have made: “Add Info” panel will open up.

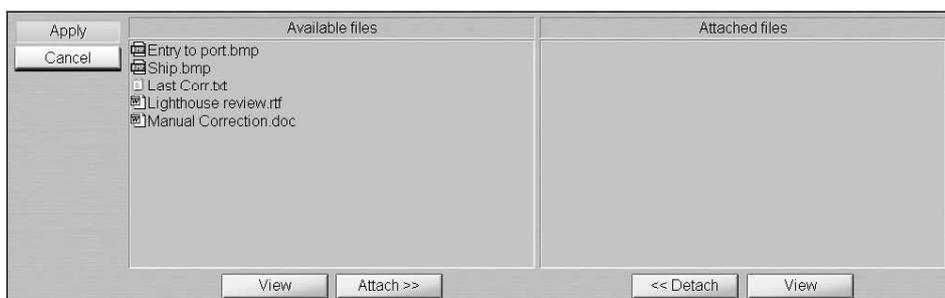


To attach files to the user chart object (“Attached file” attribute), press **Attachments** button in the left bottom corner of the panel.

Position the acquisition marker, which will appear, on the edited object and press the left trackball/mouse button.



The screen will display a window with a list of files available for attaching/detaching (to view the contents of the selected file, press **View** button on the pertinent panel). The list of files available for attaching is formed in the Data Tool utility.



To attach a file (group of files) to the user chart object, select it in **Available files** group and press **Attach >>** button.



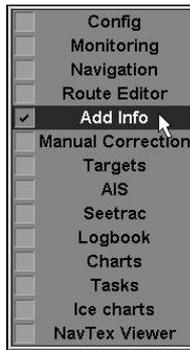
The file (group of files) will move to **Attached files** group. Press **Apply** button to confirm the changes you have made.

To detach a file (group of files), select the necessary files in **Attached files** group and press **<< Detach** button. The file (group of files) will move to **Available files** group. Press **Apply** button to confirm the changes you have made.

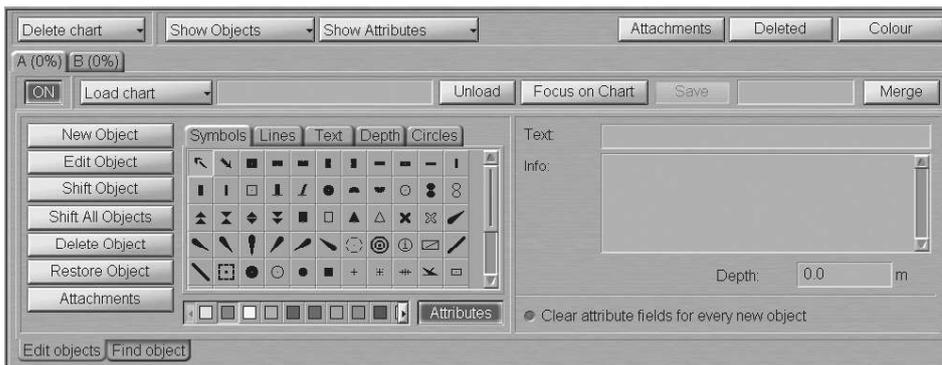
Press **Save** button.

Editing User Chart Object Coordinates

Open “Add Info” panel by selecting the appropriate line of **TASKS LIST** menu on the Control panel.



In “Add Info” panel, which will open up, use the tab in the top left part of the panel to select **A** or **B** active layer window. Press **ON** button to activate it.

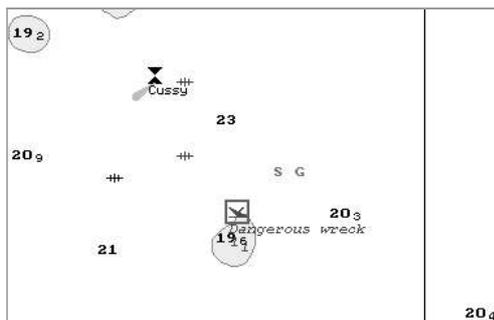


Load the user chart containing the object whose coordinates you are going to edit. To do this, press **Load Chart** button and select the chart name from the list, which will open up.

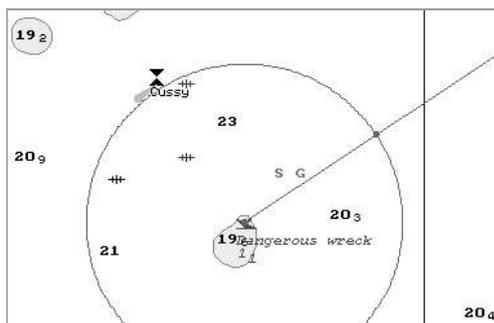


The screen will display presentations of the previously plotted user chart objects. Press **Shift Object** button in the top left part of the panel.

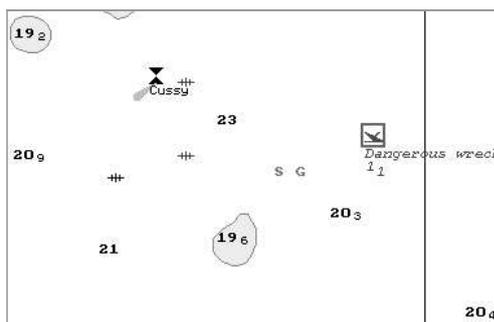
Position the acquisition marker, which will appear, on the object to be shifted (the first character of a text object or a point in a line or area type object).



Press the left trackball/mouse button. Position the marker, which will appear, in the new object coordinates within the displayed Chart panel.



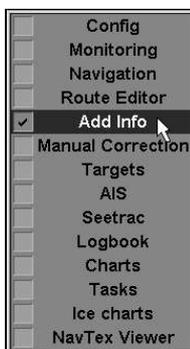
Press the left trackball/mouse button: the object will move to the specified coordinates.



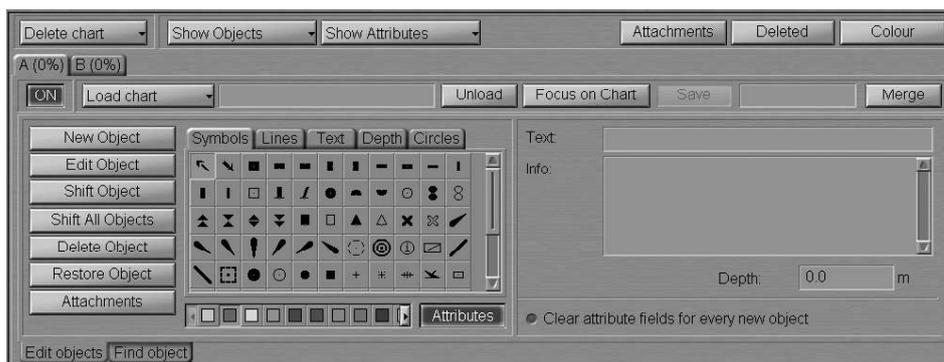
Press the right trackball/mouse button to exit from the mode of editing of the user chart object coordinates.

Deleting the User Chart Object

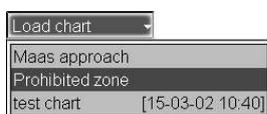
Open "Add Info" panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



In “Add Info” panel, which will open up, use the tab in the top left part of the panel to select A or B active layer window. Press ON button to activate it.

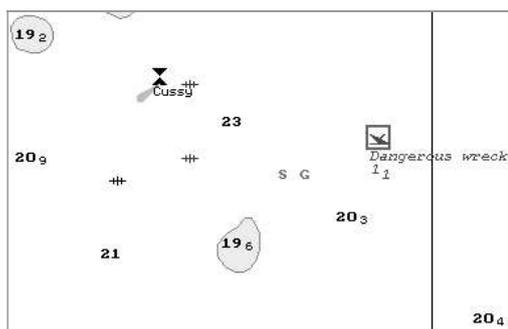


Load the user chart containing the object you are going to delete. To do this, press Load chart button and select the chart name from the list, which will open up.

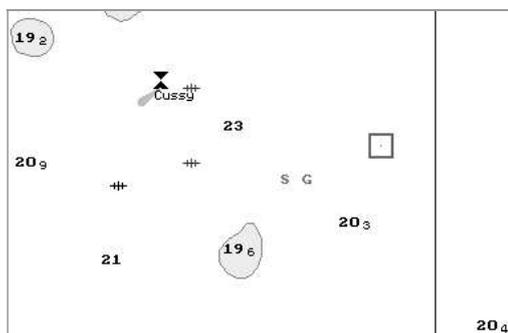


The screen will display presentations of the previously plotted user chart objects. Press Delete Object button in the left part of the panel.

Position the acquisition marker, which will appear, on the object to be deleted (the first character of a text object or a point in a line or area type object).



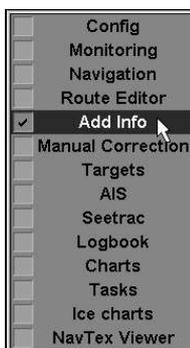
Press the left trackball/mouse button: the presentation of the object will be removed from the Chart panel.



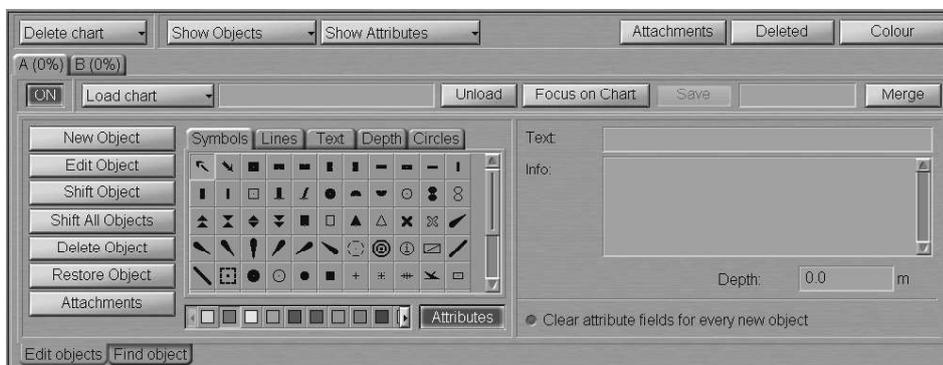
Press the right trackball/mouse button to exit from the user chart object deleting mode.

Restore the Deleted User Chart Object

Open “Add Info” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



In “Add Info” panel, which will open up, use the tab in the top left part of the panel to select A or B active layer window. Press ON button to activate it.

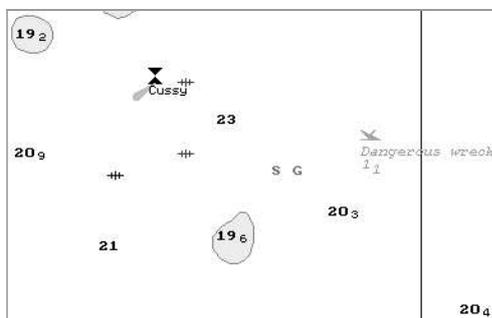


Load the user chart containing the object you are going to restore. To do this, press Load chart button and select the chart name from the list, which will open up.



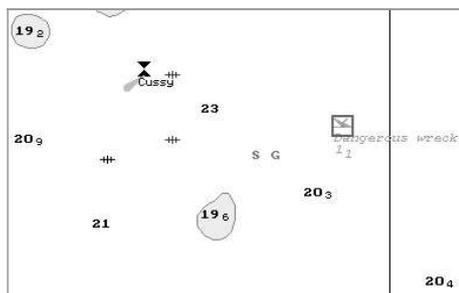
The screen will display presentations of the previously plotted user chart objects.

Press Deleted button in the top part of the panel. The screen will display all the previously deleted objects shown in the grey colour.

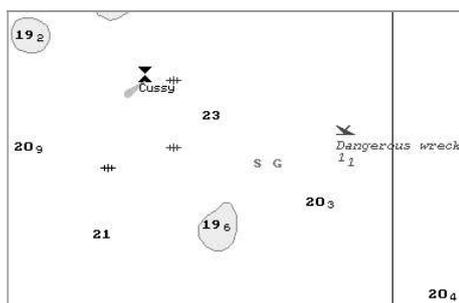


Press Restore Object button in the left bottom part of the panel.

Position the acquisition marker, which will appear, on the deleted object (the first character of a text object or a corner point of a line or area type object).



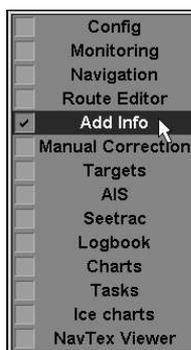
Press the left trackball/mouse button: "Deleted object" attribute is removed, and the object is highlighted in accordance with the previously made settings.



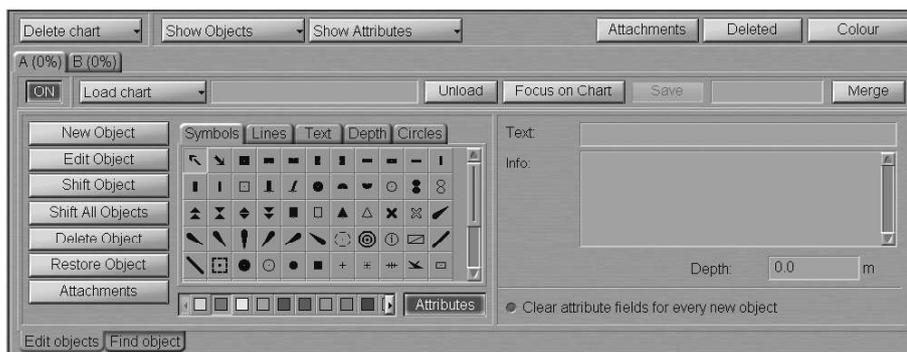
Press the right trackball/mouse button to exit from the deleted user chart object restore mode.

MERGING TWO USER CHARTS

Open "Add Info" panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



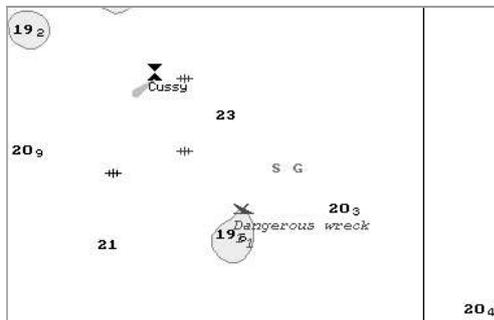
In "Add Info" panel, which will open up, use the tab in the top left part of the panel to select A active layer window. Press ON button to activate it.



Load the user chart containing objects, which will be copied to another chart. To do this, press **Load chart** button and select the chart name from the list, which will open up.



The screen will display presentations of the previously plotted user chart objects.

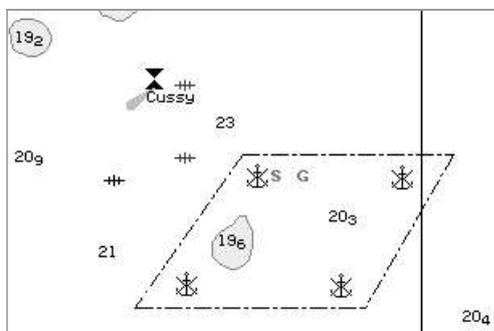


Use the tab in the top part of the panel to select **B** active layer window. Press **ON** button to activate it.

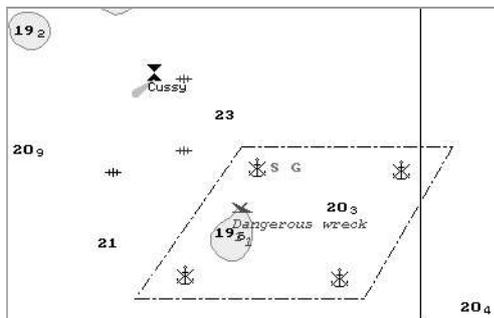
Load the user chart. To do this, press **Load Chart** button and select the chart name from the list, which will open up.



The screen will display presentations of the previously plotted user chart objects. **B** layer user chart has the appearance as shown below.



As **B** layer is shown simultaneously with **A** layer, you will see the following presentation on the Chart panel.



Press **Merge** button in the top left part of the panel. **A** layer chart merges with **B** layer chart, and a new chart is formed in the active layer (which marked with the tab).

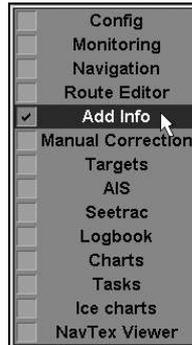
Enter the name of the new user chart in the name input line and press **Save** button which will be activated.



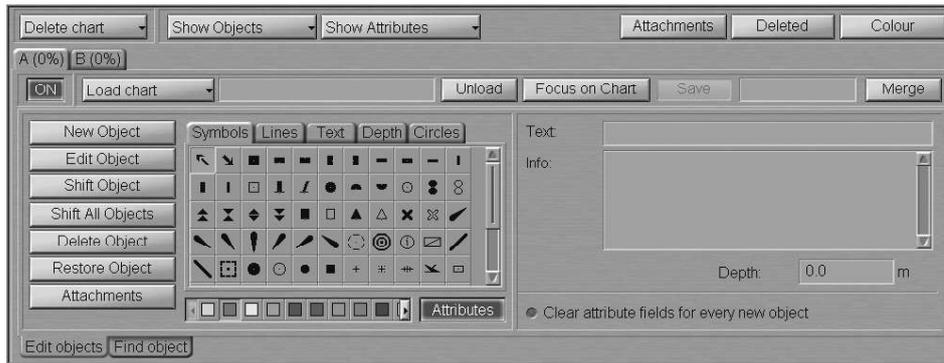
The user chart will be saved, and **Load Chart** button will display the saved chart name.

DELETING USER CHARTS

Open “Add Info” panel by selecting the appropriate line of **TASKS LIST** menu on the Control panel.



In “Add Info” panel, which will open up, press **Delete chart** button.



Select the chart name from the list, which will open up.



Press the left trackball/mouse button.



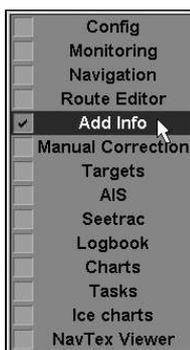
In the window, which will appear, press “Yes” button to confirm the deleting of the user chart. The chart will be deleted.

SEARCH FOR USER CHART OBJECTS

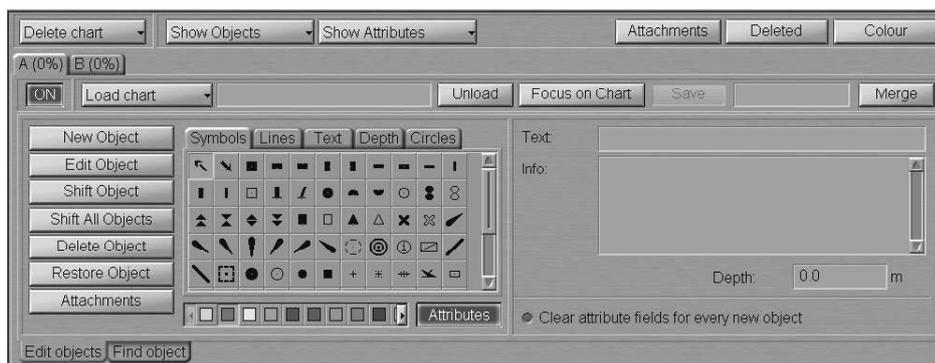
ATTENTION!

Point type objects cannot be displayed on scales smaller than 1:600,000.

Open “Add Info” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



In “Add Info” panel, which will open up, use the tab in the top left part of the panel to select A or B active layer window. Press ON button to activate it.

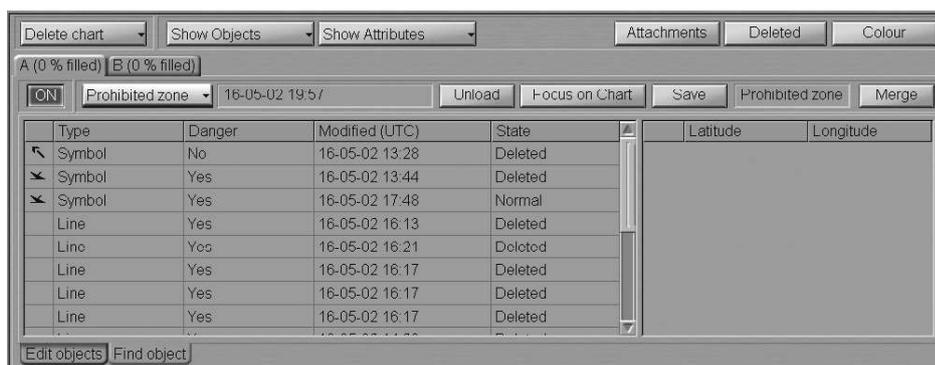


Load the user chart containing the object required to be found. To do this, press Load chart button and select the chart name from the list, which will open up.



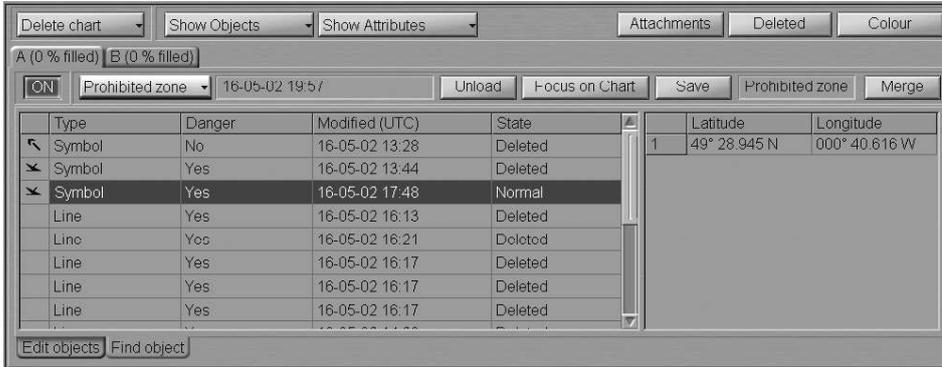
The screen will display presentation of the previously plotted user chart objects.

Use the tab in the bottom part of the panel to switch to “Find object” page.

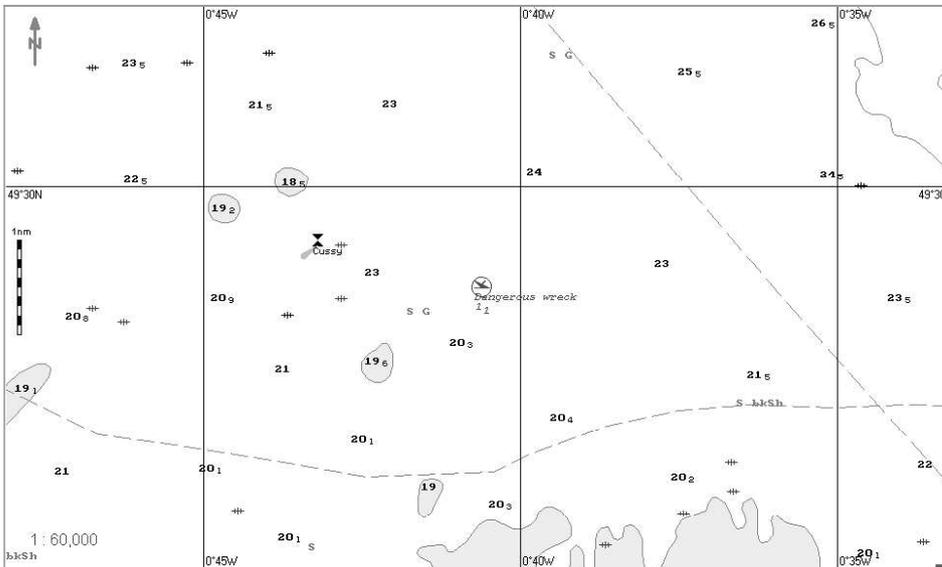


Search for User Chart Objects

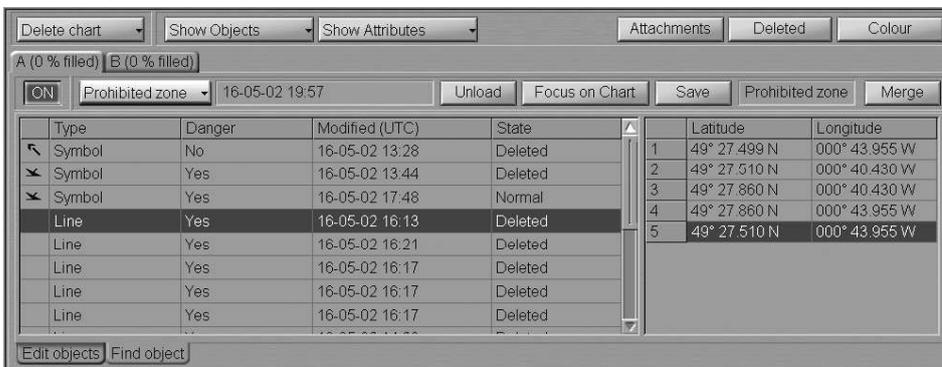
Select the required user chart object in the left-hand part of the page and press the left trackball/mouse button. Coordinates of the selected object will be displayed in the right-hand part of the page.



A double click of the left trackball/mouse button on the selected object line or its coordinates displays this object in the centre of the Chart panel highlighted with a flashing circle for 10 seconds.



With the selection of line or area type objects, the right-hand part of the page displays coordinates of all the points, which the line/area type object consists of.



A double click of the left trackball/mouse button on the coordinates of any point which the line/area type object consists of, displays this point in the centre of the Chart panel highlighted with a flashing circle for 10 seconds.

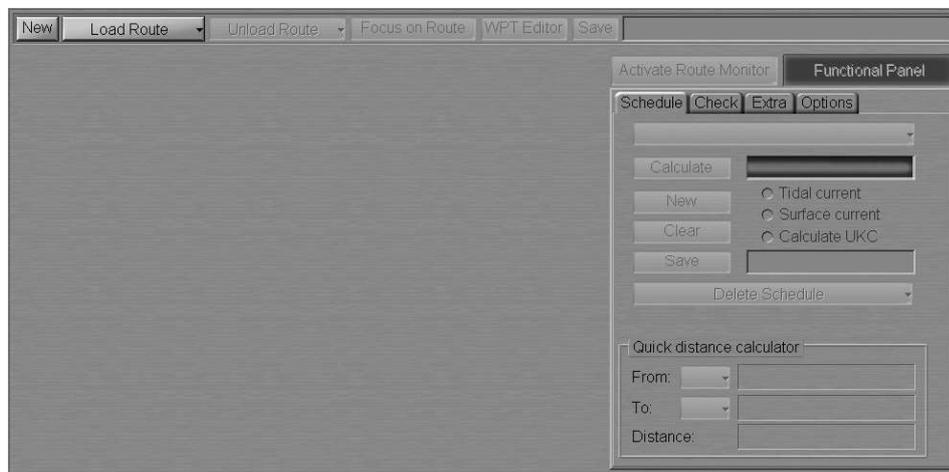
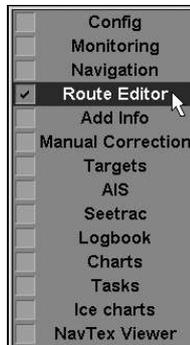
CHAPTER 9

Handling of Routes

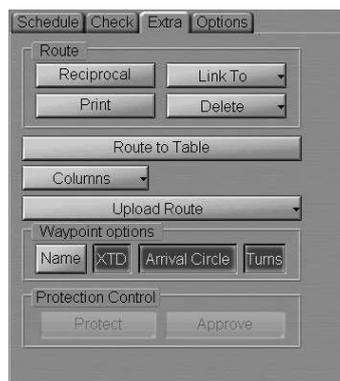
This chapter describes the procedure used in the handling of routes and schedules.

CREATING A ROUTE

Open “Route Editor” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the right part of “Route Editor” panel to switch to “Extra” page.



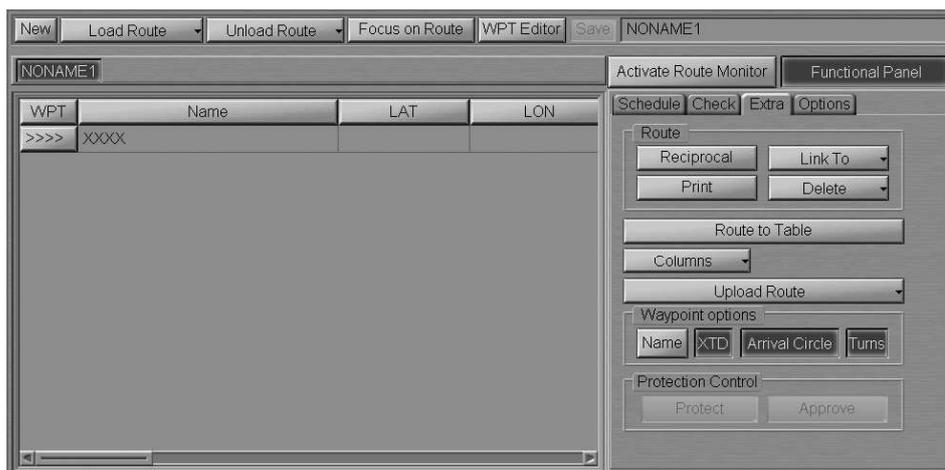
The following buttons for turning on the display of Waypoint options on the ECDIS screen are pressed by default:

- **XTD** – to display on the electronic chart safety lines for the active route;
- **Arrival Circle** – to display on the electronic chart change-of-WPT circle for the active route;
- **Turns** – to display on the electronic chart the turn radius arc for the active route.

If necessary, press **Name** button to turn on the display of waypoints’ names on the ECDIS screen.

Creating a Route

In “Route Editor” panel, press **New** button to display a blank table for the generation of a new route.



Route and schedule elements table can contain the following data (by columns):

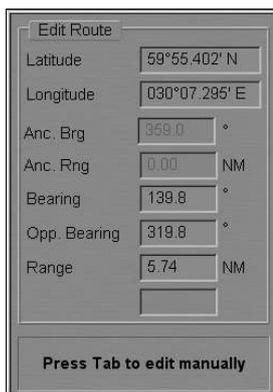
- **WPT** – WPT number;
- **Name** – WPT name set by the operator manually;
- **LAT** – WPT latitude coordinate set by the operator manually, or automatically with the use of the graphic editor;
- **LON** – WPT longitude coordinate set by the operator manually, or automatically with the use of the graphic editor;
- **RL/GC** – route leg type from the previous to the current WPT, set by the operator; all route leg calculations are referred to the WGS-84 reference datum;
- **Distance** – distance from the previous to the current WPT;
- **Course** – course from the previous to the current WPT;
- **Total Distance** – summary distance between the initial (0) and current WPT by the route legs;
- **PORT XTD** – safe zone to the left of the route leg, set by the operator;
- **STBD XTD** – safe zone to the right of the route leg, set by the operator;
- **Arrival Circle** – radius of a circle whose crossing initiates the change of the current WPT if the route is used as the monitored route;
- **Turn Radius** – operator-set radius of the arc for the display of an approximate ship track on the turn;
- **Time Zone** – operator-set time zone (switching of the ship time) in the given WPT;
- **ETA** – estimated time of arrival in a WPT;
- **Stay** – estimated time of stay in the given WPT;
- **ETD** – estimated time of departure from the given WPT;
- **TTG** – time underway from the previous to the given WPT;
- **Total Time** – total time underway from the start point (0) to the given WPT, time of stays taken into account;
- **Draught** – manual input of the ship draft on each leg;
- **UKC** – under-keel clearance obtained from the schedule calculations based on the individual chart depths;

- Speed – speed on the route leg from the previous to the given WPT;
- Average Speed – average speed of sailing from the start point to the given WPT.

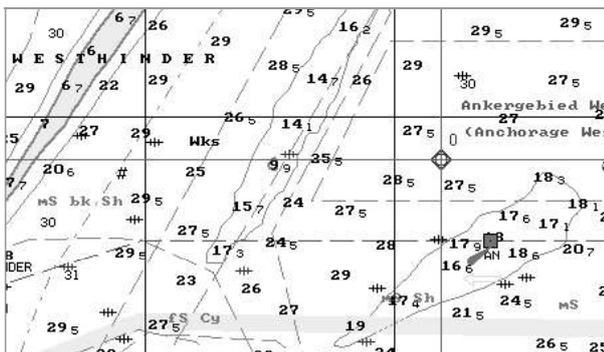
Graphic Method

Use of Standard Graphic Cursor

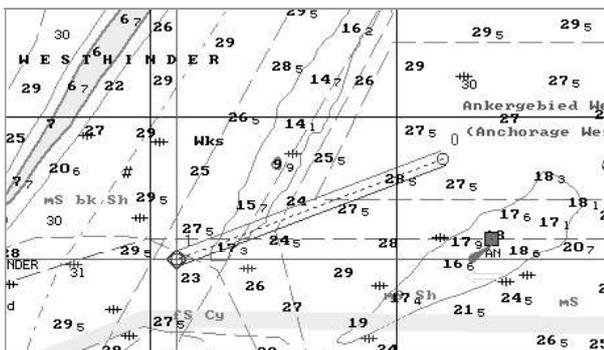
After a press on the **New** button, a graphic cursor will appear on the Chart panel, whereas the right bottom part of the ECDIS task screen will display **Edit Route** information window.



Set the cursor in the start point coordinates by moving the trackball/mouse, using the data in **Edit Route** window, and press the left trackball/mouse button.



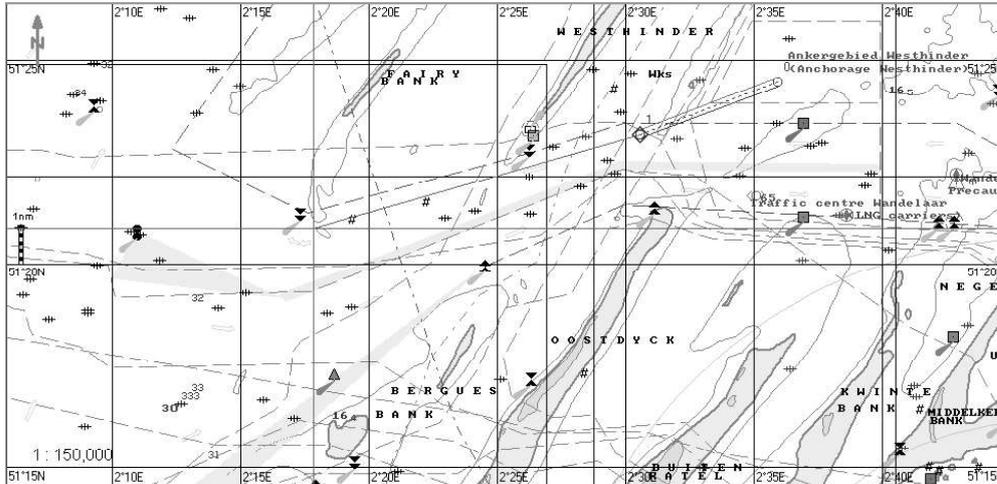
The symbol of the start point with its number (“0”) will appear on the Chart panel. Position the cursor in the coordinates of the next point. At this stage, a route leg line will be drawn between the cursor and the start point. Press the left trackball/mouse button: the Chart panel will display the next point symbol with “1” for number and the plotted route leg. By default, XTD lines are also shown. To turn off their display, use “Extra” page.



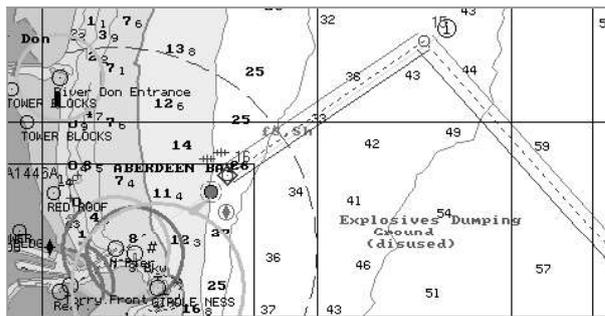
If it is necessary to set several waypoints, repeat the trackball/mouse moving and left button pressing operation as many times as there are WPT’s required to be set.

Creating a Route

If the cursor is positioned beyond the Chart panel boundaries, it will be re-drawn automatically so that there is always a chart from the chart folio under the cursor (provided Chart Autoload function is "ON").



After the setting of the last point of the planned route, double click the right trackball/mouse button: the cursor will exit from the route planning and editing mode and will assume the form of the ECDIS task free cursor.



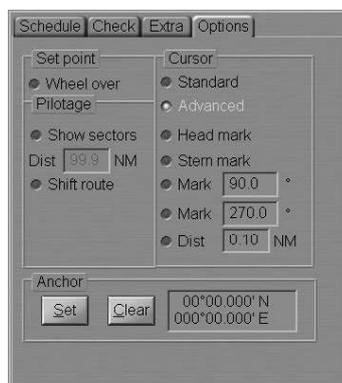
The generation of the route is completed. To save the route, enter its name in the name input line in the top right part of the panel.



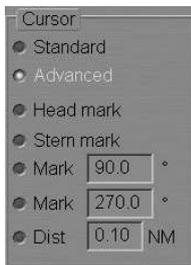
Press **Save** button which has been activated. The networked route will be saved in all the WS's.

Use of Additional Graphic Cursor

Use the tab in the top part of "Route Editor" panel, which will open up, to switch to "Options" page.



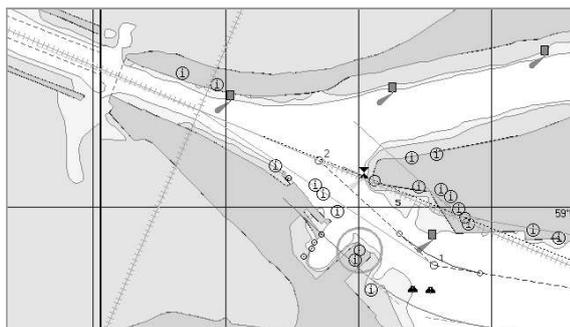
By default, the **Standard** cursor mode is set, whereby the cursor has the form of intersecting lines corresponding to the latitude and longitude of the cursor indicated point. Select **Advanced** cursor by choosing the appropriate option button.



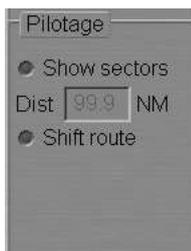
To turn on additional graphic cursor tools, check the appropriate checkboxes:

- **Head mark** – to display the line ahead of the cursor position in the direction of the plotted route leg;
- **Stern mark** – to display a line opposite to the Head Mark from a waypoint;
- **Mark** – to display two additional lines setting their angles relative to Head Mark line;
- **Distance** – to display and set range marks on the cursor lines.

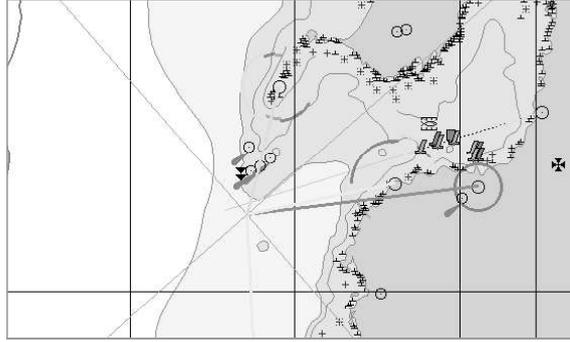
The advanced capabilities of the graphic cursor prove to be useful in, e.g. planning a route along the lead lines.



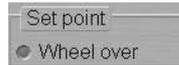
Plotting the Route Using Lighthouse Lighting



Where it is necessary to plot waypoints taking into account the lighthouse visibility range, check **Show sectors** checkbox and set the value of the sectors' visibility range. As the graphic cursor gets within the lighthouse visibility range, the lighthouse is lighted on the Chart panel. The colour of the lighting line is determined by the lighthouse sector colour.



Setting Wheel Over Point



Where it is necessary to plot waypoints taking into account the ship's turn radius, check **Wheel over** checkbox in the **Set point** group.

Setting of Reference Point on the Chart Panel



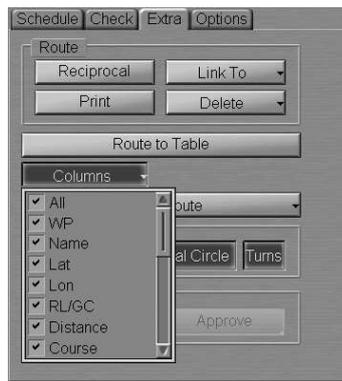
To set a base point on the ECDIS task Chart panel, which will be used in the plotting and editing of routes, press **Set** button in **Anchor** group. Position the cursor on the necessary point on the ECDIS task Chart panel and press the left trackball/mouse button. The base point symbol (anchor) will appear in the base point, whereas **Anchor** group coordinate boxes will display its coordinates.

To cancel the display of the base point, press **Clear** button in **Anchor** group.

Tabular Method

After a press on the **New** button, a graphic cursor will appear on the Chart panel. Click the right trackball/mouse button: the cursor will exit from the route planning and editing mode and will assume the form of the ECDIS task free cursor.

Use the tab in the right-hand part of the panel to switch to "Extra" page and press **Columns** button:



In the list, which will open up, select lines with the names of required route elements. The corresponding columns will remain the route element table.

WPT	Name	LAT	LON
>>>	XXXX		

Enter the route start point ("0" row). To do this, perform the procedures detailed below:

- position the cursor on **Name** element cell; double click the left trackball/mouse button to activate the cell;
- enter the WPT name; press <Enter> key;
- position the cursor on **LAT** element cell. Double click the left trackball/mouse button to activate the cell;
- enter the latitude coordinate and press the right trackball/mouse button;
- press "Apply" button to confirm the changes you have made;
- position the cursor on **LON** element cell; double click the left trackball/mouse button to activate the cell;
- enter the longitude coordinate and press the right trackball/mouse button;
- press "Apply" button to confirm the changes you have made;
- position the cursor on **RL/GC** element cell; double click the left trackball/mouse button to activate the cell;
- press the button in the right-hand part of the cell and select the sailing type from the list which will open up;
- press the left trackball/mouse button to confirm the changes you have made;
- there is no editing of course and range cells;
- position the cursor on **PORT XTD** element cell; double click the left trackball/mouse button to activate the cell;
- edit XTD value to the left of the route leg; press the left trackball/mouse button;
- position the cursor on **STBD XTD** element cell; double click the left trackball/mouse button to activate the cell;
- edit XTD value to the right of the route leg; press the left trackball/mouse button;

Name

Name
Anchorage Westhinder

LAT
51° 27.207' N

LAT	51° 27.207' N	Apply	Cancel
-----	---------------	-------	--------

LAT
51° 27.207' N

LON
000° 00.000' E

LON	002° 30.433' E	Apply	Cancel
-----	----------------	-------	--------

LON
002° 30.433' E

RL/GC
RL

RL/GC
RL
GC

RL/GC
GC

PORT XTD
0.10

PORT XTD
0.50 NM

STBD XTD
0.10

STBD XTD
0.50 NM

- position the cursor on **Arrival Circle** element cell; double click the left trackball/mouse button to activate the cell;
- enter the radius value for the WPT change circle; press the left trackball/mouse button;
- position the cursor on **Turn Radius** element cell; double click the left trackball/mouse button to activate the cell;
- enter the radius for the arc of the suitable ship track on the turning circle; press the left trackball/mouse button.

Arrival Circle
0.00

Arrival Circle
0.50 nm

Turn Radius
0.00

Turn Radius
1.00 nm

The remaining cells are filled in at the time when the schedule is drawn.

Enter the rest of the WPT's.

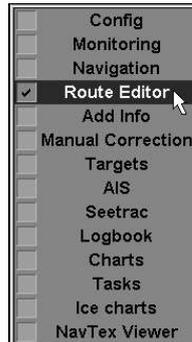
The route generation is completed. To save the route, enter its name in the name input line in the top part of the panel.

Save Antwerpen - Aberdeen

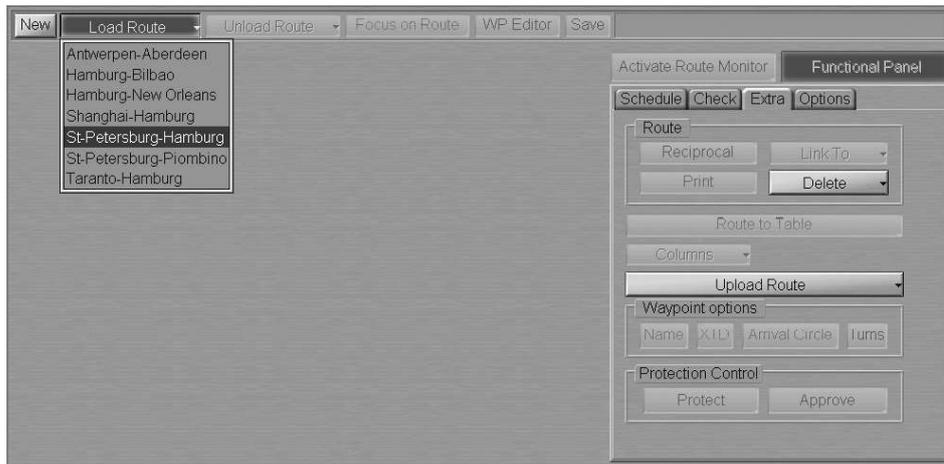
Press **Save** button, which has been activated. The networked route will be saved in all the WS's.

ROUTE LOADING AND UNLOADING

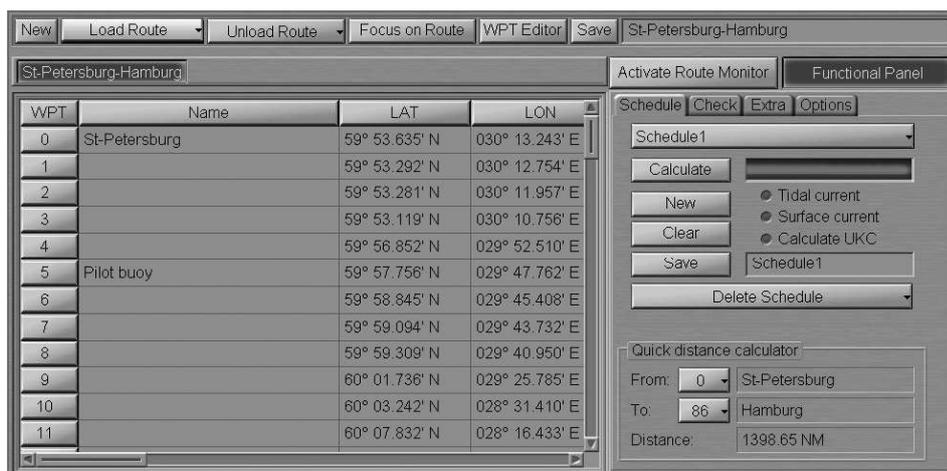
Open "Route Editor" panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



In "Route Editor" panel, press **Load Route** button to activate it.



In the list, which will open up, select the route required to be loaded in edition mode, and press the left trackball/mouse button.



Several routes can be loaded simultaneously in the editing mode. As a button with route name is pressed, the route becomes active and can be edited in the table or on the ECDIS task screen by using the graphic editor.

To quick load the necessary route to monitoring mode, select it from the routes loaded in edition mode and press **Activate Route Monitor** button (see also paragraph **Navigational Tasks**, item **Loading of Route and Schedule in the Navigation Mode**):



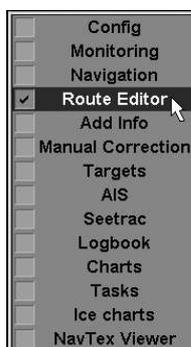
To unload the route, press **Unload Route** button:



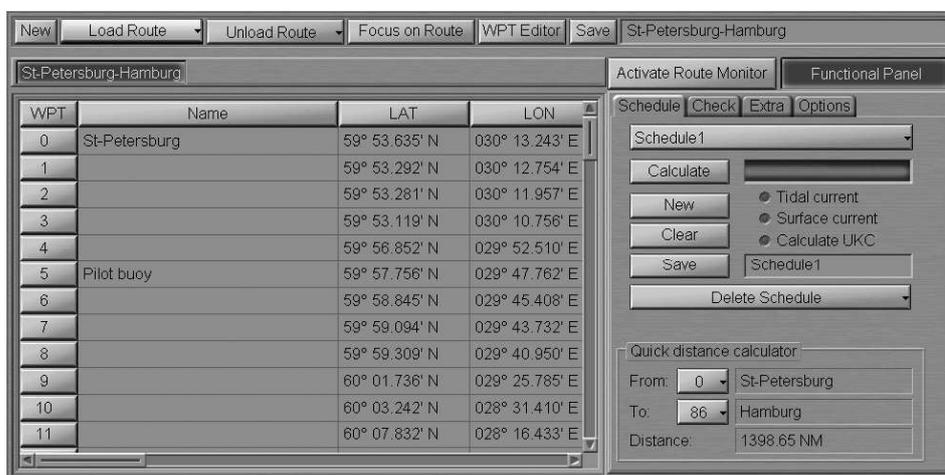
In the list, which will open up, select the route required to be unloaded, and press the left trackball/mouse button.

FAST ROUTE SEARCH

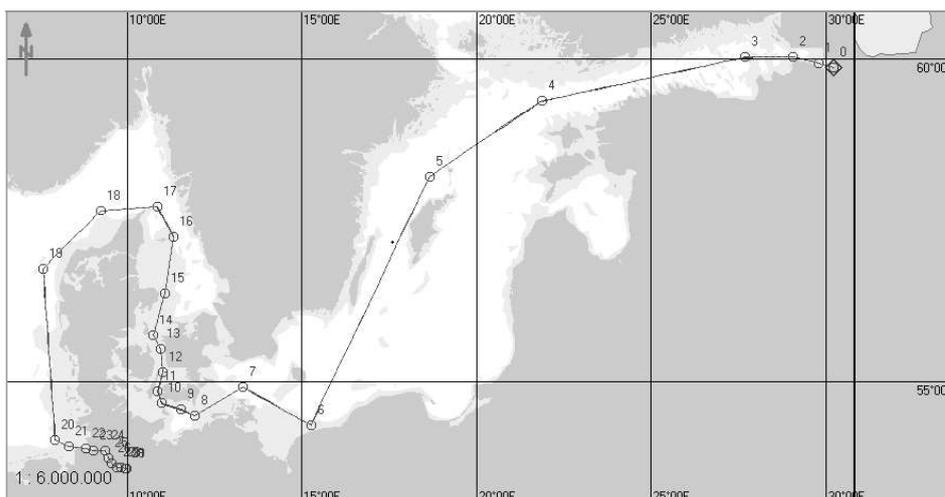
Open “Route Editor” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



In “Route Editor” panel, load the necessary route.



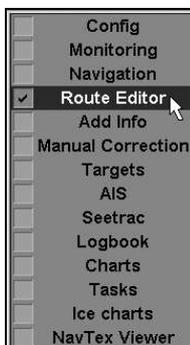
Press Focus on Route button. The Chart panel will display the entire route on the suitable scale chart.



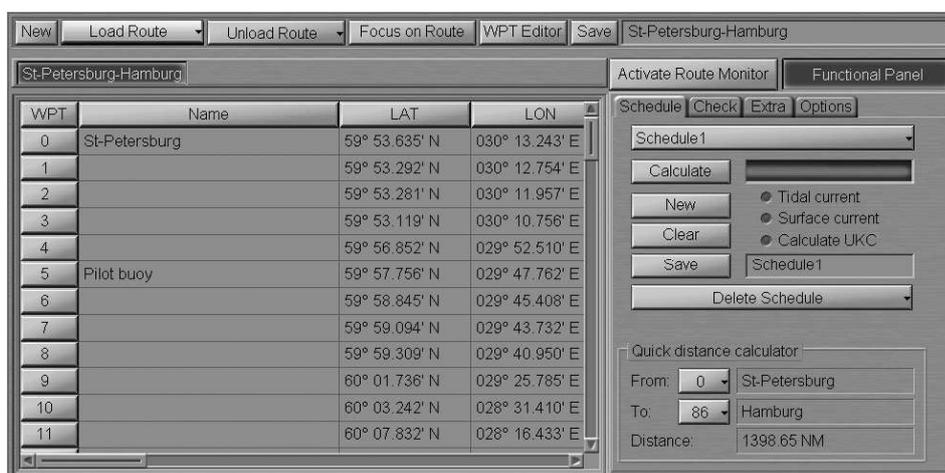
ROUTE EDITING

Graphic Route Editing Method

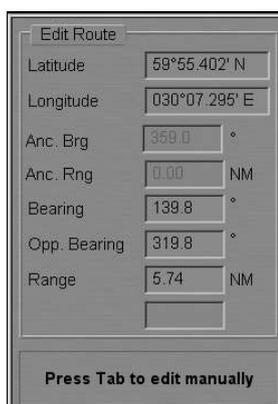
Open "Route Editor" panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



In "Route Editor" panel, load the necessary route.



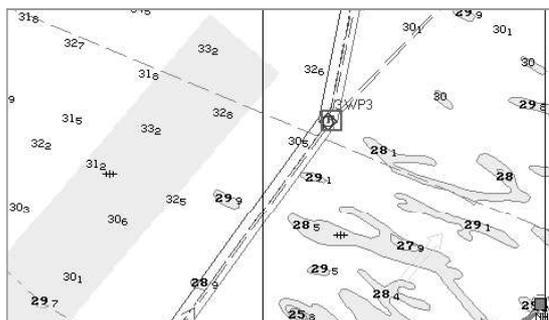
Press WPT Editor button. An acquisition marker will appear in the Chart panel, whereas the right bottom part of the ECDIS task screen will display Edit Route information window.



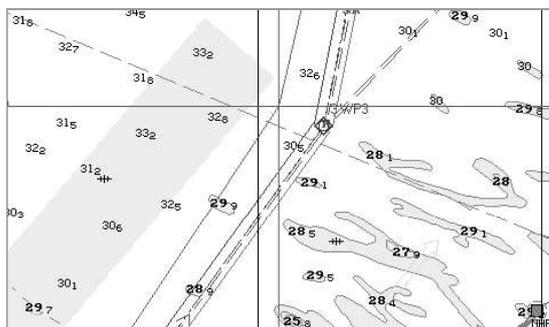
Edit Route window displays marker coordinates.

Changing Coordinates of an Existing WPT

Position the acquisition marker on the WPT to be edited.

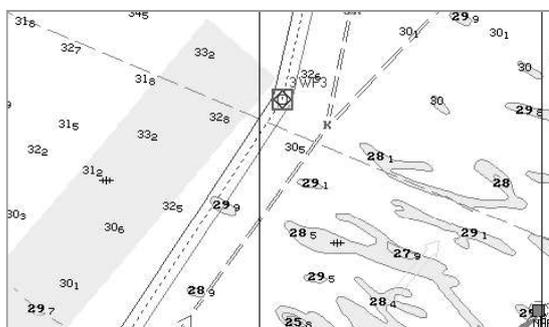


Press the left trackball/mouse button: the marker will acquire the WPT and change own form.



Move the acquired WPT to the required place. As the WPT coordinates change, the adjacent route legs will change, too.

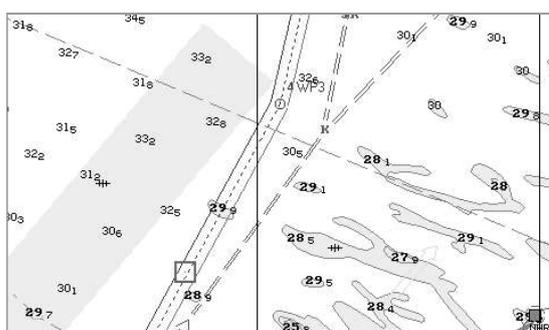
Press the left trackball/mouse button.

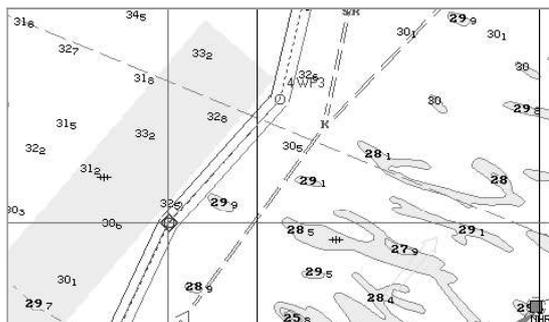


The WPT will be set in the new coordinates.

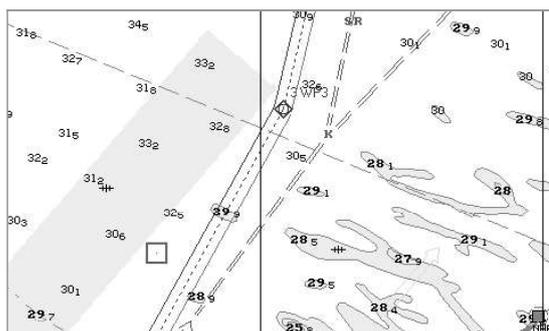
Setting a New WPT

Position the acquisition marker on the route leg where a new WPT is required to be set.





Press the right trackball/mouse button. The point will be deleted, and the adjacent route legs will be combined to form one.

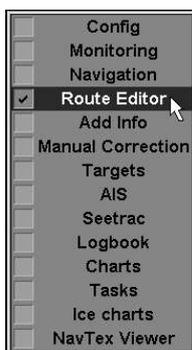


Press the right trackball/mouse button to exit from the editing mode. The marker will assume the shape of the ECDIS task free cursor.

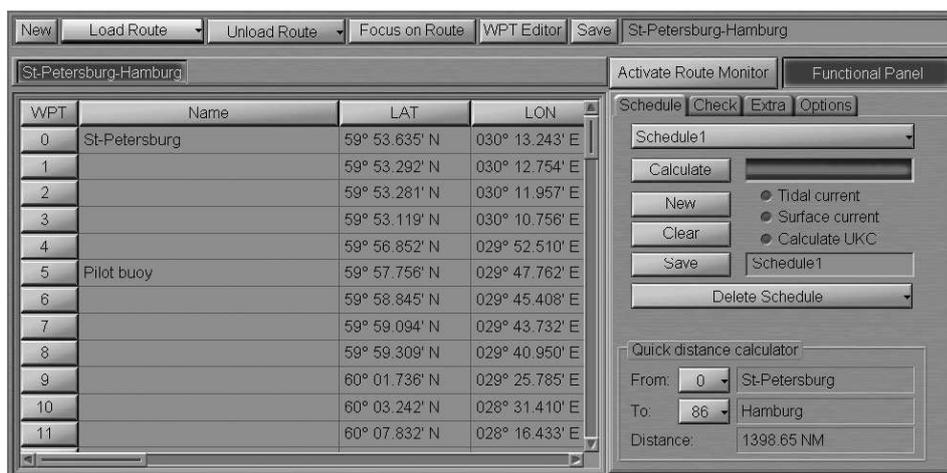
Save the route as required by pressing **Save** button in the top right part of the panel.

Tabular Method of Route Editing

Open “Route Editor” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



In “Route Editor” panel, load the necessary route.



Edit the existing route by using the following procedures.

Changing Coordinates and Route Elements for an Existing WPT

- position the cursor on **Name** element cell; double click the left trackball/mouse button to activate the cell;
- edit the WPT name; press <Enter> key;
- position the cursor on **LAT** element cell; double click the left trackball/mouse button to activate the cell;
- edit the latitude coordinate and press the right trackball/mouse button;
- press "Apply" button to confirm the changes you have made;
- position the cursor on **LON** element cell; double click the left trackball/mouse button to activate the cell;
- edit the longitude coordinate and press the right trackball/mouse button;
- press "Apply" button to confirm the changes you have made;
- position the cursor on **RL/GC** element cell; double click the left trackball/mouse button to activate the cell;
- press the button in the right-hand part of the cell and select the sailing type from the list which will open up;
- press the left trackball/mouse button to confirm the changes you have made;
- there is no editing of course or range cells;
- position the cursor on **PORT XTD** element cell; double click the left trackball/mouse button to activate the cell;
- edit XTD value to the left of the route leg; press the left trackball/mouse button;

Name

Name
Anchorage Westhinder

LAT
51° 27.207' N

LAT
51°27.207' N
Apply
Cancel

LAT
51°27.207' N

LON
000°00.000' E

LON
002°30.433' E
Apply
Cancel

LON
002° 30.433' E

RL/GC
RL

RL/GC
RL
RL
GC

RL/GC
GC

PORT XTD
0.10

PORT XTD
0.50 NM

- position the cursor on **STBD. XTD** element cell; double click the left trackball/mouse button to activate the cell;
- edit XTD value to the right of the route leg; press the left trackball/mouse button;
- Position the cursor on **Arrival Circle** element cell; double click the left trackball/mouse button to activate the cell;
- edit the radius value for the WPT change circle; press the left trackball/mouse button;
- position the cursor on **Turn Radius** element cell; double click the left trackball/mouse button to activate the cell;
- edit the radius for the arc of the suitable ship track on the turning circle; press the left trackball/mouse button.

STBD XTD
0.10

STBD XTD
0.50 NM

Arrival Circle
0.00

Arrival Circle
0.50 nm

Turn Radius
0.00

Turn Radius
1.00 nm

Edit other WPT's.

Setting a New WPT

Position the cursor on the cell with the number of the WPT before which a new WPT is required to be added, press the left trackball/mouse button. This WPT line will be highlighted in colour.

WPT	Name	LAT	LON
0	St-Petersburg	59° 53.635' N	030° 13.243' E
1		59° 53.292' N	030° 12.754' E
2		59° 53.281' N	030° 11.957' E
3		59° 53.119' N	030° 10.756' E
4		59° 56.852' N	029° 52.510' E
5	Pilot buoy	59° 57.756' N	029° 47.762' E
6		59° 58.845' N	029° 45.408' E
7		59° 59.094' N	029° 43.732' E
8		59° 59.309' N	029° 40.950' E
9		60° 01.736' N	029° 25.785' E
10		60° 03.242' N	028° 31.410' E
11		60° 07.832' N	028° 16.433' E

Press <Insert> key of the computer keyboard or press the right trackball/mouse button and select NEW context menu item. A new line containing the same data as the old one will be displayed, whereas the old line will be assigned the next number.

WPT	Name	LAT	LON
0	St-Petersburg	59° 53.635' N	030° 13.243' E
1		59° 53.292' N	030° 12.754' E
2		59° 53.281' N	030° 11.957' E
3		59° 53.119' N	030° 10.756' E
4		59° 56.852' N	029° 52.510' E
5		59° 56.852' N	029° 52.510' E
6	Pilot buoy	59° 57.756' N	029° 47.762' E
7		59° 58.845' N	029° 45.408' E
8		59° 59.094' N	029° 43.732' E
9		59° 59.309' N	029° 40.950' E
10		60° 01.736' N	029° 25.785' E
11		60° 03.242' N	028° 31.410' E

Edit the route element value.

Deleting a WPT

Position the cursor on the cell with the number of the WPT required to be deleted, press the left trackball/mouse button. This WPT line will be highlighted in colour.

WPT	Name	LAT	LON
0	St-Petersburg	59° 53.635' N	030° 13.243' E
1		59° 53.292' N	030° 12.754' E
2		59° 53.281' N	030° 11.957' E
3		59° 53.119' N	030° 10.756' E
4		59° 56.852' N	029° 52.510' E
5		59° 56.852' N	029° 52.510' E
6	Pilot buoy	59° 57.756' N	029° 47.762' E
7		59° 58.845' N	029° 45.408' E
8		59° 59.094' N	029° 43.732' E
9		59° 59.309' N	029° 40.950' E
10		60° 01.736' N	029° 25.785' E
11		60° 03.242' N	028° 31.410' E

Press <Delete> key on the computer keyboard or press the right trackball/mouse button and select DELETE WPT context menu item. The selected line will be deleted, those following it will be re-numbered.

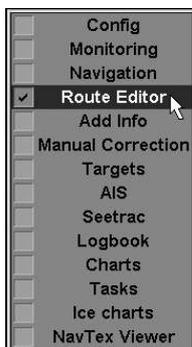
WPT	Name	LAT	LON
0	St-Petersburg	59° 53.635' N	030° 13.243' E
1		59° 53.292' N	030° 12.754' E
2		59° 53.281' N	030° 11.957' E
3		59° 53.119' N	030° 10.756' E
4		59° 56.852' N	029° 52.510' E
5	Pilot buoy	59° 57.756' N	029° 47.762' E
6		59° 58.845' N	029° 45.408' E
7		59° 59.094' N	029° 43.732' E
8		59° 59.309' N	029° 40.950' E
9		60° 01.736' N	029° 25.785' E
10		60° 03.242' N	028° 31.410' E
11		60° 07.832' N	028° 16.433' E

All the changes in the table will be reflected accordingly on the graphic screen.

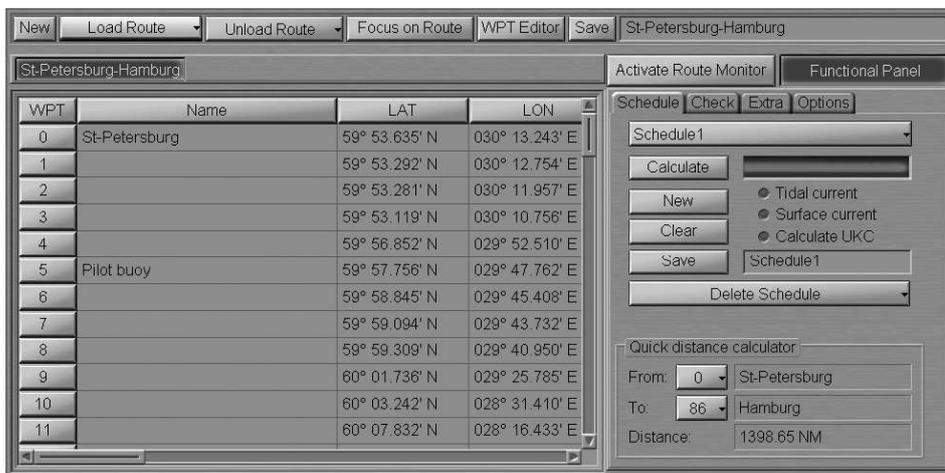
Save the route as required by pressing **Save** button in the top right part of the panel.

ROUTE APPROVAL AND PROTECTION

Open “Route Editor” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.

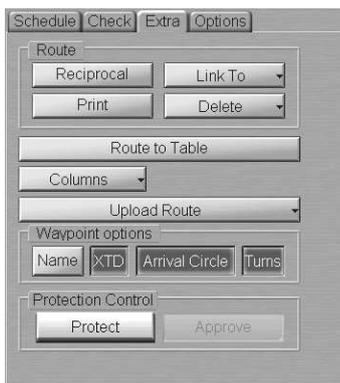


In “Route Editor” panel load the necessary route.

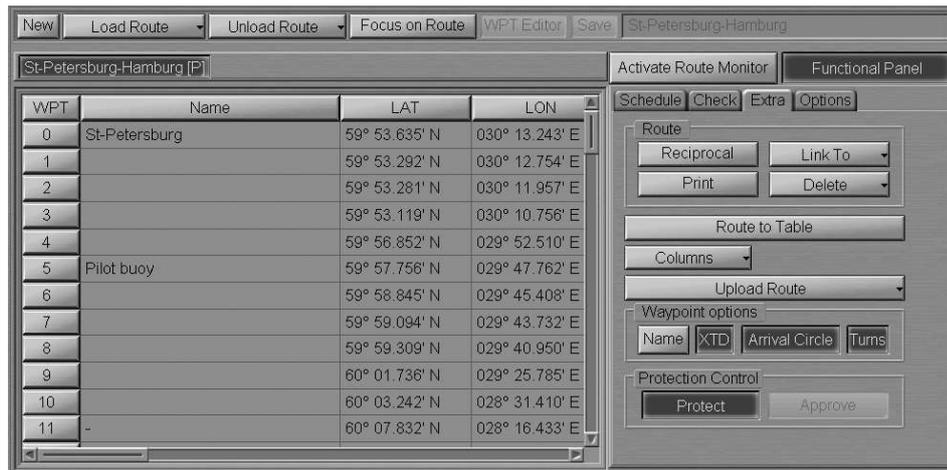


Protecting Route from Editing

Use the tab in the top part of “Route Editor” panel to switch to “Extra” page.

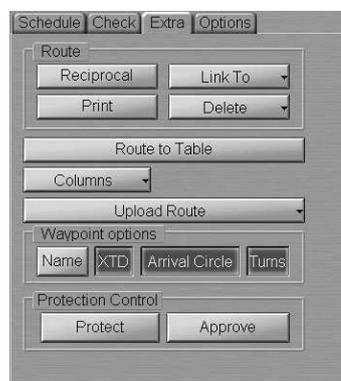


Press Protect button in Protection Control group. The route will be protected from editing, and the letter “[P]” will be added to its name.



Route Approval

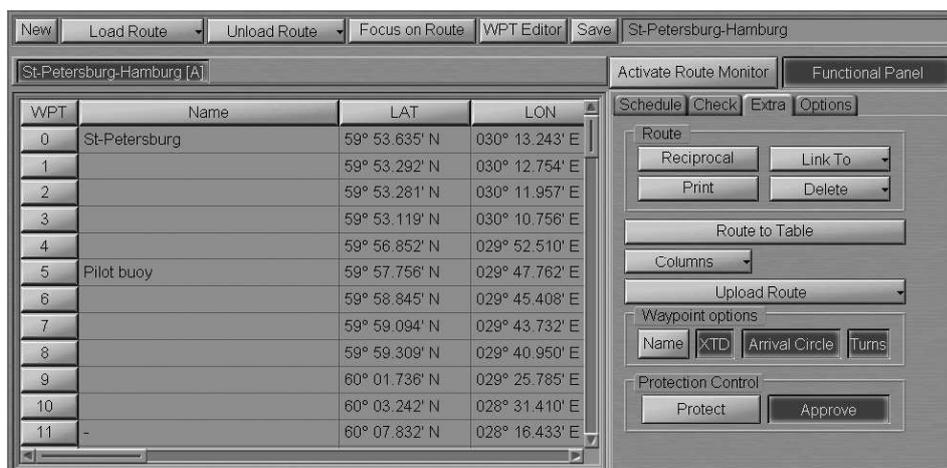
Use the tab in the top part of “Route Editor” panel to switch to “Extra” page.



ATTENTION!

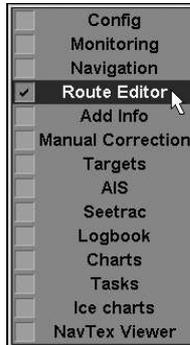
For the route to be approved, it should be checked for dangers to navigation on “Check” page of “Route Editor” panel.

Press **Activate** button in **Protection Control** group. The route will be approved, and the letter “[A]” will be added to its name.

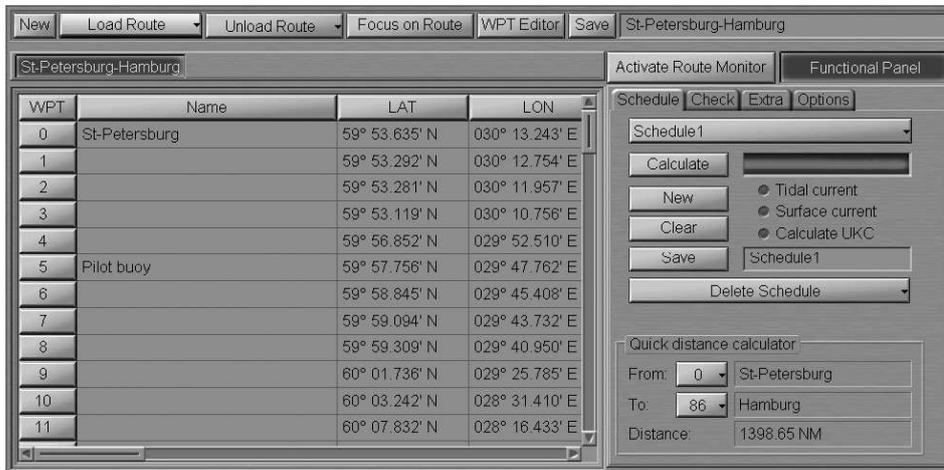


CREATING RECIPROCAL ROUTE

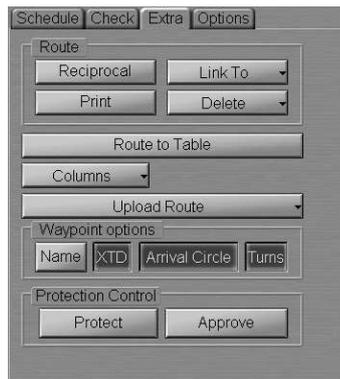
Open “Route Editor” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



In “Route Editor” panel, load the necessary route.



Use the tab in the right-hand part of the panel to switch to “Extra” page and press Reciprocal button.



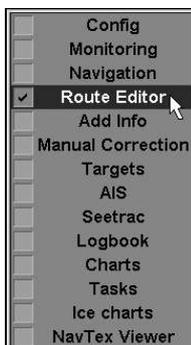
A route will be created with the WPT order inverse to that in the active route.

All the changes in the table will be shown accordingly on the Chart panel.

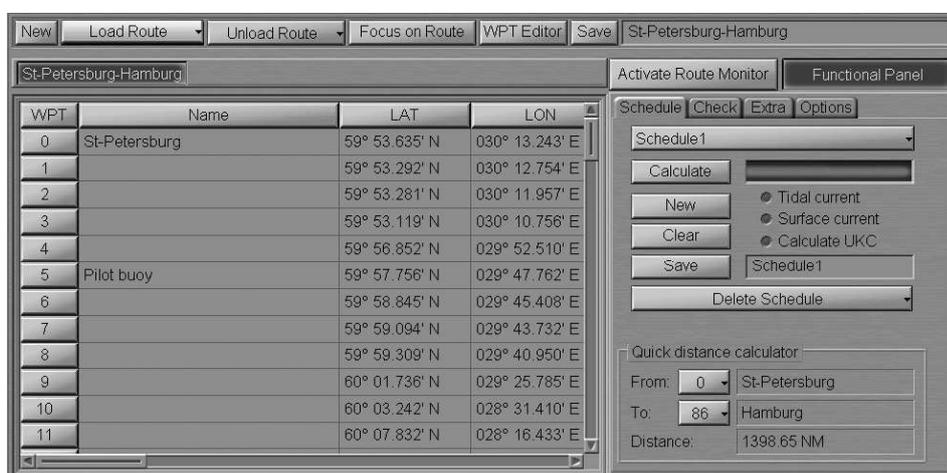
Save the route as required by pressing **Save** button in the top right part of the panel.

MERGING ROUTES

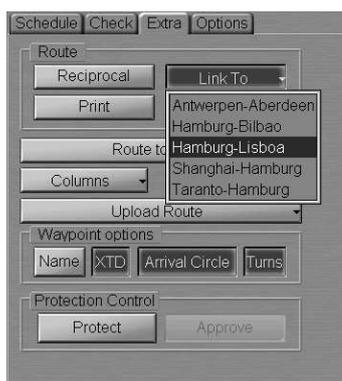
Open “Route Editor” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



In “Route Editor” panel, load the route to whose last point another route should be connected.



Use the tab in the right-hand part of the panel to switch to “Extra” page, and press Link to button.



In the list, which will open up, select the route, which will be connected to the last point of the loaded route. Press the left trackball/mouse button.

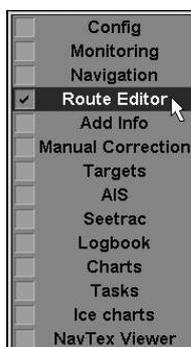
WPT's of the connected route will be added to the table of route elements.

All the changes in the table will be shown accordingly on the Chart panel.

Save the route as required by pressing **Save** button in the top right part of the panel.

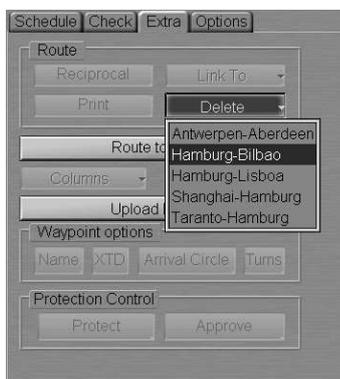
DELETING A ROUTE

Open “Route Editor” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the right-hand part of “Route Editor” panel, which will open up, to switch to “Extra” page.

In the opened “Extra” page, press Delete button.



Select the route, which should be deleted, from the list and press the left trackball/mouse button.



In the window, which will appear, confirm the deleting. The route will be deleted.

ATTENTION!

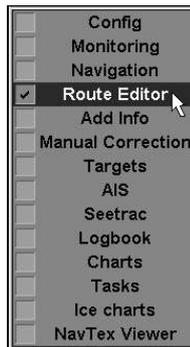
The route can not be deleted until it is loaded into monitoring or editing mode.

TRANSMITTING ROUTE TO AN EXTERNAL DEVICE

ATTENTION!

For the route to be transmitted to an external device ("UPLOAD_ROUTE" port), the external device is required to be connected in the System Configuration utility. (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). INSTALLATION GUIDE, Chapter 2**, section **NS 4000 Configuration**, paragraph **Sensors Settings**).

Open "Route Editor" panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the right-hand part of "Route Editor" panel, to switch to "Extra" page.

In the opened "Extra" page, press Upload Route button.



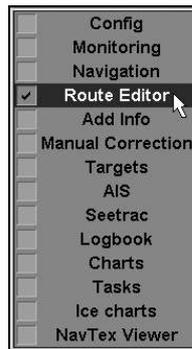
Select the route required to be transmitted and press the left trackball/mouse button. The route will be passed to the external device.

CHECKING AND EDITING THE ROUTE TAKING INTO ACCOUNT DANGERS TO NAVIGATION

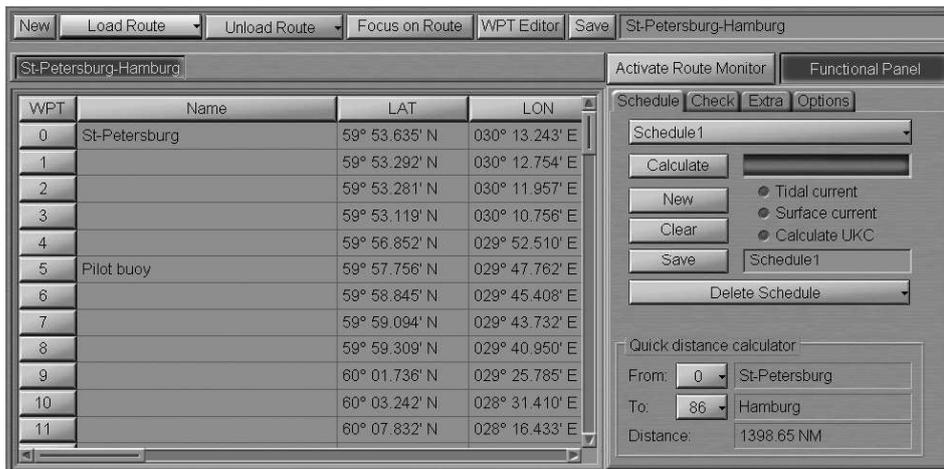
ATTENTION!

The check of a route for the availability of objects representing danger to navigation, is made by using the safety parameters set in “Navigational Alarms” page of “Monitoring” panel.

Open “Route Editor” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



In “Route Editor” panel load the route, which should be checked for the availability of dangers to navigation.



Use the tab in the right-hand part of the panel to switch to “Check” page.



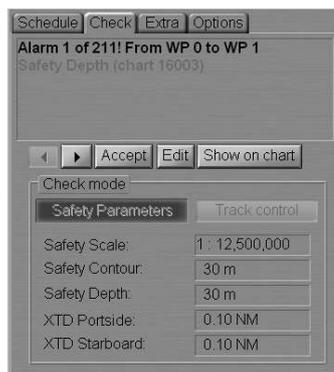
“Check” page serves for checking the generated route for the dangers to navigation. The page contains the following elements:

- **Check Editor** – to turn on the check of the active route leg during its generation (or editing) for the availability of dangers to navigation; safety parameters are set on “Navigational Alarms” page of “Monitoring” panel (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 4, section Main Alarms and Warnings Generation Principles, paragraph Safety Alarms**);
- **Check Route Planning** – to turn on the check of the entire active route for dangers to navigation; safety parameters are set on “Navigational Alarms” page of “Monitoring” panel (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 4, section Main Alarms and Warnings Generation Principles, paragraph Safety Alarms**);
- **Stop** – to interrupt manually the check of the entire active route for the availability of dangers to navigation;
- **<>** – to view, one by one in the information window, messages on the identified dangers to navigation;
- **Accept** – to confirm the end of the check mode;
- **Edit** – to turn on the graphic editor in Check Editor mode for the route correction taking into account all the detected dangers to navigation;
- **Show on chart** – to display and highlight the detected dangers to navigation on the original scale chart;
- **Safety parameters** – to display the list of main safety parameters set on “Safety Alarms” page of “Monitoring” panel, which are used in the route check.

Check **Check Editor** checkbox and press **Check Route Planning** button. The route will be checked for availability of dangers to navigation.

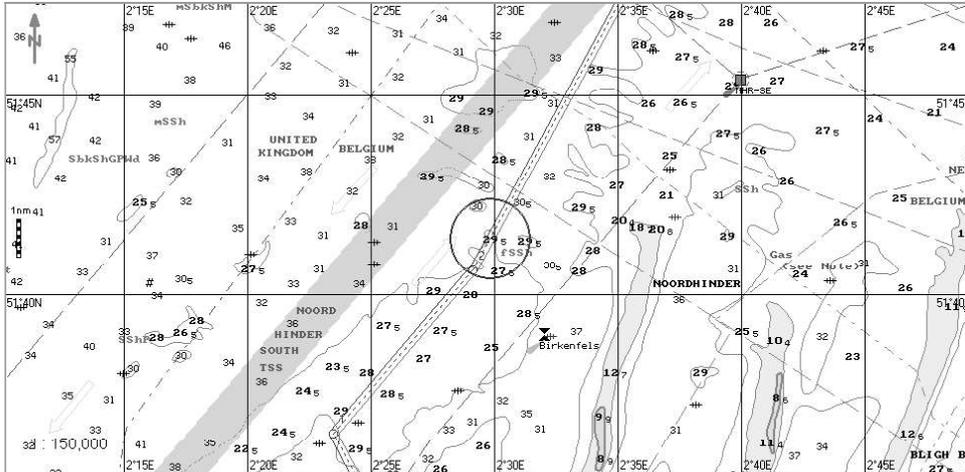


The check process is shown in the display window. After the end of check, “Check” page will display a message about detected dangers or about no dangers having been found.



Viewing Dangers to Navigation

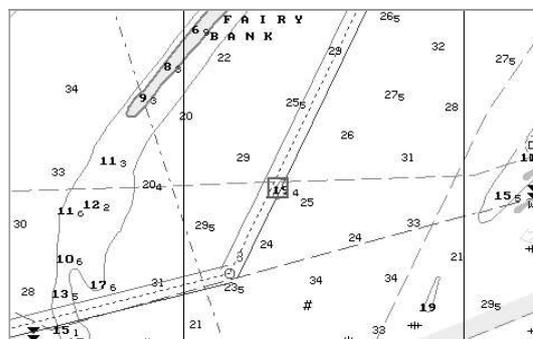
To view the detected dangers to navigation, use buttons to select the danger you are interested in, and press **Show on chart** button. The danger to navigation will be displayed in the centre of the Chart panel, shown within a flashing circle.



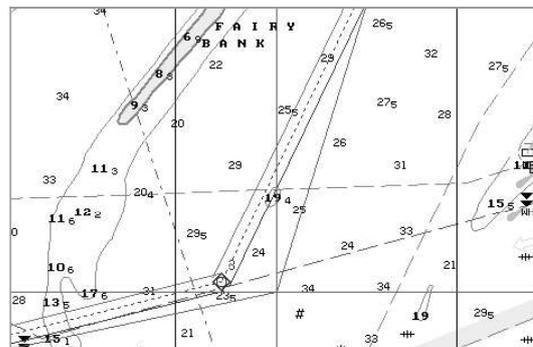
If the route needs no editing, press **Accept** button to exit from the route check mode.

Editing Route if Dangers to Navigation are Detected

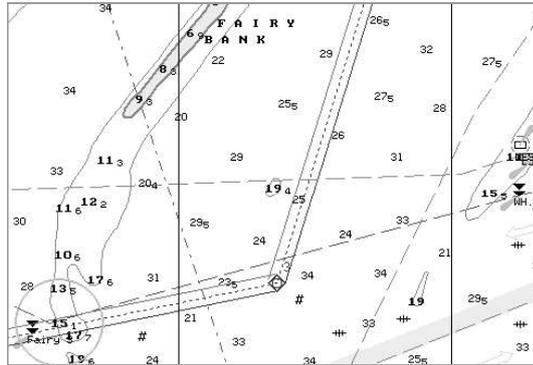
To edit route to take into account the detected dangers to navigation, use buttons to select the required danger and press **Edit** button (**Check Editor** checkbox must be checked). An acquisition marker will appear on the Chart panel in the point with coordinates of the detected danger to navigation.



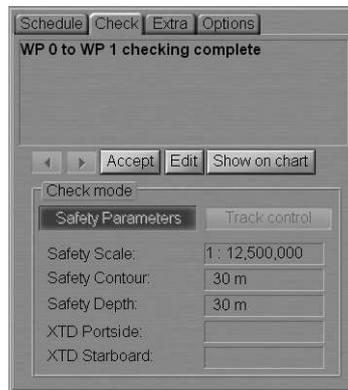
Edit the route leg according to the editing rules so that the route leg does not pass through the dangerous place. E.g., change the WPT position.



After the route leg editing is completed, press the left trackball/mouse button. The edited route legs will be checked, and the next danger to navigation will be backlighted on the Chart panel.



If no dangers to navigation are identified on the edited route leg, an appropriate message will be displayed in “Check” page.



Press **Accept** button: there will be a check of the following route legs. Perform the editing until the end of the route. If there are no dangers to navigation on the route, “Check” page will display an appropriate message.



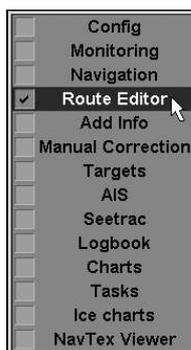
To exit from the check mode, press **Accept** button.

DISPLAYING ROUTE PARAMETERS AS EXCEL TABLE

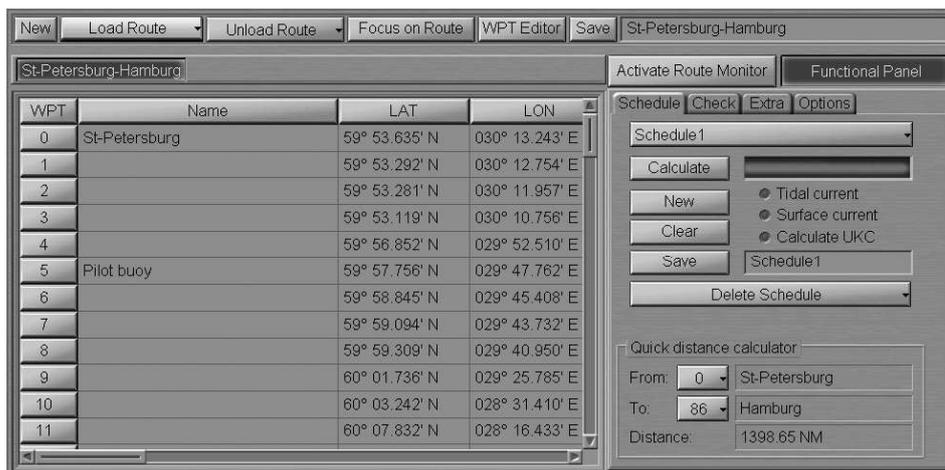
ATTENTION!

This function is not available unless the station has appropriate software (MS Excel).

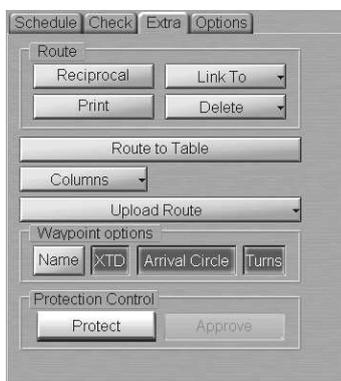
Open “Route Editor” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



In “Route Editor” panel load the route, which should be converted to Excel.



Use the tab in the right-hand part of the panel to switch to “Extra” page, and press Route to Table button.



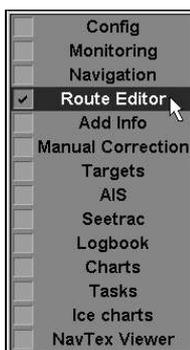
The screen will display Excel table containing the selected route parameters.

WP	Name	Lat	Lon	RL/GC	Distance	Course	Total Distance	Port XTE	Stb. XTE	Arrival Circle	Turn Rad
0		59° 52.868' N	030° 12.661' E	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
1		59° 53.333' N	030° 12.048' E	RL	0,66 nm	326,5 °	0,66 nm	0,01 nm	0,01 nm		0,50 nm
2		59° 53.107' N	030° 10.767' E	RL	0,68 nm	250,6 °	1,24 nm	0,01 nm	0,01 nm		0,50 nm
3		59° 53.107' N	030° 10.767' E	RL	0,00 nm	029,0 °	1,24 nm	0,01 nm	0,01 nm		0,50 nm
4		59° 57.811' N	029° 47.669' E	RL	12,55 nm	292,1 °	13,79 nm	0,01 nm	0,01 nm		0,50 nm
5		59° 58.798' N	029° 45.638' E	RL	1,42 nm	314,1 °	15,21 nm	0,01 nm	0,01 nm		0,50 nm
6		59° 59.039' N	029° 44.163' E	RL	0,78 nm	268,1 °	15,99 nm	0,01 nm	0,01 nm		0,50 nm
7		59° 59.065' N	029° 42.477' E	RL	0,85 nm	271,8 °	16,84 nm	0,01 nm	0,01 nm		0,50 nm
8		60° 01.600' N	029° 25.938' E	RL	8,68 nm	287,0 °	25,52 nm	0,01 nm	0,01 nm		0,50 nm
9		60° 03.424' N	028° 29.796' E	RL	28,22 nm	273,7 °	53,74 nm	0,01 nm	0,01 nm		0,50 nm

This table will be automatically saved in the ECDIS task memory in the form of Excel file (*.xls). These files are handled via the Data Tool utility in Route Excel group.

DRAWING SCHEDULES

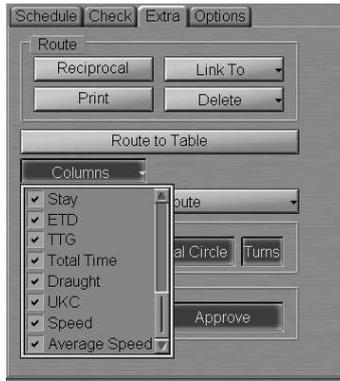
Open “Route Editor” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



In “Route Editor” panel load the route, which the schedule will be drawn for.

WPT	Name	LAT	LON
0	St-Petersburg	59° 53.635' N	030° 13.243' E
1		59° 53.292' N	030° 12.754' E
2		59° 53.281' N	030° 11.957' E
3		59° 53.119' N	030° 10.756' E
4		59° 56.852' N	029° 52.510' E
5	Pilot buoy	59° 57.756' N	029° 47.762' E
6		59° 58.845' N	029° 45.408' E
7		59° 59.094' N	029° 43.732' E
8		59° 59.309' N	029° 40.950' E
9		60° 01.736' N	029° 25.785' E
10		60° 03.242' N	028° 31.410' E
11		60° 07.832' N	028° 16.433' E

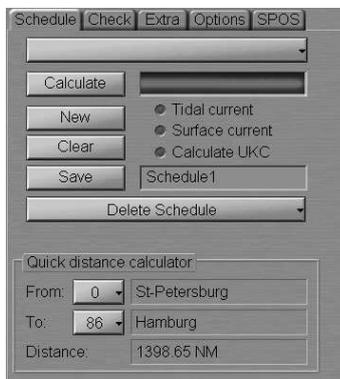
Use the tab in the right-hand part of the panel to switch to “Extra” page, and press Columns button.



In the list, which will open up, select lines with the names of the required schedule elements. The corresponding columns will appear in the table on “Route Editor” panel.

WPT	Time Zone	ETA	Stay	ETD
0	00:00 W	XXXX	XXXX	
1	00:00 W			
2	00:00 W			
3	00:00 W			
4	00:00 W			
5	00:00 W			
6	00:00 W			
7	00:00 W			
8	00:00 W			
9	00:00 W			
10	00:00 W			
11	00:00 W			

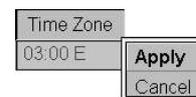
Use the tab in the right-hand part of the panel to switch to “Schedule” page, and press Clear button.



To draw a new schedule, press New button.

Enter the schedule elements for the WPT's. To do this, perform the procedures detailed below:

- position the cursor on Time Zone element cell; double click the left trackball/mouse button to activate the cell;
- enter the time zone set in this WPT and press the right trackball/mouse button;
- press “Apply” button to confirm the changes you have made;



- position the cursor on **ETA** element cell (not set for the route start point). Double click the left trackball/mouse button to activate the cell;
- enter ETA for this WPT and press the right trackball/mouse button;
- press “Apply” button to confirm the changes you have made;
- position the cursor on **Stay** element cell; double click the left trackball/mouse button to activate the cell;
- enter the time of stay at this WPT and press the right trackball/mouse button;
- press “Apply” button to confirm the changes you have made;
- position the cursor on **ETD** element cell (not set for the route end point); double click the left trackball/mouse button to activate the cell;
- enter **ETD** for the WPT and press the right trackball/mouse button;
- press “Apply” button to confirm the changes you have made;
- there is no editing of **TTG**, **Total Time**, **UKC** or **Average Speed** cells;
- position the cursor on **Draught** element cell; double click the left trackball/mouse button to activate the cell;
- enter the draught value on the route leg; press the left trackball/mouse button;
- position the cursor on **Speed** element cell; double click the left trackball/mouse button to activate the cell;
- enter the speed value on the route leg; press the left trackball/mouse button.

ETA
29-03-02 12:05

ETA
18-05-02 12:00

Apply
Cancel

ETA
18-05-2002 12:00

Stay
00d 00h 00m

Stay
01d 00h 00m

Apply
Cancel

Stay
01d 00h 00m

ETD
18-05-02 12:19

ETD
25-05-02 18:00

Apply
Cancel

ETD
25-05-2002 18:00

Draught
4.0

Draught
4.0

Speed
0.0

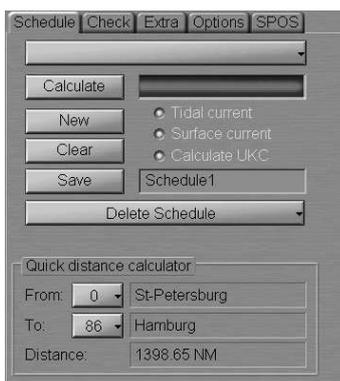
Speed
16.0 kt

ATTENTION!

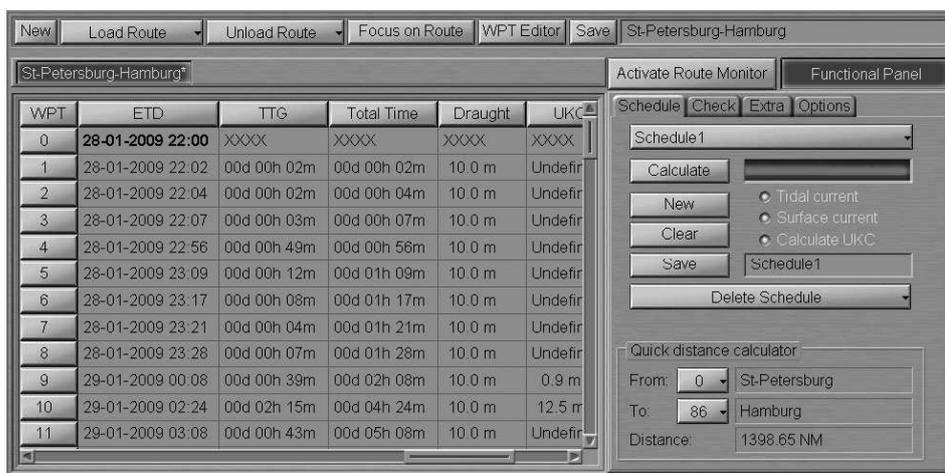
For the route start point, ETD value should always be specified. For the end point, it is necessary to specify ETA or speed of proceeding along the route legs.

For the current conditions to be taken into account in the schedule calculations, check **Tidal Current**, **Surface Current** and **Calculate UKC** checkboxes.

Press **Calculate** button: the schedule will be calculated.



The schedule calculation process is reflected in the display window. In the table, empty cells will be filled in with the calculated schedule elements.



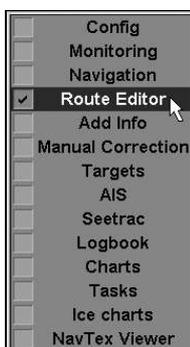
A schedule line has been created. To save the schedule, enter its name in the name input line in "Schedule" page.



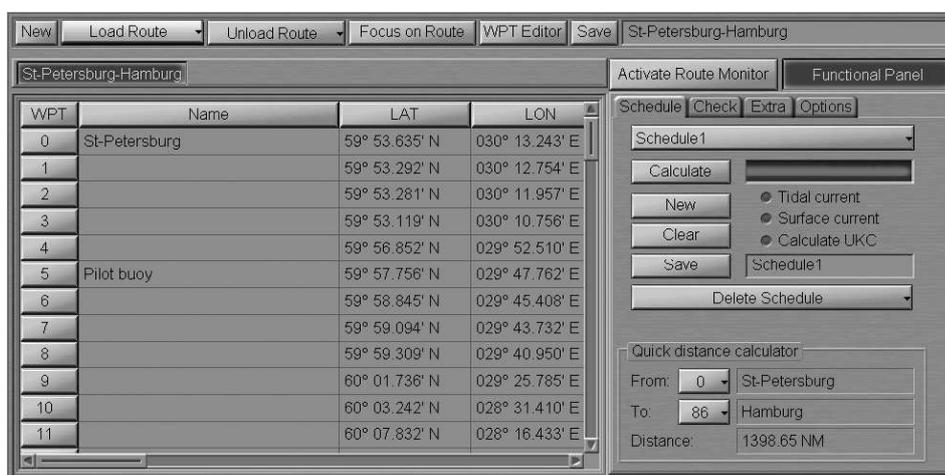
Press Save button, which has been activated.

EDITING A SCHEDULE

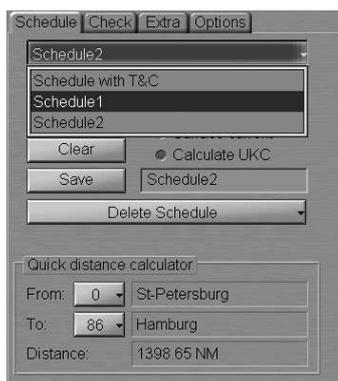
Open “Route Editor” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



In “Route Editor” panel load the route, which the schedule will be drawn for.



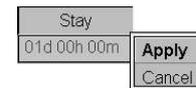
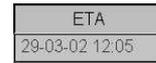
Use the tab in the right-hand part of the panel and press the button with the name of the loaded schedule in the top part of the “Schedule” page.



In the list which will open up, select the schedule which should be edited, and press the left trackball/mouse button. The selected schedule will be loaded in the table. In “Schedule” page, Tidal Current, Surface Current and Calculate UKC checkboxes will be checked/unchecked like at the time when the selected schedule was drawn.

To edit schedule elements, perform the procedures detailed below. With a change in any of the elements, all the cells containing calculated data are cleared (data entered by the operator when the schedule was drawn, will remain):

- position the cursor on **Time Zone** element cell; double click the left trackball/mouse button to activate the cell;
- edit the time zone which will be set in the given WPT and press the right trackball/mouse button;
- press “Apply” button to confirm the changes you have made;
- position the cursor on **ETA** element (not set for the route start point); double click the left trackball/mouse button to activate the cell;
- edit ETA for the WPT and press the right trackball/mouse button;
- press “Apply” button to confirm the changes you have made;
- position the cursor on **Stay** element cell; double click the left trackball/mouse button to activate the cell;
- edit the time of stay in the given WPT and press the right trackball/mouse button;
- press “Apply” button to confirm the changes you have made;
- position the cursor on **ETD** element cell (not set for the end WPT); double click the left trackball/mouse button to activate the cell;
- edit **ETD** for this WPT and press the right trackball/mouse button;
- press “Apply” button to confirm the changes you have made;
- there is no editing of **TTG**, **Total Time**, **UKC** or **Average Speed** cells;
- position the cursor on **Draught** element cell; double click the left trackball/mouse button to activate the cell;
- enter the draught value on the route leg; press the left trackball/mouse button;
- position the cursor on **Speed** element cell; double click the left trackball/mouse button to activate the cell;
- edit the speed value on the route leg; press the left trackball/mouse button.

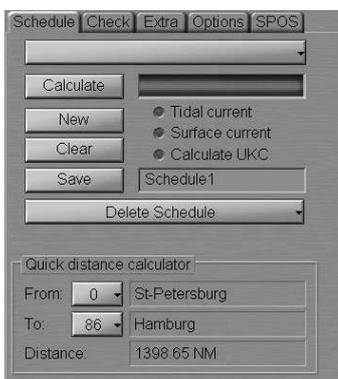


ATTENTION!

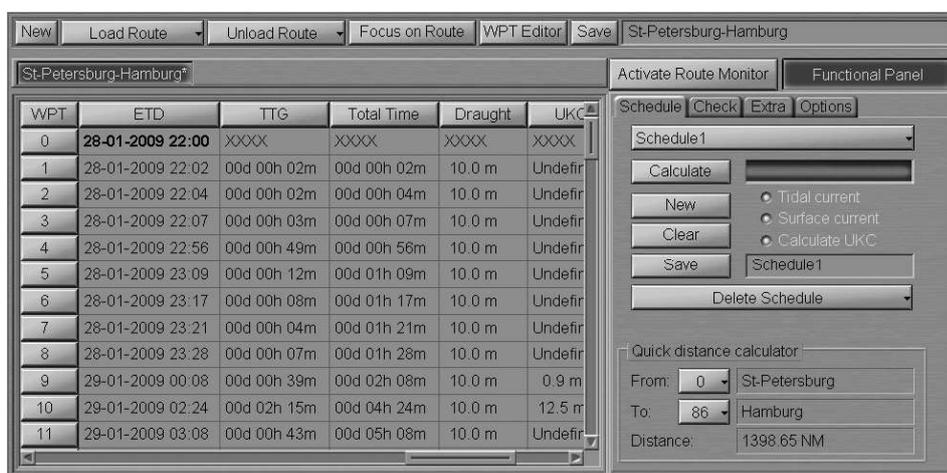
For the route start point, ETD value should always be specified. For the end point, it is necessary to specify ETA or speed of proceeding along the route legs.

Check/uncheck checkboxes in “Schedule” page as required for the tidal and surface currents to be taken into account.

Press **Calculate** button. The schedule will be re-calculated.



The schedule re-calculation process is reflected in the display window. In the table, empty cells will be filled in with new schedule element values.



Editing of the schedule is completed. The edited schedule is saved automatically under its old name. To save the schedule under a new name, enter it in the name input line in “Schedule” page.

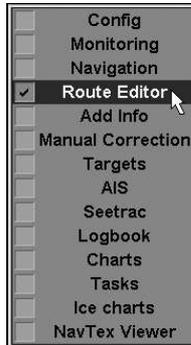


Press **Save** button, which has been activated.

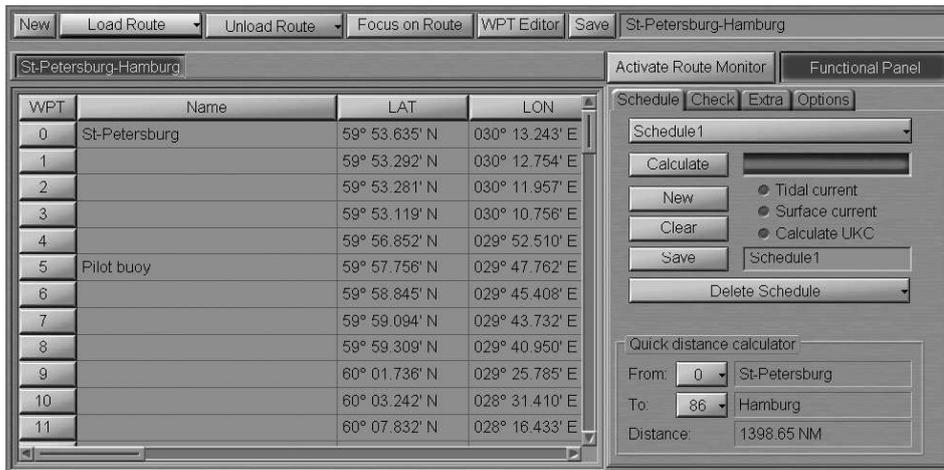
The schedule will be saved.

DELETING SCHEDULES

Open “Route Editor” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.

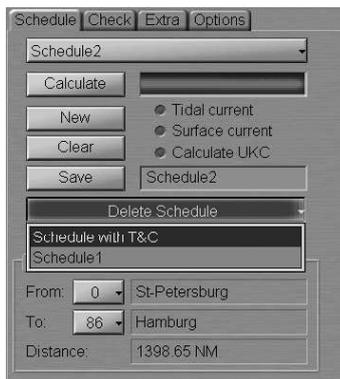


In “Route Editor” panel load the route, which the schedule will be delete.



Use the tab in the right-hand part of “Route Editor” panel to switch to “Schedule” page, and press Delete Schedule button.

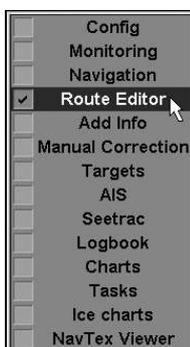
Note: The schedule to be deleted should not be loaded, otherwise load another schedule (see the previous item).



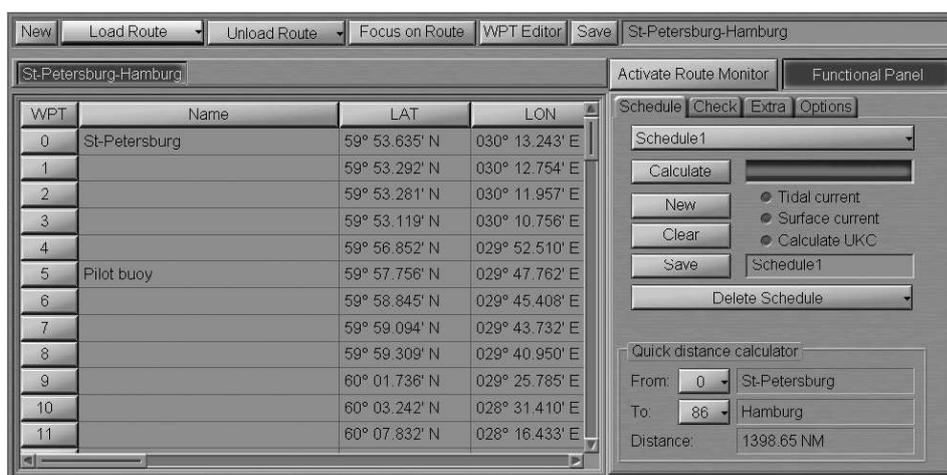
Select the schedule, which should be deleted, from the list and press the left trackball/mouse button.

QUICK DISTANCE CALCULATOR

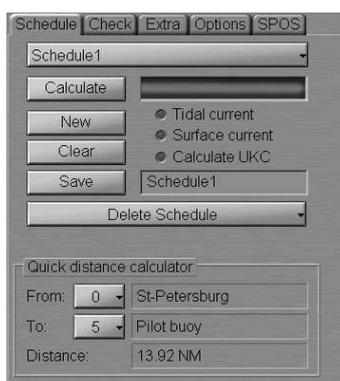
Open “Route Editor” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



In “Route Editor” panel, load the necessary route.



Use the tab in the right-hand part of the panel to switch to “Schedule” page.



In the bottom part of the page there is Quick distance calculator group.

Use From drop-down list to select the number of the waypoint which calculations of the desired distance are started at.

Use To drop-down list to select the number of the waypoint where calculations of the desired distance are ended. Distance window will display a value of the route segment length between the two waypoints.

CHAPTER 10

Handling Radar Information and Target Designation Units

This chapter describes the procedure used in the handling
of radar information and target designation units.

RADAR OVERLAY

Work with Radar Overlay

To select a scanner, press the TX button in the “Sensors and Network” window of the Control panel.

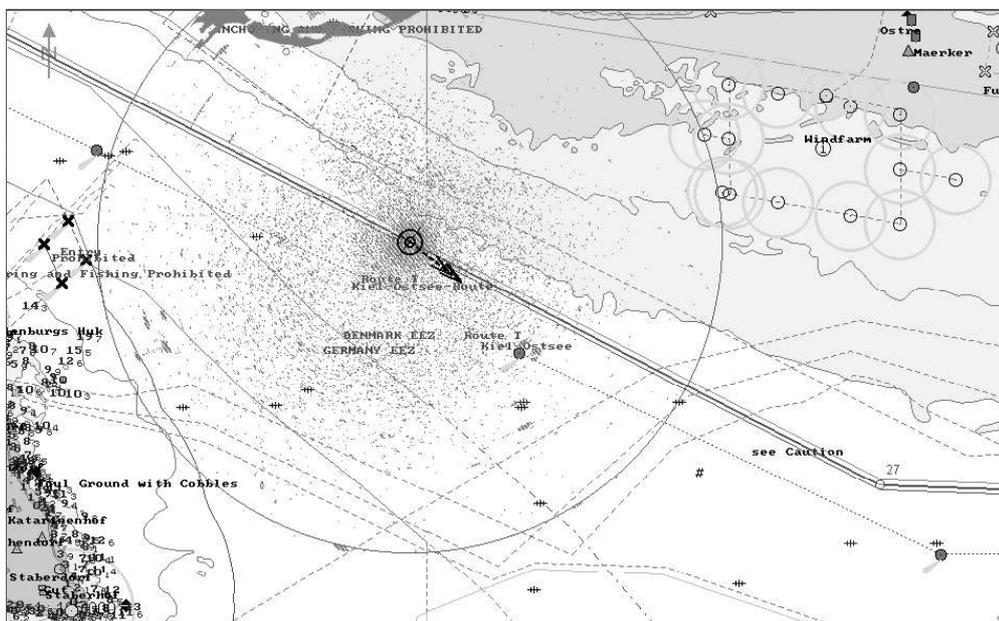


Select the necessary scanner.

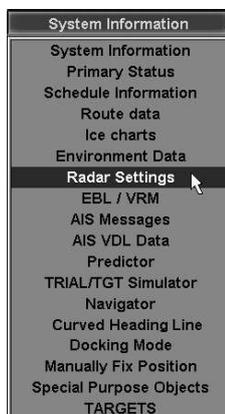
To turn on the radar picture, press Overlay button.



A radar picture will appear on the Chart panel.



Press the button with the name of the set display in the “Display Panel” window of the Control panel.



In the list, which will open up, select Radar Settings line and press the left trackball/mouse button.



In “Radar Settings” display which will open up, set the range scale. To do this, use the buttons to the right of **Range** input window.



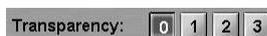
Turn on display of range rings as required. To do this, press **Show** button to the right of **Rings** window.



Set the required brightness, gain, suppression of rain and sea clutter by using the buttons on the sides of level indicators.



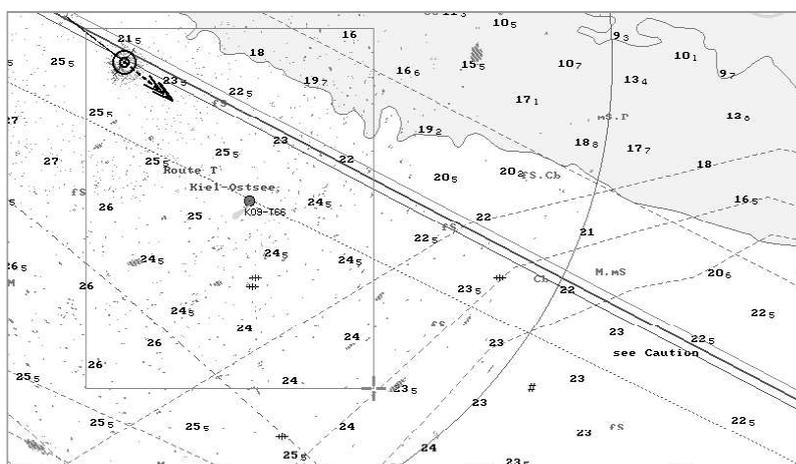
To enter the required “transparency” value, use the buttons (from 0 – opaque to 3 – almost transparent) in **Transparency** group.



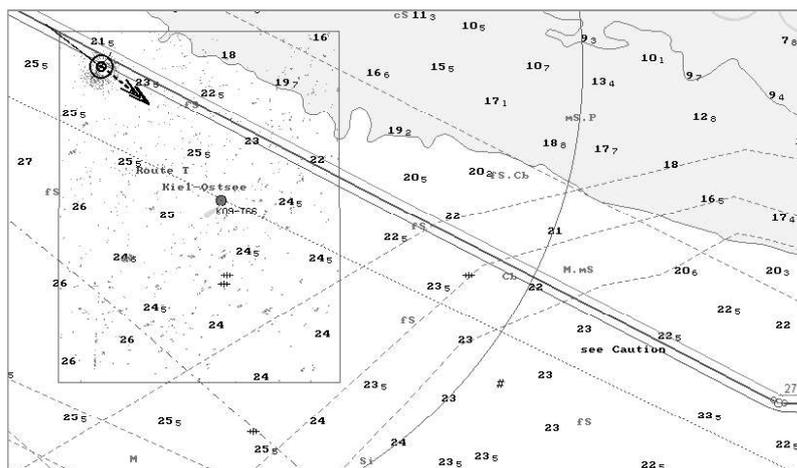
To set the required rectangular area of the radar picture display, press **Set** button in **Overlay window** group.



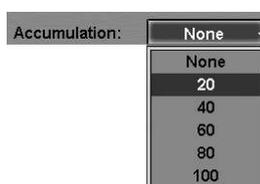
A graphic cursor will appear in the chart screen area. Position the cursor in the initial point of the area and press the left trackball/mouse button. Set the required radar picture area by moving the cursor, keeping the left trackball/mouse button depressed.



Press the trackball/mouse button again. The area will be set.



Turn on and adjust the scan-to-scan correlation function as required. To do this, press the button in Accumulation group.



In the list, which will open up, select the necessary value (from 20 to 100) or **None** to switch the function off. Press the left trackball/mouse button to confirm selection.

Press the required colour button in Echo colour button group to set the colour of the radar picture.



The adjustment of the radar picture is completed.

Distance and Bearing Offset

ATTENTION!

Distance and Bearing Offset is only made on the WS which the RIB is installed on.

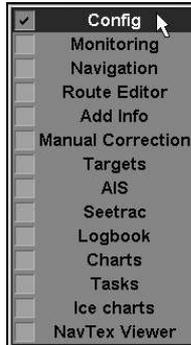
Introduction

Adjustment of the RIB in azimuth, i.e. an offset to the fixed azimuth errors of the radar antenna. The magnitude of the offset is determined as the difference between the bearing value of a clearly observed and uniquely identified stationary radar object measured on the chart or by using other measurement method, and a mean value of several bearing measurements made for the same object by using the RIB. The offset corresponds to the value of an angle, which the picture should be turned to in the clockwise direction for it to match the actual situation. The offset is entered with an accuracy of up to one tenth of a degree.

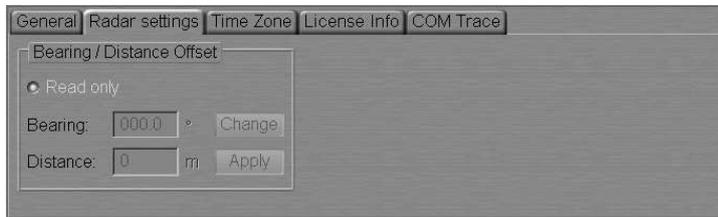
Adjustment of the RIB in range, i.e. an offset to the delays in the radar and RIB circuits. The magnitude of the offset is determined by comparing the results of range measurements made for clearly observed and uniquely identified stationary radar objects by using the RIB radar picture, and measurements made on the chart or by using other methods. The offset is entered with an accuracy of up to 1 m.

Distance and Bearing Offset Setting

Open “Config” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



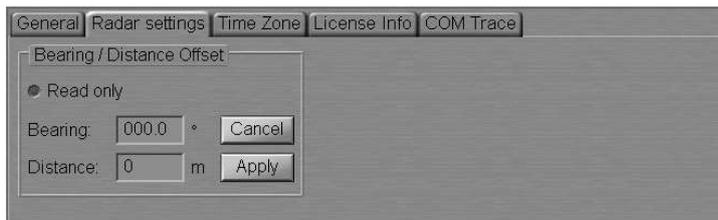
Use the tab in the top part of “Config” panel, which will open up, to switch to “Radar settings” page.



Uncheck Read only checkbox and enter a password:



Press “OK”.



Press Change button.

Use EBL 1 to measure the bearing to the electronic chart object used for the adjustment purposes. Use EBL 2 to measure the bearing to the echo of the object used for the adjustment purposes.

Calculate the Bearing Offset value as the difference between the EBL 1 and EBL 2 readouts, and enter it in **Bearing** box.

Use VRM1 to measure the distance to the electronic chart object used for the adjustment purposes. Use VRM2 to measure the distance to the echo of the object used for the adjustment purposes. Calculate the Distance Offset value as the difference between the VRM1 and VRM2 readouts, and enter it in **Distance** box.



Press Apply button.

Make several iterations as required, achieving the maximum possible alignment of the radar picture and chart information.

ATTENTION!

In making the adjustment, use the differential positioning mode in order to obtain the required accuracy.

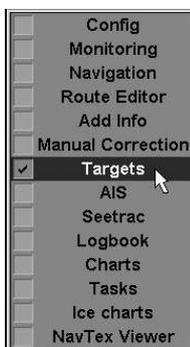
The adjustment is made by using the radar observed conspicuous features whose polar coordinates are known with accuracy not inferior to 0.1° in azimuth and 2 m in range.

ARPA

Target Display

There are three ways to turn on/off the display of ARPA targets on the ECDIS task screen:

1. Open “Targets” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



In Show Target group of “Targets” panel, which will open up, press ARPA button.

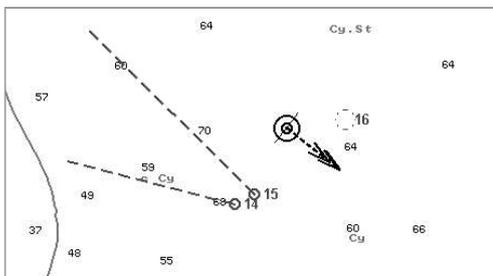
Show Target		AIS Target Identification													
<input checked="" type="radio"/> ARPA <input type="radio"/> AIS <input type="radio"/> Tracks		By ID													
Warning		CPA: 1.00 NM TCPA: 3.0 min													
Name	71	74	75	77	78	79	80	91	92	93	95	100	138	182	
Alias	Fellow														
CPA (nm)	3.08	2.39	2.01	1.04	0.74	0.07	1.94	3.29	3.70	3.67	1.49	1.33	3.45	0.64	
TCPA (min)	-2.5	11.5	1.1	-3.1	-2.3	1.3	3.7	0.8	0.5	-0.3	-1.9	1.4	1.3	8.9	
COG (°)	223.6°	335.2°	354.1°	202.5°	219.0°	340.8°	222.2°	268.9°	264.1°	244.8°	292.1°	23.1°	336.6°	336.7°	
SOG (kn)	91.7	8.5	32.6	13.6	9.5	9.3	5.3	37.1	42.2	51.0	39.5	22.9	37.5	19.1	
Range (nm)	5.18	3.82	2.11	1.46	1.00	0.34	2.12	3.35	3.72	3.68	2.16	1.41	3.57	3.75	
Bearing (°)	264.4°	158.2°	85.4°	185.3°	197.6°	135.9°	140.1°	10.3°	2.0°	334.9°	331.3°	107.4°	68.9°	144.8°	
Bow X (nm)	-4.6	-4.8	2.2	1.6	1.8	-0.1	7.0	-213.1	-44.4	-10.2	4.9	1.3	4.3	-0.9	
TBow X (min)	-0.5	27.6	-0.3	-7.0	-7.7	1.7	-25.0	272.3	51.4	9.2	-7.7	1.2	-2.2	10.5	

2. Press **ARPA** button in the “Sensors and Network” window of the Control panel.



3. Press <Target> key on the ES3/ES4/ES6 keyboard.

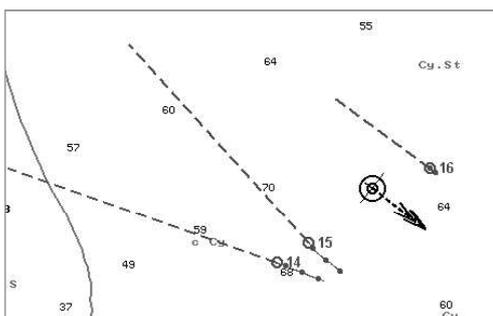
If there are some ARPA tracked targets, they will appear on the Chart panel, whereas their motion parameters will be shown in the target table.



Turn on, as required, the display of target tracks. To do this, press **Tracks** button in **Show Target** group.



Target tracks will be displayed on the Chart panel.

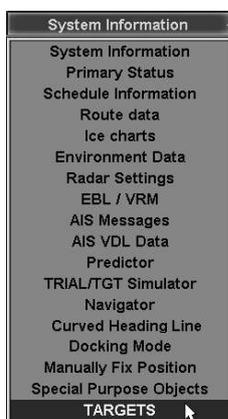


ARPA Settings

To turn on the display of targets, press **Overlay** and **ARPA** button in the “Sensors and Network” window of the Control panel.



Press the button with the name of the set display in the “Display Panel” window of the Control panel.



In the list, which will open up, select **TARGETS** line and press the left trackball/mouse button.

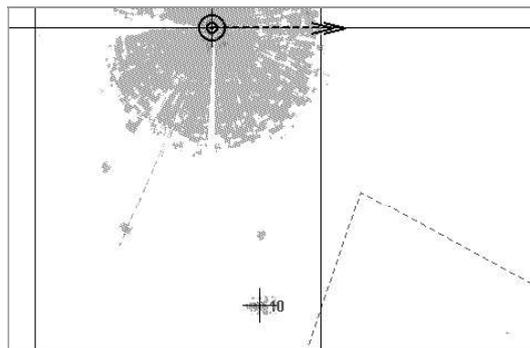


To Acquire Targets for Tracking

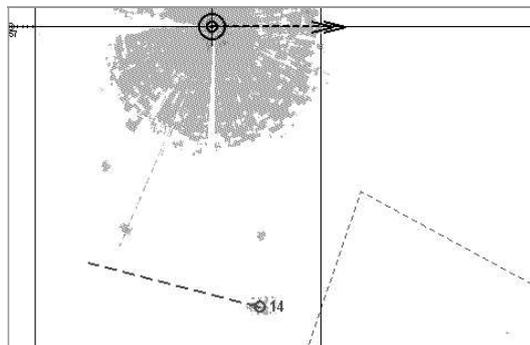
To switch the cursor to target acquisition mode, press **Acquire** button in Targets group.



Position the cursor on the target and press the left trackball/mouse button.



In a minute, the acquired target will be displayed as a yellow coloured circle with pre-calculated motion vector.



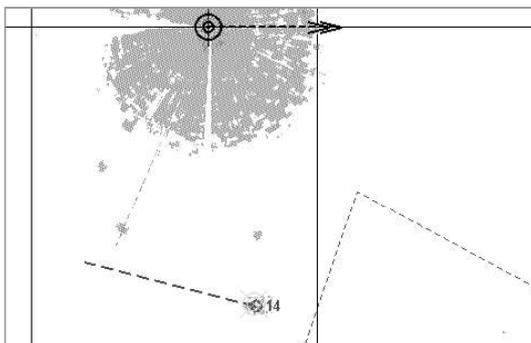
The target has been acquired for tracking. If you press the right trackball/mouse button, the cursor exits from the target acquisition mode.

To Cancel Tracked Targets

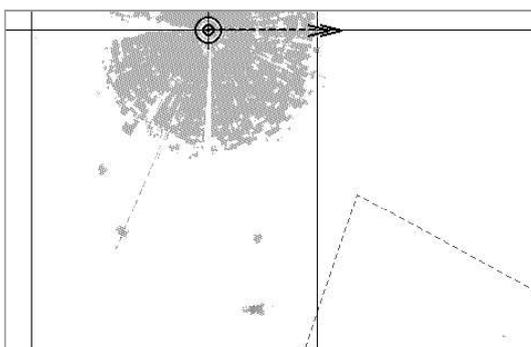
To switch the cursor to the target tracking cancelling mode, press **Cancel** button in **Targets** group.



Position the cursor on the tracked target and press the left trackball/mouse button.



The target tracking will be cancelled.



If you press the right trackball/mouse button, the cursor exits from the tracking cancelling mode.

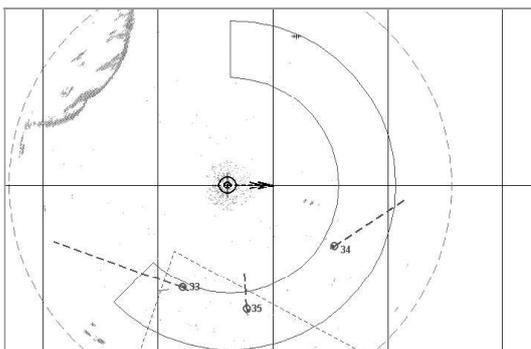
To cancel tracking of all the previously acquired targets, press **Cancel All** button in **Targets** group.

To Turn on Ring Shaped Guard Zones

To set the Guard Zone manually, press **Guard Zone 1** or **Guard Zone 2** buttons.



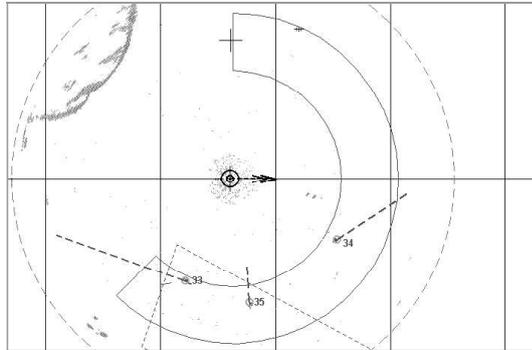
The ring shaped guard zone will be displayed on the ECDIS task screen. Targets getting within the guard zone will be displayed in the form of flickering circles.



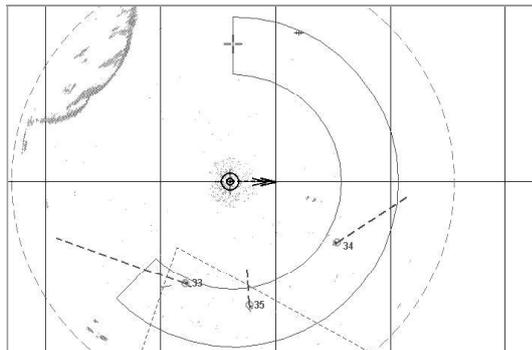
At the same time, **Guard zone target** alarm will be triggered off. Acknowledge this alarm. After the processing, targets will be displayed in the form of yellow coloured circles with pre-calculated motion vectors.

To Set Guard Zone Limits

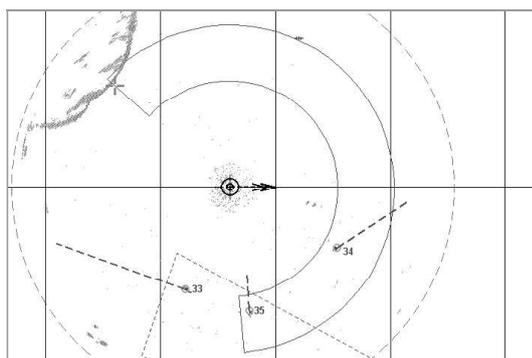
To set guard zone limits, position the free cursor on the left-hand boundary of the guard zone. As this is done, the cursor will assume the following form: 



Press the left trackball/mouse button. The cursor will assume the form of a graphic cursor.

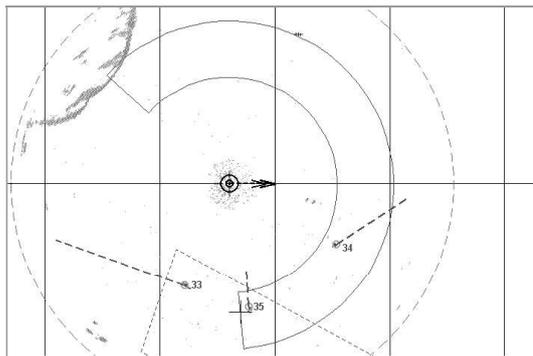


Move the ring shaped zone along the circle relative to the own ship symbol in the required direction.

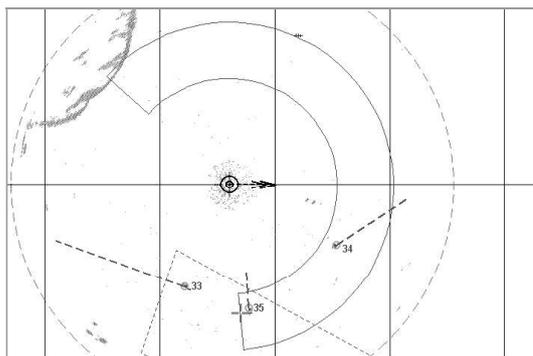


Press the left trackball/mouse button to set the new position of the zone and to exit from the graphic cursor mode.

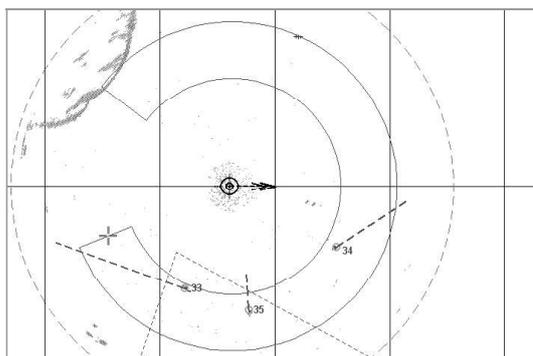
Position the free cursor on the right-hand boundary of the guard zone. As this is done, the cursor will assume the following form: 



Press the left trackball/mouse button. The cursor will assume the form of a graphic cursor.

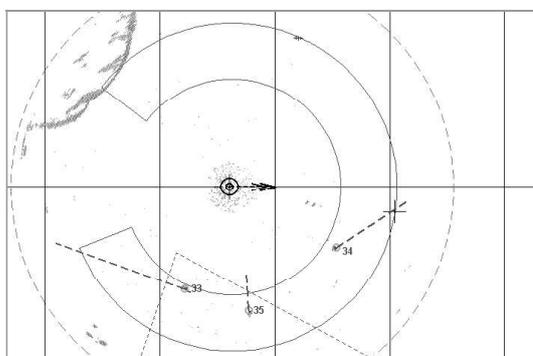


Move the right-hand limit of the ring shaped zone setting the necessary coverage angle.

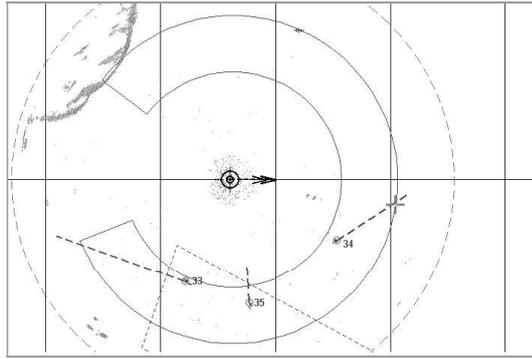


Press the left trackball/mouse button to set the new position of the zone and to exit from the graphic cursor mode.

Position the free cursor on one of the arcs delimiting the guard zone. As this is done, the cursor will assume the following form:

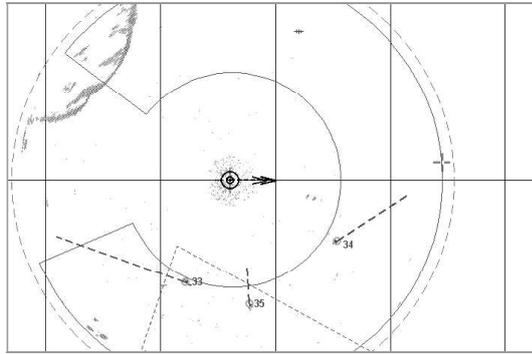


Press the left trackball/mouse button. The cursor will assume the form of a graphic cursor.



Move the zone limit to the required distance.

Note: If the zone's closer limit crosses its farther limit in the process of zone shift, they exchange their places.



Press the left trackball/mouse button to set the new zone position and exit from the graphic cursor mode.

To Turn Off Guard Zones

To turn off a guard zone, release the appropriate button.

AIS

Handling AIS Targets

Target Display

There are three ways to turn on/off the display of AIS targets on the ECDIS task screen:

1. Open "Targets" panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



In Show Target group of "Targets" panel, which will open up, press AIS button.

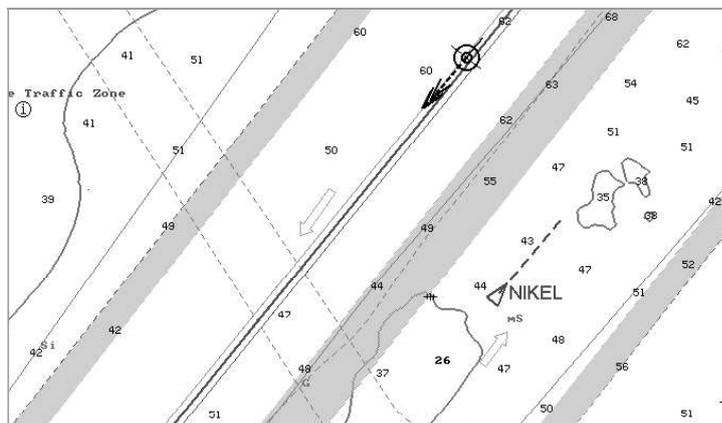
Name	71	74	75	77	78	79	80	91	92	93	95	100	138	182
Alias	Fellow													
CPA (nm)	3.08	2.39	2.01	1.04	0.74	0.07	1.94	3.29	3.70	3.67	1.49	1.33	3.45	0.64
TCPA (min)	-2.5	11.5	1.1	-3.1	-2.3	1.3	3.7	0.8	0.5	-0.3	-1.9	1.4	1.3	8.9
COG (°)	223.6°	335.2°	354.1°	202.5°	219.0°	340.8°	222.2°	268.9°	264.1°	244.8°	292.1°	23.1°	336.6°	336.7
SOG (kn)	91.7	8.5	32.6	13.6	9.5	9.3	5.3	37.1	42.2	51.0	39.5	22.9	37.5	19.1
Range (nm)	5.18	3.82	2.11	1.46	1.00	0.34	2.12	3.35	3.72	3.68	2.16	1.41	3.57	3.75
Bearing (°)	264.4°	158.2°	85.4°	185.3°	197.6°	135.9°	140.1°	10.3°	2.0°	334.9°	331.3°	107.4°	68.9°	144.8
Bow X (nm)	-4.6	-4.8	2.2	1.6	1.8	-0.1	7.0	-213.1	-44.4	-10.2	4.9	1.3	4.3	-0.9
TBow X (min)	-0.5	27.6	-0.3	-7.0	-7.7	1.7	-25.0	272.3	51.4	9.2	-7.7	1.2	-2.2	10.5

2. Press AIS button in the "Sensors and Network" window of the Control panel.



3. Press <Target on/off> key on the ES4/ES6 keyboard.

AIS targets will appear in the Chart panel and their motion parameters will be displayed in the Targets Table.



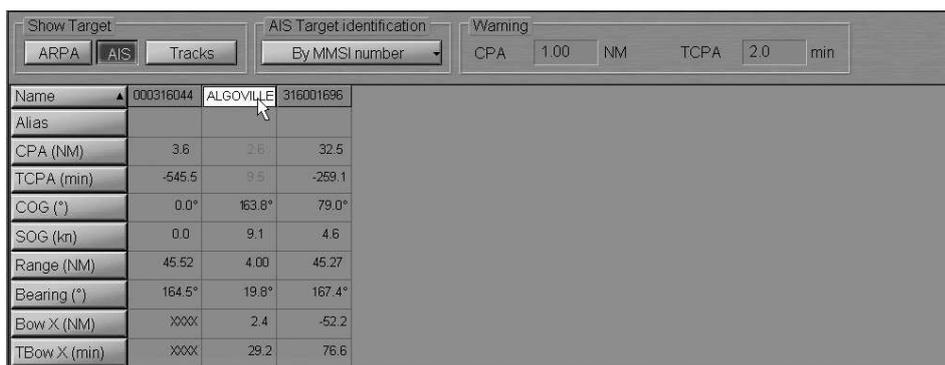
Display of AIS Target Identifiers

Press AIS Target identification button to select the AIS targets identifier.



In the list, which will open up, select the necessary identifier or None to declutter the Chart panel. Press the left trackball/mouse button. Targets will be displayed on the Chart panel with the selected identifier, and its name will be shown on the button.

Position the cursor on the target identifier in the Targets Table.

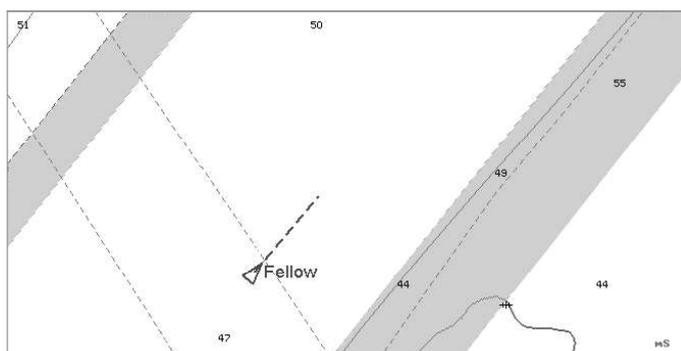


The hint will display the name of the AIS object if it is contained in the messages transmitted by the AIS object.

Enter as required identifier "Alias" (up to 8 characters) for an AIS object in Alias row of the Targets Table.

Name	000316044	316001696	316001701
Alias		Fellow	

On the Chart panel, the target will be displayed with the entered "Alias" identifier regardless of settings made in AIS Target identification group. This identifier is displayed on the Chart panel only and is not transmitted in messages.

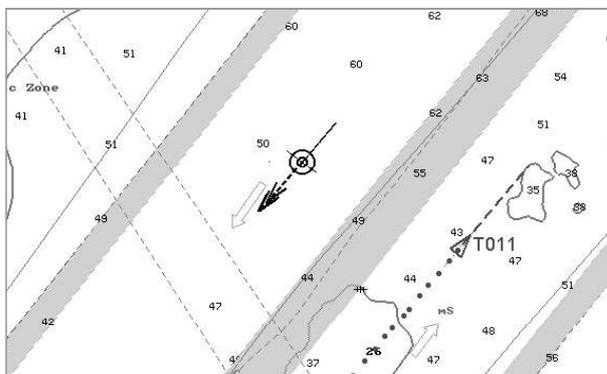


Display of Target Tracks

Turn on, as required, the display of target tracks. To do this, press Tracks button in Show Target group.

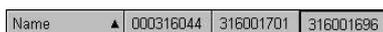


Target tracks will be displayed on the Chart panel.

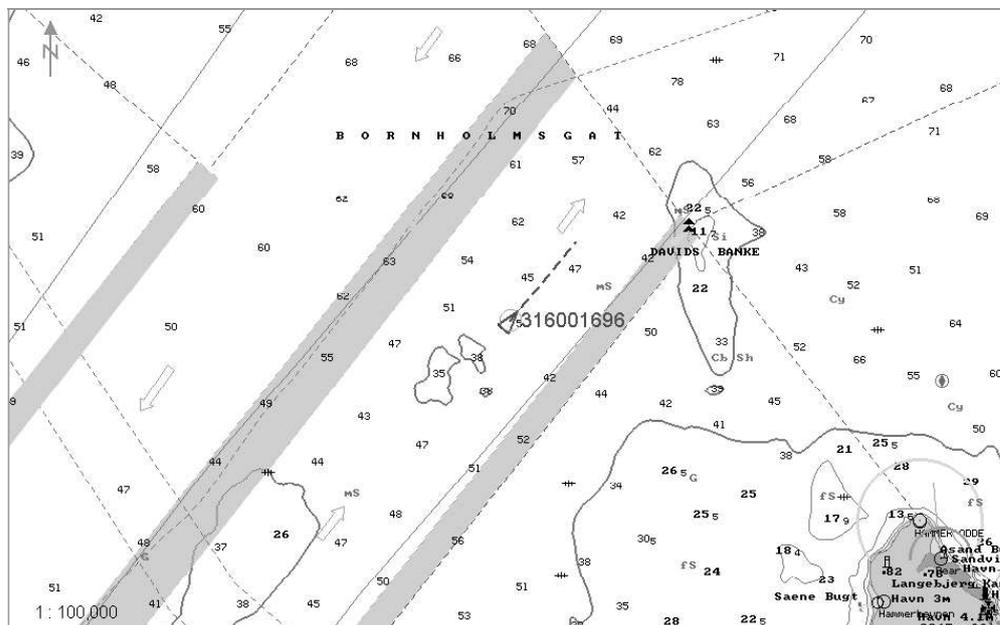


Prompt Target Search

Press the button with the target identifier in Name line of the Targets Table, e.g. 316001696.



The selected target will be displayed in the centre of the Chart panel highlighted with a flashing circle.

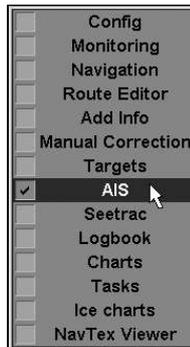


Setting of Voyage Data

ATTENTION!

Setting of voyage data is available only at station with the status MASTER.

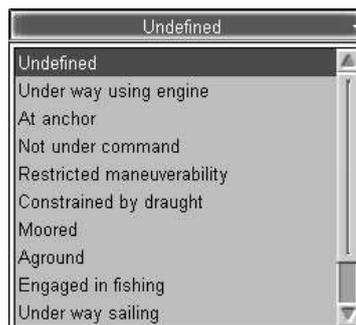
Open “AIS” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top left part of “AIS” panel to switch to “Voyage and Static Data” page. Press Edit button.

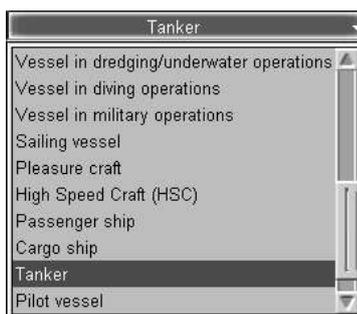
 A software interface window titled 'Voyage and Static Data' with a 'Messaging' tab. It contains several input fields: 'Navigational status' (dropdown menu showing 'Undefined'), 'Type of ship' (dropdown menu showing 'Other type of ship'), 'Cargo' (dropdown menu showing 'No additional information'), 'Destination' (text field), 'ETA' (text field showing '30-11 00:00' and a 'UTC' checkbox), 'Static Data' section with 'Restore' button, 'Name' (text field showing 'UCKB'), 'Call Sign' (text field showing 'KOLA'), 'MMSI' (text field showing '273130500'), and 'IMO Number' (text field showing '882854216'). At the bottom, there are 'Mean draught' (text field showing '0.0' and 'm') and 'Persons on board' (text field showing '0'). 'Edit' and 'Apply' buttons are at the bottom right.

In the left-hand part of “Voyage and Static Data” page, press Navigational status button.



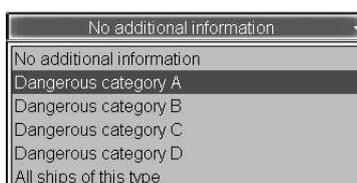
In the list, which will open up, select the own ship navigation status and press the left trackball/mouse button.

Press Type of ship button in the left-hand part of the page.



In the list, which will open up, select the own ship navigation status and press the left trackball/mouse button.

Press **Cargo** button in the left-hand part of the page (for ships carrying cargoes only).



In the list, which will open up, select the dangerous cargo category as required and press the left trackball/mouse button.

Use **Mean draught** input line to enter the own ship mean draught value and press the left trackball/mouse button.



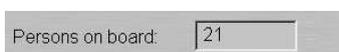
Use **Destination** input line to enter the own ship port of destination (not more than 20 symbols) and press the left trackball/mouse button.



Use **ETA** line to enter the ETA (UTC) in the port of destination specified in **Destination** line, and press <Enter> key. If the system (UTC) time value is larger than the entered ETA value, "Undefined" will be automatically set in ETA input line.



In **Persons on board** input line, enter the number of persons on board and press the left trackball/mouse button.



Press **Apply** button.

ATTENTION!

Static Data area always displays own ship data, which is set on "Ship settings" page of "INS" panel of the System Configuration utility and cannot be changed in the ECDIS task. Where the transponder settings do not match those in the ECDIS task, the own ship name and Call Sign are shown in red colour.

Static Data:		Restore
Name:	UCKB	
Call Sign:	KOLA	
MMSI:	273130500	
IMO Number:	882854216	

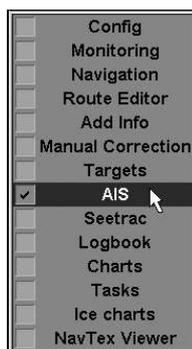
As other devices are connected to the AIS transponder in addition to the NS 4000 MFD (e.g. MKD or pilot software), the own ship name and call sign in the transponder can be changed by these users. The operator is notified about these changes by **AIS Name warning** and **AIS CALL warning** warnings, which will remain active until the own ship data is restored in the transponder. To restore the own ship data settings in the transponder as per the settings in the System Configuration utility, press **Restore** button.

The setting of own ship parameters transmitted in the AIS system is completed.

Transmission of Messages in AIS System

Turn on the display of AIS targets (see paragraph **Handling AIS Targets**).

Open “AIS” panel by selecting the appropriate line of **TASKS LIST** menu on the Control panel.



Use the tab in the left-hand part of “AIS” panel to switch to “Messaging” page.

N	Sent to	Date/Time (UTC)	Type	Status
3	316001696	20-04-2006 10:04:49	Safety Text	Waiting
2	273002413	20-04-2006 10:04:27	Safety Text	Delivered
1	ALL	20-04-2006 10:01:43	Safety Text	Sent

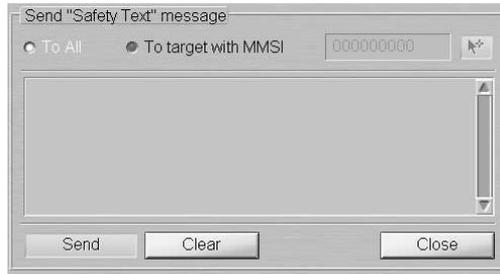
From:	273002413	THE RACON ON LIGHTBUOY TANGO-1 IN PSN 5747.2 N 01046.1 E IS INOPERATIVE
To:	All stations	
Type:	Safety text	
<input type="radio"/> AIS message alarm <input type="radio"/> Show new message		

Transmission of Text

To prepare and transmit a text message, press **Create Message** button on “Messaging” page in **Send message** group and select **Safety Text**.

Create Message
Safety Text
Normal Text

Press the left trackball/mouse button. **Send Message** window will open up, specifying the type of the selected message.



Set the identifier of the addressee of the message to be sent. To transmit a message to all the ships in the radio coverage area, check **To All** checkbox.

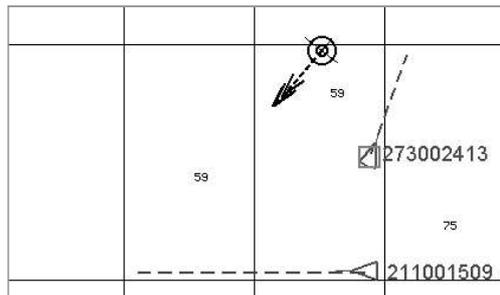


To transmit a message to a certain ship, use one of the three procedures:

1. Check **To target with MMSI** checkbox and enter the MMSI of the addressee in the input line which will be activated.



2. Check **To target with MMSI** checkbox and press  button to the right of the input line. Position the acquisition marker, which will appear on the Chart panel, on the target, which is the addressee of the message.



Press the left trackball/mouse button. The input line will display the MMSI of the specified target.



3. To send a reply message, press **Reply** button in **Receive Message** group.



With the use of **Reply** function, **Send message** window opens up for a message, which has the same type as the message received from an AIS object, "Safety Text" in this case. The input line will automatically display MMSI of the AIS object, which the message has been received from.



Use the text input window in **Send Message** group to enter the text of the message, which should be sent.



Press **Send** button.



Select the message despatch channel (**Auto** is recommended).

The compiled message will be sent.

Press **Close** button.

Check the sent message status in the table in **Send message** group. The message status may be one of the following:

- **Waiting** – the message has been transmitted by the NS 4000 MFD, but no confirmation of its relay has been received from the transponder;
- **Sent** – the message has been sent by the transponder, but no confirmation of its delivery to the addressee has been received or confirmation is not expected if the message was sent to all the AIS objects (“All” identifier);
- **Delivered** – the message has been delivered to the addressee;
- **Failed** – the message, for some reasons, cannot be sent by the transponder.

The text of sent “Safety Text” messages, as well as their status (except “Waiting”) is recorded in the ship’s electronic logbook.

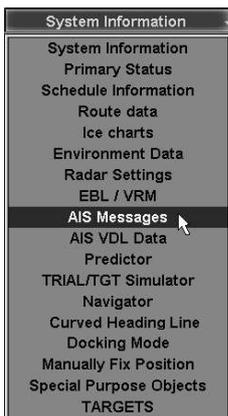
Reception of Messages in AIS System

ATTENTION!

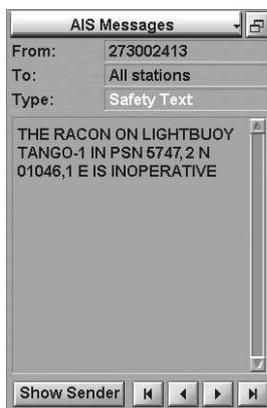
The default setting implies generation of **AIS message** warning upon the receipt of messages from AIS objects.

As the warning is acknowledged by the operator, the received messages is shown on “AIS Messages” display of the Control panel and in **Receive message** group on “Messaging” page of “AIS” panel.

Press the button with the name of the set display in the “Display Panel” window of the Control panel.



In the list, which will open up, select **AIS Messages** line and press the left trackball/mouse button.

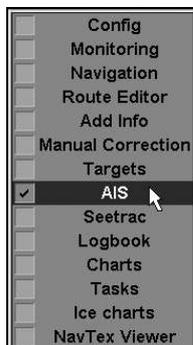


In "AIS Messages" display, which will open up, read the received message. Use   buttons to view the received messages.

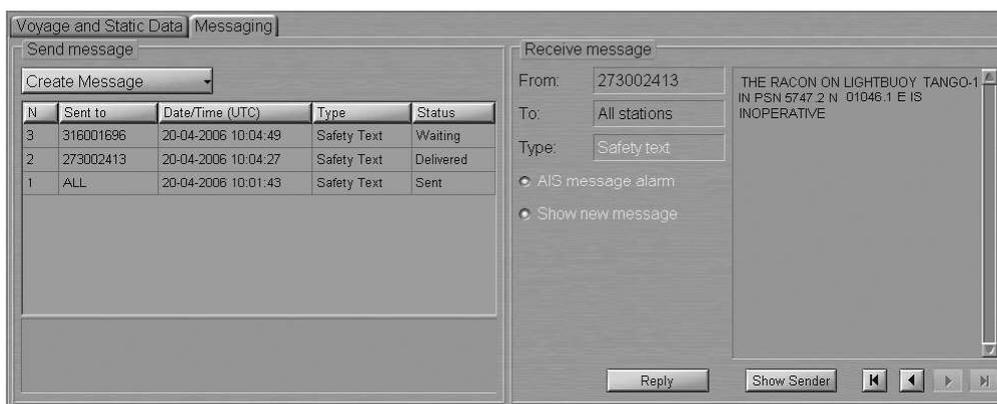
ATTENTION!

Control buttons in "AIS Messages" display of the Control panel and in **Receive Message** group on "Messaging" page of "AIS" panel are synchronised.

Open "AIS" panel by selecting the appropriate line of **TASKS LIST** menu on the Control panel.



Use the tab in the left-hand part of "AIS" panel to switch to "Messaging" page.



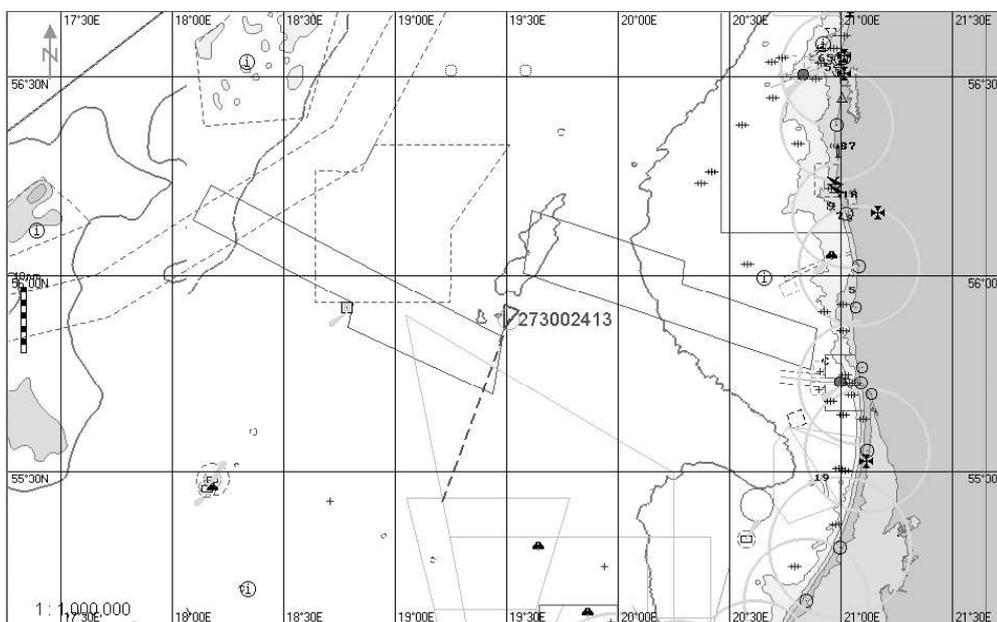
In **Receive message** group, read the received message. Use buttons to view the received messages.

AIS message alarm checkbox is checked by default, arrival of a message, therefore, triggers off **AIS Message** warning. Uncheck this checkbox to disable the warning generation upon the receipt of AIS messages.

Show new message checkbox is checked by default; upon the receipt of a new message it will, therefore, be shown in “AIS Messages” display of the Control panel and in **Receive** group on “Messaging” page of “AIS” panel. Uncheck this **Show new message** checkbox to save an image of the viewed message upon the receipt of a new message.

Turn on the display of AIS targets (see paragraph **Handling AIS Targets**). AIS targets will appear on the Chart panel.

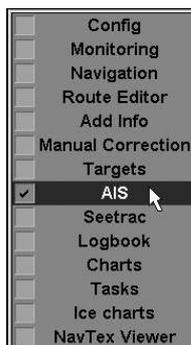
To display the message sender target, press **Show Sender** button.



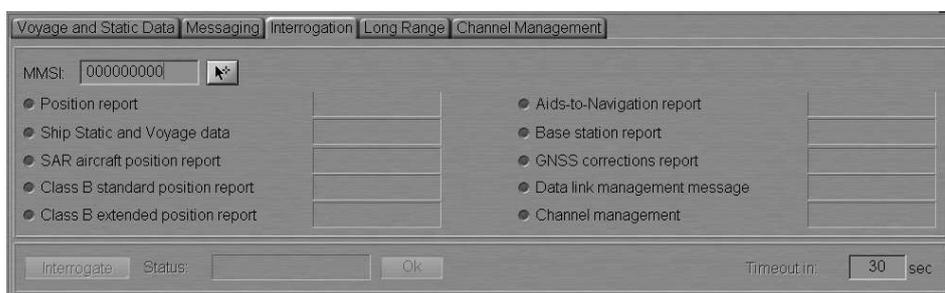
The target will be shown in the centre of the Chart panel, highlighted with a flashing circle.

Requesting Information from AIS Objects

Open “AIS” panel by selecting the relevant line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “AIS” panel to switch to “Interrogation” page.

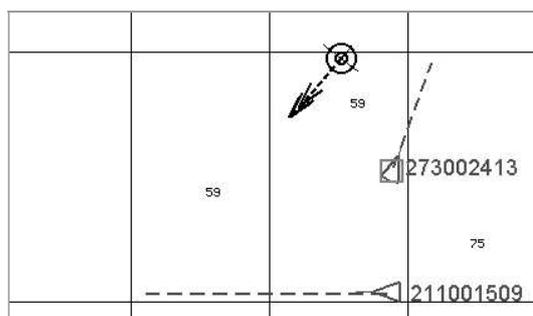


To send an inquiry, enter MMSI of the interrogated AIS object by using one of the two procedures:

- enter MMSI in the input line;

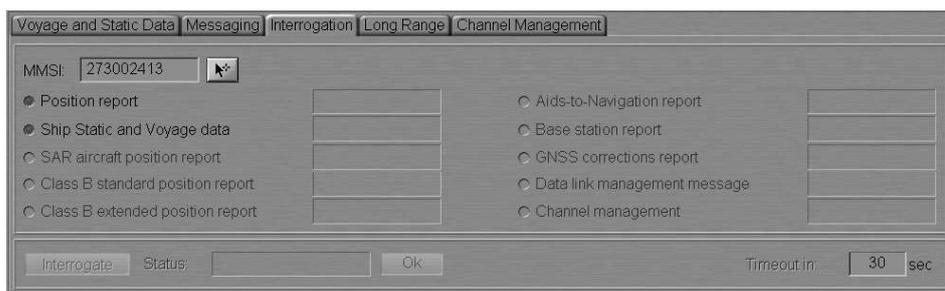


- press  button to the right of the input line. Position the acquisition marker, which will appear in the Chart panel, on the interrogated AIS object.



Press the left trackball (mouse) button: the input line will display MMSI of the AIS object.

Check checkboxes to the left of the required information types (not more than three).

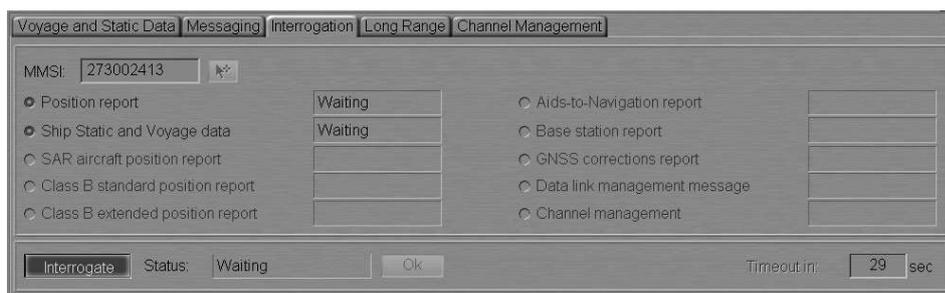


ATTENTION!

As the MMSI is entered with the use of the acquisition marker, the NS 4000 MFD automatically determines the type of the AIS object from the available data and allows the setting of an inquiry for that information only which can be received from an object of this type.

Use **Timeout** in input box to set the time of waiting for the reply to the inquiry (from 5 to 120 seconds).

Press **Interrogate** button to send the inquire.



Check the sent inquiry status in **Status** line. The inquiry status may be one of the following:

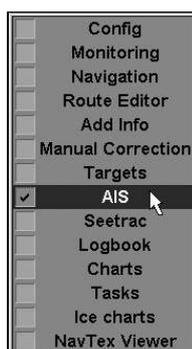
- **Waiting** – the inquiry has been transmitted by the NS 4000 MFD, but no confirmation of its relay has been received from the transponder;
- **Failed** – the inquiry has not been sent by the transponder;
- **Sent** – the inquiry has been sent by the transponder, but information from the interrogated AIS object has not been received, or has not been received in full;
- **Delivered** – all the information requested from the AIS system object has been received;
- **Timeout** – the set time of waiting for the reply to the inquiry is over, but information from the interrogated AIS object has not been received, or has not been received in full.

After the reception of the requested information or the end of the waiting time, press “OK” button.

The received information can be read off in the target data card.

Replying to an Inquiry with the Use of Long Range Communication Facilities

Open “AIS” panel by selecting the relevant line in **TASKS LIST** menu on the Control panel.



Use the tab in the top part of “AIS” panel to switch to “Long Range” page.

Date/Time (UTC)	Request Flags	Reply Flags	Requestor MMSI	Requestor Name
27 - 03 15 : 23	A B C	A B C	002191000	LINGBY RADIO

Reply info:

- (A) Name, Callsign, IMO
- (B) Date and Time
- (C) Position
- (E) Course Over Ground
- (F) Speed Over Ground
- (I) Destination and ETA
- (O) Draught
- (P) Type of Ship and Cargo
- (U) Ship's dimensions and Type
- (W) Persons on board

Reply mode:

Long Range Alarm

Setting Parameters of Reply to Long Range Inquiry

Checkboxes to the left of the information types permitted for a reply to a Long Range inquiry, and the reply mode are checked by default. For the editing of these parameters, press **Edit** button.

Date/Time (UTC)	Request Flags	Reply Flags	Requestor MMSI	Requestor Name
27 - 03 15 : 23	A B C	A B C	002191000	LINGBY RADIO

Reply info:

- (A) Name, Callsign, IMO
- (B) Date and Time
- (C) Position
- (E) Course Over Ground
- (F) Speed Over Ground
- (I) Destination and ETA
- (O) Draught
- (P) Type of Ship and Cargo
- (U) Ship's dimensions and Type
- (W) Persons on board

Reply mode:

Long Range Alarm

Uncheck checkboxes for that information which will not be sent in a reply to the inquiry.

From **Reply mode** drop-down list, select the mode of a reply to a Long Range inquiry. If **Auto** is selected, the reply is sent automatically and contains only that requested information, which is allowed by the operator.

Press **Apply** button to apply the settings you have made.

Long Range Alarm checkbox is checked by default, this is why an alarm is generated by the reception of a Long Range inquiry. To disable the alarm generation, uncheck the checkbox.

Manual Reply to Long Range Inquiry

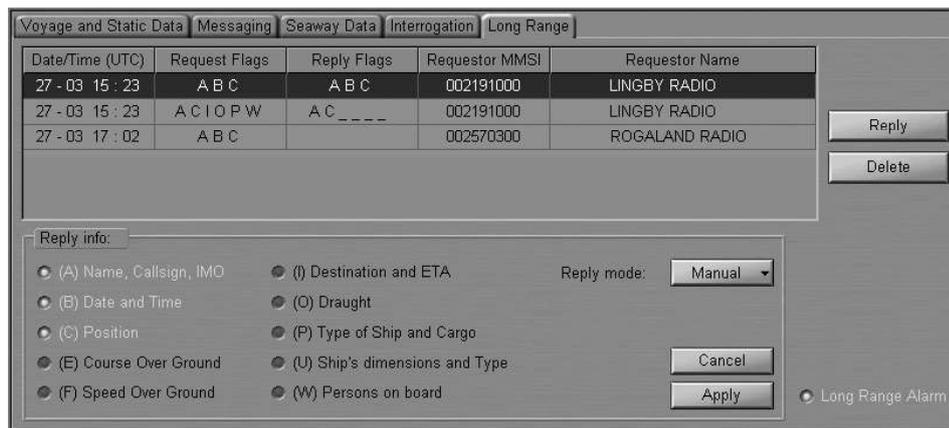
As a manual reply to a Long Range inquiry is set, Reply button is activated.



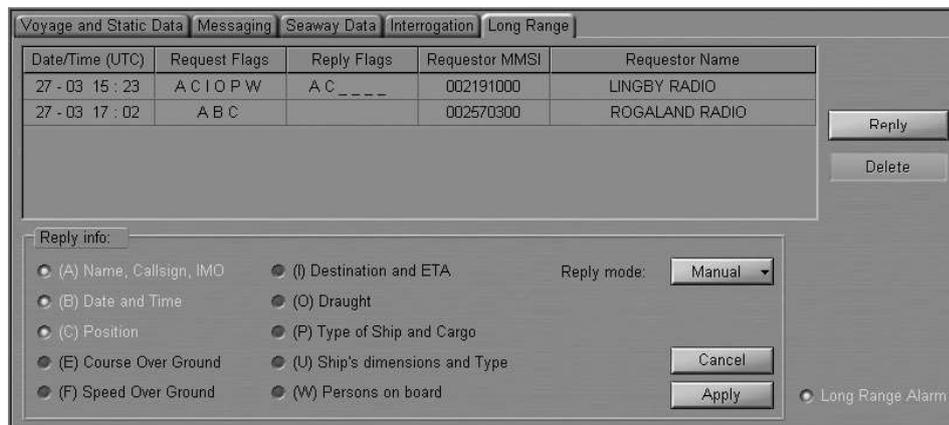
Press Reply button for a manual reply to an inquiry. The reply is sent and contains only that requested information, which is allowed by the operator.

Deleting of Long Range Inquiry

Use the cursor to select from the table the inquiry you wish to delete.



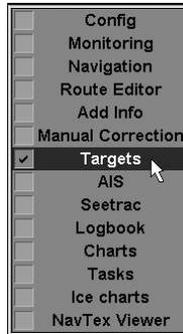
Press Delete button. The inquiry will be deleted.



HANDLING TARGETS

Setting of Safety Parameters in the Tracking of Targets

Open “Targets” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Show Target		AIS Target identification													Warning		
ARPA AIS Tracks		By ID													CPA 1.00 NM	TCPA 3.0 min	
Name		71	74	75	77	78	79	80	91	92	93	95	100	138	182		
Alias	Fellow																
CPA (nm)		3.08	2.39	2.01	1.04	0.74	0.07	1.94	3.29	3.70	3.67	1.49	1.33	3.45	0.64		
TCPA (min)		-2.5	11.5	1.1	-3.1	-2.3	1.3	3.7	0.8	0.5	-0.3	-1.9	1.4	1.3	8.9		
COG (°)		223.6°	335.2°	354.1°	202.5°	219.0°	340.8°	222.2°	268.9°	264.1°	244.8°	292.1°	23.1°	336.6°	336.7°		
SOG (kn)		91.7	8.5	32.6	13.6	9.5	9.3	5.3	37.1	42.2	51.0	39.5	22.9	37.5	19.1		
Range (nm)		5.18	3.82	2.11	1.46	1.00	0.34	2.12	3.35	3.72	3.68	2.16	1.41	3.57	3.75		
Bearing (°)		264.4°	158.2°	85.4°	185.3°	197.6°	135.9°	140.1°	10.3°	2.0°	334.9°	331.3°	107.4°	68.9°	144.8°		
Bow X (nm)		-4.6	-4.8	2.2	1.6	1.8	-0.1	7.0	-213.1	-44.4	-10.2	4.9	1.3	4.3	-0.9		
TBow X (min)		-0.5	27.6	-0.3	-7.0	-7.7	1.7	-25.0	272.3	51.4	9.2	-7.7	1.2	-2.2	10.5		

In the top of “Targets” panel, which will open up, turn on the display of targets from the required sources by pressing the appropriate buttons: ARPA, AIS.



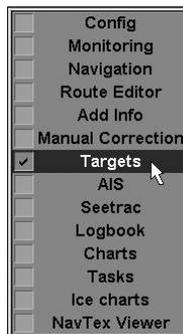
Warning group contains windows for enter values of CPA/TCPA.

The CPA/TCPA alarm generation is turning on when both CPA and TCPA values of the target are smaller than the set values:

- CPA – to enter the minimum closest point of approach distance;
- TCPA – to enter the minimum time to the closest point of approach.

Handling Target Table

Open “Targets” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



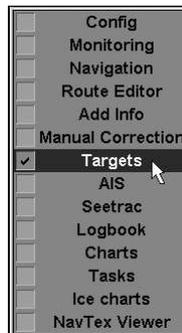
Name	71	74	75	77	78	79	80	91	92	93	95	100	138	182
Alias	Fellow													
CPA (NM)	3.08	2.39	2.01	1.04	0.74	0.07	1.94	3.29	3.70	3.67	1.49	1.33	3.45	0.64
TCPA (min)	-2.5	11.5	1.1	-3.1	-2.3	1.3	3.7	0.8	0.5	-0.3	-1.9	1.4	1.3	8.9
COG (°)	223.6°	335.2°	354.1°	202.5°	219.0°	340.8°	222.2°	268.9°	264.1°	244.8°	292.1°	23.1°	336.6°	336.7°
SOG (kn)	91.7	8.5	32.6	13.6	9.5	9.3	5.3	37.1	42.2	51.0	39.5	22.9	37.5	19.1
Range (NM)	5.18	3.82	2.11	1.46	1.00	0.34	2.12	3.35	3.72	3.68	2.16	1.41	3.57	3.75
Bearing (°)	264.4°	158.2°	85.4°	185.3°	197.6°	135.9°	140.1°	10.3°	2.0°	334.9°	331.3°	107.4°	68.9°	144.8°
Bow X (NM)	-4.6	-4.8	2.2	1.6	1.8	-0.1	7.0	-213.1	-44.4	-10.2	4.9	1.3	4.3	-0.9
TBow X (min)	-0.5	27.6	-0.3	-7.0	-7.7	1.7	-25.0	272.3	51.4	9.2	-7.7	1.2	-2.2	10.5

Target Table contains columns (ARPA, AIS and Seetrac targets) and rows with the targets information with availability of sorting by the relevant parameter:

- Name – target identifier;
- Alias – target identifier (up to 8 characters) assigned by the operator (the target is displayed on the Chart panel with this identifier regardless of settings in AIS Target Identification group);
- CPA – closest point of approach distance;
- TCPA – time to the closest point of approach;
- COG – target course over the ground;
- SOG – target speed over the ground;
- Range – distance to the target;
- Bearing – bearing to the target;
- Bow X – distance to the point where the target crosses the own ship course;
- TBow X – time to the point where the target crosses the own ship course.

Prompt Target Search

Open “Targets” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.

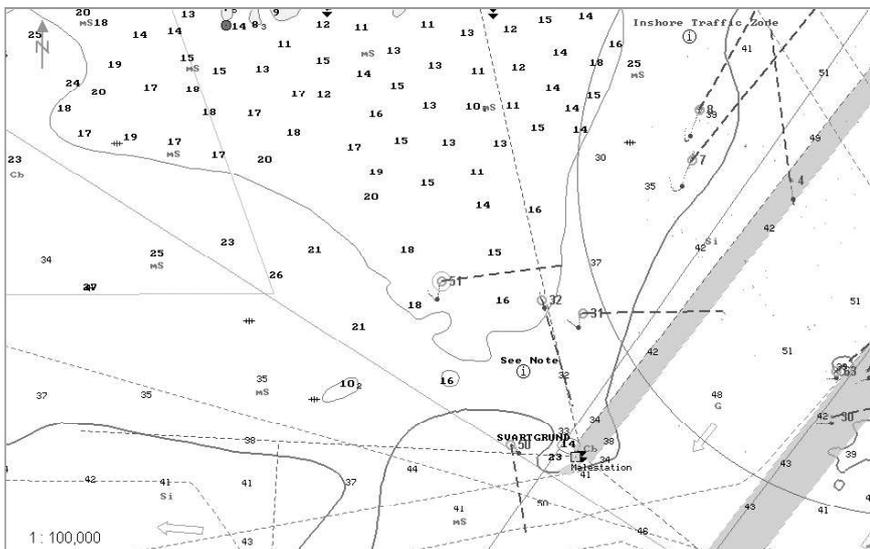


Turn on the display of targets (see section **AIS**, paragraph **Handling AIS Targets**, and section **ARPA**, paragraph **Target Display**).

Name	40	41	42	43	44	37	47	49	50	51	52	53	54	
Alias														
CPA (NM)	2.88	5.87	7.32	6.81	7.74	5.81	4.09	4.53	5.86	8.23	1.25	6.76	8.07	5.62
TCPA (min)	-9.7	-8.4	-6.9	-14.5	-0.3	-21.2	-21.2	-21.2	10.4	12.8	21.8	-16.4	-16.6	-19.2
COG (°)	14.5°	295.9°	65.7°	287.1°	281.1°	30.0°	5.9°	36.4°	84.2°	170.7°	81.6°	348.7°	358.2°	29.6°
SOG (kn)	45.3	43.5	29.4	26.8	33.1	11.3	15.0	13.1	22.4	12.3	16.8	19.5	15.8	12.8
Range (NM)	8.04	8.33	8.43	9.10	9.05	8.79	8.67	8.57	7.63	8.46	8.44	9.50	10.11	8.56
Bearing (°)	359.3°	350.7°	0.3°	351.7°	352.5°	352.7°	45.2°	5.8°	203.4°	236.6°	257.5°	317.5°	318.4°	352.4°
Bow X (NM)	7.7	-5.9	-20.9	-6.9	-8.1	55.4	-10.5	112.1	10.6	8.2	-2.6	11.1	16.8	49.3
TBow X (min)	-17.9	-9.0	25.4	-16.5	-13.8	-107.9	5.6	-346.8	-8.4	15.6	27.7	-37.6	-56.9	-164.8

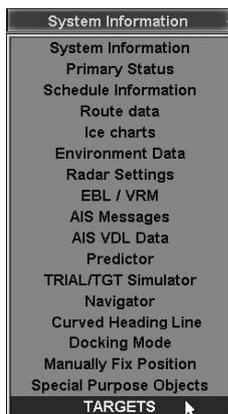
Press the button with the target identifier in Name line of the Targets Table, e.g. "51".

The selected target will be displayed in the centre of the Chart panel highlighted with a flashing circle.



Turning On Mode of Associating AIS and ARPA Targets

Press the button with the name of the set display in the "Display Panel" window of the Control panel.



In the list, which will open up, select **TARGETS** line and press the left trackball/mouse button.

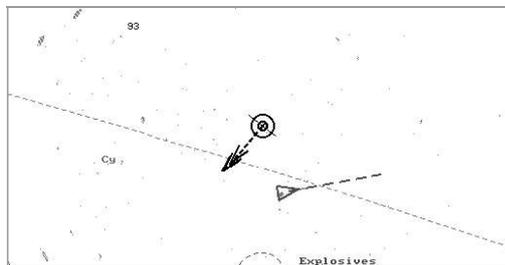


Select from the **Priority** drop-down list the targets which will be displayed after the association on the ECDIS task screen.



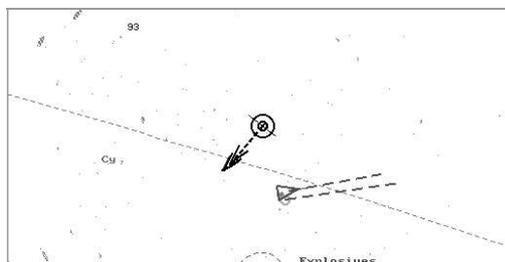
Press the Association button.

If association conditions are fulfill, the ARPA target continues to be tracked but is not displayed on the PPI any more.



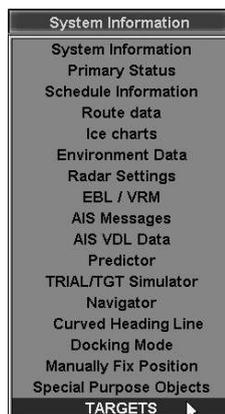
The data card of such AIS target displays bearing and distance to its associated ARPA target in the bottom line.

If association conditions exceeds the set limits, the ARPA target is automatically displayed on the screen.



Turning On DR Mode for AIS Targets

Press the button with the name of the set display in the “Display Panel” window of the Control panel.



In the list, which will open up, select **TARGETS** line and press the left trackball/mouse button. Open “AIS” page.



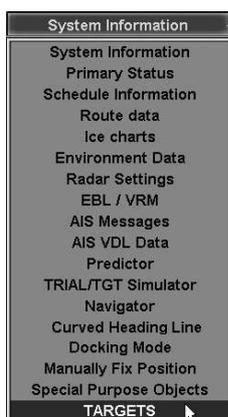
In the input line to the right of the **DR for AIS tgts** button, set the minimum speed of AIS targets for the DR mode.

To turn on the DR mode for AIS targets whose speed is equal to and higher than the set value, press the **DR for AIS tgts** button.



Filtering Lost Targets

Press the button with the name of the set display in the “Display Panel” window of the Control panel.



In the list, which will open up, select **TARGETS** line and press the left trackball/mouse button.

Open “Acquisition” page. In the **Lost targets** group, check the **Lost target filter** checkbox.



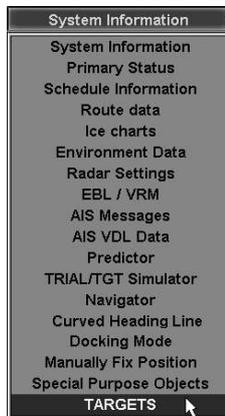
Use the **Range** input box in the **Lost targets** group to set the distance beyond which the **Lost Target** alarm will not be generated when the ARPA or AIS loses a target, lost targets are not at all displayed on the ECDIS task screen any more.

WARNING!

It is advisable to keep the filter in the OFF condition (the **Lost target filter** checkbox is unchecked).

Filtering AIS Targets

Press the button with the name of the set display in the “Display Panel” window of the Control panel.



In the list, which will open up, select **TARGETS** line and press the left trackball/mouse button.

Open the “AIS” page.



Use the **Range filter** input box to set the distance beyond which the AIS targets will not be displayed. Beyond the set range sleeping targets are filtered for display by default. In the **Active AIS targets** group, check the **Filter** checkbox. Active AIS targets will be filtered too. By default, the AIS filter is turned off.



Press the AIS filter button and select the filter operation criterion:

- **OFF** – filter is off;
- **by RANGE**– to filter targets beyond the user set limits;
- **by CPA** – to filter targets whose CPA is larger than the value set by the user in the “Targets” panel;
- **by TCPA** – to filter targets whose TCPA is larger than the value set by the user in the “Targets” panel.

The indicator to the left of the **AIS filter** button shows which AIS targets are currently being filtered:

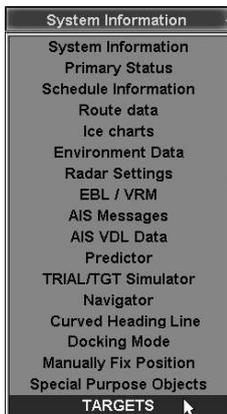
- **S** – sleeping AIS targets;
- **A** – active AIS target.

WARNING!

It should be noted that dangerous AIS targets can also be filtered off for display with the aid of the AIS filter. Nevertheless the CPA/TCPA alarm will be generated for them.

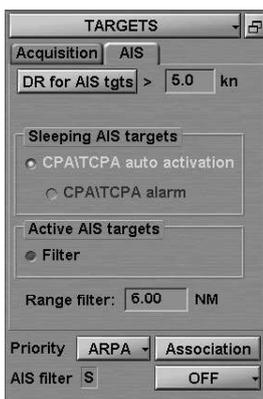
Sleeping AIS Targets Handling

Press the button with the name of the set display in the “Display Panel” window of the Control panel.



In the list, which will open up, select TARGETS line and press the left trackball/mouse button.

Open the “AIS” page.

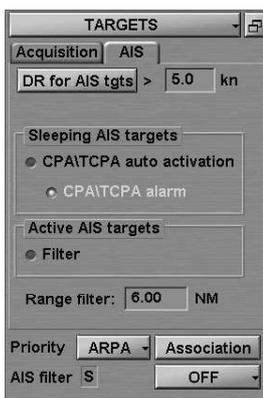


Auto activation of sleeping targets if they become dangerous is turned on by default (the CPA\TCPA auto activation button is on). As this occurs, the CPA\TCPA alarm is generated.

To turn off the auto activation of sleeping targets as they become dangerous, set zero values for the CPA and TCPA on the “Targets” panel.

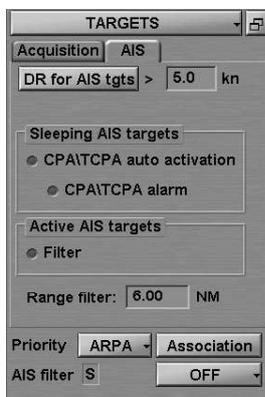


Deselect CPA\TCPA auto activation button, and then select CPA\TCPA alarm button.



Set the necessary safety CPA/TCPA parameters on the “Targets” panel again. In this case, as a sleeping AIS target becomes dangerous, the CPA/TCPA alarm only will be generated, without activation of the target.

To turn off generation of the CPA/TCPA alarm for sleeping AIS targets, deselect CPA/TCPA alarm button.

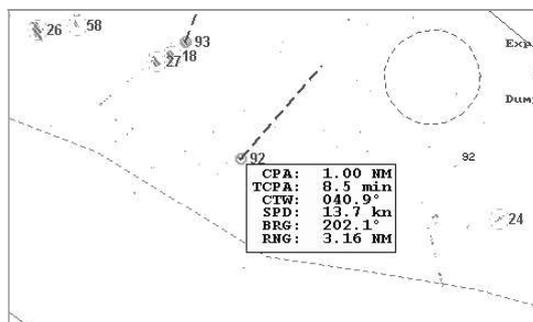


In this case, if the sleeping AIS target becomes dangerous, it will be activated, but no CPA/TCPA alarm will be generated for it.

Obtaining Information on Target

Turn on the display of targets (see section **AIS**, paragraph **Handling AIS Targets**, and section **ARPA**, paragraph **Target Display**).

Position free **View** cursor on the necessary target; the cursor will change its form. Press the left trackball/mouse button: the target data card with its parameters will be displayed next to the target:



CHAPTER 11

Obtaining of Information in the ECDIS Task

This chapter describes the procedure used in the reception of all kinds of information in the ECDIS task.

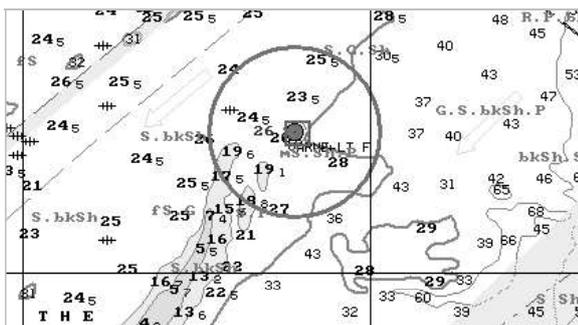
OBTAINING INFORMATION ON VECTOR CHART OBJECTS

Obtaining Information on Point Type Objects

Set the display of the required area by using scaling and Review functions. Press button on the Control panel: "Info" panel will open up in the bottom part of the screen.



Position the acquisition marker, which will appear, on the object which information is required to be obtained on.



Press the left trackball/mouse button. "Info" panel will display (under the chart name) the list of pages with available information on the objects, which fall within the acquisition marker outline:

Transas chart (A1892)

[30.0 m depth contour](#)

[Light](#)

[General Chart Information](#)

[Explanatory and Cautionary notes](#)

Select the necessary notation by positioning the cursor on the name and press the left trackball/mouse button: "Info" panel will open a page with information on the selected objects:

Transas chart (A1892)
[to top](#)

[General Chart Information](#)

[Explanatory and Cautionary notes](#)

General Chart Information [to top](#)

A1892	TRANSAS MARINE SENC Ver 6.0 (Verified)	WGS-84 Corr
	Edition: 07-2001	Δlat: 00°00.000
	Small corrections: 07.02.2002 (through NM 6/2002)	Δlon: 000°00.000
	Projection: Mercator	
	Horizontal datum: WGS-84	10.0 m
	Heights and depths in Metres	20.0 m

Paper chart Number: 1892
 ENGLISH CHANNEL DOVER STRAIT WESTERN PART
 Edition: 03-2001, printed: 03-2001. Published in UK
 Projection: Mercator, IATA system - Region A

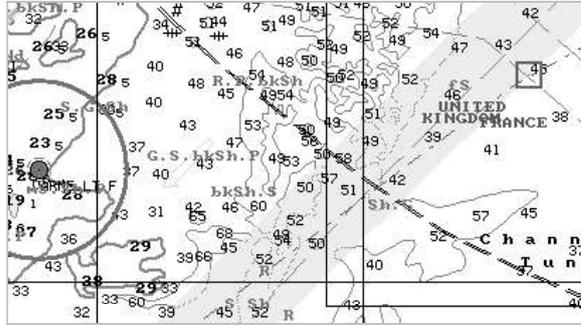
← →
Close
Unmark

Obtaining Information on Line and Area Type Objects

Set the display of the required area by using scaling and Review functions. Press button on the Control panel. "Info" panel will open up in the bottom part of the screen.



Position the acquisition marker, which will appear, on the boundary of an area type object or any part of a line type object which information is required to be obtained on.



Press the left trackball/mouse button. "Info" panel will display (under the chart name) the list of pages with available information on the objects, which fall within the acquisition marker outline.

Transas chart (A1892)

- [International maritime boundary](#)
- [Submarine cable](#)
- [Traffic separation scheme \(Traffic separation zone\) \(limit\)](#)
- [General Chart Information](#)
- [Explanatory and Cautionary notes](#)

Select the necessary notation by positioning the cursor on the name and press the left trackball/mouse button: "Info" panel will open a page with information on the selected objects.

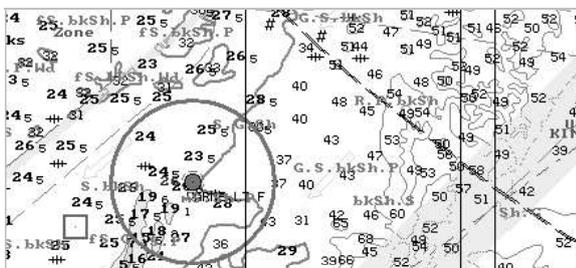
Inshore Traffic Zone (limit)	to top
Traffic separation scheme (Traffic separation zone) (limit)	to top
General Chart Information	to top
A1892	TRANSAS MARINE SENC Ver 6.0 (Verified)
	WGS-84 Corr.
	Δlat: 00°00.000
	Δlon: 000°00.000
	Edition: 07-2001
	Small corrections: 07.02.2002 (through NM 6/2002)
	Projection: Mercator
	Horizontal datum: WGS-84
	Heights and depths in Metres
	10.0 m
	20.0 m
Paper chart Number: 1892	
ENGLISH CHANNEL . DOVER STRAIT. WESTERN PART.	
Edition: 03-2001, printed: 03-2001. Published in UK	
Projection: Mercator, IALA system - Region A	
Ellipsoid: WGS-84	
Scale 1:75000, depths in metres	

OBTAINING INFORMATION ON VECTOR CHARTS

Set the display of the required area by using scaling and Review functions. Press button on the Control panel. “Info” panel will open up in the bottom part of the screen.



Position the acquisition marker, which will appear, on point of the chart which information is required to be obtained on.



Press the left trackball/mouse button. “Info” panel will display (under the chart name) the list of pages with available information on the objects which fall within the acquisition marker outline.

Transas chart (A1892)

[General Chart Information](#)

[Explanatory and Cautionary notes](#)

Select **General Chart Information** notation by positioning the cursor on it, and press the left trackball/mouse button. The page with information on the vector chart will open up.

Transas chart (A1892) [to top](#)

[General Chart Information](#)

[Explanatory and Cautionary notes](#)

General Chart Information [to top](#)

A1892	TRANSAS MARINE SENC Ver 6.0 (Verified)	WGS-84 Corr.
	Edition: 07-2001	Δlat: 00°00.000
	Small corrections: 07.02.2002 (through NM 6/2002)	Δlon: 000°00.000
	Projection: Mercator	
	Horizontal datum: WGS-84	10.0 m
	Heights and depths in Metres	20.0 m

Paper chart. Number: 1892
 ENGLISH CHANNEL DOVER STRAIT WESTERN PART
 Edition: 03-2001, printed: 03-2001. Published in UK
 Projection: Mercator, IATA system - Region A

← →

OBTAINING INFORMATION ON UPDATING OBJECTS

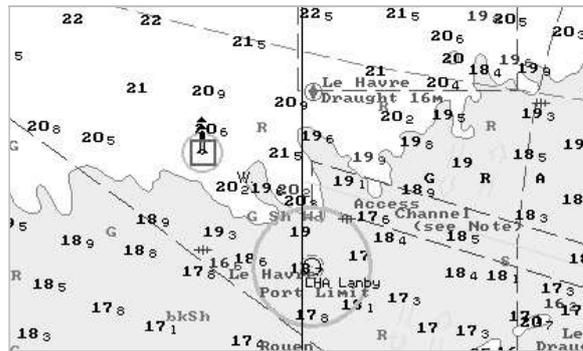
Set the display of the required area by using scaling and Review functions. Press button on the Control panel. "Info" panel will open up in the bottom part of the screen.



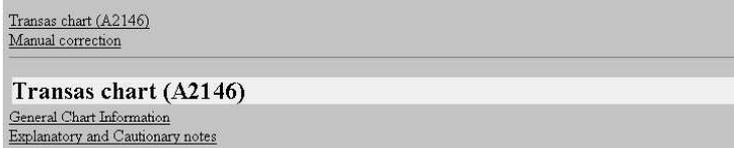
ATTENTION!

Point type objects cannot be displayed on scales smaller than 1:600,000.

Position the acquisition marker, which will appear, on the updating object which information is required to be obtained on.



Press the left trackball/mouse button. "Info" panel will display (above the chart name) the list of pages with available information on the updating objects and navigation chart which fall within the acquisition marker outline.



Select **Manual correction** by positioning the cursor on this notation and press the left trackball/mouse button. "Info" panel will display the page with information on the categories of updating objects, which fall within the acquisition marker outline.



Select the required object category by positioning the cursor on it and press the left trackball/mouse button. The window will display the page with information on the objects of this category.



OBTAINING INFORMATION ON USER CHART OBJECTS

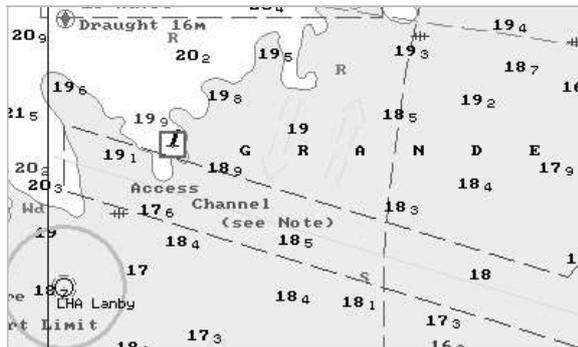
Set the display of the required area by using scaling and Review functions. Press button on the Control panel. "Info" panel will open up in the bottom part of the screen.



ATTENTION!

Point type objects cannot be displayed on scales smaller than 1:600,000.

Position the acquisition marker, which will appear, on the user chart object which information is required to be obtained on.



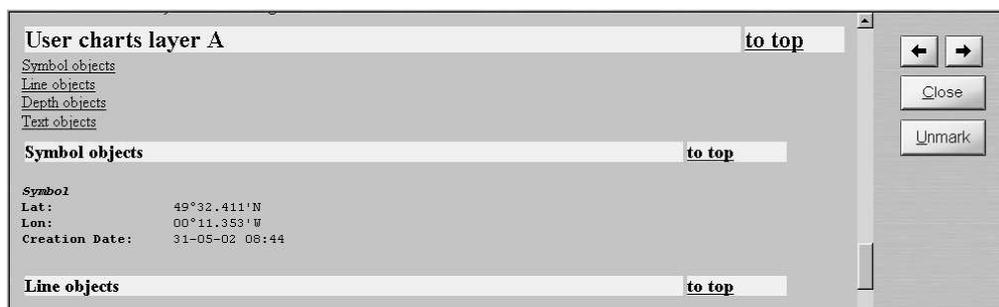
Press the left trackball/mouse button. "Info" panel will display (above the chart name) the list of pages with available information on the user chart objects and navigation chart, which fall within the acquisition marker outline.



Select **User charts layer A (B)** by positioning the cursor on this notation and press the left trackball/mouse button. "Info" panel will display the page with information on the categories of user chart objects which fall within the acquisition marker outline.



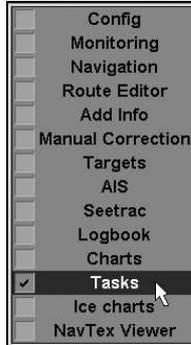
Select the required object category by positioning the cursor on it and press the left trackball/mouse button. The window will display the page with information on the objects of this category.



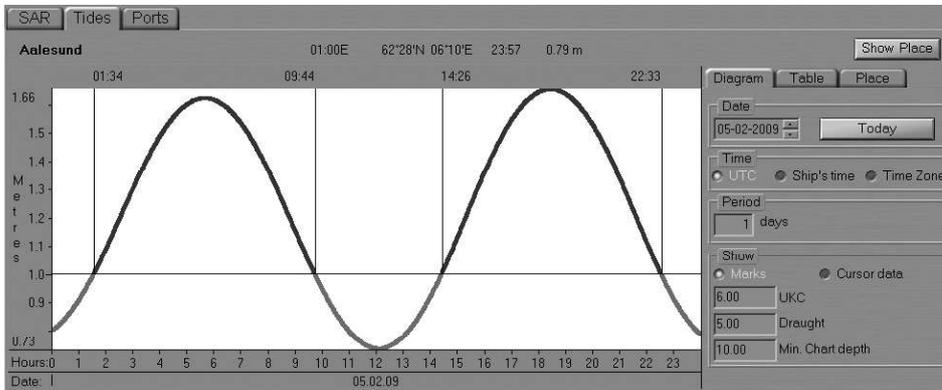
OBTAINING INFORMATION ON TIDES AND CURRENTS

Obtaining Information on the Change of Tidal Heights

Open “Tasks” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Tasks” panel to switch to “Tides” page.



Use the tab in the top right part of “Tides” page, which will open up, to switch to “Place” tab.

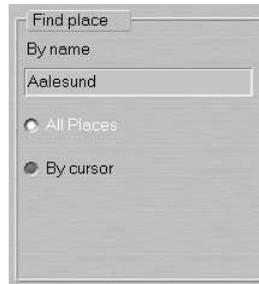
The 'Place' tab shows a table of locations and their coordinates. The table has two columns: 'Place' and 'Coordinates'. 'Aalesund' is selected and highlighted.

Place	Coordinates
Aalesund	62°28'N 06°10'E
Aarhus	56°10'N 10°13'E
Abaiang Atoll	01°49'N 173°02'E
Abashiri Byochi	44°01'N 144°16'E
Abashiri Ko	44°01'N 144°17'E
ABBAPOOLA CREEK ENTRANCE	32°41'N 80°00'W
Abbot Point	19°53'S 148°05'E
Abemama	00°29'N 173°52'E
Abemama Atoll	00°28'N 173°50'E
Aber Benoit	48°35'N 04°37'W
Aberdaron	52°48'N 04°43'W
ABERDEEN	57°09'N 02°05'W
Aberdeen	46°58'N 123°51'W
Aberdovey	52°32'N 04°03'W
Aberporth	52°08'N 04°33'W

On the right side of the table, there are controls for 'Diagram', 'Text', and 'Place' tabs, a 'Find place' search box containing 'Aalesund', and radio buttons for 'All Places' and 'By cursor'.

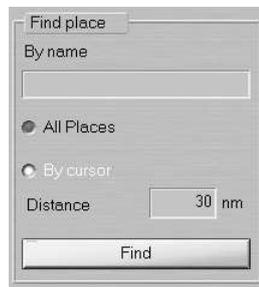
In the right-hand part of “Place” tab, which will open up, select the reference point by using one of the following procedures:

- enter the reference point name in By name input line and press <Enter> key;
- check All Places checkbox.

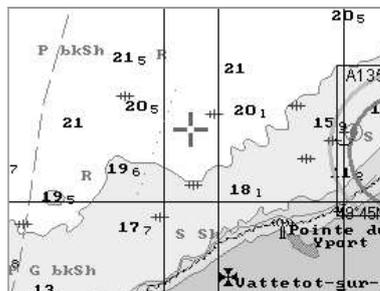


In the list in the left-hand part of the page, which will open up, select the reference point and double click the left trackball/mouse button.

- check By cursor checkbox; enter the radius of the area coverage circle in Distance input line, which will open up.



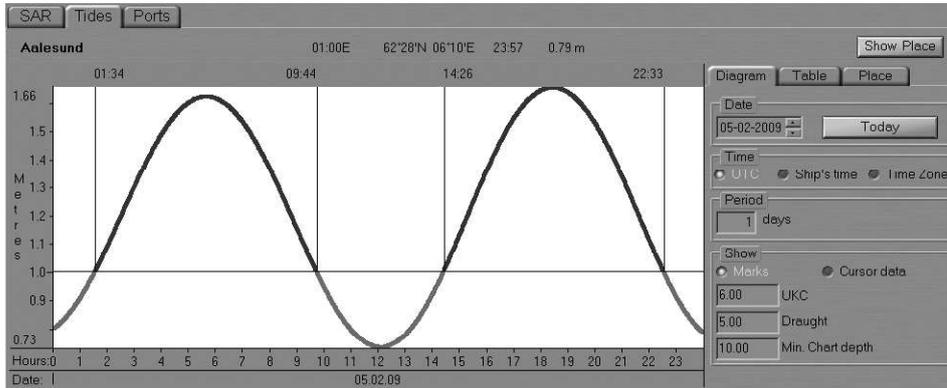
Press Find button. Position the graphic cursor, which will appear, on the point within the Chart panel which will be the centre of the area coverage circle.



Press the left trackball/mouse button. In the list of reference points, which fall within the coverage area in the left-hand part of the page, select the reference point and double click the left trackball/mouse button.

Information Displayed Graphically

After the selection of the reference point, “Diagram” tab will open up, displaying the tidal curve for the selected reference point.



In **Date** line of “Diagram” tab select the date starting from which the tidal heights will be calculated. Use **Period** input line to enter the period which tidal heights are required to be calculated for.

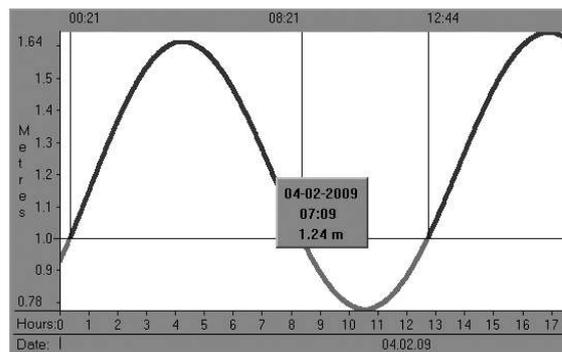
The following parameters can be set:

- **UKC** – under keel clearance;
- **Draught** – ship’s draught;
- **Min. Chart depth** – the minimum depth on the chart.

Check **Marks** checkbox to show the time marks on the diagram.

On the graph, blue is used for showing the time periods when the actual depth is safe, and red for showing the time intervals with dangerous depths.

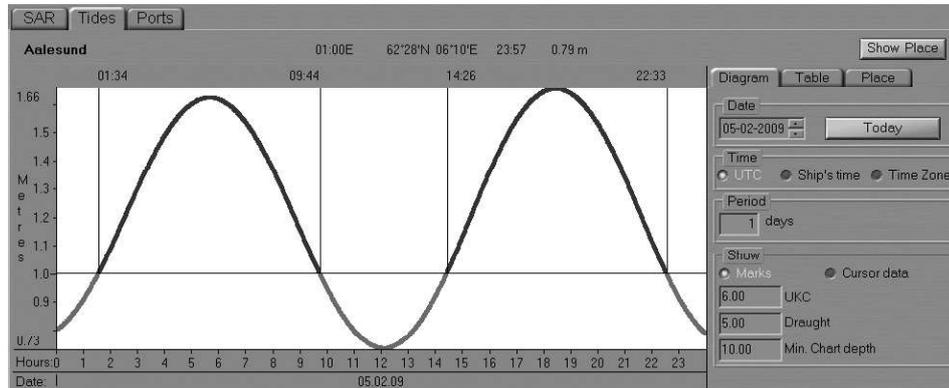
Check **Cursor Data** checkbox. Position the cursor on the tidal curve and by moving the cursor with the trackball/mouse, set the necessary time value in the cursor information window.



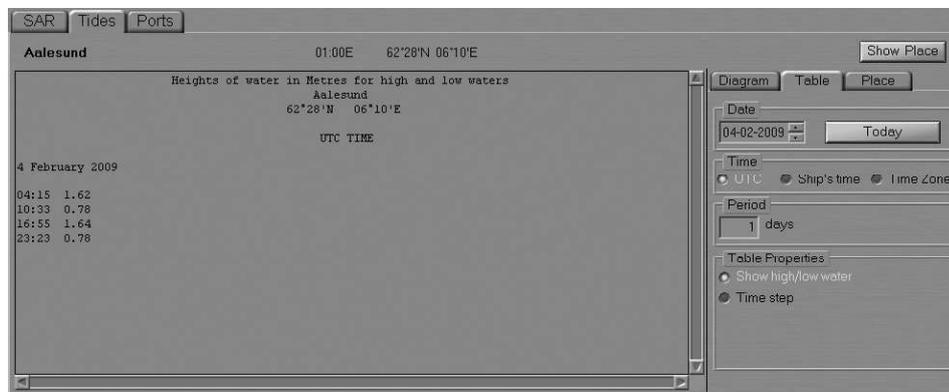
Read the tidal height value in the cursor information window.

Information Displayed in a Tabular Form

After the selection of the reference point, “Diagram” tab will open up displaying the tidal curve for the selected reference point.



Use the tab in the top right part of the page to switch to “Table” tab.



In Date line of “Table” tab select the date starting from which the tidal heights will be calculated. Use Period input line to enter the period which tidal heights are required to be calculated for.

To calculate tidal tables, use one of the following procedures:

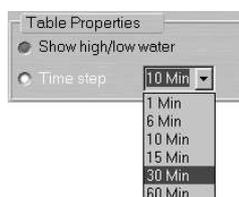
- In Table Properties group, check Show high/low water checkbox.



The left-hand part of the page will display a table of high and low water.

Heights of water in Metres for high and low waters	
Aalesund	
62°28'N 06°10'E	
UTC TIME	
1 June 2002	
01:50	1.56
08:27	0.49
14:46	1.41
20:37	0.74

- In Table Properties group, check Time step checkbox; press  button in the activated line for the input of the tidal height calculations discretion.



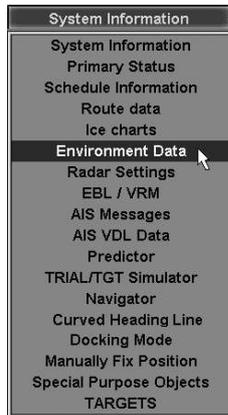
In the list, which will open up, select the necessary tidal height calculation discretion and press the left trackball/mouse button. The left-hand part of the page will display the tidal height table calculated with the set discretion.

Heights of water in Metres for regular intervals											
Aalesund											
62°28'N 06°10'E											
UTC TIME											
1 June 2002											
00:00	1.38	04:00	1.30	08:00	0.50	12:00	1.06	16:00	1.34	20:00	0.76
00:30	1.46	04:30	1.19	08:30	0.49	12:30	1.16	16:30	1.27	20:30	0.74
01:00	1.52	05:00	1.06	09:00	0.51	13:00	1.26	17:00	1.19	21:00	0.75
01:30	1.56	05:30	0.93	09:30	0.56	13:30	1.33	17:30	1.10	21:30	0.78
02:00	1.56	06:00	0.80	10:00	0.63	14:00	1.38	18:00	1.01	22:00	0.83
02:30	1.54	06:30	0.69	10:30	0.72	14:30	1.41	18:30	0.93	22:30	0.90
03:00	1.48	07:00	0.60	11:00	0.82	15:00	1.41	19:00	0.85	23:00	0.98
03:30	1.40	07:30	0.54	11:30	0.94	15:30	1.38	19:30	0.80	23:30	1.08

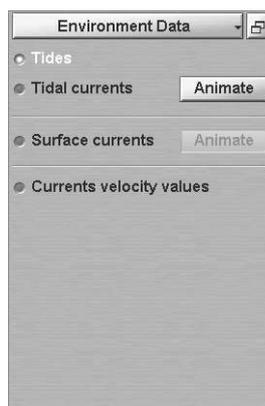
Take the necessary readings in the calculated tables.

Display of Tidal Heights on the Chart Panel

Press the button with the name of the set display in the “Display Panel” window of the Control panel.

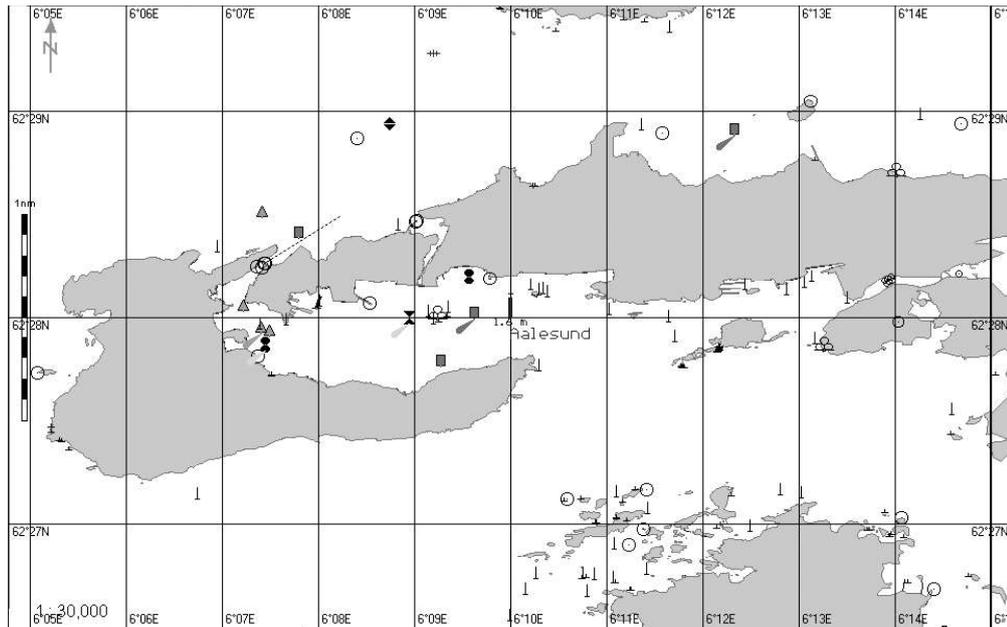


In the list, which will open up, select **Environment Data** line and press the left trackball/mouse button.



In “Environment Data” display, which will open up, check **Tides** checkbox. The Chart panel displays tidal heights in the reference points as of the current time.

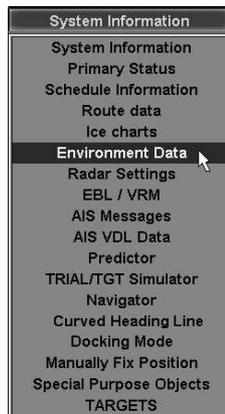
Press **Show place** button in the top right part of “Tides” page on “Tasks” panel. The selected reference point is displayed in the centre of the Chart panel.



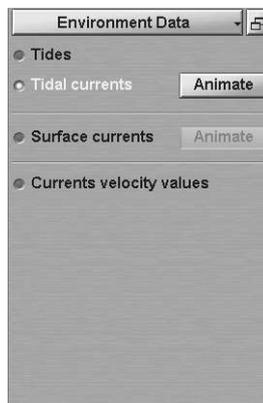
Obtaining Information on Tidal Currents

Set the display of the area within the chart screen boundary by using scaling and Review functions.

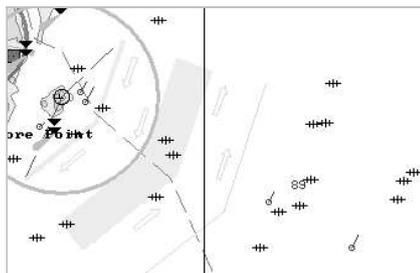
Press the button with the name of the set display in the “Display Panel” window of the Control panel.



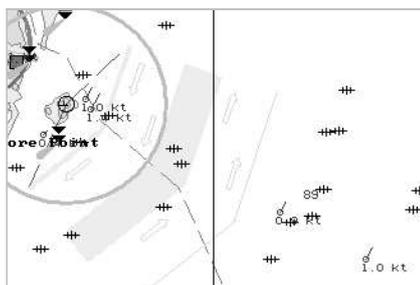
In the list, which will open up, select Environment Data line and press the left trackball/mouse button.



In “Environment Data” display, which will open up, check **Tidal currents** checkbox. The Chart panel displays tidal current vectors as of the current time.

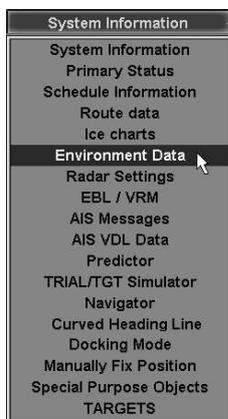


Check **Currents velocity values** checkbox. The Chart panel will display digitally the values of tidal current speed.

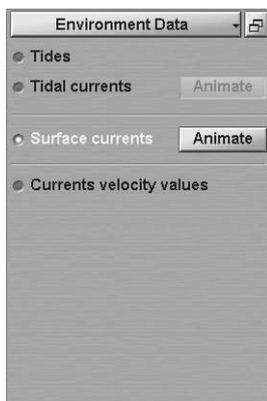


Obtaining Information on Surface Currents

Press the button with the name of the set display in the “Display Panel” window of the Control panel.



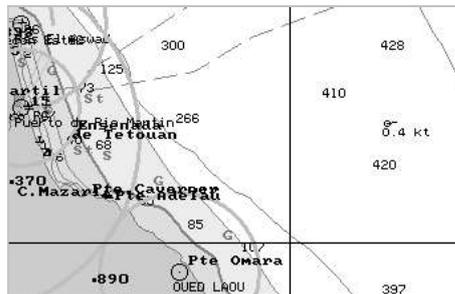
In the list, which will open up, select **Environment Data** line and press the left trackball/mouse button.



In “Environment Data” display, which will open up, check **Surface currents** checkbox. The Chart panel displays surface currents vectors as of the current time.



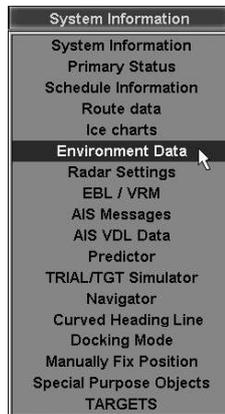
Check **Currents velocity values** checkbox. The Chart panel will display digitally the values of surface current speed.



Use of Animation

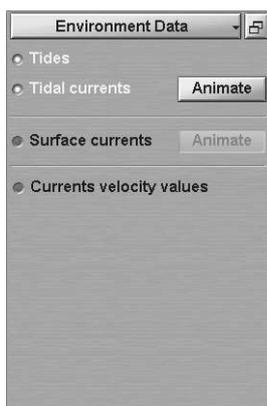
Set the display of the area within the chart screen boundaries by using scaling and Review functions.

Press the button with the name of the set display in the “Display Panel” window of the Control panel.

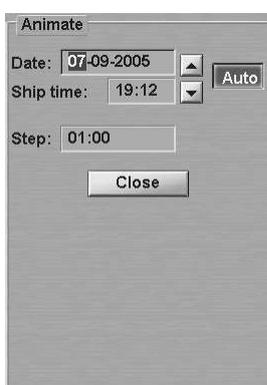


In the list, which will open up, select **Environment Data** line and press the left trackball/mouse button.

Obtaining Information on Tides and Currents



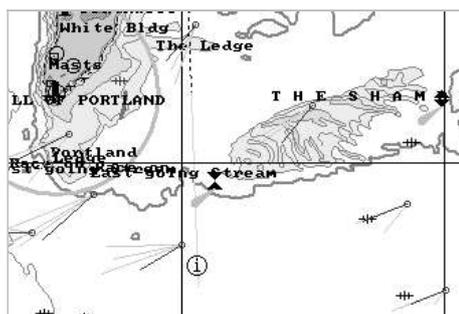
In “Environment Data” display, check the checkboxes of the parameters whose value change dynamics is required to be viewed. Press the activated **Animate** button to the right of the names of parameters.



In **Date** and **Ship time** input lines of “Animate” window, which will open up, enter the required viewing start date and time.

Use **Step** input line to enter the discretion of the parameter value change.

View the changes in the parameter values by using   buttons.

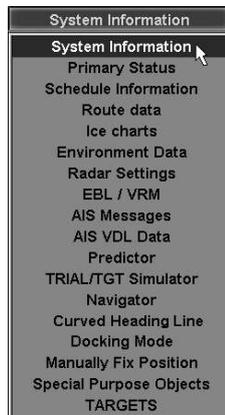


On the Chart panel, the selected parameters will change with the set discretion.

For the automatic change of parameters with the set discretion, press **Auto** button.

OBTAINING CURRENT SYSTEM INFORMATION

Press the button with the name of the set display in the “Display Panel” window of the Control panel.



In the list, which will open up, select **System Information** line and press the left trackball/mouse button.

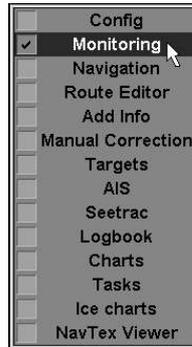
System Information	
Drift	160.0° - 0.2 kn
Current	267.2° - 3.8 kn
Sf. contour	10 m - 200 m
True wind	044.6° - 4.9 m/s
Rel. wind	047.0°(P) - 7.7 m/s
Water t°	12.6°
DPTH	15.0 m
ECHOSOUNDER 1	
Tide height	
2.7 m	Barfleur

“System Information” display is intended for presenting the following data:

- **Drift** – drift direction and speed;
- **Current** – summary value of the surface and tidal currents calculated for the current time at the current ship position;
- **Sf. contour** – current safety contour value determined by the ECDIS task; when the safety contour is changed automatically, its value is displayed in red colour until the associated alarm message is acknowledged;
- **True wind** – true wind direction and speed (from the wind sensor data);
- **Rel. wind** – relative wind direction and speed (from the wind sensor data);
- **Water t°** – water temperature value from the temperature sensor data;
- **DPTH** – value of water depth under the keel (from the sounder data);
- **Tide height** – expected tidal height value calculated for the current time at the reference point closest to the ship position, and the name of this reference point.

Obtaining Current System Information

To select the true wind vector display mode on the ECDIS task screen, open the “Monitoring” panel by selecting the appropriate item of the TASKS LIST menu on the Control panel.



Use the tab in the top part of “Monitoring” panel, which will open up, to switch to the “Route Monitoring” page.



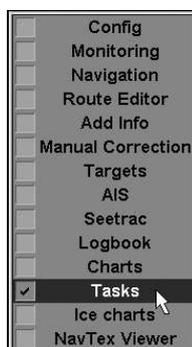
Press the Wind vector button:



Select the necessary display mode (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 2**, section **Other Sensors**, paragraph **Wind Interface**).

OBTAINING INFORMATION ON PORTS

Open “Tasks” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Tasks” panel to switch to “Ports” page:



To obtain information on the required port, use the following procedure.

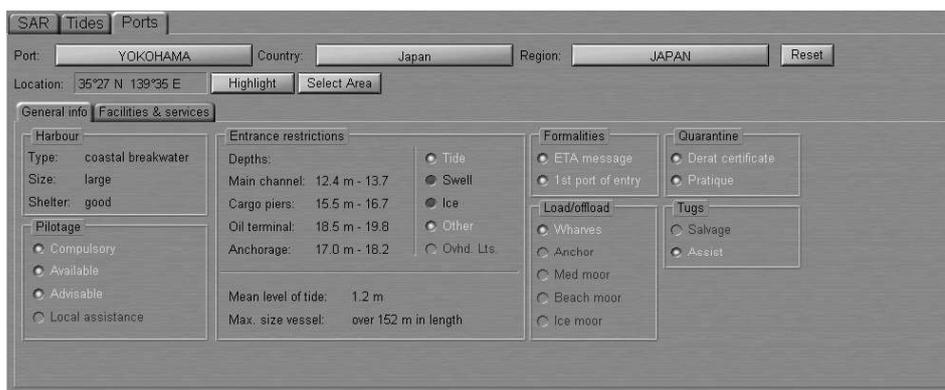
Obtaining Information by Port Name

Press **Port** button. Type the first letters of port name or select the port from list by the cursor.



Press left trackball button or <Enter> key. The information on the selected port will be displayed on the page.

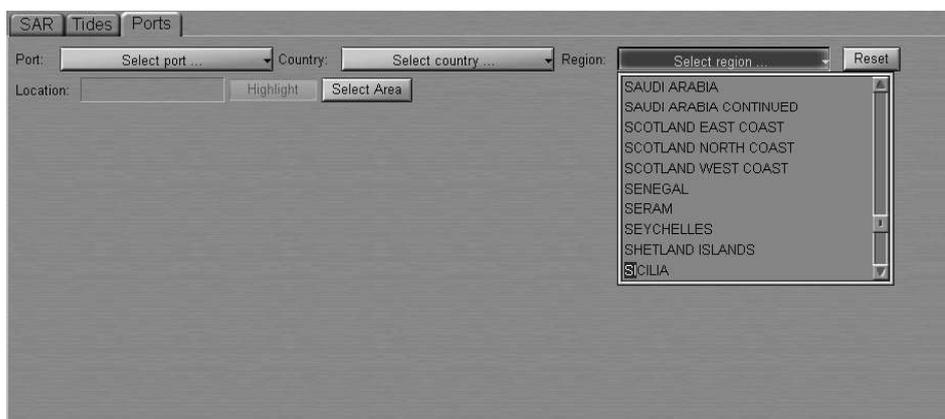
Obtaining Information on Ports



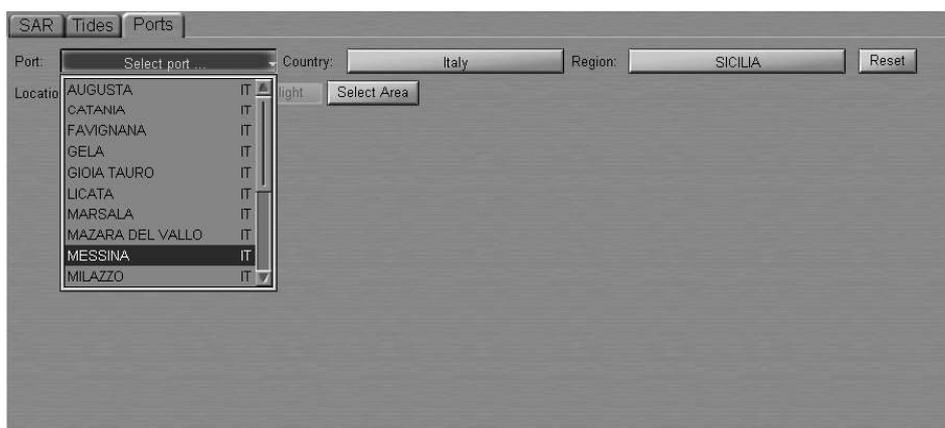
Read the necessary information (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 7, section Ports**). For obtaining information on other port, press **Reset** button and repeat procedure.

Obtaining Information by the Region Name

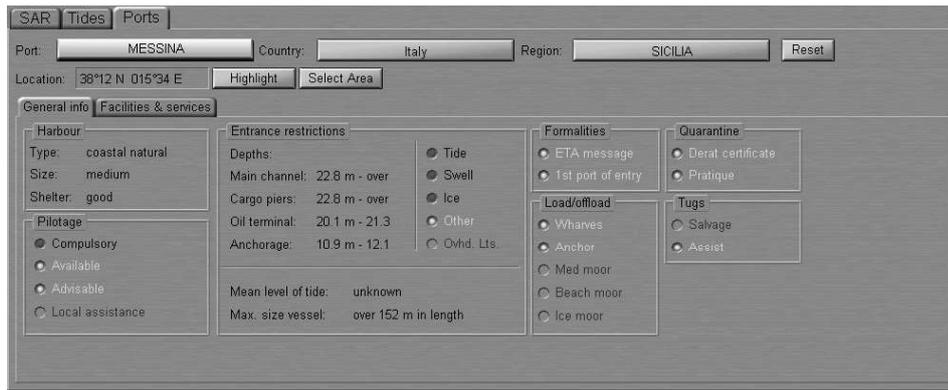
Press **Region** button. Type the first letters of required region or select it from list by the cursor.



Press left trackball button or <Enter> key. Press **Port** button. In this case, the list displays ports belonging to selected region. Type the first letters of port name or select the port from list by the cursor.



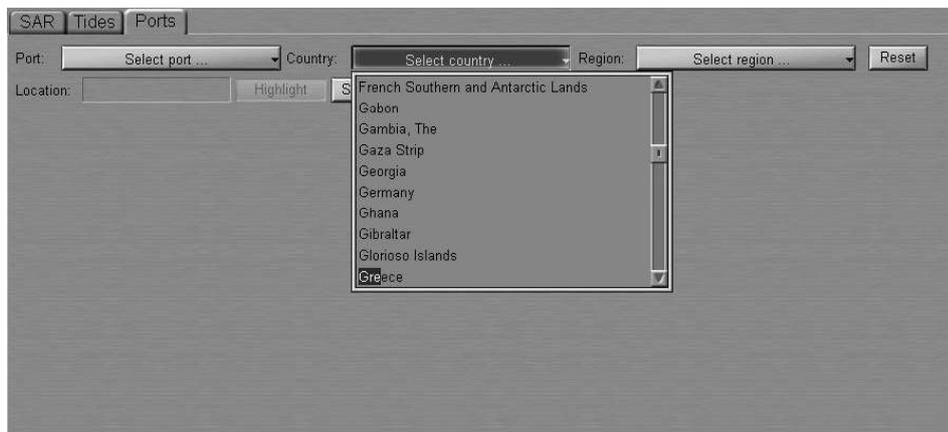
Press left trackball button or <Enter> key. The information on the selected port will be displayed on the page.



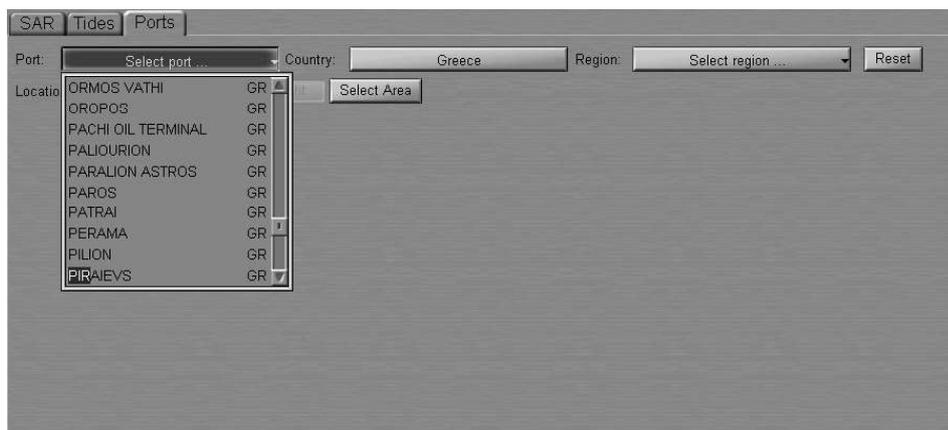
Read the necessary information (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 7, section Ports**). For obtaining information on other port, press **Reset** button and repeat procedure.

Obtaining Information by the Country Name

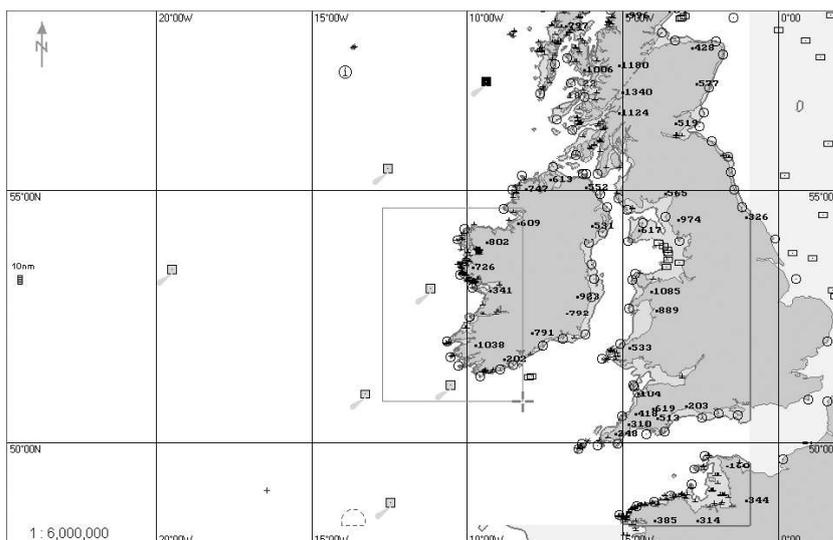
Press **Country** button. Type the first letters of required country or select it from list by the cursor.



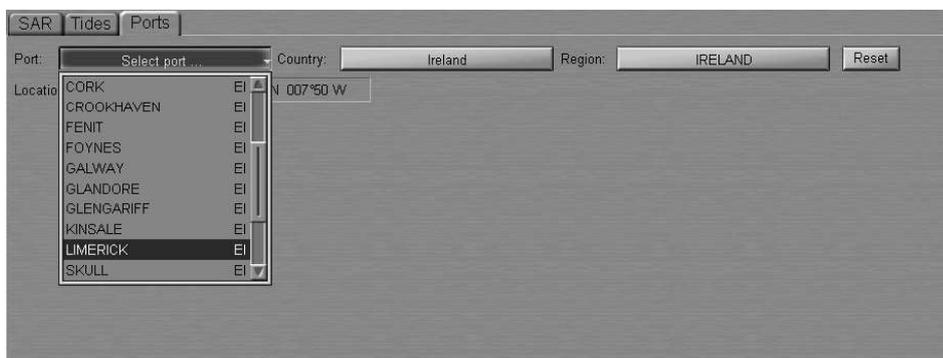
Press left trackball button or <Enter> key. Press **Port** button. In this case, the list displays ports belonging to selected country. Type the first letters of port name or select the port from list by the cursor.



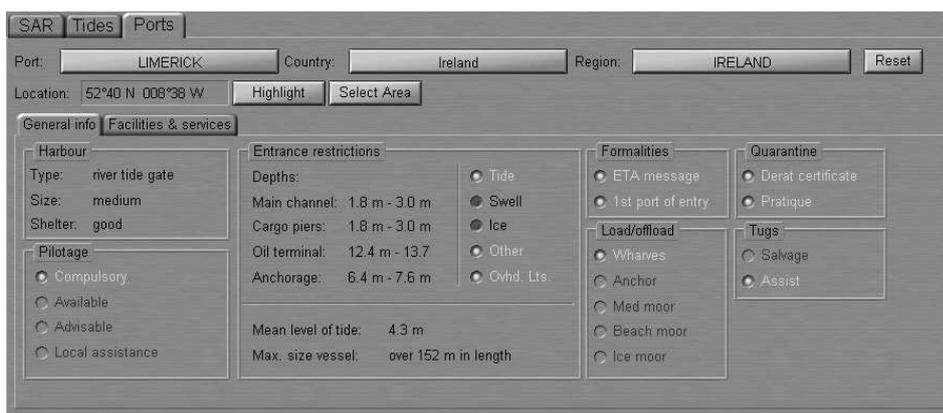
Press left trackball button or <Enter> key. The information on the selected port will be displayed on the page.



Press the left trackball button to exit from the graphic cursor mode. Press Port button. In this case, the list displays ports belonging to selected area. Type the first letters of port name or select the port from list by the cursor.



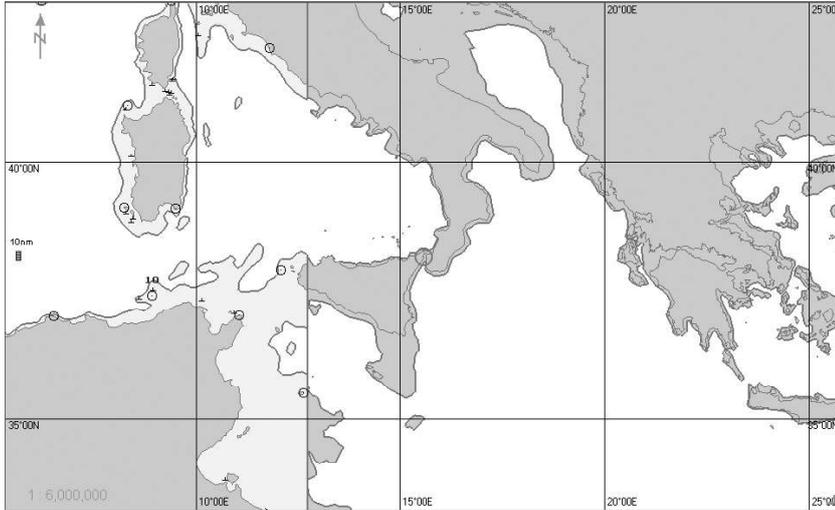
Press left trackball button or <Enter> key. The information on the selected port will be displayed on the page.



Read the necessary information (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 7, section Ports**). For obtaining information on other port, press **Reset** button and repeat procedure.

Quick Search for Selected Port

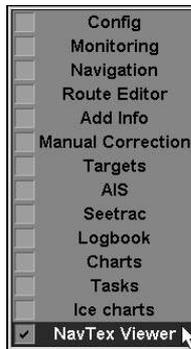
Select the necessary port as described above. Press Highlight button.



The selected target will be displayed in the centre of the Chart panel highlighted with a flashing circle.

OBTAINING NAVTEX INFORMATION

Open the “NavTex Viewer” panel by selecting the appropriate item of the TASKS LIST menu on the Control panel.



See document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 7, section NAVTEX Messages.**

Commands: Update Database Navtex Out Monitor Delete Delete till: 06-12-06 11:56 Print

Filter: ON Stations Subjects Max error rate = 100%

▲	Date Time	Str	Subj	Freq	Serial Num.	Text	Err. Rate	Status
!	22.11.06 11:28:14	A	A	490	30	091729 LMT EKIM 06 SAMSUN TURK RADIO	1 %	
!	22.11.06 11:29:24	C	L	490	34	131730 UTC NOV 06 UKRAINE COASTAL WARNING 613/06 ODESA	0 %	
!	22.11.06 11:29:44	C	L	490	15	031430 UTC NOV 06 UKRAINE COASTAL WARNING *TIJ**EZ**ZESA	1 %	
!	22.11.06 11:29:54	C	A	490	73	070500 UTC OCT 06 UKRAINE COASTAL WARNING 533*06 ODESA	1 %	

Received: 22.11.06 11:29:24
 Subject: L - navigational warnings - additional to letter A Station: C

131730 UTC NOV 06
 UKRAINE COASTAL WARNING 613/06 ODESA
 BLAC* SEA
 FEODOSIIS'KA GULF
 THE COASTAL STATION (GMDSS)
 45-01.0 N 035-23.0 E
 STOPS WORK AT 140600 UTC NOV 06

Polygon Examined
 Danger Protected

	Latitude	Longitude
1	45° 01.000 N	035° 23.000 E

Add Delete Highlight

Work with NAVTEX Message Database

NAVTEX messages from the database are shown in the Message Table, filter settings taken into account.

Date/Time	Stn	Subj	Freq	Serial Num.	Text	Err. Rate	Status
22.11.06 11:29:24	C	L	490	34	131730 UTC NOV 06 UKRAINE COASTAL WARNING 613/06 ODESA	0 %	
22.11.06 11:29:34	C	L	490	30	101520 UTC NOV 06 "UKRAINE" COASTAL WARNING 609/06 ODESA	14 %	
22.11.06 11:29:44	C	L	490	15	031430 UTC NOV 06 UKRAINE COASTAL WARNING "TIJ" "EZ" "ZESA	1 %	
22.11.06 11:29:44	C	L	490	7	*****-75: 9= 06 UKRAINE COASTAL WARNING 575/06 ODESA	3 %	
22.11.06 11:29:44	C	L	490	6	010900 UTC NOV 06 UKRAINE COASTAL WARNING 575/06 ODESA	2 %	

The Message Table contains the following message parameters fields:

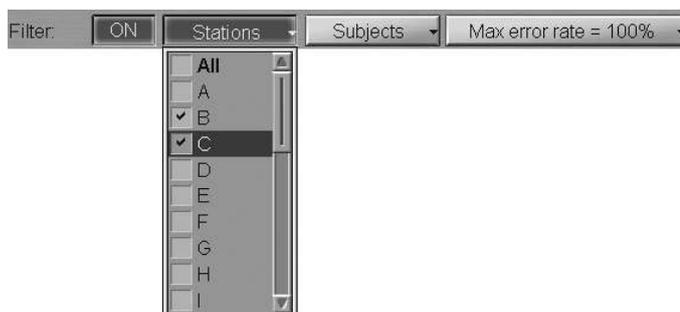
- ! – “Danger” message attribute or empty field (set automatically on the messages containing coordinates);
- **Date/Time** – message reception date/time (UTC from NS 4000 MFD);
- **Stn** – station type (identifiers are taken from the message);
- **Subj** – message subject (identifiers are taken from the message);
- **Freq** – frequency (kHz) which the message was received on (for the NMEA NAVTEX only);
- **Serial Num.** – message number from the NAVTEX message;
- **Text** – the first two lines of a NAVTEX message;
- **Err. Rate** – message reception error transmitted by the NAVTEX receiver for NMEA NAVTEX or calculated by NS 4000 MFD for ASCII NAVTEX;
- **Status** – message status (“Protected” or empty field).

For the message sorting by one of parameters, press the appropriate button with the column name in the Message Table (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 7, section NAVTEX Messages**).

To turn on the filter, press the **ON** button in the Filter row:



To make the filter settings, press the **Stations** button. The **All** checkbox is checked by default, and the Message Table shows messages from all the stations. Check the checkboxes of stations, whose messages should be displayed in the Message Table. The Message Table will display NAVTEX messages from the specified stations regardless of the NAVAREA area:



Use a similar procedure to make settings for messages filtration by the following parameters:

- **Subject** – if message subjects from the offered list are checked, messages with these subjects are displayed. In this case, it is impossible to turn off displays with message subjects A, B, D and L (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 7**, section **NAVTEX Messages**, paragraph **NAVTEX Messages Database**);
- **Max error rate** – messages whose reception error rate exceeds the set value are not displayed. Setting of the maximum error rate at 100% means the display of all the messages.

The Message Table will display messages to match all the three settings (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 7**, section **NAVTEX Messages**).

To update the NAVTEX message database, press the **Update Database** button.

Note: The database is updated automatically at a rate (5 to 60 minutes) set in the System Configuration utility at the time of installation (see **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). INSTALLATION GUIDE**).

Press **Navtex Out Monitor** to receive messages from the NAVTEX receiver without taking into account the filter set in the receiver.

ATTENTION!

The **Navtex Out Monitor** button should always be depressed. As filter settings are changed in the NAVTEX receiver, the button will be released, and it is necessary to press it again.

To delete one or several messages from the database, select them with the cursor in the Message Table. To select several messages required to be deleted, select them keeping <Ctrl> key depressed. To select several messages in a row, specify the first and the last message keeping <Shift> key depressed.

Date Time	Stn	Subj	Freq	Serial Num	Text	Err. Rate	Status
21.11.06 08:28:23	A	A	490	47	311822 LMT EKIM 06 SAMSUN TURK RADIO	1 %	
21.11.06 08:28:48	A	A	490	36	090800 HAZ06 SAMSUN TURK RADIO	1 %	
21.11.06 08:28:58	A	A	490	30	091729 LMT EKIM 06 SAMSUN TURK RADIO	1 %	
21.11.06 08:28:58	B	L	490	68	260900 UTC OCT 06 *7(4-8,3 :9-5-)2-4,8, 566/06 KERCH*	11 %	
21.11.06					131845 UTC NOV 06		

Press the **Delete** button: messages will be deleted.

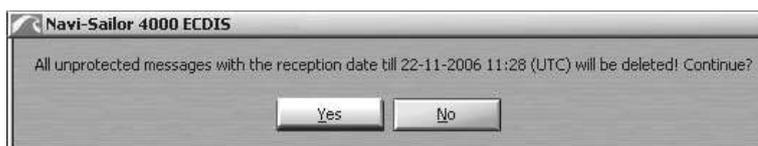
To delete messages received before some certain moment of time, position the cursor in the input window to the right of the **Delete till** button and make a double click on the left trackball button.



Set the required value by rolling the trackball, or enter it from the keyboard. Press the right trackball button and select "Apply".



Press the "Yes" button to confirm the deleting of messages.



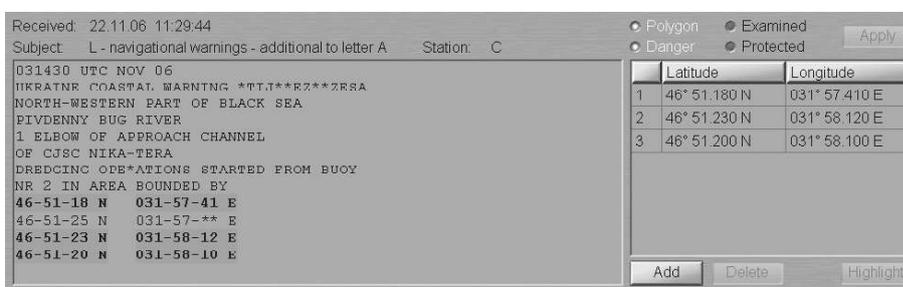
Messages will be deleted.

Note: If a message has the “Protected” status, the Delete button will be inactive, and you will not be able to delete the message from the database. When several messages are deleted, messages with the “Protected” status will not be deleted.

To print out one or several messages from the database, select them with the cursor in the Message Table in the manner specified above, and press the Print button.

Work with Messages

To work with messages, use the bottom part of the “NavTex Viewer” panel. Use the cursor to select the necessary message in the Message Table, the text of the message will be shown in the bottom part of the “NavTex Viewer” panel.



Setting NAVTEX Message Status and Attributes

Check the **Examined** checkbox to change the message status to “Examined”. This means that the user has read the NAVTEX message. NAVTEX message symbols from a message with the “Examined” status will be displayed on the ECDIS task screen in the following from:



Check the **Protected** checkbox to change the message status to “Protected”. This means that the user will not be able to delete this NAVTEX message.



The “Danger” attribute is set by default if there is at least one pair of valid coordinates in the NAVTEX message.



Check the **Polygon** checkbox to set the “Polygon” attribute. This is only possible for the messages in which more than one pair of valid coordinates is available.



After making all the settings, press the activating **Apply** button (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). FUNCTIONAL DESCRIPTION, Chapter 7**, section **NAVTEX Messages**).

Editing Coordinates in NAVTEX Message

1. Position the cursor on the coordinates which should be edited, in the right bottom box of the “NavTex Viewer” panel and make a double click on the left trackball button.

	Latitude	Longitude
1	46°51.180 N	031° 57.410 E
2	46° 51.230 N	031° 58.120 E
3	46° 51.200 N	031° 58.100 E

Set the required value by rolling the trackball, or enter it from the keyboard. Press the right trackball button and select “Apply”.

	Latitude	Longitude
1	46°51.190 N	031° 57.410 E
2	46° 51.230 N	031° 58.120 E
3	46° 51.200 N	031° 58.100 E

Press the left trackball button again: the edited value will be set. The coordinate value in the window is shown in italic indicating that the field has been edited by the user.

	Latitude	Longitude
1	<i>46° 51.190 N</i>	031° 57.410 E
2	46° 51.230 N	031° 58.120 E
3	46° 51.200 N	031° 58.100 E

2. To add a new NAVTEX message symbol, position the cursor on the symbol coordinates, which will be followed by the new symbol coordinates in the table (this is important for the subsequent setting of the “Polygon” attribute) and press the left trackball button. Press the **Add** button. A new line containing the same coordinates as the old ones will be displayed.

	Latitude	Longitude
1	<i>46° 51.190 N</i>	031° 57.410 E
2	<i>46° 51.190 N</i>	<i>031° 57.410 E</i>
3	46° 51.230 N	031° 58.120 E
4	46° 51.200 N	031° 58.100 E

Edit the coordinates as described above. The new coordinate values in the window are shown in italic indicating that the field has been edited by the user.

- To delete a NAVTEX message symbol, position the cursor on its coordinates and press the left trackball button.

	Latitude	Longitude
1	46° 51.190 N	031° 57.410 E
2	46° 51.190 N	031° 57.410 E
3	46° 51.230 N	031° 58.120 E
4	46° 51.200 N	031° 58.100 E

Press Delete button.

	Latitude	Longitude
1	46° 51.190 N	031° 57.410 E
2	46° 51.230 N	031° 58.120 E
3	46° 51.200 N	031° 58.100 E

The NAVTEX message symbol coordinates will be deleted from the table.

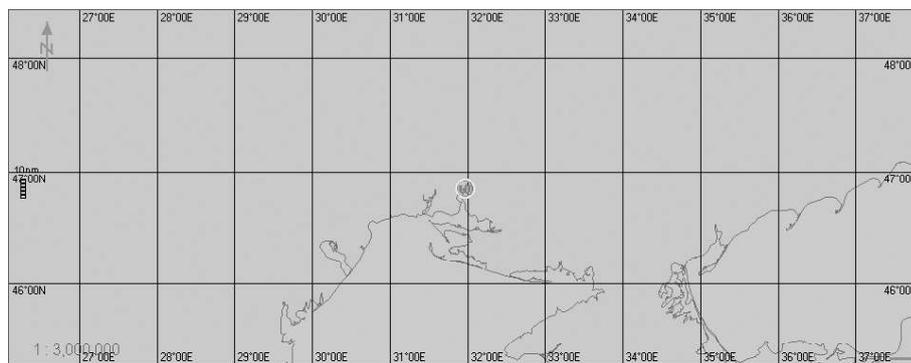
After making the changes, press the Apply button which will be activated.

Fast Search for NAVTEX Message Symbol on the Chart Panel

Position the cursor on the coordinates of the NAVTEX message symbol which should be found and press the left trackball button.

	Latitude	Longitude
1	46° 51.180 N	031° 57.410 E
2	46° 51.230 N	031° 58.120 E
3	46° 51.200 N	031° 58.100 E

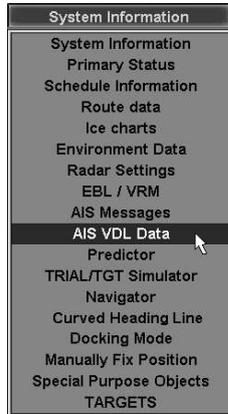
Press Highlight button.



The selected target will be displayed in the centre of the Chart panel, highlighted with a flashing circle.

OBTAINING INFORMATION ON OWN SHIP AIS DATA

Press the button with the name of the set display in the “Display Panel” window of the Control panel.



In the list, which will open up, select AIS VDL Data line and press the left trackball/mouse button.

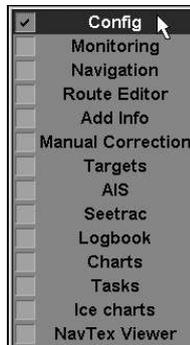
AIS VDL Data	
Source	Ext (D-GPS)
UTC	Status OK
Latitude	53° 30.123 N
Longitude	010° 01.235 E
COG	355.0°
SOG	10.0 kt
HDG	10.0°
ROT	34° / m port

“AIS VDL Data” display is intended for the display of data broadcast by the transponder. The display contains the following data:

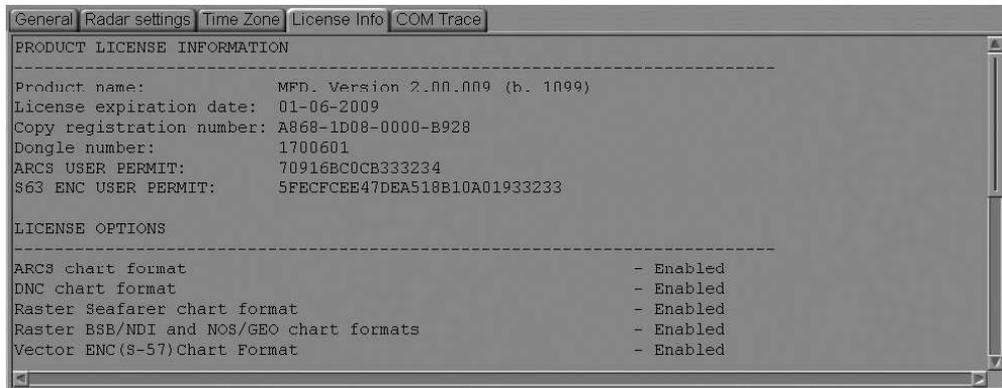
- **Source** – current positioning system used by the transponder: Internal Int or External Ext (D-GPS); the display of the positioning system indicator in the green colour means that the RAIM (Receiver Autonomous Integrity Monitoring) GNSS receiver is in use;
- **UTC** – UTC synchronising status in the AIS transponder; it is determined strictly by the Internal GPS;
- **Latitude** – latitude value supplied by the positioning system used by the transponder;
- **Longitude** – longitude value supplied by the positioning system used by the transponder;
- **COG** – value of course over the ground supplied by the positioning system used by the transponder;
- **SOG** – value of speed over the ground supplied by the positioning system used by the transponder;
- **HDG** – heading value supplied to the transponder by the course detection (gyro) system;
- **ROT** – values of direction and rate of turn supplied to the transponder by the Rate-of-Turn sensor.

OBTAINING INFORMATION ON CURRENTLY LICENCE

Open “Config” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



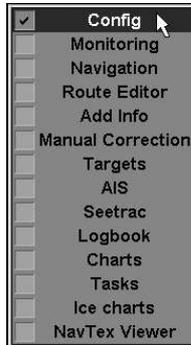
Use the tab in the top part of “Config” panel, which will open up, to switch to “Licence Info” page.



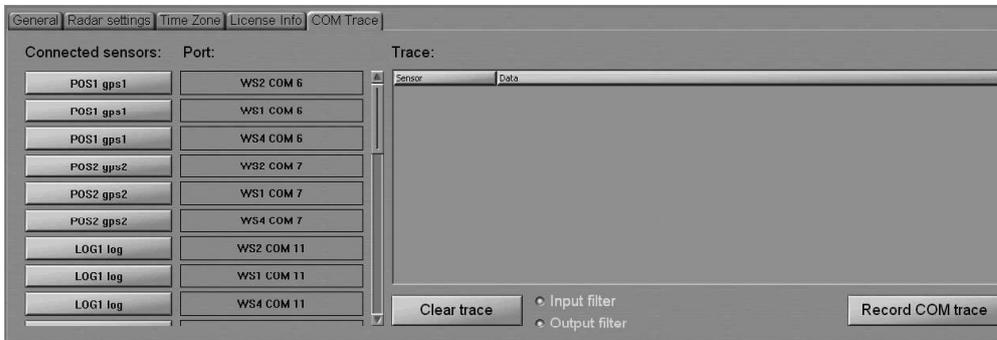
“License Info” page is intended for the display of data on the NS 4000 MFD software product license and the functions allowed to be used (licensed). This page also specifies the installed NS 4000 MFD version. For update licence see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). UTILITIES, Chapter 9.**

OBTAINING INFORMATION ON INPUT/OUTPUT MESSAGES

Open “Config” panel by selecting the appropriate line of TASKS LIST menu on the Control panel.



Use the tab in the top part of “Config” panel, which will open up, to switch to “COM Trace” page.



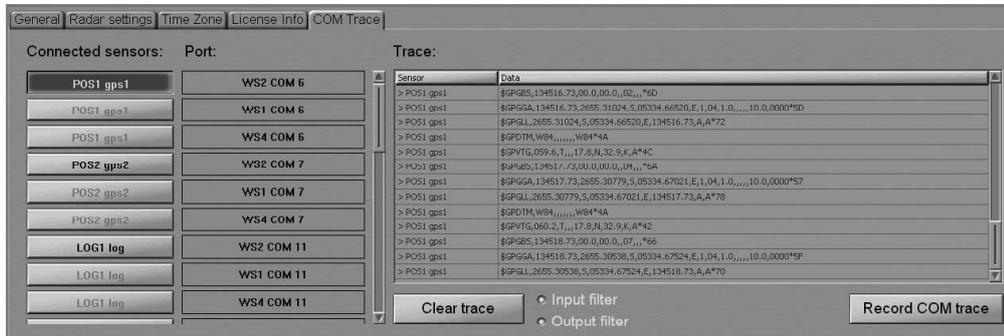
This page is intended for displaying and recording of the IEC 61162-1, 61993-2, and proprietary (e.g. for ES4/ES3) formats and similar text messages/sentences provided to the NS 4000 MFD from the external sensors and displaying of the sentences transmitted by the NS 4000 MFD to the external devices.

The page contains the following elements:

- **Connected sensors** – group of buttons corresponding to the external devices connected via the System Configuration utility (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). INSTALLATION GUIDE, Chapter 2, section NS 4000 Configuration, paragraph Sensors Settings**); the buttons allow selection of a sensor or external device, which the exchange of messages with is shown on the data display window;
- **Port** – group of indicators of the NS 4000 MFD COM ports, which the sensors and external devices are connected to;
- **Clear trace** – to clear display window;
- **Input filter** – to turn on the display of messages supplied to the NS 4000 MFD from the external sensors;
- **Output filter** – to turn on the display of messages transmitted by the NS 4000 MFD to the external devices;
- **Record COM trace** – recording of the message stream from all the WS COM ports to `comtrace._____file`;
- **Data display window:**
 - **Sensor** – direction and source of the message stream;
 - **Data** – messages.

Display of Data Flow Between the NS 4000 MFD and Different External Devices

To display the traffic between the NS 4000 MFD and the necessary external device, press the button with the name of this device in the **Connected sensors** column.



The data flow will be shown in the Trace window. The **Input filter** and **Output filter** checkboxes are turned on by default, so the Trace window shows the flow of both incoming and outgoing NS 4000 MFD data. To display the data flow in one direction only, turn off the pertinent filter.

Note: You can simultaneously monitor the data flow from several external devices by pressing the appropriate buttons.

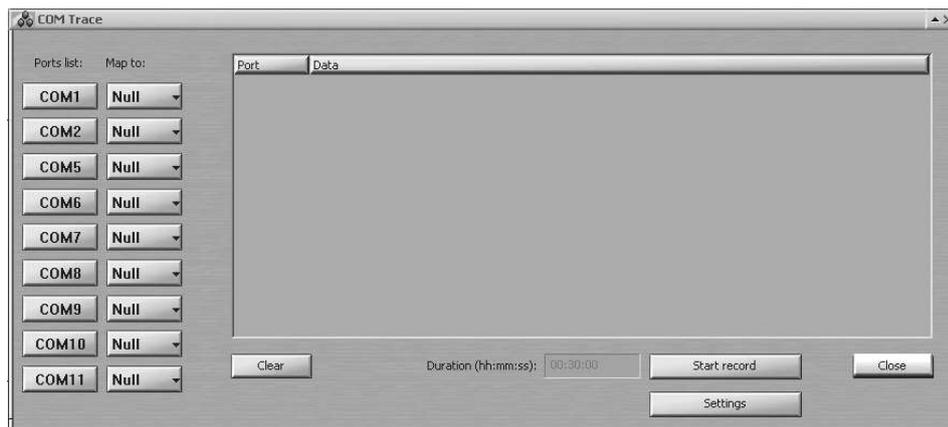
To clear the Trace window, press the **Clear trace** button.

COM Trace Record

ATTENTION!

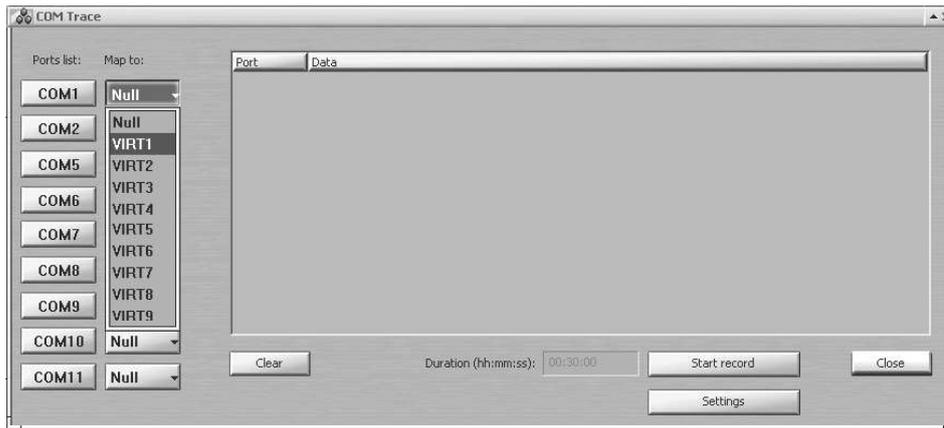
For each WS, a `comtrace._____` file can be recorded for the COM ports of this WS only.

Press the **Record COM trace** button.



In the “COM Trace” window which will open up, the **Ports list** column contains all the connected COM ports of the WS in question. Next to the port which the message stream should be recorded to `comtrace._____` file for, press the button in the **Map to** column.

Obtaining Information on Input/Output Messages

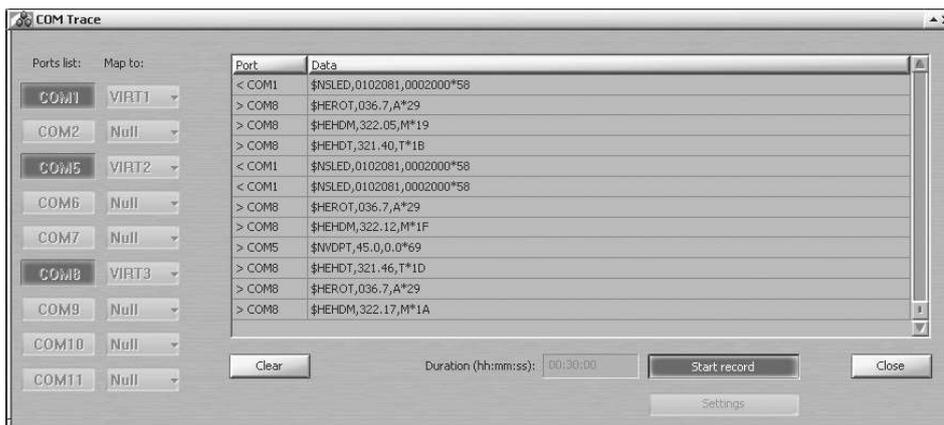


From the pull-down list, select the virtual VIRTX port for the given COM port.

Note: For each COM port, an individual VIRT port should be selected.

For each COM port which the `comtrace._____` file will be recorded for (e.g. COM1, COM5 and COM8), set the corresponding virtual port (VIRT1, VIRT2 and VIRT3).

In the **Ports list** column, press the buttons with the names of the ports which the `comtrace._____` file will be recorded for, the data flow will be shown in the data display window. Press the **Start record** button.



The `comtrace._____` file recording will be made from all the turned on COM ports during the time specified in the **Duration** window (30 minutes by default). If it is necessary to interrupt the recording, press the **Start record** button again. After the end of the recording, the **Start record** button will be automatically disabled.

For the further use, copy the `comtrace._____` file from the `C:\Transas\ComTrace.FA` directory onto the external carrier by using the Data Tool utility (see document **NAVI-SAILOR 4000/4100 ECDIS (v. 2.00.009). UTILITIES, Chapter 3**, section **Software Description**, paragraph **Data Tool Utility Window** under **Internal Group**).

Note: When a new `comtrace._____` file is recorded, the old file in the `C:\Transas\ComTrace.FA` directory will be rewritten.

To clear the data display window, press the **Clear** button.

To close the COM Trace window, press the **Close** button.

For additional settings of the `comtrace._____` file recording, press the **Settings** button.

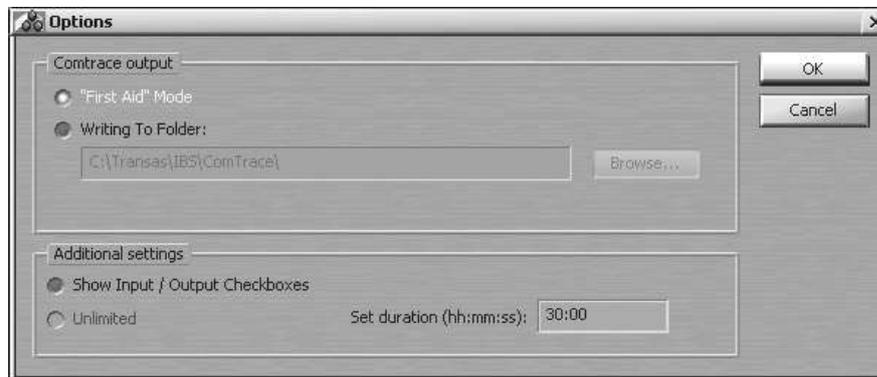


Press the “OK” button.



Note: With the use of the password by the service engineer, more advanced settings of the `comtrace._____` file recording can be made, normally unavailable to the ordinary user remaining grayed.

Press the “OK” button.



To record the file direct to onto the external carrier, press the **Writing To Folder** button and specify the path to the external carrier.

To display the buttons for turning on the filter for the input/output messages when recording the `comtrace._____` file, in the “Options” window check the **Show Input/Output Checkboxes**.

In the **Set duration** input window, set the duration of recording the `comtrace._____` file (not more than 30 min).