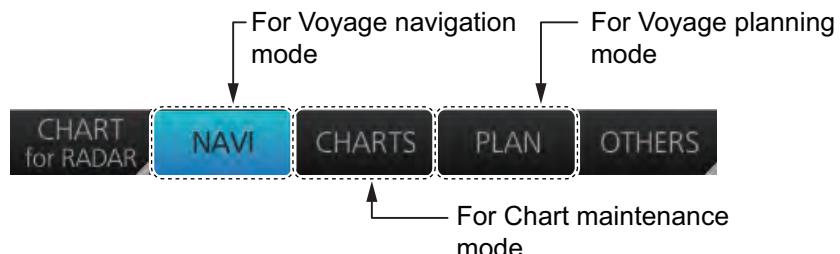


6.3 How to Select the Chart Operating Mode

The chart display has three chart operating modes: Voyage navigation, Chart maintenance and Voyage planning. Select a mode from the Status bar with the [NAVI], [CHARTS] and [PLAN] buttons. The background of the button of the active mode is light-blue.



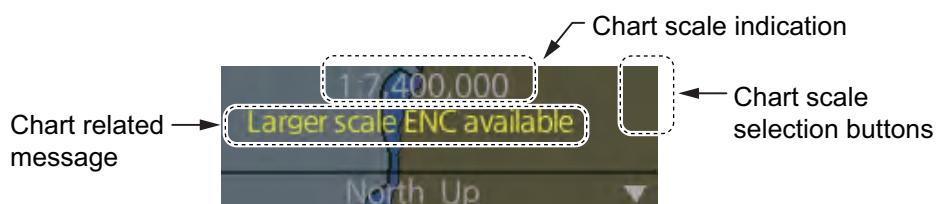
Note 1: When switching between the Voyage navigation and Chart maintenance modes it may take several minutes to read the chart when using C-Map charts or there are many charts installed.

Note 2: If the equipment accepts no key operation after switching to the Chart maintenance mode, reset the power.

6.4 How to Select the Chart Scale

When you open a chart it is displayed with the default scale, called the compilation scale. To change the chart scale, do one of the procedures shown below. The scale range is 1:1,000 to 1:70,000,000.

- Click the chart scale selection buttons in the Chart scale/presentation mode box.
- Right-click anywhere inside the Chart scale/presentation mode to show a dropdown list of chart scales.
- Put the cursor anywhere on the chart and spin the scrollwheel.



The table below lists the chart related messages and their meanings.

Message	Meaning
Display Not Real Time*	Displayed date is not the current date.
Non-ENC data	ENC non-compatible chart in use.
Larger scale ENC available	Larger scale available at current position (TM reset ON) or cursor location (TM reset OFF).
Overscale	Scale too large.
RM(OFF)	Relative motion turned off when the chart is scrolled or the trackball is operated.

*: Shown as "Display Not Real Time: display is based on viewing date range from (start of date range) to (end of date range)" when the permanent warning dialog is maximized.

6.5 How to Select the Presentation Mode

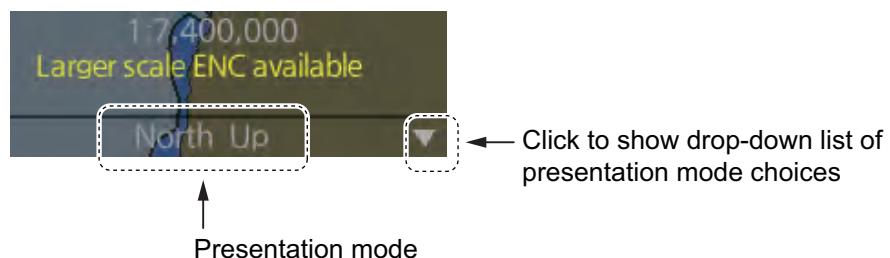
The presentation mode depends on the chart operating mode, as shown in the table below.

	Voyage navigation mode	Voyage planning mode
North up TM	Yes	Yes ^{*2}
North up RM	Yes	No
Course up TM	Yes	Yes ^{*2}
Course up RM	Yes	No
Route up TM ^{*1}	No	Yes ^{*2}
Route up RM ^{*1}	Yes	No
Head up RM	Yes	No

^{*1}When monitoring a route.

^{*2}Motion mode (TM) is not shown. For example, "North up".

To select a presentation mode, click the presentation mode indication to cycle through the presentation mode choices or click the triangle to show the drop-down list of presentation modes.



Presentation modes

North up: North (0 degrees) is at the top of the display.

Course up: The course is put at the top of the screen the moment it is selected.

Route up: The planned course is put at the top of the screen, in route monitoring. When route monitoring is canceled, the course up presentation mode is automatically selected.

Head-up: Heading is put at the top of the display.

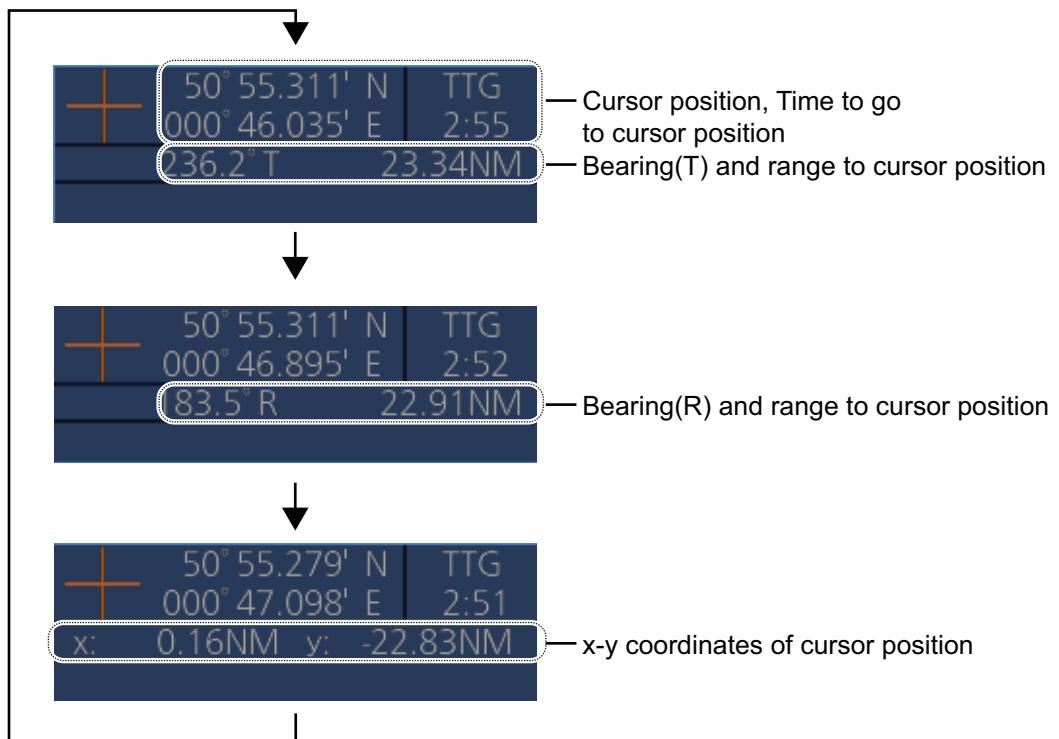
TM (True Motion): Own ship mark follows ship's movement. The chart is fixed.

RM (Relative Motion): Own ship mark is put at the screen center and is fixed. The chart moves relative to own ship movement.

6.6 Cursor Position Box

The Cursor position box shows

- Cursor position in latitude and longitude
- Time to go to the cursor position
- The bearing (True or Relative) and range to the cursor position, or x-y coordinates of cursor position. Click the bearing and range indication or x-y coordinates indication to switch the indication, in the sequence shown below.

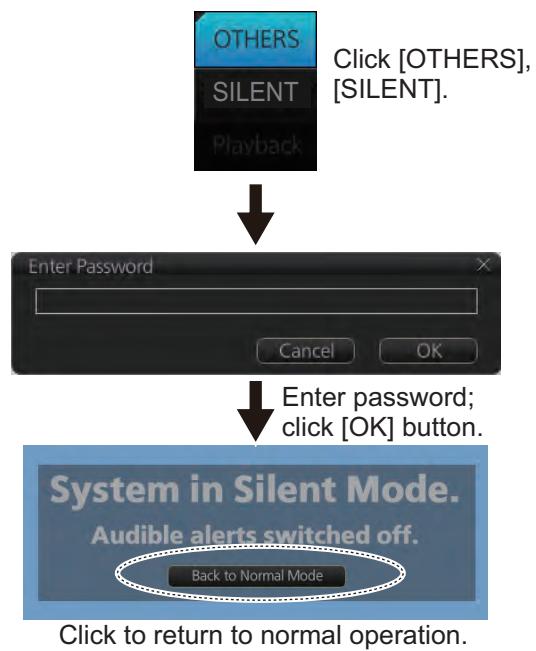


6.7 The Silent Mode

The silent mode, which requires a password to activate, deactivates the audio alarms from the chart system. Use this mode when the chart system is not required, like in a harbor. To go to the standby mode, first click the [OTHERS] button on the Status bar in the [CHART for RADAR] mode then click [SILENT]. Have the holder of the password enter the password then click the [OK] button.

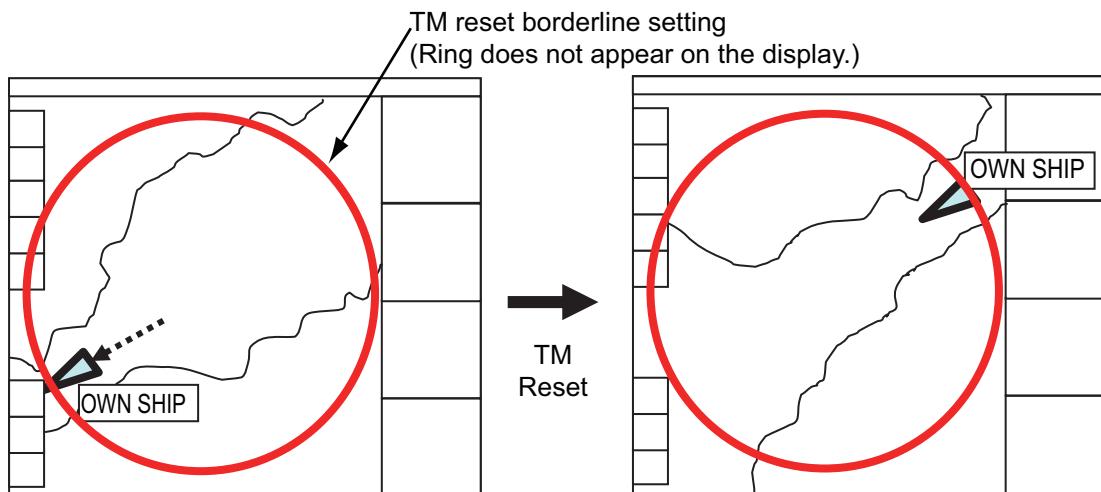
To return to normal operation, click [Back to Normal Mode].

Note: The silent mode is automatically released when switching the operating mode (radar/chart/conning).



6.8 True Motion Reset

In the true motion mode, the chart is stationary and own ship moves on the screen. With TM reset active, own ship moves until it reaches the true motion reset borderline(s), then the chart is redrawn and own ship jumps back to an opposite position on screen based on its course. (This resetting can also be done manually by clicking the [TM/CU Reset] button.) When the TM reset function is active, "TM/CU Reset" appears at the right side of the display.



How to enable, disable automatic TM reset

To enable automatic TM reset, click the [TM Reset off] indication at the right side of the display to show [TM/CU Reset].

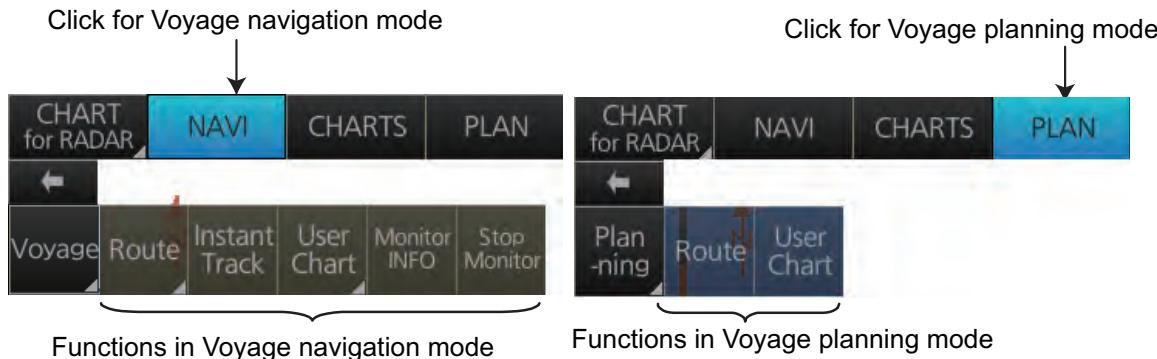


When the TM reset is disabled, change the chart scale with the scrollwheel and scroll the chart by drag and drop. The own ship functions box shows [TM Reset off]. When own ship moves off the screen the box shows [Ship off screen]. The TM reset is activated manually by clicking the [Ship off screen] button.

How to set the true motion reset borderline

You can set the limit for TM reset (in percentage) on the [Basic Setting] page. See section 8.2.2.

6.9 How to Control Route and User Charts in Voyage Navigation and Voyage Planning Modes



Click the appropriate chart mode button [NAVI] or [PLAN] at the top of the display to go to respective mode. For the Voyage navigation mode, click the [Voyage] button then click the button corresponding to the action to take. For the Voyage planning mode, click the [Planning] button followed by the [Voyage] button to select a route, or [User Chart] button to select a user chart.

Voyage navigation mode functions

[Route]: This button has three functions:

- [Select]: Selects the route to monitor.
- [Unselect]: Deselects monitored route.
- [Move to Plan]: Moves monitored route to Voyage planning mode (for editing).

[Instant Track]: Creates a temporary track to return to or make a temporary detour from the monitored course.

[User Chart]: This button has one function.

- [Select/Unselect]: Selects and unselects user charts from monitoring regardless of route being monitored.

[Monitor INFO]: Opens the Monitor Information dialog box, to view monitored route, linked user chart and monitoring user chart information.

[Stop Monitor]: Stops monitoring a route and user charts.

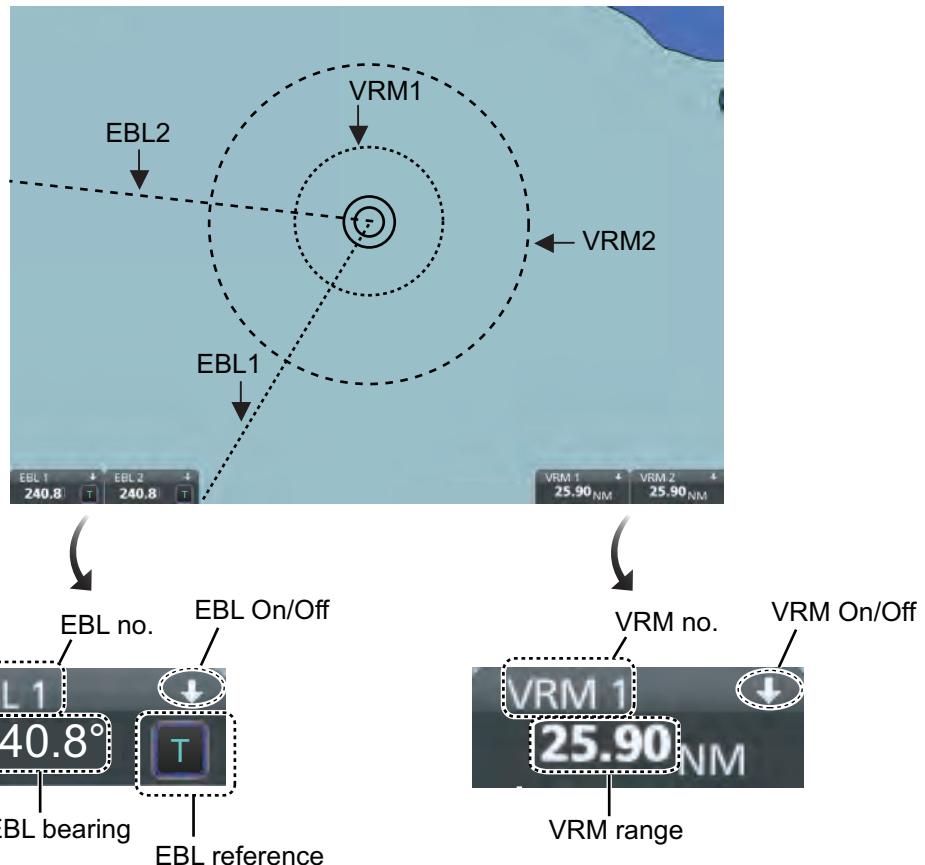
Voyage planning mode functions

[Route]: Shows the [Route Plan] dialog box to create or edit a route.

[User Chart]: Shows the [User Chart] dialog box to create or edit a user chart.

6.10 How to Use the VRM and EBL

The VRM measures the range to an object and the EBL measures the bearing to an object. There are two each of VRMs and EBLs. The lengths of the dashes on the EBL2 and VRM2 are longer than those of the EBL1 and VRM1 to distinguish them. The color of the VRMs and EBLs is orange.



6.10.1 How to hide/show an EBL, VRM

Control Unit: Press the **EBL** or **VRM** key to hide or show respective marker.

Trackball module: Click the arrow on an EBL or VRM box to hide the respective marker. To redisplay the marker, click the minimized box.

6.10.2 How to measure the range and bearing

Range: Put the cursor on the VRM then drag the cursor until the VRM is on the inner edge of the object.

Bearing: Put the cursor on the EBL then drag the cursor until the EBL bisects the object.

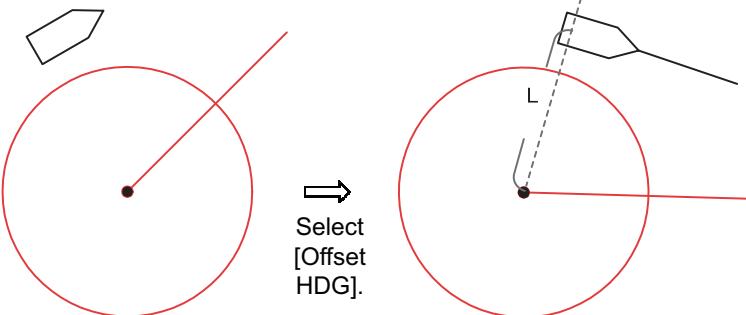
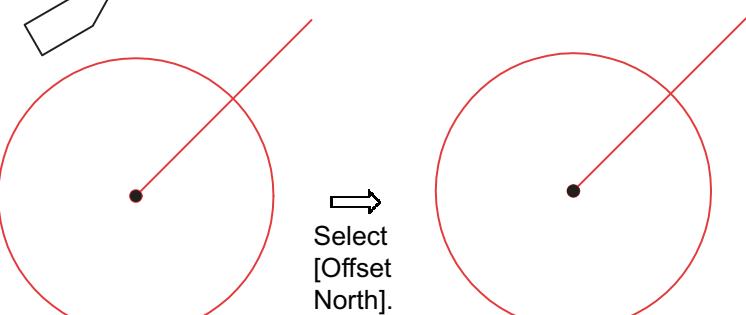
6.10.3 How to select bearing reference

The EBL bearing reference can be true or relative. Click the EBL reference indication to display T (True) or R (Relative).

6.10.4 EBL, VRM functions available with the context-sensitive menu

The EBLs and VRMs have additional functions that are accessed from the context-sensitive menu. Right-click any VRM or EBL box to show the context-sensitive menu.

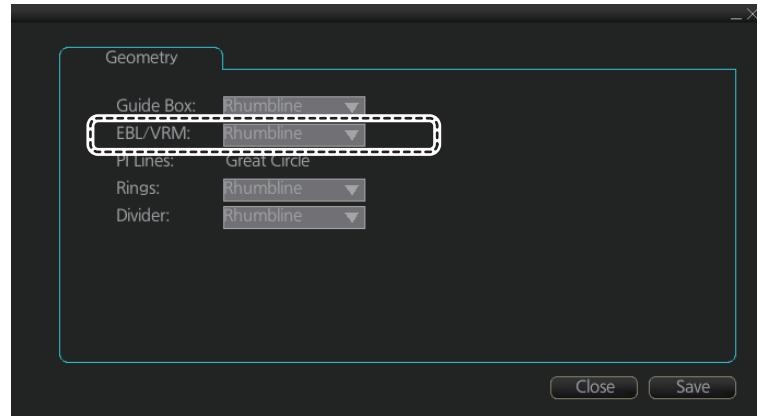


Function	Description	
[Centered]	Centers the origin of the EBL and VRM on the current position.	
[Ground]	Anchors the EBL and VRM to ground; neither the EBL or VRM move with ship's movement.	
[Offset HDG]	 <p>Drag and drop EBL, VRM on desired location.</p>	<p>When vessel changes course, the EBL, VRM move so that the range (L) to their centers stays fixed.</p>
[Offset North]	 <p>Drag and drop EBL, VRM on desired location.</p>	<p>The EBL, VRM move to keep the angle from North to the center of the EBL, VRM, even if the vessel changes course. The distance to the center of the EBL, VRM is fixed.</p>

6.10.5 How to select the calculation method for EBL and VRM

The bearing for EBL and range for VRM can be calculated using either Rhumbline or Great Circle. To select the calculation method, do the following:

1. Open the menu then select [NAV Tools] and [Geometry]. The [Geometry] settings page appears.



2. Click the triangle at [EBL/VRM] to show the drop-down options.
3. Select [Rhumbline] or [Great Circle] as appropriate.
4. Click [Save] to apply the changes, then click [Close] to close the menu.

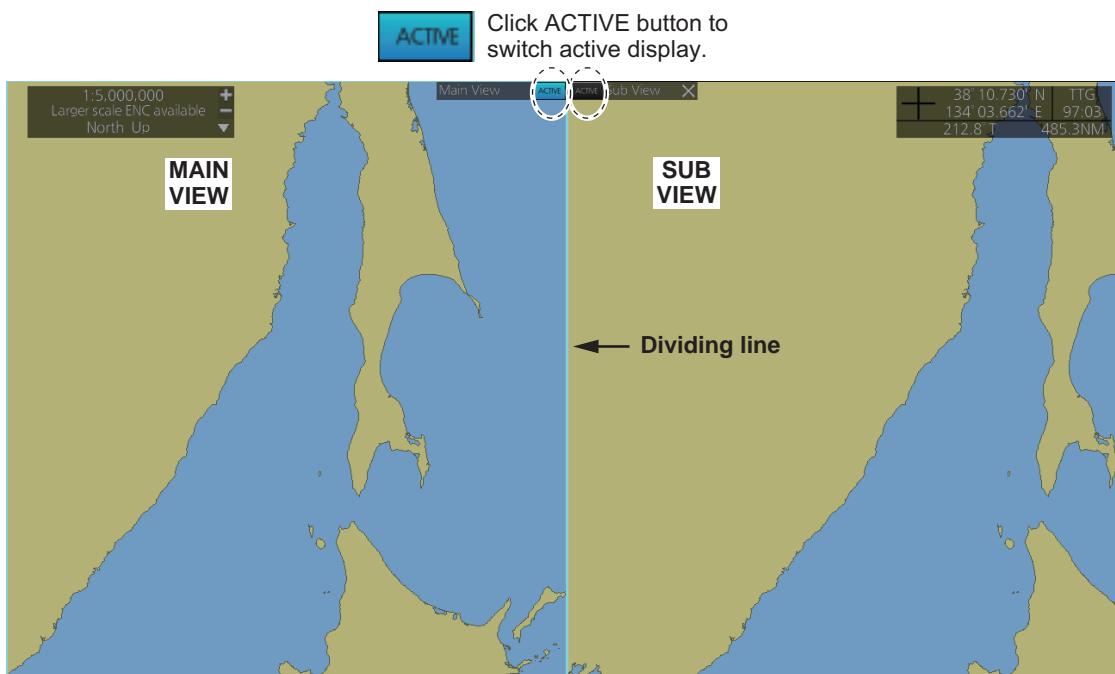
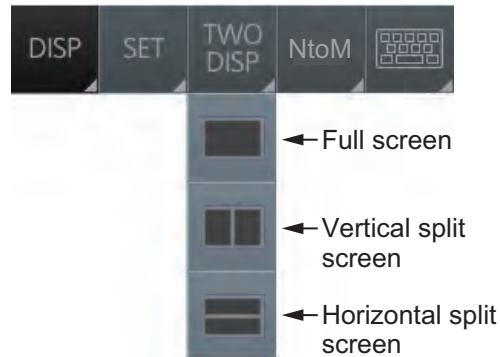
6.11 Split Screen

You can split the screen in two, horizontally or vertically, in the [CHART for RADAR] mode, Voyage navigation display.

6.11.1 How to activate, deactivate the split screen

To activate the split screen or return to the full screen, click the [DISP] and [TWO DISP] buttons on the InstantAccess bar™ to show the choices for screen division. Click the screen division desired.

The example below shows the vertical split screen. The active display can be switched by clicking an [ACTIVE] button at the top of the display. The dividing line between the main and sub views cannot be moved.



6.11.2 Function availability

Item (Chart mode)	Viewable		Operable	
	Main	Sub	Main	Sub
AIS target	Yes	Yes	Yes	Yes
TT	Yes	Yes	Yes	Yes
EBL, VRM	Yes	Yes	Yes	Yes
Parallel index lines	Yes	Yes	Yes	Yes
Divider	Yes	Yes	Yes	No
Range rings	Yes	Yes	Yes	No
Anchor watch	Yes	Yes	Yes	No
Danger highlight	Yes	Yes	Yes	No
Chart display	Yes	Yes	Yes	No

6.11.3 Split screen usage characteristics

- If the sub view is not displayed correctly, restore the full screen display then try to activate the split screen again.
- The display may not be updated when switching to the Voyage planning mode. If this occurs, switch to the Voyage navigation mode, restore the split screen display then return to the Voyage planning mode.
- The own ship mark may not appear at the screen center when releasing the split screen display. If this occurs, click the indication "TM/CU Reset" at the top right position on the screen to show the own ship mark at the screen center.
- The TM reset feature only works on the active display. To return the own ship mark to the screen center, click the indication [TM/CU Reset] at the top right position on the screen.
- The sub view can use a location and chart scale different from the main view.
- The chart scale related messages (overscale, larger ENC available, etc.), which appear beneath the chart scale indication, show only on the main view.

6.12 Datum

6.12.1 General

Datum is a mathematical model of the earth based on which a sea chart is produced. If the datum of a position sensor and that of a sea chart are different, a transformation has to be made somewhere in the system. Not doing so can result in errors of several sea miles. The difference between two datum is never constant, but depends on position. This means that the difference between WGS-84 and local datum, generally used in paper charts, is not generally valid with electronic sea charts.

6.12.2 Paper charts

Datum used in paper charts have been traditionally national datum for historical reasons. Many paper charts do not have a marked datum, therefore compatibility with electronic charts may be complicated. In some paper charts, the correction terms are printed in lieu of datum, for correction of the WGS-84 system satellite locations. The correction terms are usable but only with the paper chart in question.

6.12.3 Electronic sea charts

The ENC vector material has to be produced by a National Hydrographic Office in the WGS-84 datum.

6.12.4 Positioning devices and datum

In early days of electronic positioning devices, datum received little attention because the commonly used systems utilized special charts (like Decca charts). Later on, data output was added to these systems, but still no attention was paid to datum and the position errors were considered as an inaccuracy of the system. With the spread of the GPS, however, datum has become better known. An accurate position is of no value if co-ordinates are in a wrong datum. GPS satellites utilize the WGS-84 datum.

6.12.5 Chart datum

The radar uses ENC material, produced to standards using WGS-84 datum. Positioning devices connected to this radar must work in the WGS-84 datum. IMO requires that the chart must give an alert if the datum of a positioning device is not the WGS-84.

6.13 How to Select Sensor Settings

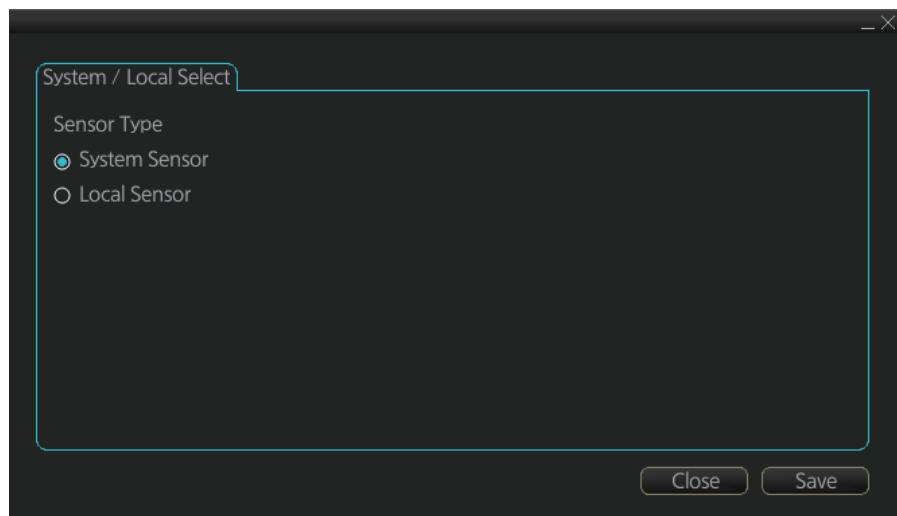
Sensor settings can also be selected in the chart mode. Settings are mutually changed between the radar and chart modes.

This radar system accepts navigation data input two ways: [System] or [Local]. [System] shares sensor data among multiple radars in the network. Sensor priority is also commonly shared among the radars. [Local] selects a sensor outside the network.

1. Right-click anywhere in the Sensor information box to show the context-sensitive menu.
2. Click [Local] or [System].

Note: Sensor system can also be selected from the menu. Open the menu and click [System/Local Select] on the [Sensor] menu. Click the circle next to [System Sensor] or [Local Sensor] then click the [Save] button.

HDG	213.1°	GYRO1
SPD	18.0kn ← 7.2kn	GPS1 BT
COG	213.0°	GPS1
SOG	18.5kn	System
POSN	35°3'N 139°1'E	Local
DGPS1	139°1'E	Open MENU
	Offset	Filter Reset

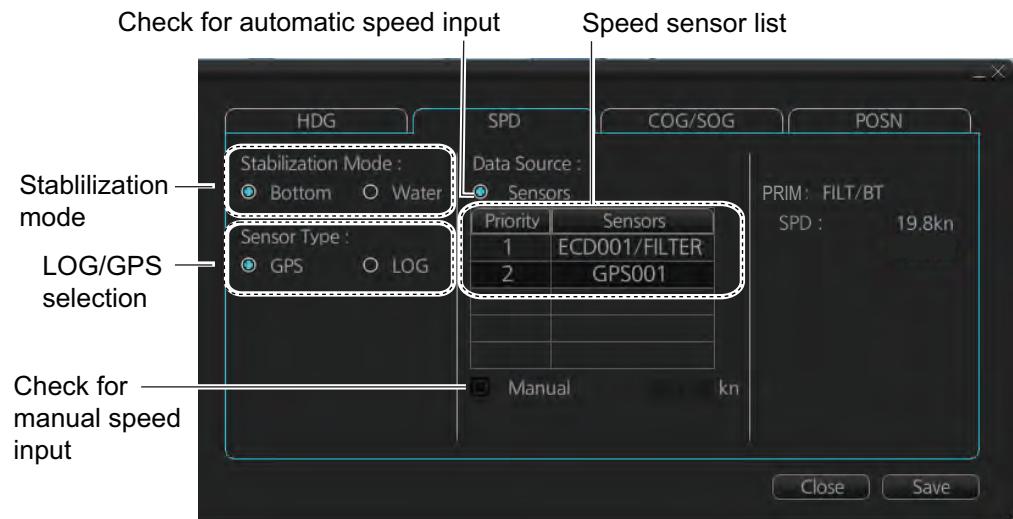


6.14 How to Enter Ship Speed

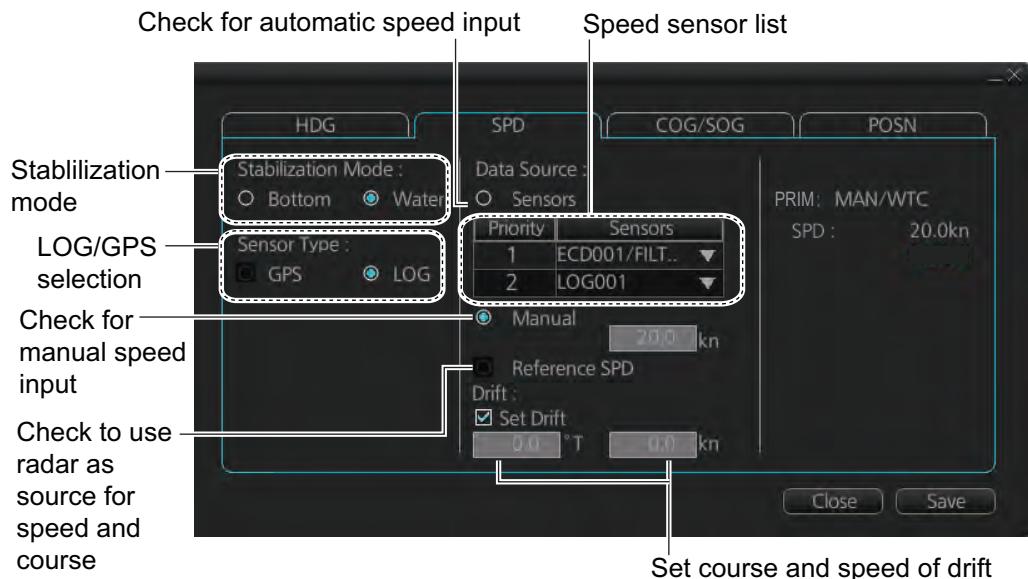
Speed can also be entered in the chart mode. Settings are mutually changed between the radar and chart modes.

The speed can be entered from a log (STW) or GPS (SOG), or manually on the menu. Note that FURUNO GPS Navigator GP-150 provides both COG and SOG.

1. Right-click anywhere in the Sensor information box to show the context-sensitive menu.
2. Click [Open MENU].
3. Click [System Sensor Settings] or [Local Sensor Settings].
4. Click the [SPD] tab.



[SPD] page, system sensor



[SPD] page, local sensor

6. CHART OVERVIEW

5. **For automatic input**, follow the procedure below. **For manual input**, go to step 6.
 - 1) Check [Sensors].
 - 2) Set the priority for the speed sensors in case of Local sensor. Click the triangle on the Priority1 line to select the sensor to be the Priority1 sensor. Do the same for the Priority2. Only one sensor can be Priority1; all others are priority 2. If a speed sensor is changed from Priority2 to Priority1, then that sensor previously selected to Priority1 is then automatically selected to Priority2 state.
 - 3) Check [LOG] or [GPS] at [Sensor Type].
 - 4) Select [Bottom] or [Water] at [Stabilization Mode]. Select [Bottom] if GPS is the source of speed data, or [Water] if a speed log is the source of speed data.
 - 5) Go to step 7.
6. **For manual input**, set the stabilization mode for [Water] and check [Manual]. Enter the speed using the scrollwheel, the software keyboard or the keyboard on the Control Unit.
Note: For set and drift, see page 16-3.
7. Click the [Save] button to save settings then click the [Close] button to close the menu.

Notes on speed input

- Be sure not to select a LOG option when a speed log is not connected. If the log signal is lost, the GPS sensor is used. In the event of GPS loss, the SPD is shown as "***.* kn".
- The SPD is shown as "***.* kn", and the label "LOG" is erased if no log signal is present for a certain amount of time. The timeout varies according to ship.
- If communication with a sensor is lost or interrupted, the system changes to the next available sensor automatically. For example, if the sensor type is set to [LOG] and the speed log signal is interrupted or lost, the system can switch to a GPS sensor. In this case, the "LOG" indication appears in yellow color.
- A single-axis water log cannot measure speed when the wind is coming from the leeway direction.

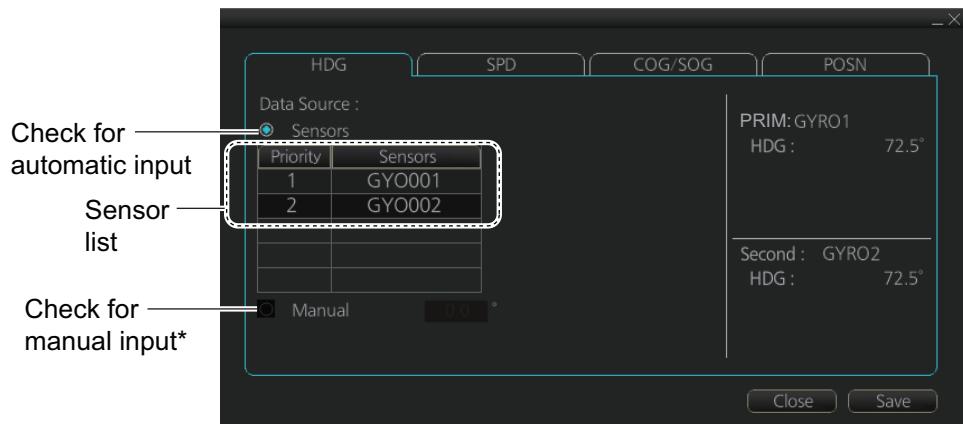
6.15 How to Enter Heading

Heading can also be entered in the chart mode. Settings are mutually changed between the radar and chart modes.

Note: When the vessel is in high latitudes (over 85°), data from the gyrocompass is not used. The internal filter data is used for heading calculation. In this case, the heading source in the sensor information box appears as "FILT". However, high altitudes are not supported in RADAR mode.

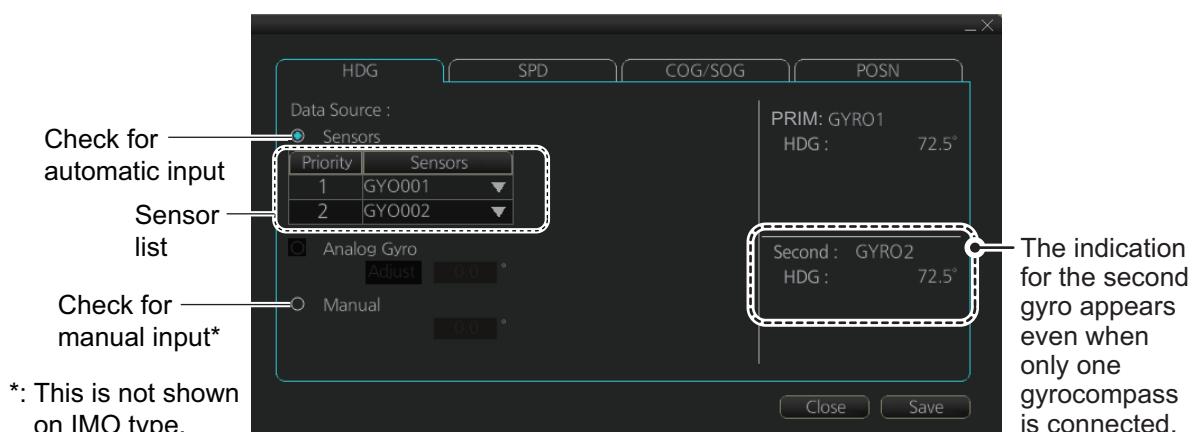
Heading can be entered manually or automatically.

1. Right-click anywhere in the Sensor information box to show the context-sensitive menu.
2. Click [Open MENU].
3. Click [System Sensor Settings] or [Local Sensor Settings].
4. Click the [HDG] tab.



*: This is not available with the [System Sensor Settings] menu.
This is not shown on IMO type.

[HDG] page, system sensor



[HDG] page, local sensor

6. CHART OVERVIEW

5. **For automatic input**, follow the procedure below. **For manual input**, go to step 6.
 - 1) Check [Sensors].
 - 2) For local system settings, set the priority for each sensor connected, referring to section 6.14.
 - 3) Go to step 7.
Note: For the local sensor, an offset can be applied to the gyro reading if it is wrong. Check [Gyro Correction], then spin the scrollwheel to set the offset.
6. **For manual input**, check [Manual]. Enter the heading using the scrollwheel, the software keyboard or the keyboard on the Control Unit.
7. Click the [Save] button to save settings then click the [Close] button to close the menu.

6.16 Set up Before Departure

6.16.1 Updates before departure

Update S57 chart material

Update your S57 chart material before embarking on a new voyage. See section 7.20.

Display date and update review dates for S57 charts and manual updates

Note: It is very important that you set the Display and Update Review dates for charts as the current date.

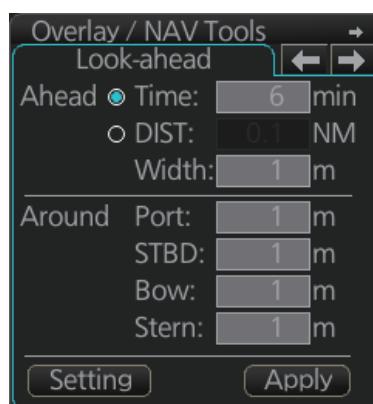
There may be features that require chart viewing dates or seasonal dates in charts. Accordingly, if you have not set Display date and Update Review dates as the current date, there is a possibility that you can get a wrong presentation or some feature may be absent. See section 9.2.

Create or update user chart, Notes

If necessary, create a new user chart and Notes or modify existing ones. See chapter 13.

Chart alert calculation

Set chart alert areas suitable for your coming voyage, on the [Look-ahead] page in the [Overlay/NAV Tools] box. See section 11.2.



6.16.2 Create or update a route

Create a new route or modify an existing one. See chapter 12.

Check your route against chart alerts

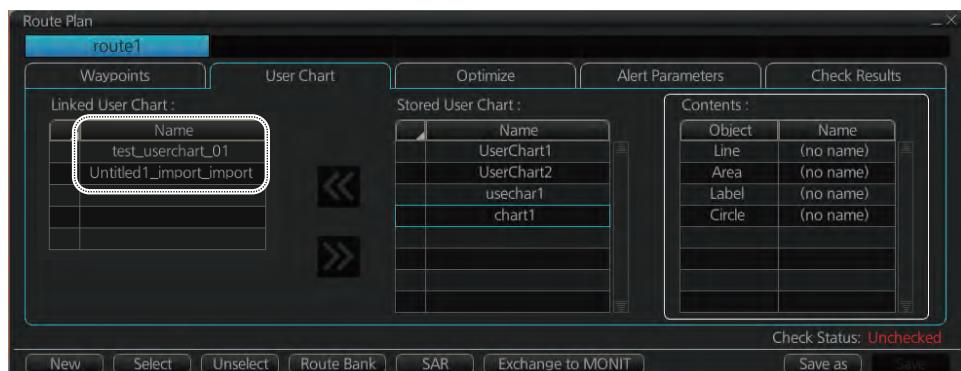
Before you sail your route, you should always check your route against chart alerts. This is important because your S57 charts and manual updates may contain chart viewing dates information. You can check chart alerts from the [Check Results] page on the [Route Plan] dialog box.

The following information is stored with the monitoring route plan:

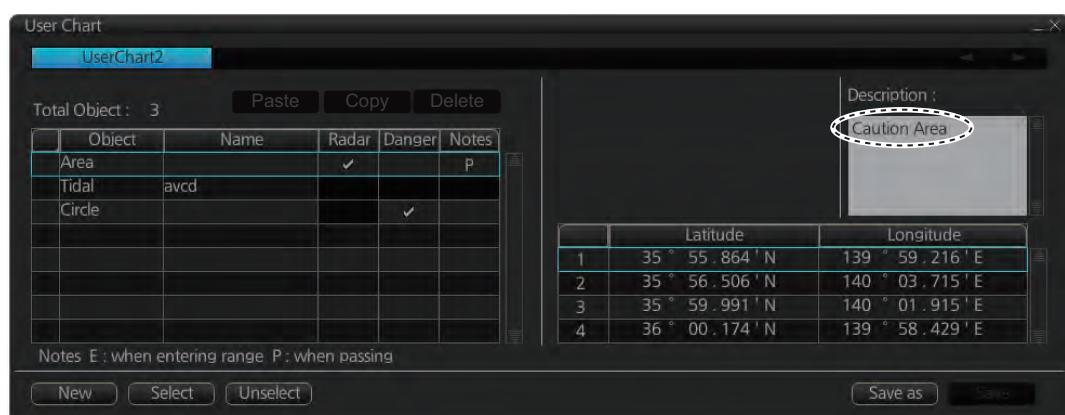
- Conditions for chart alerts during route monitoring, which includes safety contour and other chart alerts, on the [Alert Parameters] page of the [Route Plan] dialog box.



- Name of the user chart to be used during route monitoring together with this planned route, on the [User Chart] page of the [Route Plan] dialog box.



- Name of the Notes to be used during route monitoring together with this planned route, on the [User Chart] dialog box (click the [Planning] button then click the [User Chart] button).



6. CHART OVERVIEW

Recalculate timetable and ETA values

Timetable and ETA values can be recalculated from the [Optimize] page in the [Route Plan] dialog box. Minimally set ETD to equal departure time, and set optimization values.



6.16.3 How to check and prepare the route, user chart to monitor

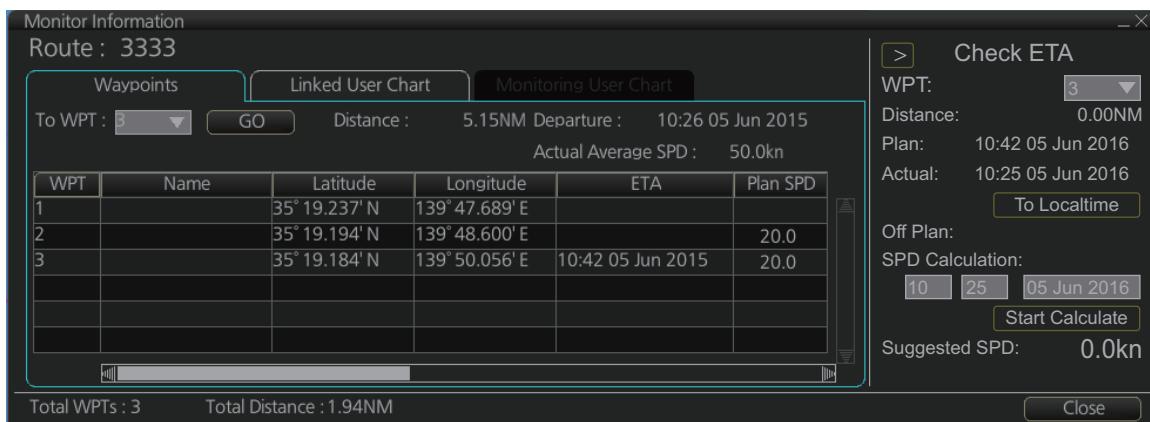
Select the route to monitor, view linked user charts

Select a route for the voyage: In the Voyage navigation mode, click the [Voyage], [Route] and [Select] buttons, or right-click the route indication in the [Route Information] box (right edge of screen) then select [Select Route]. See chapter 14.

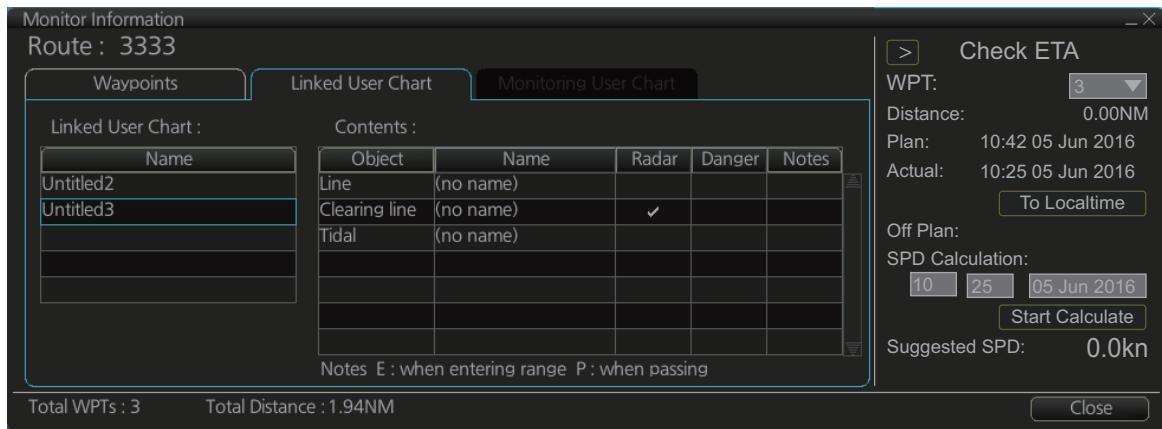
The [Monitor Information] dialog box appears, showing the [Waypoints] tab.

Note: A route cannot be opened if its planned settings are different from its navigation settings. The reason is given on the [Select Route] dialog box. In this case, open the route in the Voyage planning mode and click the [Check Route] button, on the [Alert Parameters] page. Adjust the route as necessary.

The To WPT can be selected, however WPT 01 cannot be selected.



To see all the user charts linked to the route, click the [Linked User Chart] tab to show the names of all the user charts linked to the route. Click a user chart to view its contents.



Select confirm conditions of the route plan

Check the setting on the [Chart Alert] dialog box; click the [DISP], [SET] and [Chart Alert] buttons to show that dialog box.



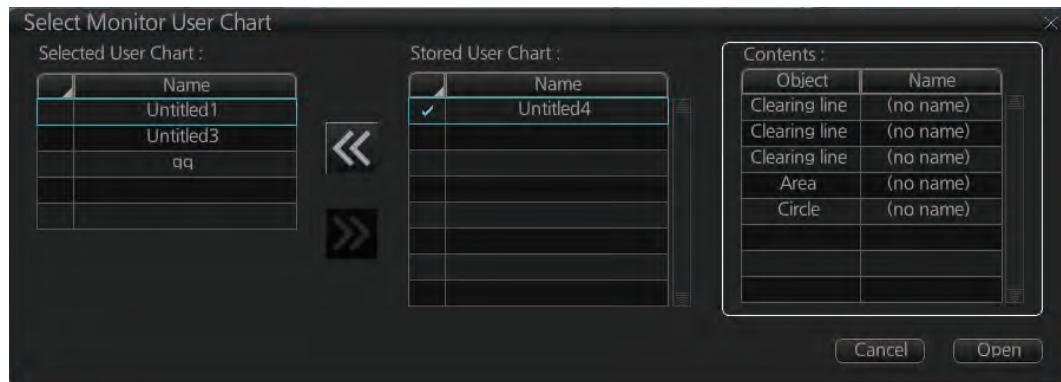
6. CHART OVERVIEW

Select the user chart(s) to monitor

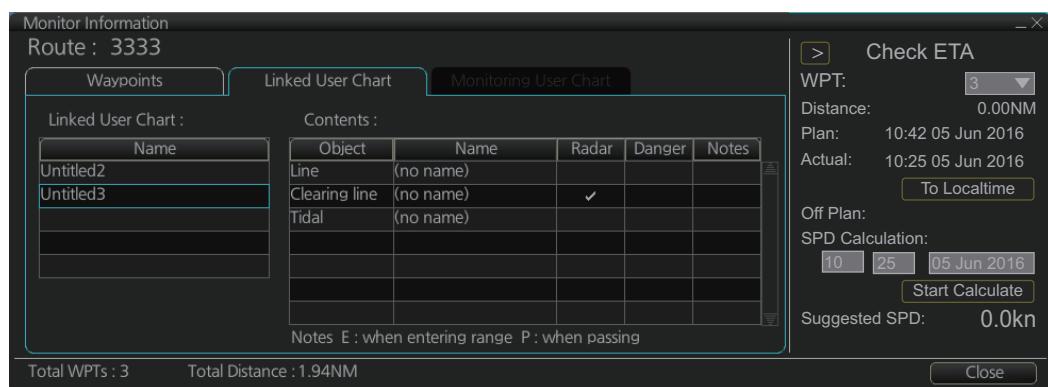
A user chart can be monitored without linking it to a route. You can select a user chart two ways.

- Click the [Voyage], [User Chart] and [Select/Unselect] buttons on the InstantAccess bar™ to open the [Select Monitor User Chart] dialog box.
- In the Voyage navigation mode, right click anywhere in the Route information box (right side of screen) to show the [Select Monitor User Chart] dialog box.

Check the chart(s) to use in the [Stored User Chart] window, then click the [<<] and [Open] buttons.



The [Monitor Information] dialog box automatically appears and the user chart(s) selected are displayed in the [Monitoring User Chart] tab. Click a user chart to view its contents.



6.16.4 Check configuration of navigation sensors

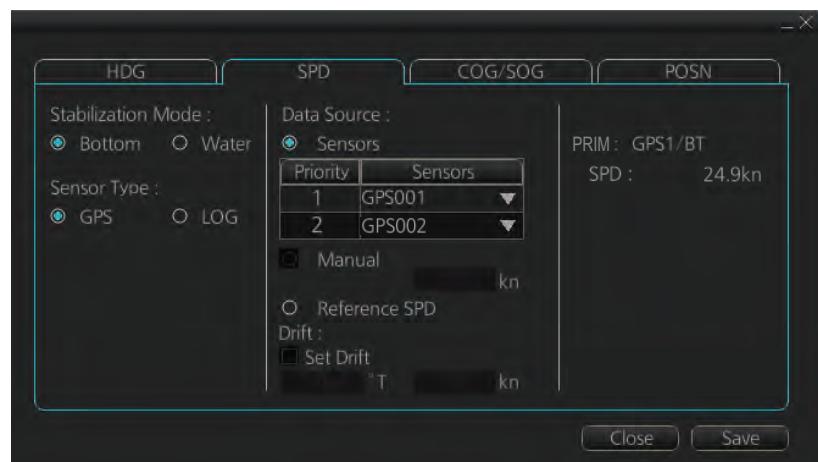
You can check the configuration of your navigation sensors.

Check speed settings ([SPD] page)

Open the menu and click the [SPD] tab in the [System Sensor Settings] page or [Local Sensor Settings] page of the [Sensor] menu. The user can select navigation sensors for use in navigation and view their current values.



[SPD] page, system sensor



[SPD] page, local sensor

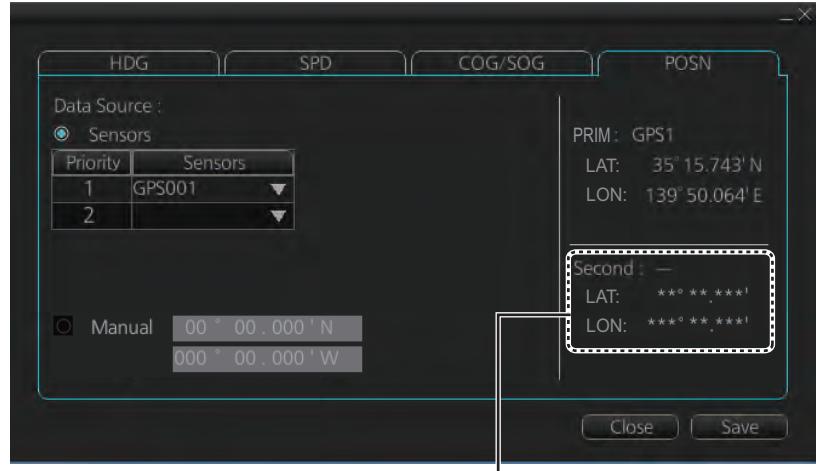
Checkbox status shows whether the sensor is used for integrated navigation or not. If there is no value shown for a sensor, it indicates that the sensor is not valid. Note that the content of these pages depends on the sensors that are in use on the ship.

Select the available dual logs.

Note that manual speed should only be used in an emergency, when no other speed reference is available. Remember that position sensors are also available as speed sources. If no dual log is available, check [Reference SPD] (local sensor page) to use a reference target from the radar as the source for speed and course.

Check position sensors ([POSN] page)

Open the menu and click the [POSN] tab in the [System Sensor Settings] page or [Local Sensor Settings] page of the [Sensor] menu. The [PRIM] and [Second] labels indicate the type of the position sensor. (In the figure below the [PRIM] label shows GPS1.) [PRIM] and [Second] indicate sensor status and priority.



"Second" appears even when only one position-fixing equipment is connected.

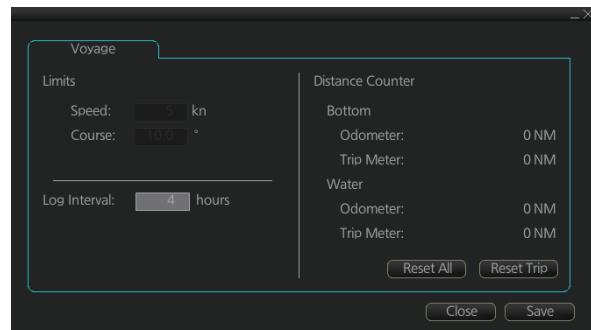
Only one sensor can be primary while the others can be secondary or off position. After a sensor is turned off, its status is changed to [Second] (Secondary) state. When a position sensor state is changed to [PRIM] (Primary) and another sensor was [PRIM] (Primary), the sensor formerly [PRIM] (Primary) becomes [Second] (Secondary).

Select the "Primary" navigation sensor as the sensor that is considered to be most accurate and reliable. Set all other navigation sensors as "Secondary".

6.16.5 How to reset odometer and trip meter

To reset the odometer and/or trip meter do as follows:

1. Open the menu and select the [Voyage] menu from the [NAV Log] menu in the [Log] menu.



2. Click one of the following buttons.
 - [Reset All]: Reset both the odometer and the trip meter for both "Water" and "Bottom".
 - [Reset Trip]: Reset the trip distance for both "Water" and "Bottom".
3. Click the [Close] button to finish.

7. HOW TO MANAGE CHARTS

This chapter mainly shows you how to install the public keys, licenses and charts, manually update chart objects, and synchronize charts. All chart-related operations begin from the Chart maintenance mode, which you access by clicking the [CHARTS] button on the Status bar.

Note 1: Charts, routes and user charts are shared with other FMD-3xx0, FCR-2xx9 and FAR-3xx0 units, via LAN. Data is shared automatically; no operation is required.

Note 2: Chart processing (installation, deletion, etc.) may take several minutes depending on the number of charts to be processed.

Note 3: If, when attempting to install charts, nothing appears on the display at the start of the procedure, reset the power and try again.

Note 4: If installation of AVCS charts stops, the message "Chart installation has stopped. Run the installation again. Installation will continue from the chart not yet installed." appears. This does not indicate completion of the installation. Restart the installation. The installation resumes from the chart not yet installed.

This message may also appear when installing C-MAP ENC SERVICE, C-MAP PROFESSIONAL+ C-MAP ENC+ SERVICE charts if the user does not confirm completion of the installation within approx. one hour. (Installation window remains on the screen.) However, this is not an indication of failed installation.

Note 5: Do not install AVCS and C-MAP DL charts at the same time. This can cause errors in the map files and can result in failure to obtain chart data from C-MAP.

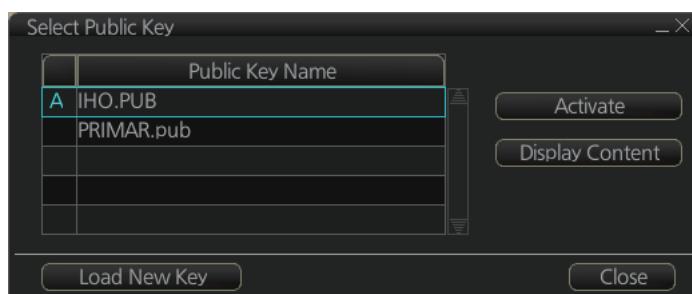
Note 6: When installing the AVCS LargeMedia, the message "No connection to dongle" may appear in the [Result] window at the completion of the installation. If this occurs, reinstall the media.

7.1 How to Install Public Keys for ENC Charts

Public keys authenticate the source and integrity of the ENC chart materials used in this chart system. Before you install a new ENC chart, confirm that the corresponding public key is installed.

Generally, there are two types of public keys: IHO (file name: IHO.PUB), Primar (file name: PRIMAR.pub)

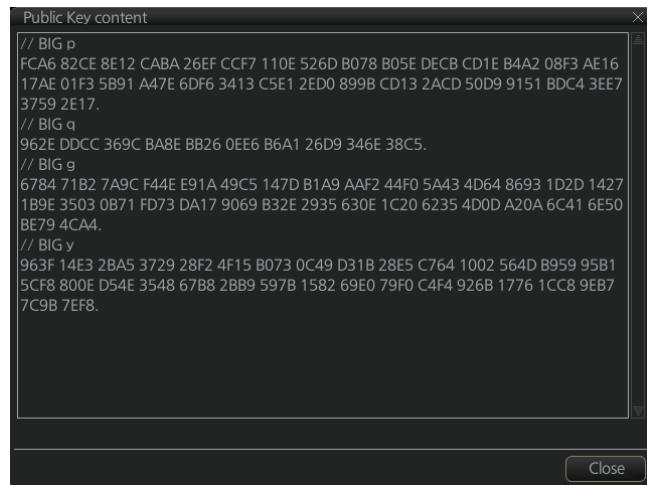
1. Set the medium (DVD, USB flash memory, etc.) that contains the public key. (The IHO public key is preinstalled.)
2. Get into the Chart maintenance mode then click the [Public Key] button on the InstantAccess bar™.



3. Click the [Load New Key] button to show the [Open file] dialog box.
4. Find the .pub file then click the [Open] button. The [Select Public Key] dialog box reappears.

7. HOW TO MANAGE CHARTS

5. Click the [Display Content] button on the [Select Public Key] dialog box to show the display contents.



6. To accept the contents, click the [Activate] button on the [Select Public Key] dialog box.

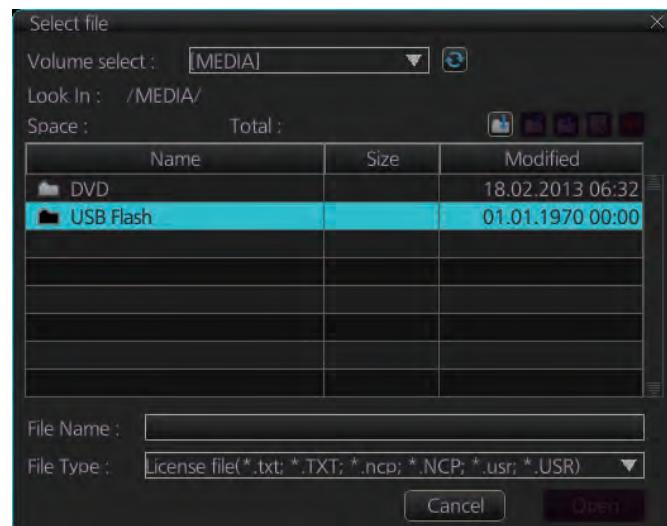
7.2 How to Install ENC Licenses, Charts

Install your ENC licenses and charts, in that order.

7.2.1 How to install an ENC license

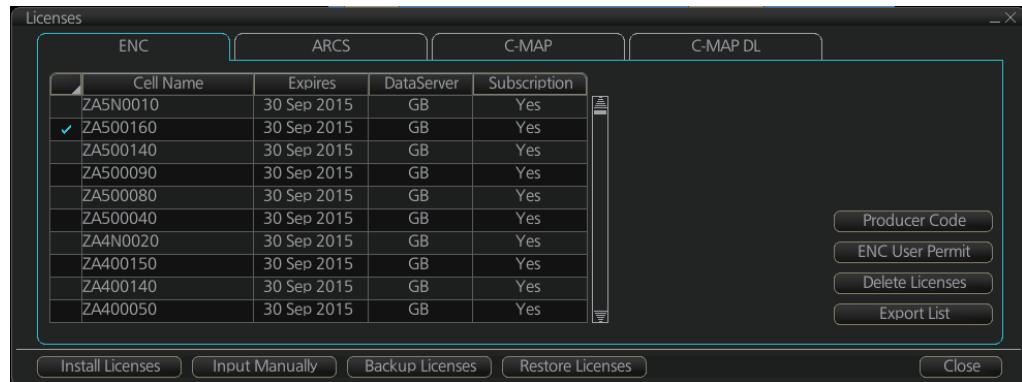
Automatic installation

1. Insert the medium (DVD, USB flash memory, etc.) that contains the ENC license.
2. Get into the Chart maintenance mode then click the [License] button on the InstantAccess bar™ to show the [Licenses] dialog box.
3. Click the [Import Licenses] button.



4. Select the medium, or folder, that contains the license then click the [Open] button.

- Find the license (permit.txt) then click the [OK] button to install the license. The [Licenses] dialog box then shows cell name, date of expiration, data server name and subscription type of the license.

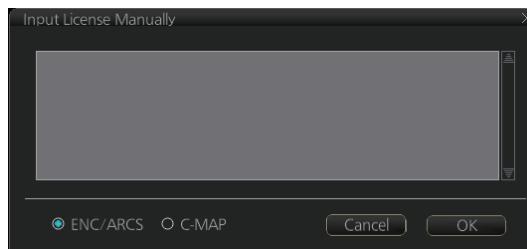


- Click the [Close] button to finish.

Manual installation

If you do not have the medium which has your ENC license, you can enter the license number manually.

- Click the [CHARTS] button on the Status bar to go the Chart maintenance mode, then click the [License] button on the InstantAccess bar™.
- Click the [Input Manually] button to show the [Input License Manually] box.



- Select the type [ENC/ARCS] at the bottom of the screen.
- Enter the license number(s) then click the [OK] button.

7.2.2 How to install ENC charts

When you install charts from a medium, the system first loads a catalog, which stores certain information into your SSD such as cell IDs, their position, and edition number, from the install medium. Then, the system asks which charts you want to install from the chosen medium. After building the catalog, you can view the contents of it by clicking the [Cell Status] button on the InstantAccess bar™.

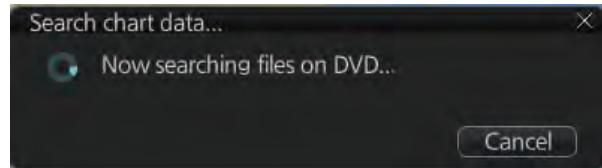
Note 1: Do not click the [Cancel] button during the installation of a chart. If you get an error message, try to install the charts again.

Note 2: When any chart is installed, all checked routes are reverted to unchecked status. Use the [Check Route] button on the [Alert Parameters] page to re-check routes before starting any voyage.

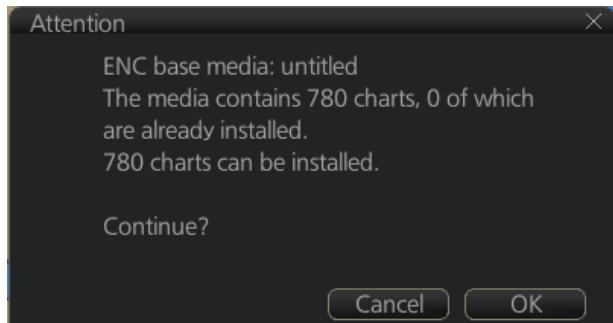
- Set the medium that contains the ENC charts.
- Get into the Chart maintenance mode then click the [AUTO Load] button on the InstantAccess bar™. The confirmation message "Attention: This process takes time to complete, and the operation speed of the system will decline. Do you wish

7. HOW TO MANAGE CHARTS

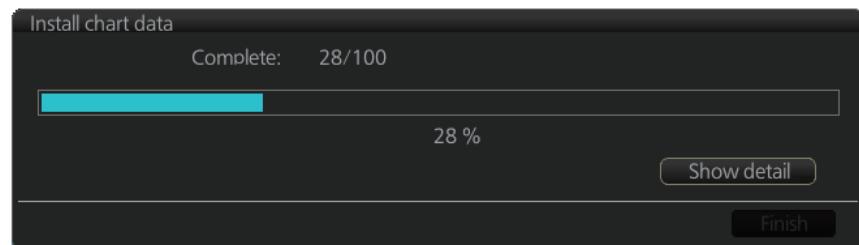
"to continue?" appears. Click the [OK] button to continue. A message informs you that the system is searching the medium (in the figure below the medium is a DVD) for chart data.



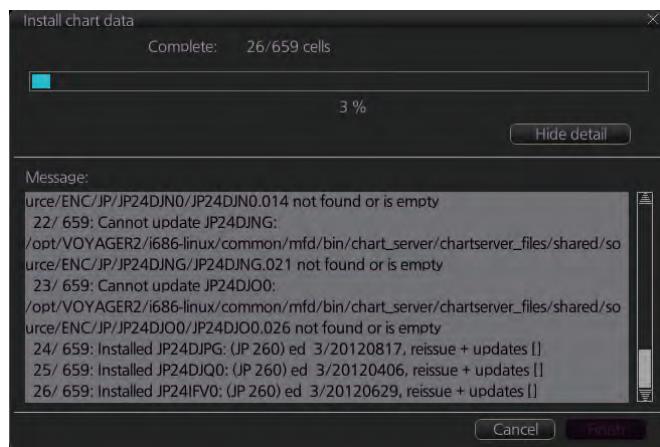
The results of the search are displayed, an example of which is shown below. To cancel the installation, click the [Cancel] button.



3. Click the [OK] button to install the charts. The [Install chart data] window appears and shows the percentage of completion, with digital and analog indications.

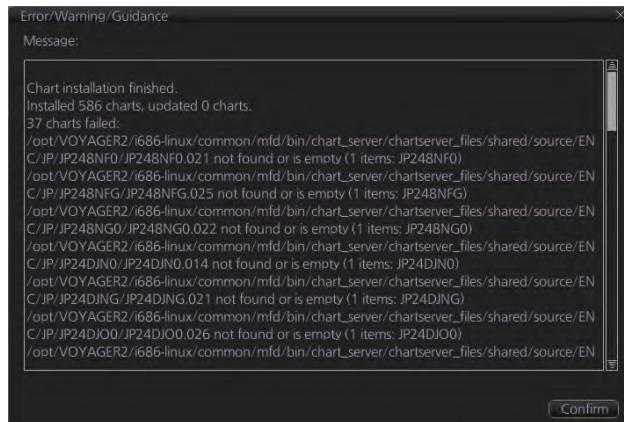


To show details during the installation, click the [Show detail] button.



To close the [Message] window, click the [Hide detail] button.

- When the installation is completed, information about the installation appears in the [Result] window. Click the [Confirm] button to finish.



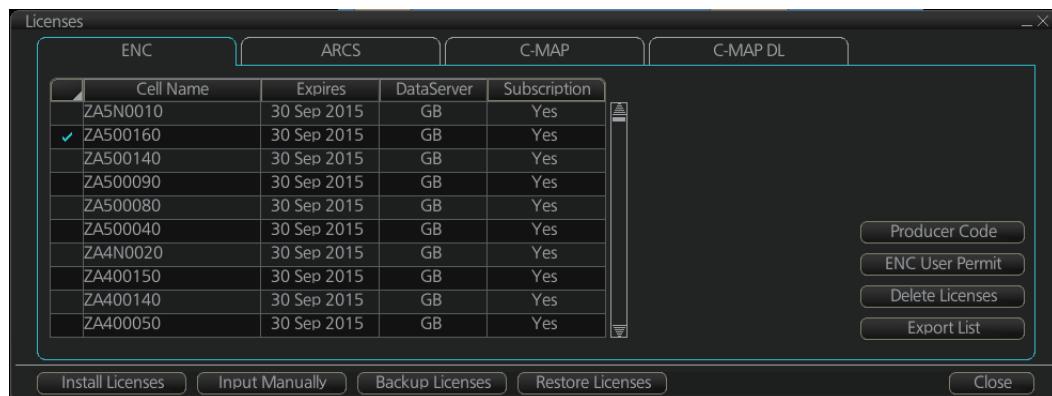
- If applicable, set the next sequential medium then repeat steps 2-4 to install the next database.
- After all necessary charts are installed, reset the power.

Note 1: When many charts are installed, the chart system checks for error in the installed chart data at the next power up. This is not an indication of malfunction.

Note 2: Previous versions of charts cannot be displayed if installed after installing the latest versions.

7.3 How to Delete ENC Licenses

- Get into the Chart maintenance mode.
- Click the [License] button on the InstantAccess bar™.
- Click the [ENC] tab as appropriate to show a list of licenses.



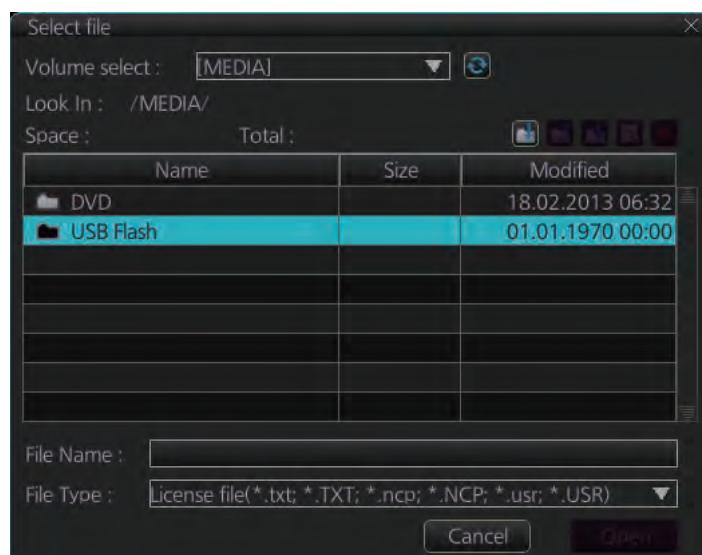
- Put a checkmark next to the license(s) to delete.
- Click the [Delete Licenses] button to delete the license(s) selected.
- Reset the power.

7.4 How to Read ENC Judgment Information

You can find out if your installed ENC charts are official or unofficial, with the [Producer Code] button in the [Licenses] dialog box. The following functions use this feature.

- [Filter] window (see section 7.14) can show or hide official or unofficial charts.
- Chart judgment is shown for unofficial charts on the [Check Results] of the [Route Plan] dialog box (see paragraph 12.4.5) if the corresponding alert check is active.

1. In the Chart maintenance mode, click the [License] button to show the [Licenses] dialog box.
2. Click the [ENC] tab.
3. Click the [Producer Code] button.



4. Select the judgment information file then click the [Open] button.

7.5 How to Install C-MAP Charts

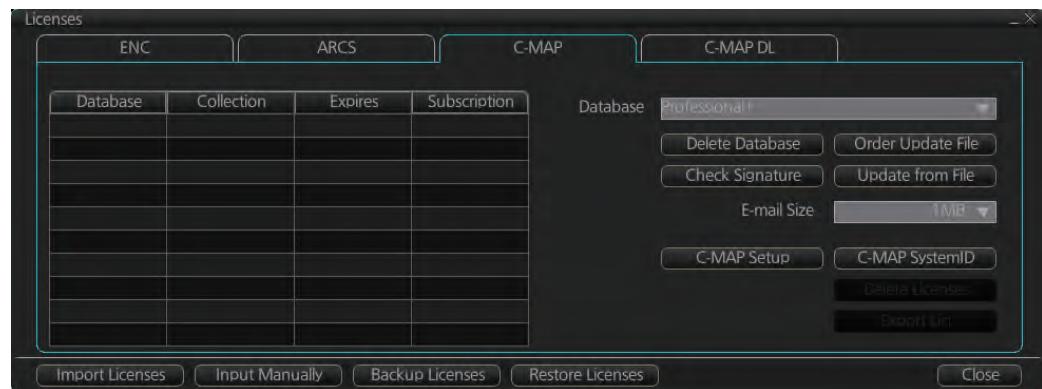
Synchronize chart data before you install C-MAP charts, grouping the radar units to synchronize, otherwise the chart data cannot be shared. See the procedure in paragraph 7.21.1 for how to synchronize chart data. If C-MAP charts are not synchronized after installation, delete all C-MAP charts, and do the above procedure again.

7.5.1 How to register the eToken

The eToken is a hardware mechanism (installed inside the processor unit) used for password authentication. Registration of the eToken is required only once, before you install the C-MAP database.

1. Get into the Chart maintenance mode then click the [License] button on the InstantAccess barTM to show the [License] dialog box.

2. Click the [C-MAP] tab to show the [Licenses] dialog box for C-MAP.



3. Click the [C-MAP Setup] button.
4. The confirmation message "Attention: C-MAP eToken will be initialized. Do you wish to continue?" appears. Click the [OK] button to continue and register the eToken.

Note 1: "CMAP: No connection to eToken" disappears from the Permanent warning box after completion of the registration.

Note 2: You can show your C-MAP system ID by clicking the [C-MAP SystemID] button on the [Licenses] dialog box for C-MAP.



7.5.2 How to install the C-MAP database

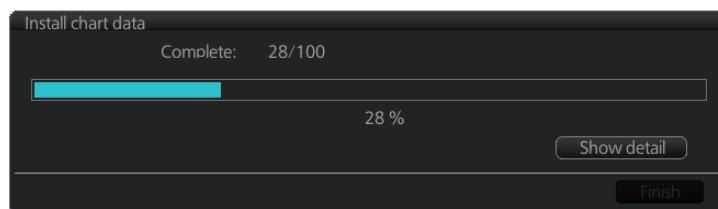
When you install the C-MAP database from a medium, all data is saved to the SSD.

Note 1: To synchronize chart data between multiple units (FMD-3x00, FAR-3xx0 or FCR-2xx9), group the units (see section 7.21.1) you wish to synchronize before you install the charts. If the group setting is done after chart installation, the units will not synchronize. If, after setting the group and installing the charts, the charts are not synchronized, delete, then reinstall the chart.

Note 2: The installation of a chart cannot be cancelled while it is in progress. If you get an error message, try to install the charts again.

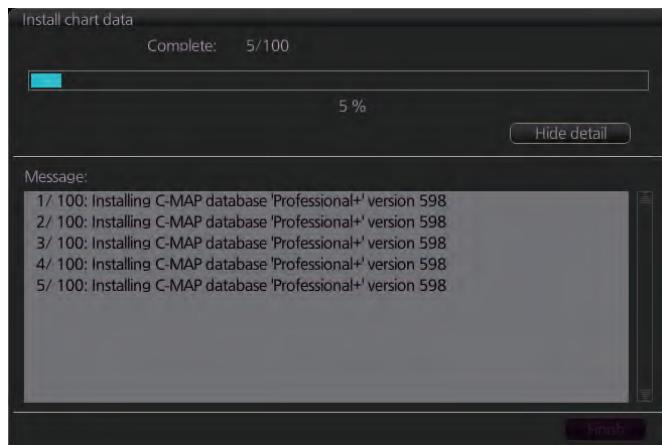
Note 3: The C-MAP database in the units selected for synchronization are synchronized at the successful completion of the database installation.

1. Insert the medium that contains the C-MAP database.
2. Get into the Chart maintenance mode then click the [AUTO Load] button on the InstantAccess bar™.
3. The [Install chart data] window appears and shows the percentage of completion, with digital and analog indications.



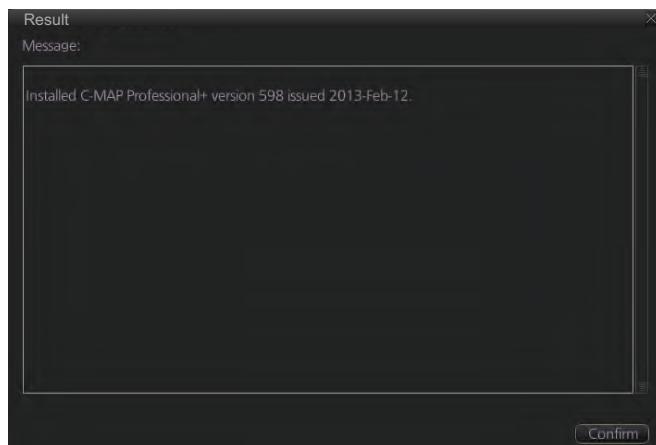
7. HOW TO MANAGE CHARTS

To show details during the installation, click the [Show detail] button.



To close the [Message] window, click the [Hide detail] button.

4. When the installation is completed, information about the chart database installed appears in the [Result] window. Click the [Confirm] button to finish.



5. If applicable, set the next sequential medium and repeat steps 2-3 to install the next databases.
6. After all databases are installed, reset the power.

Note 1: If, after installation, C-MAP charts do not appear, delete all corresponding charts and then reinstall them.

Note 2: Synchronization is not done for charts which could not be installed successfully. Reinstall failed charts.

7.5.3 How to install C-MAP licenses

A C-MAP license should be installed using the automatic installation method shown below. If the automatic installation fails, try the manual installation method.

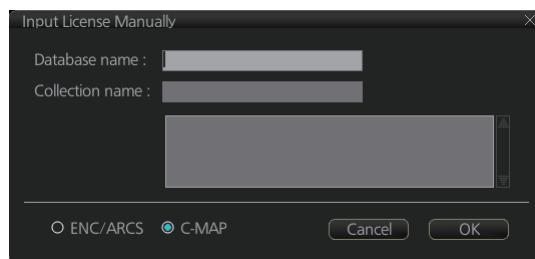
Automatic installation

1. Set the medium (DVD, USB flash memory, etc.) that contains the C-MAP license.
2. Get into the Chart maintenance mode then click the [License] button on the InstantAccess bar™.
3. Click the [Import Licenses] button.
4. Select the medium that contains the license then click the [Open] button.
5. Click the [OK] button to install the license.

6. Click the [Close] button to finish.
7. Reset the power.

Manual installation

1. Click the [CHARTS] button on the Status bar to go the Chart maintenance mode, then click the [License] button on the InstantAccess bar™.
2. Click the [Input Manually] button to show the [Input License Manually] box.



3. Select the type [C-MAP] at the bottom of the window.
4. Enter the [Database name] and [Collection name] information as shown in the table below. Enter the names exactly as shown to ensure correct installation.

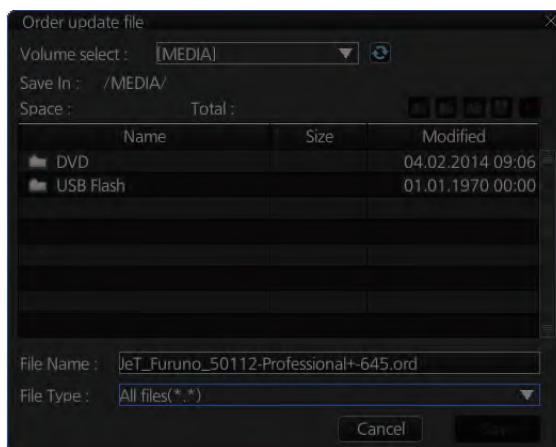
Database name	Collection name
<u>Chart type</u> <u>Name to enter</u>	Enter the contracted zone number according to chart type as follows:
PROFESSIONAL+: Professional+	Professional+ : Enter "Zone **" (without quotations) Ex. Zone 1
ENC SERVICE: ENC	ENC/ENC+ : Enter "Zone * ENC" (without quotations) Ex. Zone 1 ENC * = Zone no.
ENC+ SERVICE: ENC+	

5. Enter the license (max. 16 characters) in the bottommost window.
6. Click the [OK] button to install the license.
7. Reset the power.

7.5.4 How to generate and order an update file

To update the C-MAP chart database, you have to generate an update file, and e-mail the file directly to C-MAP. The update file defines coverage of charts you can display on your chart system.

1. Connect a USB flash memory to the USB port on the Control Unit.
2. Get into the Chart maintenance mode then click the [License] button on the InstantAccess bar™.
3. Click the [C-MAP] tab to show the [Licenses] dialog box for C-MAP.
4. From the [E-mail Size] drop-down list, select the size of the update file. The choices are [100KB], [200KB], [300KB], [400KB], [500KB], [750KB], [1MB], [2MB], [3MB], [4MB], [10MB], [Unlimited]. This is the size of the data file in an e-mail. The file may be sent in pieces depending of the size selected.
5. Click the [Order Update File] button. A file name (C-MAP system ID and chart type) is automatically created, with the extension .ord.



6. Select the USB flash memory.
7. Click the [Save] button to save the order file to the USB flash memory.
8. Send the order file to update@c-map.com.

Within a few minutes you will receive a file that includes the terms for using the chart service and the chart updates. Save the file to a USB flash memory and apply it as shown in the next section.

7.5.5 How to apply the update file

1. Insert the USB flash memory that contains the update file (.ans extension) into the USB port on the Control Unit.
2. Get into the Chart maintenance mode then click the [License] button on the InstantAccess bar™.
3. Click the [C-MAP] tab to show the [Licenses] dialog box for C-MAP.
4. Click the [Update from File] button.
5. Find the update file on the USB flash memory then click the [Open] button.

7.5.6 How to check license status

You can check the status of your chart licenses with the following procedure. The chart database and respective licenses must be installed before you check the status.

1. Get into the Chart maintenance mode then click the [License] button on the InstantAccess bar™.
2. Click the [C-MAP] tab to show the C-MAP license dialog.
3. Click the [Check Signature] button at the right-side of the dialog. The results appear in the window as "Ok" or "Not Ok". Where the results appears as "Not Ok", consult your local dealer.
4. Click the [OK] button to close the results window.

7.6 How to Delete a C-MAP Database

If you are going to delete all C-MAP databases, turn off chart synchronization (see section 7.21) and delete the databases from each unit.

1. Get into the Chart maintenance mode then click the [License] button on the InstantAccess bar™.
2. Click the [C-MAP] tab to show the [Licenses] dialog box for C-MAP.
3. Select the database to delete with the [Database] pull-down list.
4. Click the [Delete Database] button.
5. Reset the power.

7.7 How to Install C-MAP DL (Dynamic Licensing) Charts

Register the eToken if it has not already been registered. See section 7.5.1.

7.7.1 How to generate and order an update file

To update the C-MAP chart database, you have to create an update file and e-mail the file directly to C-MAP. The update file defines coverage of charts you can display on your chart system.

1. Connect a USB flash memory to the USB port on the Control Unit.
2. Get into the Chart maintenance mode then click the [License] button on the InstantAccess bar™.
3. Click the [C-MAP] tab to show the [Licenses] dialog box for C-MAP.
4. From the [E-mail Size] drop-down list, select the size of the update file. The choices are [100KB], [200KB], [300KB], [400KB], [500KB], [750KB], [1MB], [2MB], [3MB], [4MB], [10MB], [Unlimited]. This is the size of the data file in an e-mail. The file may be sent in pieces depending of the size selected.
5. Click the [Order Update File] button. A file name (C-MAP system ID and chart type) is automatically created, with the extension .ord.
6. Select the USB flash memory.
7. Click the [Save] button to save the order file to the USB flash memory.

7. HOW TO MANAGE CHARTS

8. Send the order file to update@c-map.com.

Within a few minutes you will receive a file that includes the terms for using the chart service and the chart updates. Save the file to a USB flash memory and apply it as shown in the next section.

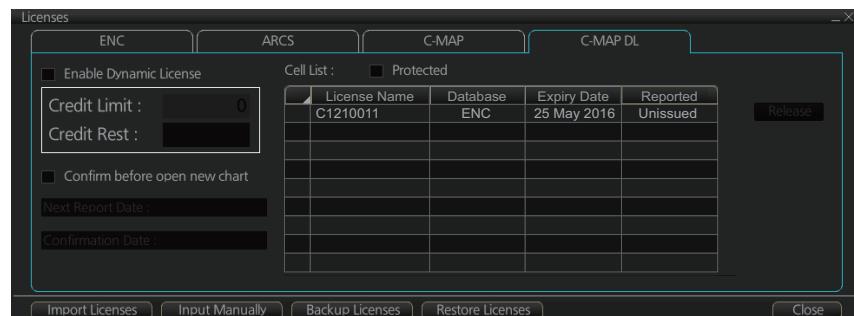
7.7.2 How to apply the update file

1. Insert the USB flash memory that contains the update file (.ans extension) into the USB port on the Control Unit.
2. Get into the Chart maintenance mode then click the [License] button on the InstantAccess bar™.
3. Click the [C-MAP] tab to show the [Licenses] dialog box for C-MAP.
4. Click the [Update from File] button.
5. Find the update file on the USB flash memory then click the [Open] button.

Note: If the .ans file does not update the status of all shared C-MAP DL charts, reset the power of all units.

7.7.3 How to enable and set up the C-MAP DL

1. Get into the Chart maintenance mode then click the [License] button on the InstantAccess bar™.
2. Click the [C-MAP DL] tab to show the [Licenses] dialog box for C-MAP DL.



3. Check [Enable Dynamic License] to enable the dynamic licensing.

You now have access to all the charts contained within the selected subscription zones - both already licensed charts and new charts.

Settings, indications on the Licenses dialog box for C-MAP DL

- Set your annual credit limit with [Credit Limit]. A permanent warning is given if your credit goes below this value. A new chart cannot be enabled if it causes the credit to go below this value.
- [Credit Rest] shows the amount of credit remaining and is updated each time you receive a confirmation answer for your request via e-mail.
- [Next Report Date] is the date when the next report should be sent to C-MAP. If charts are not reported before the mandatory report date, access to all non-reported charts is discontinued and can be resumed only after the confirmation answer allowing use of the charts is received via e-mail.
- [Confirmation Date] is the date when you receive the confirmation answer for your request via e-mail.

- [Confirm before open new chart], if checked, a confirmation window asks for confirmation before opening charts that require issuing a new license. A chart denied is added to the list of protected charts, so the confirmation request will not be repeated for that chart. Those charts cannot be opened until they are removed from the list of protected charts.
- [Protected], if checked, shows the protected charts in the cell list. To remove a chart from protection, select it then click the [Release] button. Then, when an attempt is made to open that chart, the confirmation window appears. Note that multiple confirmation windows open when releasing multiple charts from protection.

7.8 How to Export a List of Charts

Get into the Chart maintenance mode, click the [Manage Charts] button on the InstantAccess bar™ to show the [Manage Charts] dialog box. Check the charts to add to the list. Click the [Export List] button to export the checked charts to a USB flash memory, in .txt format.

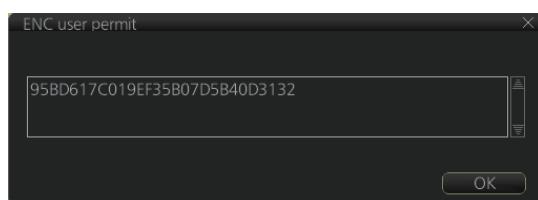
7.9 How to Export a List of Specific Licenses

You can export a list of your ENC or C-MAP (excluding C-MAP DL) licenses to a USB flash memory, in .txt format.

1. Set a USB flash memory in the USB port on the Control Unit.
2. Get into the Chart maintenance mode then click the [License] button.
3. Click the [ENC] or [C-MAP] tab.
4. Click the [Export List] button.
5. Change the file name at [File Name] if desired.
6. Select the USB flash memory then click the [Save] button.
7. Click the [OK] button to finish.

7.10 How to Show the ENC Permit

1. Get into the Chart maintenance mode then click the [License] button.
2. Click the [ENC] tab.
3. Click the [ENC User Permit] button to show the ENC permit.



4. Click the [OK] button to finish.

7.11 How to Backup, Restore Licenses

You can make backup copies of your ENC, ARCS and AVCS (AIO) licenses and save them to a USB flash memory. If re-installation of the licenses becomes necessary, you can reinstall them from the USB flash memory. The backup and restore functions are not available with C-MAP charts.

To backup licenses:

1. Insert a USB flash memory into the USB port on the Control Unit.
2. Get into the Chart maintenance mode then click the [License] button on the InstantAccess bar™ to show the [Licenses] dialog box.
3. Click the [Backup Licenses] button.
4. Select the USB flash memory then select the folder in which to save the licenses, then click the [OK] button.
The license files (ENCpermit.dat, ARCSpermit.dat) are saved in the selected folder.
5. Click the [OK] button.

To restore licenses:

1. Insert the USB flash memory that has the licenses into the USB port on the Control Unit.
2. Get into the Chart maintenance mode then click the [License] button on the InstantAccess bar™ to show the [Licenses] dialog box.
3. Click the [Restore Licenses] button.
4. Select the USB flash memory then select the folder in which licenses are saved, then click the [OK] button.
5. Click the [OK] button.

7.12 How to View Permit Expiration Date

Permits are used to control the right to use chart data in this chart system. A permit is connected to the edition of a chart. Permits are issued in two different types:

- **Subscription permit:** This type of permit includes updates for subsequent 3, 6, 9 or 12 months.
- **One-Off permit:** This type of permit includes only updates up to the issue date of the permit.

The expiry date of a permit controls the installation of Base charts and their updates to the chart. The system will warn you when you are installing charts or updates that are issued less than 30 days before the expiration date of a permit. If a permit has expired, it is impossible to install a chart or its update that was issued after the expiration date of the permit. The user has a right to view a chart forever, except C-MAP charts that have viewing periods which end two months after the expiry date of the license. If the charts are not updated regularly it will not complete the requirements for having up-to-date charts. To view the permit status of a chart, click the [License] button on the InstantAccess bar™ and then click the applicable "chart" tab ([ENC], [C-MAP] or [C-MAP DL]).

The example below shows the status of ENC charts. The expiration date of each cell appears in the [Expires] window.

Licenses							
ENC		ARCS		C-MAP		C-MAP DL	
Cell Name	Expires	DataServer	Subscription				
ZA5N0010	30 Sep 2015	GB	Yes				
ZA500160	30 Sep 2015	GB	Yes				
ZA500140	30 Sep 2015	GB	Yes				
ZA500090	30 Sep 2015	GB	Yes				
ZA500080	30 Sep 2015	GB	Yes				
ZA500040	30 Sep 2015	GB	Yes				
ZA4N0020	30 Sep 2015	GB	Yes				
ZA400150	30 Sep 2015	GB	Yes				
ZA400140	30 Sep 2015	GB	Yes				
ZA400050	30 Sep 2015	GB	Yes				

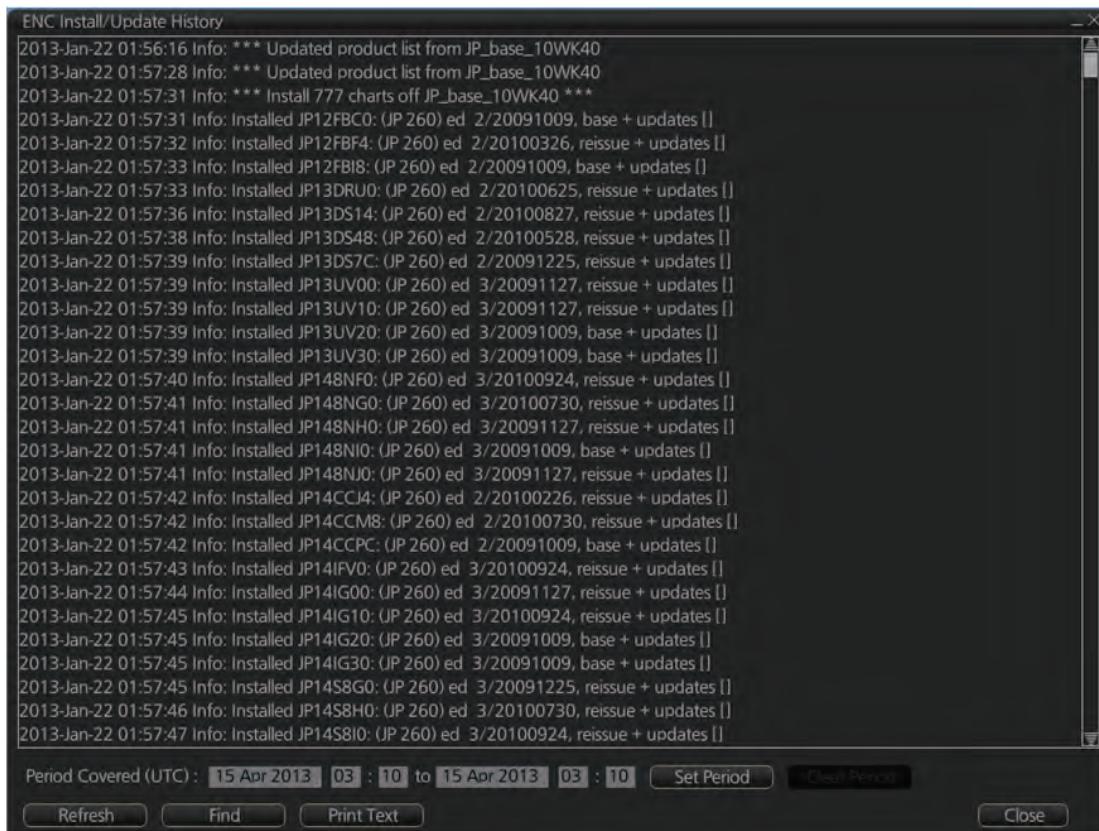
Subscription warnings for RENC

If you have at least one subscription-type permit, the system will automatically warn you about the expiration date of your subscription license, in the Permanent warning box.

Note: If you change service provider for some reason, it is recommended that you remove all the charts from this chart system before installing new charts of new service provider.

7.13 How to Display Install/Update History

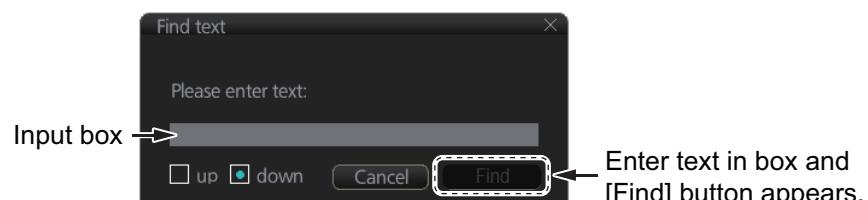
You can see a history of chart installations and updates. On the InstantAccess bar™, click the [Log] and [Update Log] buttons followed by the [ENC] or [C-MAP] button. The example below shows the install/update history for ENC charts.



You can filter the log with [Period Covered (UTC)]. Enter the period to display then click the [Set Period] button. Click the [Clear Period] button to display all entries. The [Refresh] button updates the list. [Print Text] prints hard copy of the history.

The [Find] button searches required text string as follows:

1. Click the [Find] button to show the [Find text] box.

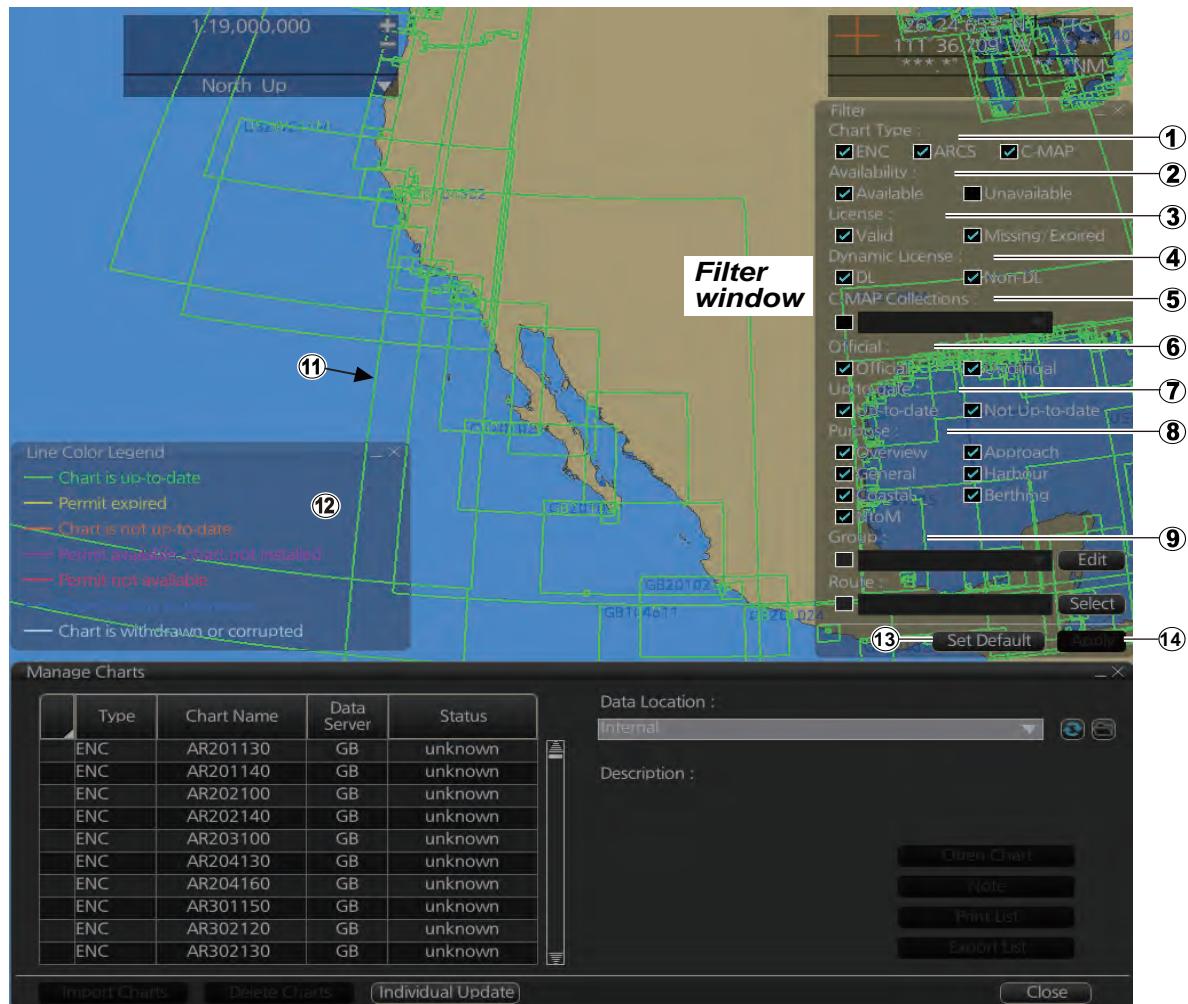


2. Click the input box then enter the text to search.
3. Select the search direction with the [up] or [down] radio button.
4. Click the [Find] button. The first matching text is highlighted in yellow at the top of the screen.
5. To continue the search click the [Find] button. To cancel the search, click the [Cancel] button.

7.14 Catalog of Chart Cells

A catalog is used to view graphical coverage of the charts stored in your SSD. Available charts are displayed showing their border limits. Note that sometimes the real coverage of the charts may be considerably less than the declared limits of it.

To display the catalog, get into the Chart maintenance mode then click the [Manage Charts] button on the InstantAccess bar™. The [Filter] window lets you select what to display. Check or uncheck items as appropriate.



- 1) [Chart Type]
 - [ENC]: Display ENC charts.
 - [ARCS]: Display ARCS charts (no use).
 - [C-MAP]: Display C-MAP charts.
- 2) [Availability]
 - Display available or unavailable charts.
- 3) [License]
 - [Valid]: Cell with valid license.
 - [Missing/Expired]: Cell with missing or expired license.
 - [Valid] + [Missing/Expired]: Display cell regardless of license.
 - Uncheck both: Hide all cells.
- 4) [Dynamic License]
 - Display DL or non-DL C-MAP charts.

7. HOW TO MANAGE CHARTS

5) [C-MAP Collections]

A collection is a pre-defined dataset, the contents of which can be defined by zone, individual chart or any of those combinations. Applicable to C-MAP charts also.

6) [Official]

Display official or unofficial charts.

7) [Up-to-date]

Display charts which are or are not up to date.

8) [Purpose]

Display chart according to its purpose - [Overview], [General], [Coastal], [NtoM], [Approach], [Harbour], [Berthing].

9) [Group]

See the next section for how to group charts.

10) [Route]

Show route or waypoints (you can also set the waypoint(s) as a start point or destination point) within a route.

11) Chart boundary boxes

Define the area covered by a chart and are color-coded according license and permit status.

12) [Line Color Legend]

The line color legend provides information about license validity.

Color	Message
Internal charts	
Green	Chart is up-to-date
Yellow	Permit expired
Orange	Chart is not up-to-date
Magenta	Permit available, chart not installed
Red	Permit not available
Blue	Chart's status is unknown
Gray	Chart is withdrawn or corrupted
External media charts	
Green	Already installed and up-to-date
Yellow	Can be installed/updated but a warning
Orange	Already installed but not up-to-date
Magenta	Can be installed/updated
Red	No valid permit
Gray	Cannot be installed/updated

13) [Set Default]

Restore the filter window to default settings.

14) [Apply]

Apply the changes made to the filter box and show the new settings on the chart. This button is only available after a change is made.

7.14.1 How to group chart cells

You can define groups of like-format chart cells. This means you can collect related charts, for example, all cells that cover a route from Liverpool to New York or all cells available from a National Hydrographic Office.

You can make a group and define charts from the [Edit Group] dialog box.

How to make a new group of chart cells

1. In the Chart maintenance mode, click the [Manage Charts] button on the InstantAccess bar™.
2. Click the [Edit] button in the [Filter] window to show the [Edit Group] dialog box.



3. Click the [New] button.
4. In the [Outside Group] window, click the box to the left of the chart cell you want to add to the group to show a checkmark. (A context-sensitive menu with [Select All] and [Deselect All] functions is available by right-clicking the box to the left of [Name], in either window.)
5. After you have selected the cells to add to the group, click the [<<] button to move the names of the selected cells to the [Inside Group] window. If you want to remove a chart from the group, select it then click the [>>] button.
6. Click the [Save] button.
7. Enter a name for the group, using the keyboard on the Control Unit or software keyboard, then click the [OK] button.
8. Click the [Close] button to finish.

How to edit a group of chart cells

You can edit a group of chart cells from a group as follows:

1. In the Chart maintenance mode, click the [Manage Charts] button on the InstantAccess bar™ to show the [Filter] window.
2. Click the [Edit] button.
3. Select the name of the group with the pull-down list at the item [Group Name].
4. In the [Inside Group] window, click the box to the left of the chart cell you want to remove from the group to show a checkmark. (A context-sensitive menu with [Select All] and [Deselect All] functions is available by right-clicking the box to the left of [Name].)
5. After you have selected the charts to remove to the group, click the [>>] button to remove the selected charts cells from the group.
6. Click the [Save] button.
7. Click the [Close] button to finish.

How to delete a group of chart cells

You can delete group of chart cells as follows:

1. In the Chart maintenance mode, click the [Manage Charts] button on the InstantAccess bar™ to show the [Filter] window.
2. Click the [Edit] button.
3. Select the name of the group with the pull-down list at the item [Group Name].
4. Click the [Remove] button.
5. Click the [OK] button.
6. Click the [Close] button to finish.

How to select the group to view

1. In the Chart maintenance mode, click the [Manage Charts] button on the InstantAccess bar™ to show the [Filter] window.
2. Select the group to view from the pull-down list at [Group].
3. Click the [Close] button to finish.

7.14.2 How to view status of chart cells

The [Cell Status] dialog box shows the status of the chart cells stored in the system. To show this dialog box, get into the Chart maintenance mode then click the [Cell Status] button on the InstantAccess bar™.

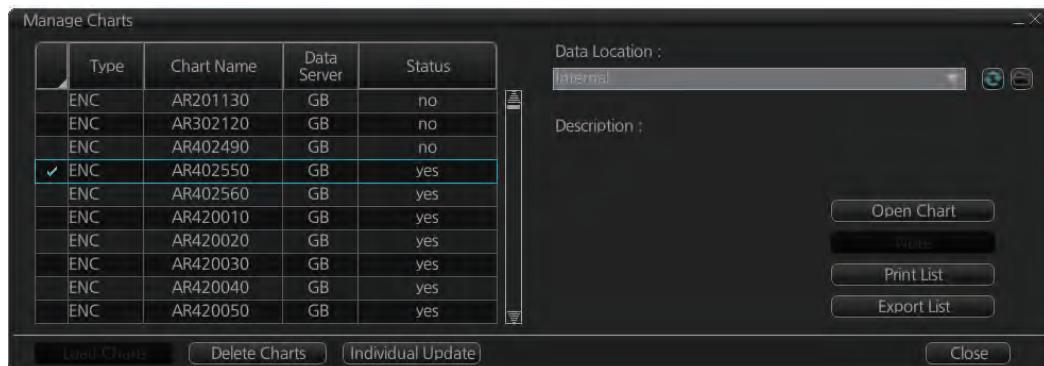
Type	Chart Name	Data Server	Edition/ Issue Date	Update: Num/Date	Status
ARCS	100	GB	06 May 1994	-/-	up to date
ARCS	1000	GB	05 Mar 2009	-/28 May 2015	not up to date
ARCS	1001	GB	05 Mar 2009	-/28 May 2015	up to date
ARCS	1002	GB	27 Nov 1912	-/-	not up to date
ARCS	1003	GB	15 Jan 2004	-/25 Jun 2015	up to date
ARCS	1004	GB	03 Oct 2013	-/-	up to date
ARCS	1005	GB	30 Apr 2015	-/-	up to date
ARCS	1006	GB	03 Oct 2013	-/-	up to date
ARCS	1007	GB	09 Apr 2015	-/11 Jun 2015	up to date
ARCS	1008	GB	09 Apr 2015	-/-	not up to date

- [Type]: Type of chart cell, ENC or C-MAP.
- [Chart Name]: Chart name
- [Data Server]: The name of the data server where the chart was downloaded from.
- [Edition/Issue Date]: Edition no. and issued date of the chart cell.
- [Update: Num/Date]: No. and date of the update of the chart cell.
- [Updated]: The update status for the selected cell. "up to date" is shown for cells that are up-to-date, "not up to date" is shown for cells that are not up-to-date, "withdrawn" is shown if a cell is canceled, "unknown" is shown if the cell is not delivered as part of a data service and "broken" is shown if the cell is corrupted.
- [Status]:
 - [up to date]: Cell is up-to-date.
 - [not up to date]: Cell is not up-to-date.
 - [not installed]: Cell is not installed.

- [withdrawn]: Cell has been canceled.
- [unknown]: Cell is not delivered as part of a data server service (ex. unencrypted ENC).
- [broken]: Cell is corrupted.

7.15 How to Open Charts

In the Chart maintenance mode, click the [Manage Charts] button on the InstantAccess bar™ to display the dialog box shown below. Select the chart to open then click the [Open Chart] button.



7.16 How to Print Chart List, Cell Status List

7.16.1 How to print the chart list

1. In the Chart maintenance mode, click the [Manage Charts] button on the InstantAccess bar™ to show the [Manage Charts] dialog box.
2. Check the charts to print.
3. On the [Filter] window, check the information to print.

7. HOW TO MANAGE CHARTS

4. Click the [Print List] button to print. (If you have selected more than 30 charts, the message "The number of page is 1. Do you want to continue?." appears. Click the [OK] button to continue, or the [Cancel] button to escape.)

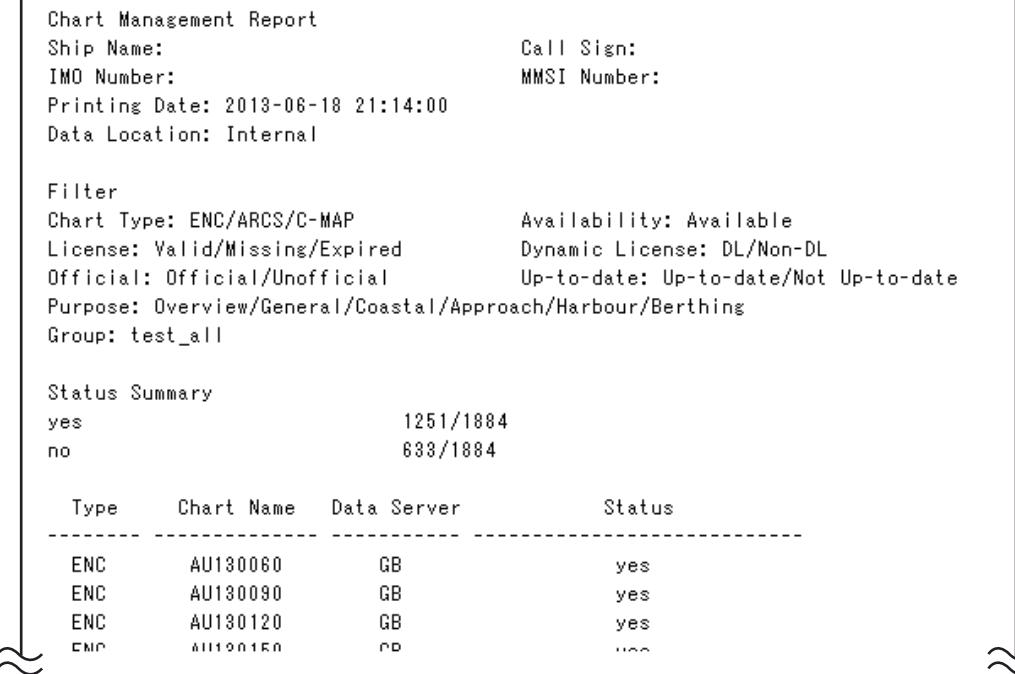


Chart Management Report

Ship Name: Call Sign:
IMO Number: MMSI Number:
Printing Date: 2013-06-18 21:14:00
Data Location: Internal

Filter

Chart Type: ENC/ARCS/C-MAP Availability: Available
License: Valid/Missing/Expired Dynamic License: DL/Non-DL
Official: Official/Unofficial Up-to-date: Up-to-date/Not Up-to-date
Purpose: Overview/General/Coastal/Approach/Harbour/Berthing
Group: test_all

Status Summary

yes	1251/1884
no	633/1884

Type Chart Name Data Server Status

Type	Chart Name	Data Server	Status
ENC	AU130060	GB	yes
ENC	AU130090	GB	yes
ENC	AU130120	GB	yes
ENC	AU130150	GB	yes

Example

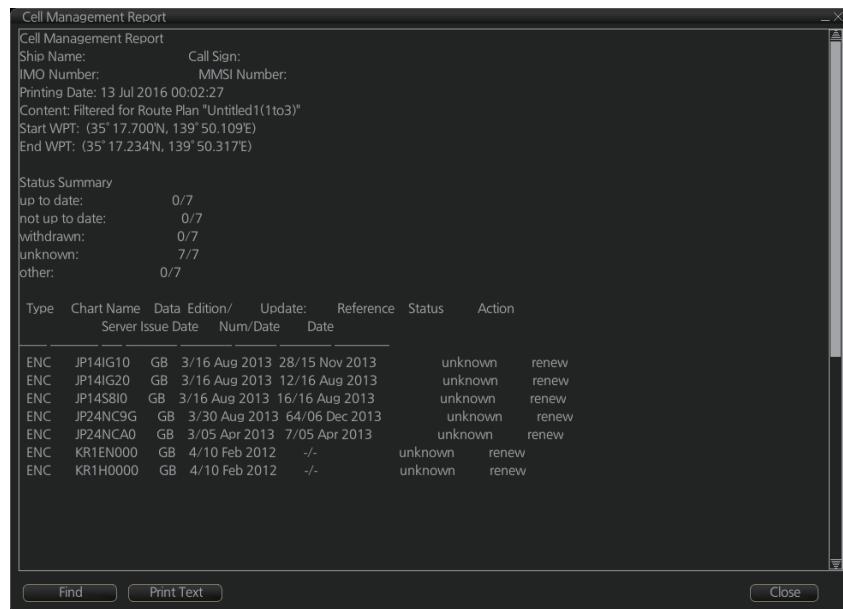
Description of chart list printout

Item	Description
[Ship Name]	Name of ship
[IMO Number]	Ship's IMO number
[Call Sign]	Ship's call sign
[MMSI Number]	Ship's MMSI number
[Printing Date]	Date list printed
[Data Location]	Location of charts; normally [Internal].
[Filter]	Settings of the items in the [Filter] window.
[Status Summary]	[yes]: charts with yes status/total number of charts [no]: charts with no status/total number of charts

7.16.2 How to show the cell status list

1. In the Chart maintenance mode, click the [Cell Status] button on the InstantAccess bar™ to show the [Cell Status] dialog box.
2. On the [Filter] window, check the information to show.
3. Click the [Create Report] button to generate the report. A report for all cells shown in the [Cell Status] dialog appears.

Note: If there are no cells shown in the [Cell Status] dialog box, the [Create Report] button is not available.



Example

4. To print the report, click the [Print Text] button.

Description of cell status printout

Item	Description
[Ship Name]	Name of ship
[IMO Number]	Ship's IMO number
[Call Sign]	Ship's call sign
[MMSI Number]	Ship's MMSI number
[Printing Date]	Date list printed
[Content]	Settings of the items in the [Filter] window.
[Status Summary]	[up to date]: charts with "up to date" status/total number of charts [not up to date]: charts with "not up to date" status/total number of charts [withdrawn]: charts with "withdrawn" status/total number of charts [unknown]: charts with "unknown" status/total number of charts [other]: charts with "other" status/total number of charts

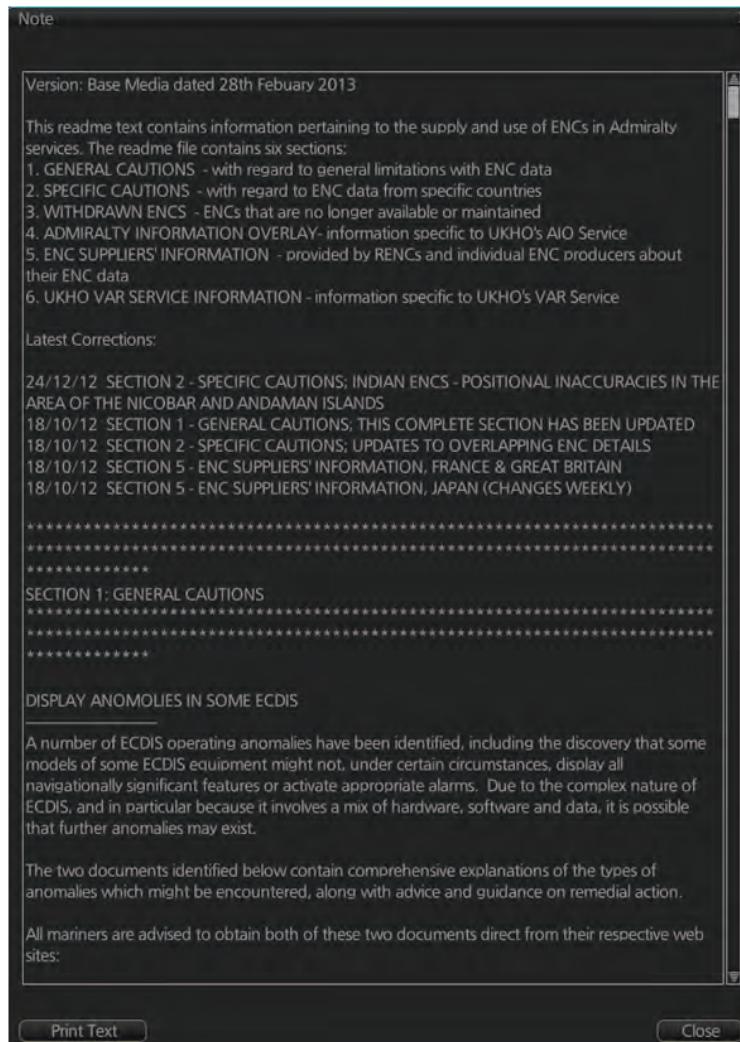
7.17 How to Delete Charts

If you are going to delete all charts, turn off chart synchronization (see section 7.21) and delete charts from each unit.

1. Click the [Manage Charts] button to show the [Manage Charts] dialog box.
2. Click the block to the left of the chart to remove, a checkmark appears. A context-sensitive menu with [Select All] and [Deselect All] functions is available by right-clicking the block to the left of [Type].
3. Click the [Delete Charts] button to delete the charts selected.
4. Reset the power.

7.18 How to Show Publishers Notes for ENC Charts

You should read the text file associated with each catalog, which you can view when installing a chart from a medium. Click the [Note] button in the [Manage Charts] dialog box. You can print a hard copy with the [Print Text] button.



7.19 How to Find the Chart Type

The electronic chart system can display more than one ENC chart cell at a time. This feature is called multi-cell display. If one ENC chart cell does not cover the whole display, the system opens more ENC chart cells for display, if appropriate cells for the displayed area are available. The Own ship functions box shows information about ENC chart cells displayed on the electronic chart display area. When automatic TM reset is active, the information is displayed with reference to your ship's position. If TM reset is OFF, the information is displayed with reference to current cursor position.

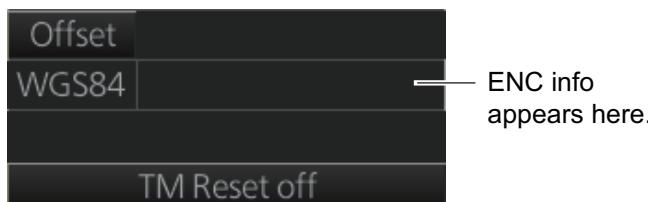


Chart type indication

No indication (Official ENC chart)

“Non-ENC data” (Unofficial ENC chart, indication in yellow)

“ENC data available” (Currently, RNC chart is in use, but ENC material is available. Indication shown in yellow.)

7.20 How to Update ENC, C-MAP Charts Manually

Manual update may include deleting an already existing object, modifying a position or other characteristics of an already existing object or inserting of a new object. In this system, manual updates are stored in a common database.

Mariners cannot permanently remove any of the official objects from the chart display. If a mariner needs to make obsolete any official objects which were entered manually, he “deletes” them. Then, in practice, the deleted objects are still visible, but a diagonal line on the object indicates it is a deleted object.

However, a mariner can remove objects that he has inserted himself.

Note that the manual updates have no automatic connection to any automatic update received later for charts. If a manual update itself became obsolete, because the official chart has been updated to include the update defined as a manual update, the mariner must himself delete the obsolete manual update in question.

The system records complete usage of manual updates. All deletions, modifications and insertions are recorded and time stamped. If the mariner wishes to see what kind of manual updates he had in the past, for example, two weeks ago, he uses Update History to specify the relevant date range. For information on how to set Display date and Update Review dates, see section 9.2.4.

Note 1: Do not manually update charts while charts are being synchronized. Wait until synchronization is completed.

Note 2: When any chart is updated, all checked routes are reverted to unchecked status. Use the [Check Route] button on the [Alert Parameters] page to re-check routes before starting any voyage.

7.20.1 How to insert update symbols

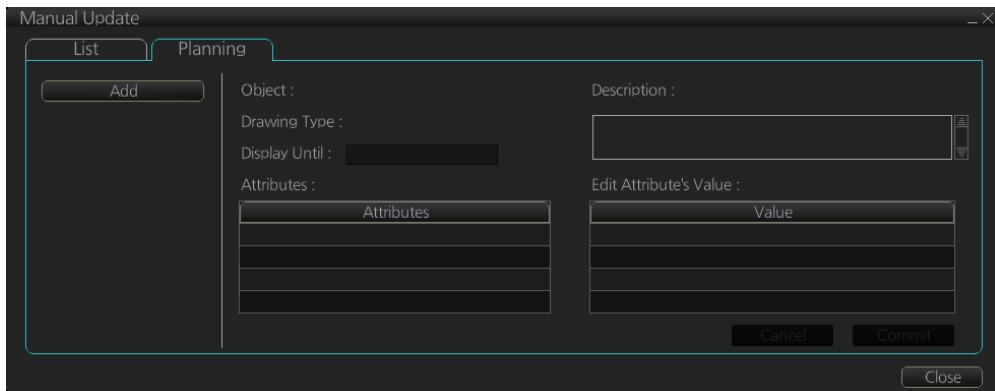
A manual update symbol can be added as shown in the procedure below.

Note 1: If the system freezes when updating the drawing type [Area], reset the power.

Note 2: An update symbol that straddles the international date line cannot be edited. In this case, insert the same symbol on each side of the line.

Note 3: Do not do manual updating during chart synchronizing. Do the updating after the completion of synchronizing or do the updating where the chart is installed.

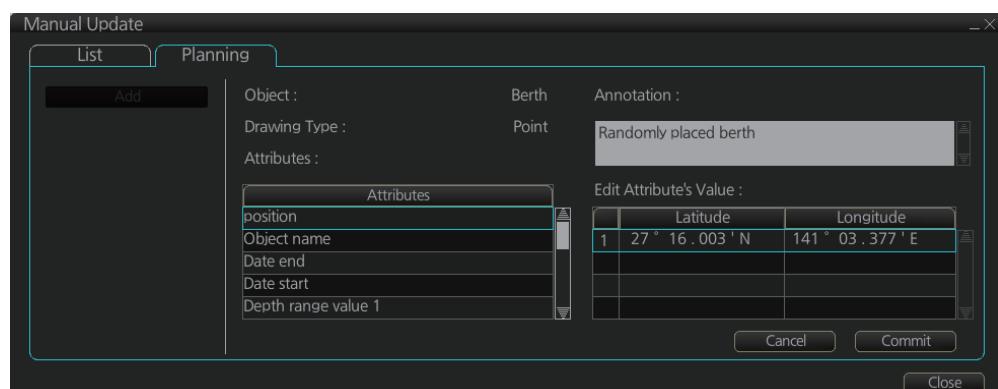
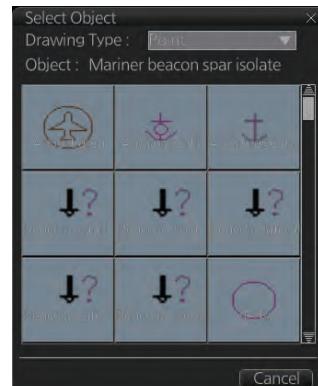
1. Go to the Voyage navigation mode.
2. Click the [Manual Update] button on the InstantAccess bar™ to open the [Manual Update] dialog box.
3. Click the [Planning] tab.



4. Click the [Add] button.

Note: This window can also be shown from the context-sensitive menu. Right-click the display area then select [Manual Update] and [Add New].

5. Use the [Drawing Type] pull-down list to select drawing type: [Point], [Line] or [Area].
6. Click desired object.
7. Put the cursor on the location where to insert the symbol then left click. The [Manual Update] dialog box shows:
 - [Object]
 - [Drawing Type]



8. You can add a comment related to a manual update object in the [Annotation] box.

9. To add textual information to an attribute, select the attribute from the [Attributes] window then add text in the [Edit Attribute's Value] window.
The [Date end] factory default is set to three months from the date of insertion and applies to all chart items. You can adjust the dates here.
10. Click the [Commit] button to add all selected objects to the chart.

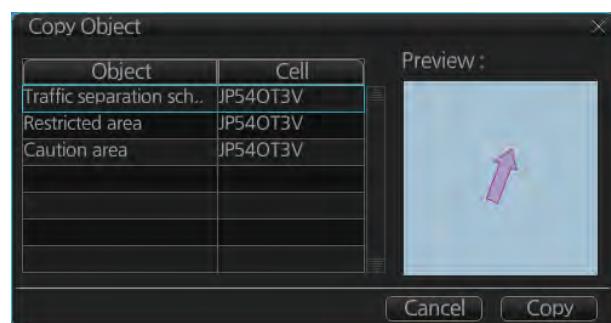
Note 1: If there is no textual information entered in the [Annotations] window, a confirmation message appears when you click the [Confirm] button. Check that the information is correct and click [Yes] or [No] as appropriate.

Note 2: A manual update object is displayed until the display until date entered for it has passed. If the object remains on the screen after the display until date, do some operation on the screen to refresh the screen to erase the object.

7.20.2 How to copy objects from an official chart and insert them

You can copy objects from an official chart and insert them as a manual update with the following procedure:

1. Right-click the object you wish to copy to show the context-sensitive menu, then click [Manual Update] and [Copy From Chart]. The Copy Chart dialog box appears.



2. Click the object to copy, then click [Copy]. The object is copied to the [Manual Update] dialog box.
3. Referring to step 8 and step 9 in section 7.20.1, edit the object as required.
4. Click the [Commit] button to add the object to the chart.

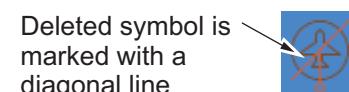
Note: If there is no textual information entered in the [Annotations] window, a confirmation message appears when you click the [Confirm] button. Check that the information is correct and click [Yes] or [No] as appropriate.

7.20.3 How to ignore chart objects

Manually entered update symbols cannot be deleted until the display until date arrives or is changed. However, you can mark the symbol to indicate that it can be ignored.

1. Put the cursor on the symbol then right-click to show the context-sensitive menu.
2. Select [Manual Update] and [Delete].

The symbol is marked with a diagonal line.



7.20.4 How to delete (hide) a chart object

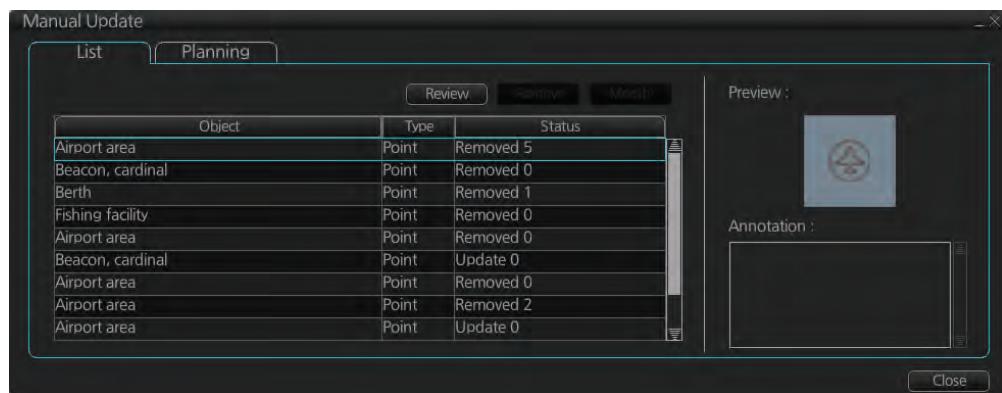
You can hide a manually inserted chart object by doing the following:

1. Referring to step 1 and step 2 of section 7.20.1, show the [Manual Update] dialog box.
2. Click the [List] tab.
3. Click the object to hide, then click the [Remove] button. The selected item is hidden from the chart display.

7.20.5 How to modify existing update symbols

The position, display until date and description of an update symbol can be modified. A symbol that is marked as “deleted” cannot be modified.

1. Follow steps 1-2 in paragraph 7.20.1 to display the [Manual Update] dialog box.
2. Click the [List] tab.



3. Select the object to modify then click the [Modify] button. The [Planning] dialog box appears.
4. Modify the object referring to steps 8-9 in paragraph 7.20.1.
Note: The annotation for all modified objects is reset to blank when the Modify button is clicked. Check and re-input the annotations as necessary.
5. Click the [Commit] button. A confirmation dialog appears. Click [Yes] or [No] as appropriate.

7.20.6 How to review a chart object

You can review a chart object in order to see the object before any changes were made. To review an object, do the following:

1. Follow steps 1-2 in paragraph 7.20.1 to display the [Manual Update] dialog box.
2. Click the [List] tab.
3. Select the object to review then click the [Review] button.

Manually updated objects appear with a thick line, as shown in the figure to the right.

Objects under review appear in the [Manual Update] dialog box with the status "Review x" (x indicates the state at which you are viewing the reviewed object). The object appears in a pre-modified state, and with each press of the [Review] button, one modification is “reverted”.

Objects under review appear with a thick line attached.



7.21 How to Synchronize Chart Data

This section shows you how to synchronize chart data between FMD-3xx0, FCR-2xx9 and FAR-3xx0 units, so that all units share the same chart data. Synchronization can be done automatically or manually (see paragraph 7.21.2), however all units selected for synchronization must be powered to complete the synchronization. Synchronization includes the following actions:

- Synchronize public keys
- Synchronize chart permits and licenses
- Synchronize chart data
- Synchronize manual updates

Note 1: Before synchronizing chart data, confirm that all units selected for synchronization are powered. (Do not turn off a unit during synchronizing.) If a unit is turned off during the synchronizing, do the following on the unit which contains the medium:

- Open the [Sync Status] dialog box then click the [Disable Sync] button to disable synchronization. Power all units registered for synchronization, then click the [Urge Sync] button on the [Sync Status] dialog box on the unit containing the media to forcibly synchronize.
- Make a group of all the units currently powered, referring to paragraph 7.21.1, and register the group with [Grouped with This Unit]. Reset the power on all units selected for synchronization.

Note 2: C-MAP charts are not automatically synchronized. C-MAP charts are only synchronized immediately after installing or updating the C-MAP database. If the system has several FCRs or FMDs, make a group of associated units before you install C-MAP charts.

7.21.1 How to select the units to synchronize

Do as follows to select the units to synchronize.

1. Get into the Chart maintenance mode. On the InstantAccess bar™, click [System] followed by [Sync Config] to show the [Sync Config] dialog box.



[Grouped with This Unit]: This window shows the units currently selected for synchronization.

[Not Synchronize with This Unit]: This windows shows the units not selected for synchronization.

2. **To select a unit for synchronization:** Put a checkmark next to the unit's name in the [Not Synchronize with This Unit] window then click the [<<] button. That

unit's name is moved to the [Grouped with This Unit] window.

To deselect a unit from synchronization: Put a checkmark next to the unit's name in the [Grouped with This Unit] window then click the [>>] button. That unit's name is moved to the [Not Synchronize with This Unit] window.

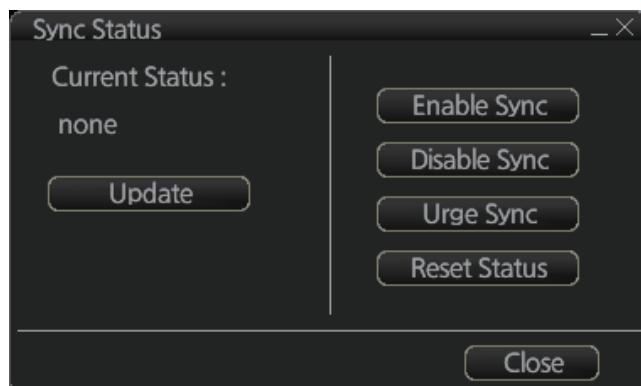
To deselect all units, click the [Reset All] button.

3. Click the [Save] button to finish.
4. Restart the power on applicable units to apply synchronization configuration changes.

7.21.2 How to check synchronization status

You can check chart synchronization status on the [Sync Status] dialog box. Chart synchronization operations also are available from this dialog box. Normally, chart synchronization is done automatically, according to the sync settings on the [Sync Config] dialog box. Use the [Sync Status] dialog box to manually synchronize chart data when there is network failure, for example.

Get into the Chart maintenance mode. On the InstantAccess bar™, click [System] followed by [Sync Status] to show the [Sync Status] dialog box.



[Current Status]: Displays current synchronization status. The table below shows all the synchronization status messages.

Sync status	Meaning
[disabled]	Synchronization is disabled.
[must receive]	This radar will receive chart data from another FMD-3xx0, FCR-2xx9 or FAR-3xx0 series.
[must send]	This radar will send chart data to another FMD-3xx0, FCR-2xx9 or FAR-3xx0 series.
[none]	No synchronization task ready.

[Update] button: Click this button to update [Current Status].

[Enable Sync] button: Enables synchronization. The confirmation message "Attention: Do you want to enable sync?" appears. Click the [OK] button to enable synchronization. Synchronization is always enabled when the radar starts. A progress bar indicates progress in synchronization. The bar is erased within five minutes after completion of synchronization.

[Disable Sync] button: Disables synchronization function temporarily. Use this feature to enable chart administration in case of network failure, for example. The confirmation message "Attention: Do you want to disable sync?" appears. Click the [OK] button to temporarily disable synchronization.

Note 1: In normal operation do not disable synchronization. If you accidentally disable synchronization, try to synchronize by clicking the [Enable Sync] button. If that does not work, reset the power of all units selected for synchronization then click the [Urge Sync] button to synchronize.

Note 2: With synchronization disabled, the message "Synchronization disabled" may appear twice when installing a license. This does not affect installation of a license.

[Urge Sync] button: Does immediate synchronization. The confirmation message "Attention: Chart data in other units will be overwritten by this unit. Do you wish to continue?" appears. Click the [OK] button to synchronize. If synchronization is not successful, restart applicable units and try again.

[Reset Status] button: Reset synchronization status to recover from synchronization status conflict. The confirmation message "Attention: Do you want to reset sync status? This unit may be synchronized from the other unit." appears. Click the [OK] button to reset.

7.21.3 Manual updates and synchronization

If you are synchronizing multiple units (FMD-3x00, FCR-2xx9 or FAR-3xx0) while manual updating is being done on one of the units, the message "File not found" may appear, meaning the manual update data was deleted. If this occurs, follow the procedure below to synchronize the FAR-3xx0 units. The procedure uses CRA001 and CRA002 as an example.

1. At the CRA001, get into the Chart maintenance mode, then click [System] and [Sync Config] on the InstantAccess bar™.
2. Add CRA002 to [Grouped with This Unit] then click the [Save] button.
3. Reset the power on the CRA001 and CRA002.
4. At the CRA001, get into the Chart maintenance mode, then click the [System] and [Sync Status] buttons on InstantAccess bar™ to show the [Sync Status] dialog box.
5. Click the [Urge Sync] button to synchronize charts between CRA001 and CRA002.
6. To confirm synchronization, do as follows:
 - 1) At the CRA001, get into the Voyage navigation mode, then click the [Manual Update] button on the InstantAccess bar™ to open the [Manual Update] dialog box.
 - 2) Click the [Planning] tab followed by the [Add] button.
 - 3) Insert an object at the CRA001.
 - 4) At the CRA002, move the cursor or change the chart scale. Confirm that the chart is updated.

7.22 How to Reconvert All SENC Charts

If you unintentionally installed outdated SENC charts, you can reconvert those charts to the latest SENC charts. Click the [System] and [Reconvert] buttons on the InstantAccess bar™ to reconvert all your SENC charts.

Note: All manual updates are removed in the reconversion.

7. HOW TO MANAGE CHARTS

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8. HOW TO CONTROL CHART OBJECTS

This chapter provides the information necessary for controlling chart features.

8.1 How to Browse Your Charts

You can view your charts using different positions and different scales. The basic tools for browsing charts are the **RANGE** key, chart offcenter, and scroll.

RANGE - and **RANGE +** change the chart scale. (The scrollwheel also can change the chart scale. Spin to change.) If true motion reset is active, ZOOM IN and ZOOM OUT keep the relative position of your ship with respect to the display. If true motion reset is off, ZOOM IN and ZOOM OUT keep the relative position pointed by the cursor with respect to the display. The system automatically selects next larger or smaller scale. If a chart with larger compilation scale is available at your current viewing position, the message "Larger scale ENC available" appears.

The own ship position can be easily relocated to the screen center in the Navigation voyage and Navigation planning modes. Further, in the Navigation voyage mode, the own ship position can be put at the cursor position.

To move the own ship mark to the screen center, put the cursor in the chart area and right-click [Ship on center]. **To move the own ship mark to a location**, right-click the position on the chart where to put the own ship mark then right-click [Ship off center]. ([Ship off center] is not available in the Voyage planning mode.)

To scroll your chart, simply drag and drop.

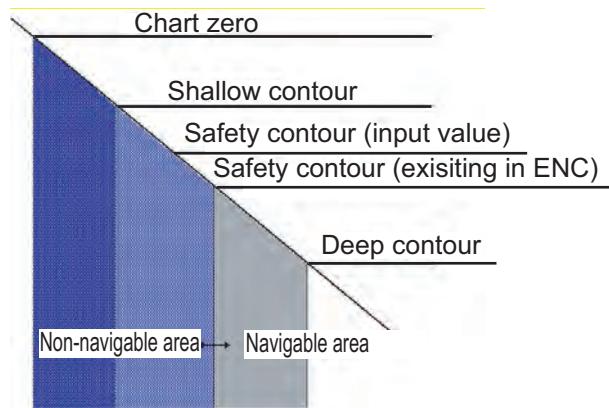
8.2 How to Control Visibility of Chart Objects

The [Chart Display] menu has several pages of chart features that you may show or hide as appropriate. To display this menu, click the [DISP], [SET] and [Chart DISP] buttons on the InstantAccess bar™.

8.2.1 How to set value for shallow contour, safety depth, safety contour and deep contour

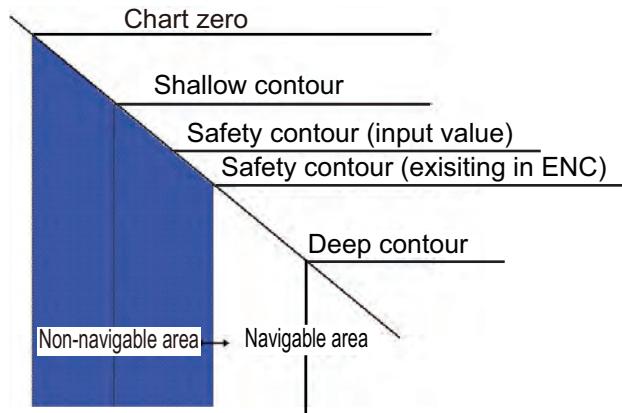
You can set values for shallow contour, safety depth, safety contour and deep contour, on the [Chart Alert] dialog box (sequence: [DISP], [SET], [Chart Alert]). Colors used for depth presentation on the electronic chart are controlled by setting values for shallow contour, safety depth, safety contour and deep contour. Soundings on the electronic chart, which are equal to or less than the value of safety depth, are highlighted. See the illustrations on the next page for multi-color presentation and two-color presentation. Selection of multi- and two-color presentations can be done with [Four Shades] on the [General] page of the [Chart Display] menu. Check the check box for multi-color; uncheck the box for two-color.

Note: The shallow contour cannot be set higher than the safety contour.

MULTI-COLOR presentation

In the multi-color presentation four colors are used for depths. If the value entered as the safety contour does not exist in the electronic chart, the system automatically selects the next available deeper depth contour as the safety contour. For example, the input value is 8 m, but there is no 8 m depth contour in the electronic chart. Then, the system automatically selects the next available deeper depth contour (10 m) as the safety contour. The depth contour value of 10 m is used as the safety contour in the electronic chart.

Shallow contour shows visual color change inside an unsafe water area. An unsafe water area is all areas shallower than the safety contour. Set the value for the shallow contour less than the value of the safety contour.

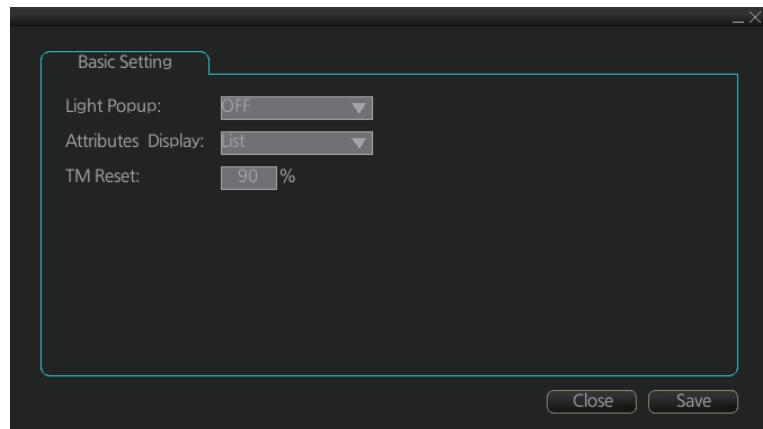
TWO-COLOR presentation

In the two-color presentation, unsafe water is shown in blue and safe water is shown in white. The safety contour is used to qualify unsafe water (depth shallower than safety contour) and safe water (depths deeper than safety contour).

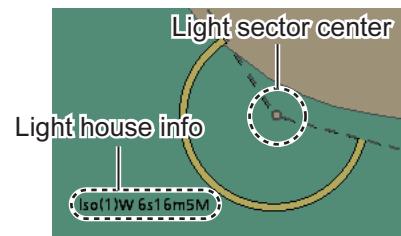
If the value entered as the safety contour does not exist in the electronic chart, the system automatically selects the next deeper available depth contour as the safety contour, the same as with the multi-color presentation.

8.2.2 Basic Setting menu

To display this menu, click [DISP], [SET] and [Basic Setting] on the InstantAccess bar™.

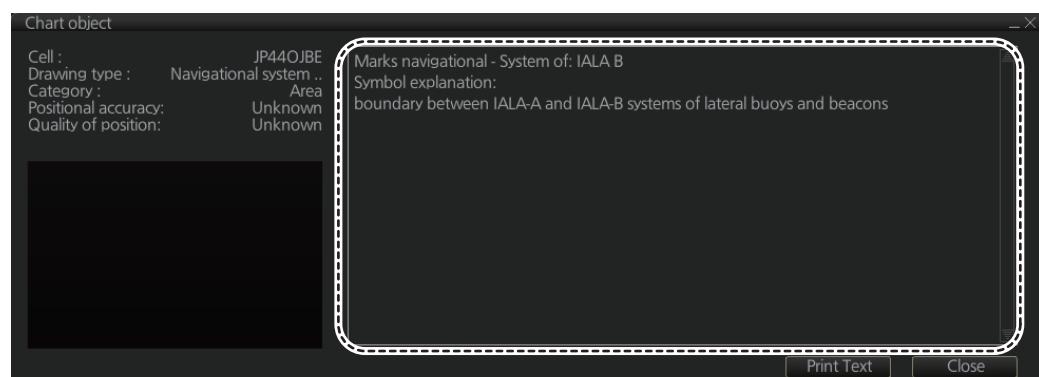


[Light Popup]: Show or hide light sectors information. [ON] provides light sector information (including length of arc of visibility) when the cursor is put on a light or light sector.

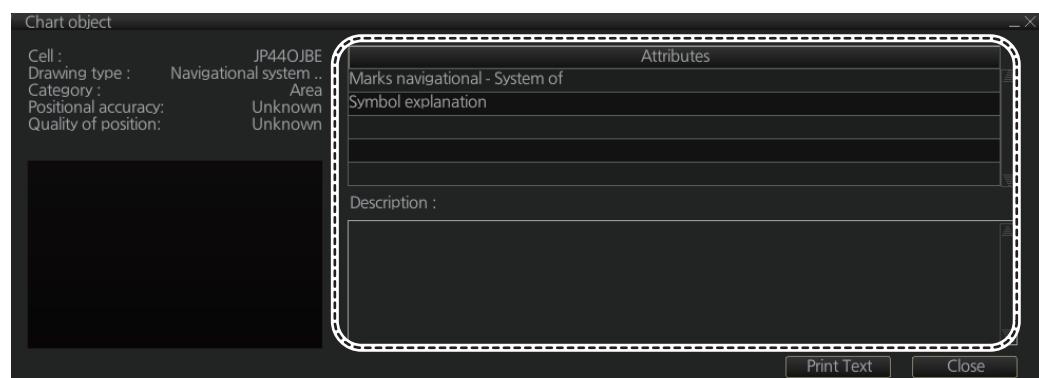


[Attributes Display]: Set how to show attributes in a Pick Report. The options are:

- [Text Box]



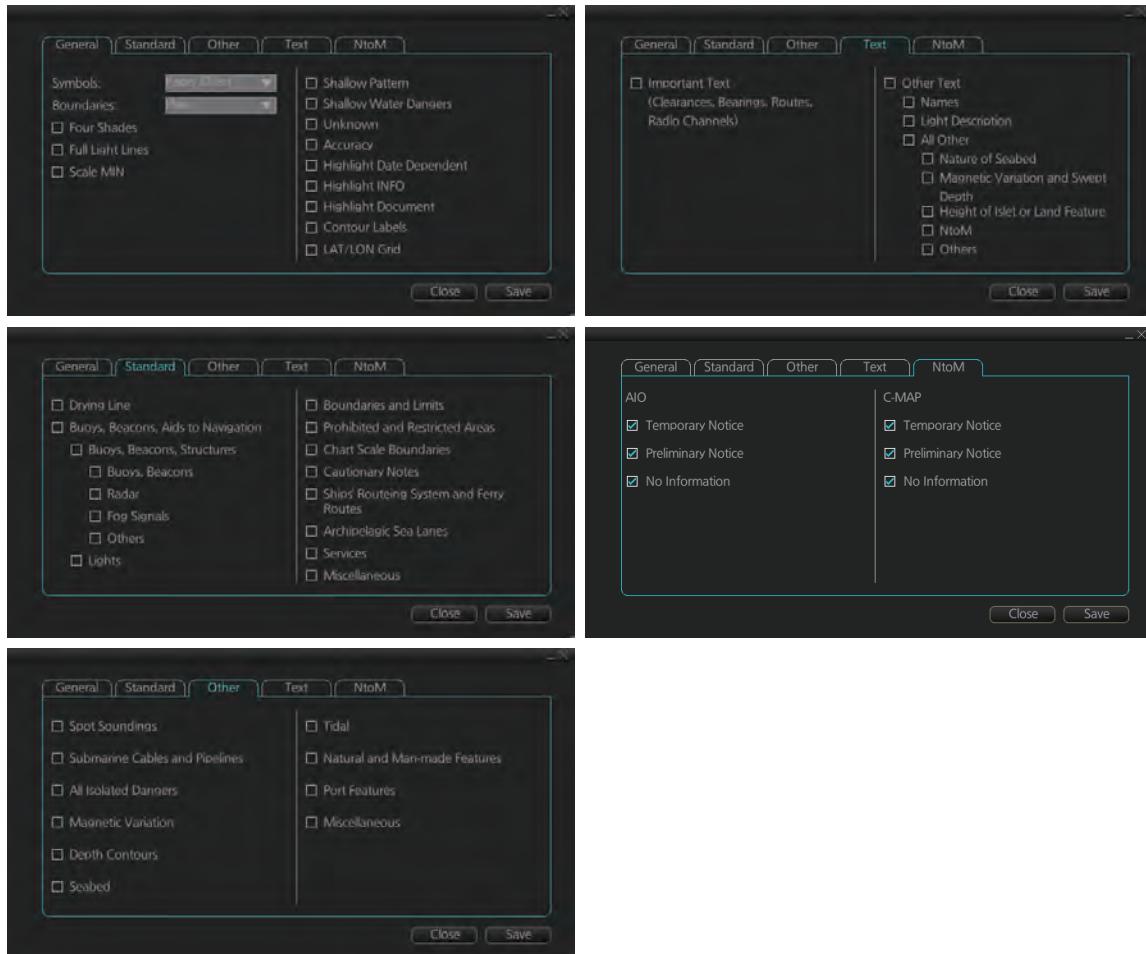
- [List]



[TM Reset]: In the true motion mode, own ship moves until it reaches the true motion reset borderline (set here), and then it jumps back to an opposite position on screen based on its course. Set the limit for TM reset (in percentage). For example, "80" resets the position when the own ship marker is at a location which is 80% of the range.

8.2.3 Chart Display menu

To access the [Chart Display] menu and its pages, click [DISP], [SET] and [Chart DISP] on the InstantAccess bar™. then select [General], [Standard], [Other], [Text], or [NtoM] page as appropriate.



General page

This page turns chart features on (checkbox checked) or off.

Symbol: Determines how to display chart symbols.

- Paper Chart: Symbols displayed the same as the conventional paper chart symbols
- Simplified: Symbols displayed in simplified style, and the sea is displayed in color.

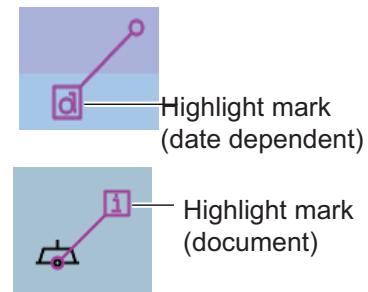
Boundaries: Determines how to show boundary lines of chart objects.

- Plain: Boundary line shown with solid and dashed lines.
- Symbolized: Symbol is attached to the line according to the purpose of the line.

Scale MIN: Set the minimum chart scale to display chart objects. When the chart scale is lower than set here, the chart objects will not be displayed.

Highlight Date Dependent: Put a highlight mark on the chart object which carries a date dependent attribute.

Highlight INFO, Highlight Document: Put a highlight mark on a chart object that has information or document attribute.



Standard page

The [Standard] page contains chart features defined by IMO that comprise a standard display.

Other page

The [Standard] page contains chart features not contained in IMO standard display.

Text page

Show or hide text information on the chart.

NtoM page

Show or hide the Notice to Mariners data.

Note: To use the “pick report” feature, which provides information for cursor-chosen chart feature, the associated chart feature must be turned on from the [General], [Standard], [Other], [Text], or [NtoM] page.

8.2.4 **Display base**

A subset of chart features is called the “display base”. As required by IMO, these features cannot be made invisible. To get the display base, click the [STD DISP] button on the status bar.

The display base consists of the following chart features:

- Coastline (high water)
- Own ship's safety contour, which is selected by the user
- Indication of isolated underwater dangers of depths less than the safety contour that lie within the safe waters defined by the safety contour
- Indication of isolated dangers that lie within the safe water defined by the safety contour such as bridges, overhead wires, etc., and including buoys and beacons whether or not these are being used as aids to navigation.
- Traffic routine systems
- Scale, range, orientation and operating mode
- Units of depth and height

8.3 How to Control Visibility of Symbols, Features

Control of symbols and features is divided into five pages in the [Symbol Display] menu, which you can access by clicking the [DISP], [SET] and [Symbol DISP] buttons on the InstantAccess bar™.

[General] page: Controls own ship and target related items.

[Tracking] page: Controls past tracks and some other features.

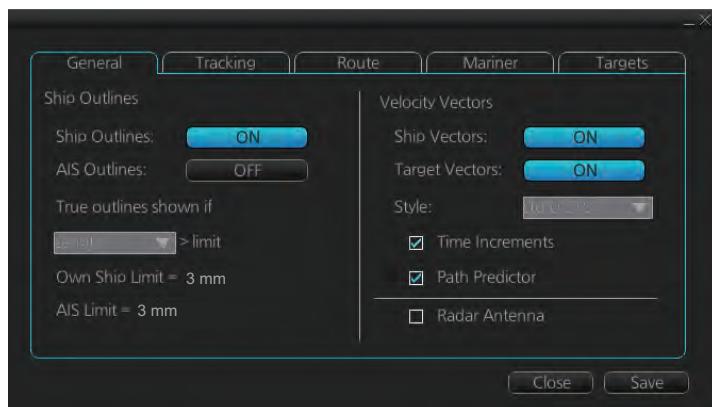
[Route] page: Controls planned and monitored route.

[Mariner] page: Controls user charts.

[Targets] page: Controls TT and AIS targets.

The user can define settings for chart details that are displayed over the chart area.

8.3.1 General page



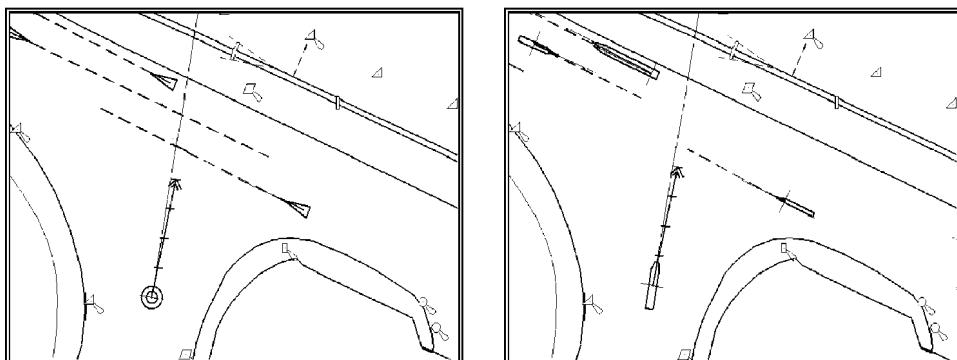
Ship, AIS Outlines

Ship Outlines: Select OFF or ON to show minimized or scaled symbol, respectively.

AIS Outlines: Select OFF or ON to show AIS targets in same size or scaled symbol, respectively.

True outlines shown if: If the length or width of the own ship mark is greater than 3.0 mm, the own ship mark is shown with the true scale symbol. Select [Length] or [Beam width].

The right illustration in the figure below shows own ship mark and AIS targets with scaled symbols. The left illustrations shows own ship mark and AIS targets with point symbols. AIS targets are displayed as true scale symbol if the displayed chart scale is larger than set with "Outlines" limit (length>3.0 mm) on the [General] page in the [Symbol Display] menu and your own ship are displayed as true symbol scale if the size of the true scale symbol is larger than 3.0 mm on the chart display.



Velocity Vectors

Ship Vectors: Show or hide own ship vector.

Target Vectors: Show or hide target vectors.

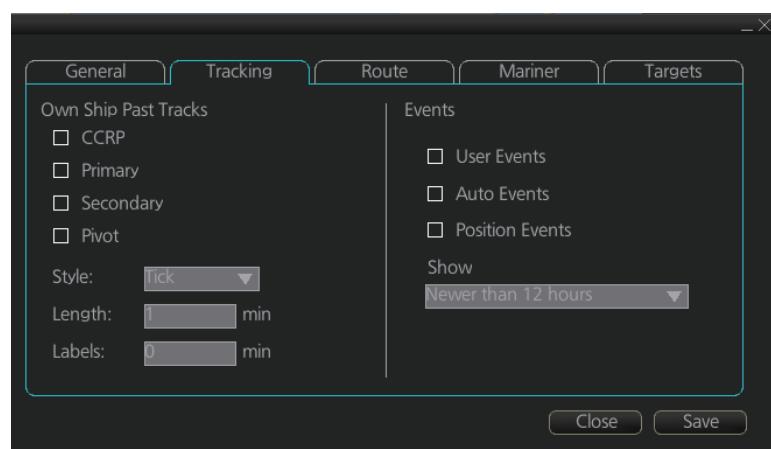
Style: Select the vector style. The [std ECDIS] vector is a speed-referenced vector symbol. [Conventional] is a simplified symbol.

Time Increments: Check to show ticks of velocity vector. This controls both own ship and targets ticks. If ticks are too tightly spaced, they will be automatically removed from the display, until spacing between ticks is sufficient to distinguish them separately. This depends on display scale and speed of vessel and target.

Path Predictor: Check to show the path predictor. The path predictor is a single dashed line originating at the CCRP and drawn at a length to represent the distance and path own ship will travel over the ground in the user-selected time interval for own ship speed vector.

Radar Antenna: Check to mark position of radar antenna (with "x").

8.3.2 Tracking page



[Own Ship Past Tracks]

CCRP: Check to plot own ship's track with CCRP position as reference.

Primary: Check to plot own ship's track with position fed from sensor with highest priority.

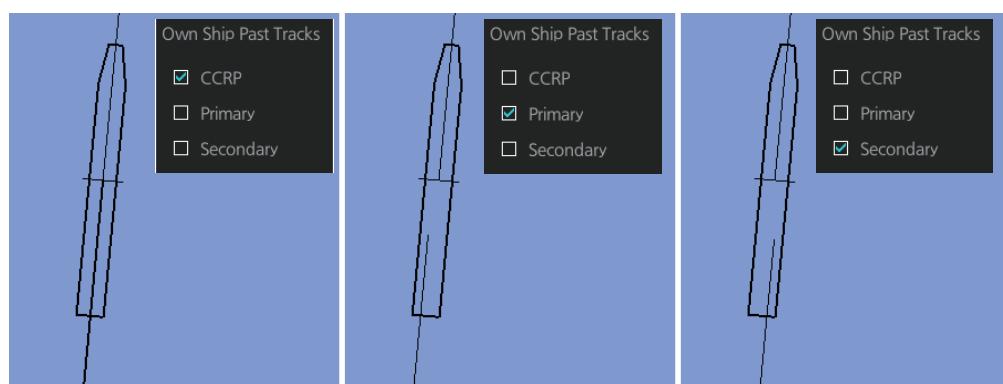
Secondary: Check to plot own ship's track with position fed from sensor with 2nd highest priority.

Pivot: Check to plot own ship's track with own ship's pivot position as reference.

Style: Select time stamp position for past track (indicated by Tick or Point).

Length: Select length of past track.

Labels: Select label interval.



[Events]

Events marks are based on the [Voyage] log records.

User Events: Display event symbols on the chart. User events are recorded by clicking [Log], [Event Log] and [User Event] on the InstantAccess bar™.

Auto Events: Display automatically entered event symbols, where the system has recorded an event based on conditions you have set. The available recording interval is 1 to 4 hours.

Position Events: Display the latitude and longitude of an event, recorded by clicking [Log], [Event Log] and [POSN Event] on the InstantAccess bar™.

Note 1: A MOB event is visible always.

Note 2: You can select the period of time to display event marks, from the [Show] list box. [Newer than 12 hours], [Newer than 24 hours], [Newer than 1 week], [Newer than 2 weeks], [Newer than 1 month], [Newer than 3 months], or [All].