Nobeltec TimeZero Trident v1.0

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Welcome

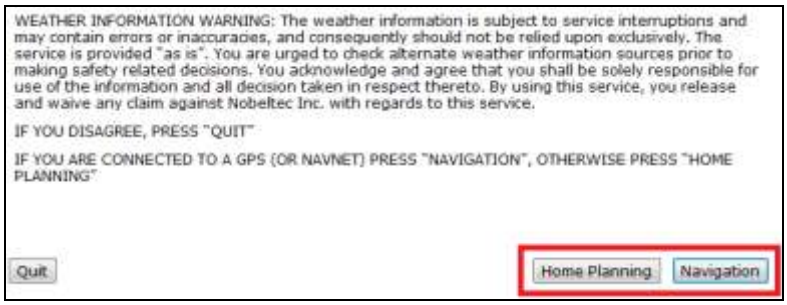
Thank you for purchasing Nobeltec TimeZero Trident. This User's Guide is written for an audience assumed to have a mid-level, pre-existing knowledge of computer usage and the principles of marine navigation. Do not use this document and software to replace actual navigation training and experience, but as a valuable navigational aid.

WARNING: Nautical navigation is a serious undertaking and should only be engaged in by persons trained and experienced persons in such navigation.

Getting Started

Home Planning Vs Navigation

Nobeltec TimeZero Trident can be used in two modes. Upon starting the software choose "Home Planning" or "Navigation" mode:



Home Planning

Choose the "Home Planning" mode when planning on shore.

In "Home Planning" mode, the vessel icon is not displayed on the chart, the alarms are disabled and routes cannot be activated. All other functions such as creating Marks, planning routes, or updating and viewing weather files are available.

The Status Bar (Title Bar) appears in yellow in the "Home Planning" mode.

Navigation

Choose the "Navigation" mode when the computer is physically connected to sensors and instruments. (GPS, AIS, NavNet...)

In this mode, the sensor and instrument data is displayed, alarms are enabled, and a route can be activated.

Note: The "Home Planning" and "Navigation" start-up mode are independent from the *Work Spaces* (which can be used to plan a route while in the navigation mode)

Chart Compatibility

Nobeltec TimeZero Trident is compatible with MapMedia ".mm3d" charts. MapMedia .mm3d charts are available in Raster Chart format or in Vector Chart format. MapMedia Raster Charts are scanned from official hydrographic office and select private sourced paper charts. MapMedia Vector Charts are manufactured from official hydrographic office vector charts called S-57 or from privately furnished vector charts from Jeppesen (C-MAP) or Navionics.

Nobeltec TimeZero Trident is furnished in North America with the complete NOAA library of Raster charts (RNC), S-57 Vector charts (ENC) and 3D Bathymetry in the MapMedia .mm3D chart format. This data is provided on six DVDs, two containing the Vector Charts (with 3D Data) and four containing the Raster Charts. Additionally, free USA High Resolution Satellite Photos are downloadable from the MapMedia Catalog.
Click here to download the free USA High Resolution Satellite Photo

Outside North America, MapMedia offers a complete range of nautical charts for purchase. Visit the Mapmedia Catalog to view various chart coverage.

Setting up Instruments

Nobeltec TimeZero Trident can utilize information from many different instruments on your boat. A GPS will be the most common type of instrument used, but depth sounders, speed sensors, wind vanes, and AIS receivers can also supply information to Nobeltec TimeZero Trident.

These instruments can be connected to the PC through an NMEA0183 interface, through the network (if a Furuno NavNet MFD or Ethernet sensor is used) or through NMEA2000 (using the NMEA PC Gateway).

- Serial Port: In most cases, connecting a GPS to a computer is straightforward, and is accomplished by simply connecting the serial cable supplied by the GPS manufacturer to the serial port on the PC. The serial port is a nine-pin male port on the back of the computer often identified by an IO or COM symbol.

- Serial to USB adapter: Newer computers – especially laptops – may not include a serial port. One can be added by using a serial-to-USB adapter, which can be obtained from Nobeltec or computer stores. A serial-to-USB adapter will create a "virtual COM port" on your computer that can be viewed in the "COM and Ports" section of the Device Manager.

- Active USB GPS antennas (such as the "USB GPS 9P" sold by Nobeltec) are an easy way to provide the software with a vessel's position.

- Ethernet: If the boat is equipped with a NavNet series Furuno Chart Plotter (NavNet1, NavNetVx2, NavNet3D) or AIS (FA30 AIS, FA50 AIS), your computer can be connected to the NavNet network using a standard Ethernet Cable. Assign a fixed IP address to the computer connected to the NavNet network such as 172.31.3.150 with a subnet mask of 255.255.0.0.

Automatic Instrument Configuration

Nobeltec TimeZero Trident can automatically locate most sensors and instruments connected to the computer. To use this feature, start TimeZero Trident in "Navigation" mode to enable sensor and instrument connections. Next, launch the Automatic Configuration Wizard:

- Click on the Nobeltec Button located on the top left of the screen

- Click on "Connection Wizard"

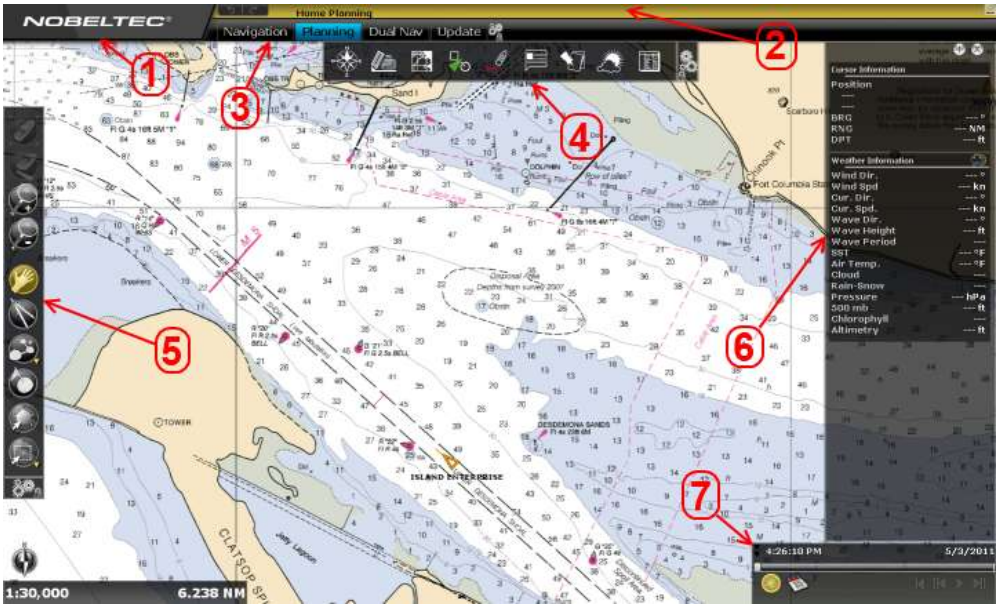
- Select the "Automatic Ports Configuration"; and then, click "Next"

- Follow the on screen instructions

Note: The Connection Wizard option will not appear when the software is started in "Home Planning" mode

Using Nobeltec TimeZero

User Interface Overview:



1. Nobeltec Button: Click on this button to access the Menus and Options of Nobeltec TimeZero Trident

2. Status Bar: This area provides access to the "Undo/Redo" functions and displays the general status of the software; Gray for regular Navigation Mode, yellow when the software is running in Home Planning mode or displaying a notification, and red when an alarm is active. The minimize button (minus sign) can be found on the far right of the Status Bar.

3. Work Spaces: Click on any of the Work Spaces to select the one you want to display on your screen

4. Ribbons: The Ribbons display a series of buttons according to the selected window and Work Space. Left click on any button to open a menu offering various options

5. Toolbar: The Toolbar groups all of the tools that can be used with the selected window and Work Space. Once a Tool is selected, a cursor action is required on the chart, such as creating a Mark. The first button of the Toolbar centers the chart display over the vessel icon.

6. NavData: The NavData displays the data received from external instruments such as the GPS, wind sensor, depth sounder etc… It also displays the cursor position and the range and bearing of the cursor from the vessel icon. Route information including Course to Steer, Range to Waypoint, ETA and other graphic data can also be displayed.

7. Virtual Time Control: The Virtual Time Control Box (only available in the Planning Work Space) allows you to play Weather & Tides animation. Click on the Calendar icon to select a Data & Time to view the Tide and/or Weather Forecast.

The Work Space, Toolbar and Ribbons can be customized by clicking on the Configure Button: 

To configure the NavData, right click on any of the items to select the value to display or to remove it. To add a new value, click on the "Plus" sign (+) located on the top of the NavData.

Note: After customizing the user interface to your preference, you can save all the settings to a file. Click on the Nobeltec Button and select "Save UI As...". To reset the user interface to your default settings, simply open Nobeltec by double clicking on the User Configuration file. Note that you can make multiple User Configuration files for multiple users or various uses of the software.

Toolbar & Ribbons:

Toolbar

The Active Tool (the tool currently selected) appears surrounded in yellow. In the example below, the Panning Tool (hand icon) is selected:

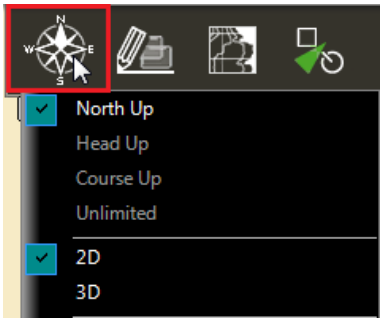
When you want to change tool, left click on it to select it.

When you see a tool icon with a little down arrow in its lower right corner, it means that you can right click on the tool to view additional options:

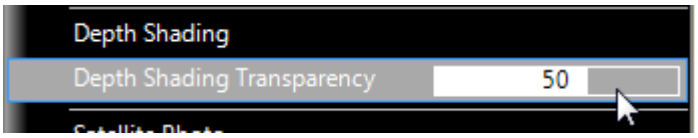
In this case, right clicking on the "Selection" tool allows you choose in between the regular selection method (square) or the free selection method:

Ribbons

To open a menu in a Ribbon, click on the corresponding button. Use your mouse to click on an item you want to enable or disable:



Some menus have drop down items with sliders. Click on the slider directly or use the mouse wheel (with the cursor over the slider) to adjust the value.



Work Spaces

Nobeltec TimeZero Trident is designed to perform multiple navigation tasks such as planning a voyage, navigating according to that plan, downloading weather information, and viewing and controlling a Radar. These activities require different tools and options. The Work Spaces are our way of separating and differentiating different activities that occur on a navigation system, so the user interface is not cluttered with unnecessary functions and buttons that are not useful to the primary task. Also, since the Work Space configuration are independent, users can keep their navigation mode 100% intact while they plan the next phase of their journey and instantly snap back to their desired navigation view without needing to undo or re-configure the software.

- "Navigation" Work Space: The Navigation Work Space is selected by default when TimeZero Trident is started in "Navigation" mode. This Work Space intentionally has limited functionality to simplify operation while underway. To access more advanced planning functions such as animation or managing a list of object, select the Planning Work Space.

- "Planning" Work Space: The Planning Work Space is selected by default when TimeZero Trident is started in "Home Planning" mode. This Work Space provides for the planning of routes, the display of weather forecast, animations of tidal height and currents and certain weather patterns. The Planning Work Space is also used to display the route details information (allowing simulation by changing the Chart Time).

- "Dual Nav" Work Space: The Dual Navigation Work Space allows you to display two Plotter windows side by side. Each Plotter window can be managed independently. For example, one Plotter could be set up in 3D with Satellite Pictures while the second Plotter could display a more traditional 2D view. The Dual Navigation Work Space shares the same configuration settings as the Navigation Work Space.

- "Update" Work Space: The Update Work Space allows you to request and download Weather Forecasts. It also allows the user to update the ActiveCaptain database (when registered to the service). This Work Space has an "Update Area" tool in the Toolbar that defines the Weather Forecast area. The "Weather Update" button located in the Ribbons allows retrieval of the updated file.

- "Radar" Work Space: The Radar Work Space allows the user to display and control the Radar. This Work Space provides all the Radar tools and controls such as Gain, Sea Clutter and Rain Clutter. Note that this Work Space will only appear when the Radar Plus Pack has been unlocked and a Radar has been detected.

- "Sounder" Work Space: The Sounder Work Space allows the user to display and control the Sounder. This Work Space provides all of the Sounder controls. Note that this Work Space will only appear when the Sounder Plus Pack has been unlocked.

Working with Charts

Scrolling & Zooming

TimeZero Trident offers a new ultra fast cartographic engine with unparalleled seamlessness and speed of zooming. Nobeltec TimeZero Trident will always select the best charts as you scroll around and zoom in and out. Because scrolling and zooming are so important, Nobeltec TimeZero Trident provides you with several ways of doing them both using the mouse or keyboard.

Scrolling the Charts

Panning Tool: 

The Panning Tool is the default tool of Nobeltec TimeZero Trident. If it is not selected, click on the Panning tool (hand) located on the Toolbar and move the cursor over the chart to the center of the screen.

- Press and hold the left mouse button while moving the cursor to scroll or drag the chart around
- Double-click with the hand tool on a chart point to center automatically on that point

Note: The panning tool is automatically selected by default after every action. This feature can be disable from the "General" menu if you uncheck "Enable Auto Hand Tool Selection"

Using the Keyboard:

The Arrow Keys on the keyboard can also be used to scroll the chart. Holding down an Arrow Key moves the displayed chart area in the direction of the arrow.

Zooming the Charts

Nobeltec TimeZero Trident allows you to seamlessly zoom in or out to the exact magnification level you like without steps or limitations.

Using the Mouse Scroll Wheel:

If the mouse has a wheel, roll the wheel up and down to zoom in and out. By default, the chart will be zoomed at the location of the cursor. This can be changed to the center of the screen by enabling the option"Center on screen when Zooming" in the General Menu.

Note: Using the Scroll Wheel is the best practical method to change chart scale without having to change the active tool.

Using the Zoom +/- Buttons:

By default, the Zoom In and Zoom Out buttons are available in the Toolbar in every Work Space. Simply click on the corresponding button to Zoom In or Zoom Out by fixed increment.

Using the Zoom Tool:

The Zoom Tool is hidden by default. Click on the "Configure" button (at the very end of the Toolbar) to add it to the Toolbar configuration. The Zoom Tool is very powerful to zoom and pan the chart at the same time (especially if your mouse has no scrolling wheel). Select the tool by clicking on it, move the cursor over the chart, then left click to Zoom In or right click to Zoom Out.

Using the keyboard:

Use the Page Up or Page Down key to zoom in or out.

Scale value

The Scale and Range of the chart is displayed on the bottom left of your screen. When the chart display is *Overzoomed*, the scale is written in red.

2D & 3D Chart Orientation

2D & 3D Mode:

Nobeltec TimeZero Trident operates in a fully rendered 3D environment. You can switch from the traditional 2D view to the impressive 3D perspective by choosing the 2D or 3D option in the Mode's drop-down menu:

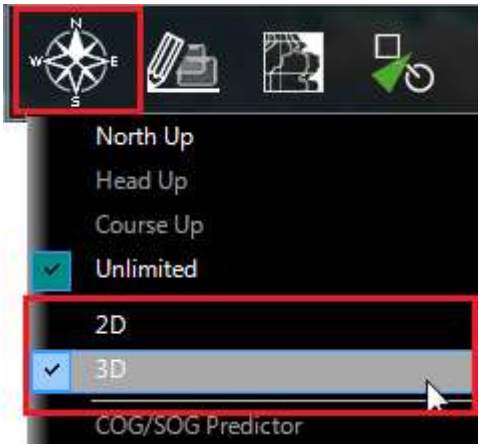


Chart Orientation

In 2D mode, the chart can be displayed in North Up, Head Up or Course Up:

- North Up: This mode displays the North at the top of the screen.
- Head Up: This mode orients the bow of the vessel to the top of the screen. The chart rotates as the vessel's bow is always pointed toward the top of the screen. In Head up mode, pay close attention to the Compass icon (on the bottom left). It provides information about the direction of North.
- Course Up: This mode is only available when a Go To or Route has been activated. When this mode is selected, the chart rotates and aligns vertically with the active leg. This mode provides a "stabilized" view (not moving with the own ship heading) toward your destination (or active Waypoint).

Tips: Click on the Compass icon (on the bottom left) to cycle in between the various mode

In 3D, the chart can be displayed in North up, Head Up, Course Up (like in the 2D mode) or in "Unlimited":

- North Up: In this mode, the azimuth is fixed pointing toward the North. The pitch or inclination is adjusted by holding the middle click button and moving the mouse. If the mouse does not have a middle button, press and hold the Alt (Option) key of the keyboard while moving the cursor.

- Head Up: In this mode, the azimuth is fixed pointing along the current Heading. The pitch or inclination is adjusted by holding the middle click button and moving the mouse. If the mouse does not have a middle button, press and hold the Alt (Option) key of the keyboard while moving the cursor.

- Course Up: In this mode, the azimuth is fixed pointing along the current destination. The pitch or inclination is adjusted by holding the middle click button and moving the mouse. If the mouse does not have a middle button, press and hold the Alt (Option) key of the keyboard while moving the cursor. This mode is only available when a Go To or Route has been activated.

- Unlimited: In this mode, the azimuth and pitch can be freely adjusted by holding the middle click button and moving the mouse. If the mouse does not have a middle button, press and hold the Alt (Option) key of the keyboard while moving the cursor.

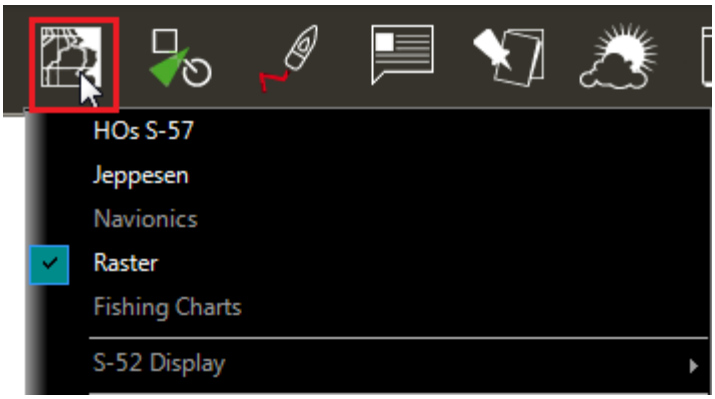
Tips: A "Pan Tilt" tool is available (hidden by default) and allows the user to adjust the azimuth and pitch by clicking and dragging the cursor over the charts. This is very useful if your mouse does not have a middle click button and if the keyboard is not easily accessible.

Selecting Charts & Overlays

Nobeltec TimeZero Trident's powerful graphics engine adds new chart presentation options to the conventional method of electronic chart plotting. TimeZero Trident can display vector and raster charts, and merge them with satellite pictures and depth shading. With 3D charts and our new Satellite PhotoFusion rendering, satellite imagery blends with critical chart data in an easy, useful way that greatly enhances situational awareness. These new presentation options help identify the exact position of the vessel while navigating near land, while displaying with information about the surrounding area.

Selecting Charts:

Click on the Chart button in the Ribbon to display and select the various options:



- HOs S-57: Select this option to display Vector Charts from Hydrographic Offices (NOAA,...)

- Jeppesen : Select this option to display MapMedia mm3d "C-Map by Jeppesen" vector charts

- Navionics : Select this option to display MapMedia mm3d "Datacore by Navionics" vector charts
- Raster : Select this option to display *Raster* Charts from Hydrographic Offices (NOAA, SHOM, UKHO,...)

When a Vector Chart is selected (either "HOs S-57", "Jeppesen" or "Navionics"), the "*S-52* Display" allows you to choose from Various Preset display configurations (Base, Standard, Fishing, Others). When set to "Custom", use the "S-52 Display" Menu to customize the configuration.
Refer to the chapter Adjusting Vector Charts Display for more information.

Note: If a chart type is greyed out, it means that you have not installed that type of chart yet

Satellite Photos

Satellite pictures can now be fused with raster or any type of vector charts by a method called PhotoFusion. Land areas are completely opaque, so that these areas are displayed as high-resolution satellite photos on the chart. As the depth increases, the satellite photography becomes more transparent so that the shallows are displayed along with the chart information. As the deeper water begins, the photograph disappears, leaving the raster or vector chart. High-resolution satellite photography enables the user to easily identify the seabed classification as sand, rock, coral or other obstructions.

To enable the PhotoFusion overlay, select "Satellite Photo" from the Chart button.

Note: PhotoFusion automatically adjusts the transparency of the Satellite Photo, however, it is possible to manually offset the transparency (make it more or less transparent) using the "PhotoFusion Transparency Offset" setting available in the Plotter Display Menu.

Tips: When the "Chart Boundaries" option is selected from the Plotter Display menu, Green boundaries outlines are displayed where Satellite pictures are installed

Depth Shading

A depth color scale can be applied to raster or any type of vector charts. This unique feature allows you to view water depths at-a-glance with vibrant colors. To enable the Depth Shading overlay, select "Depth Shading" from the Chart button. The transparency levels can be adjusted from the same location so that the chart data is visible beneath the color shading.

By default the color scale is set automatically (Nobeltec TimeZero Trident scans for the deepest and shallowest point on the screen and automatically adjust the upper and lower boundary). You can disable the Automatic mode by clicking on "Auto".

In Manual mode, you can adjust the lower and upper boundary by moving the cursor over one of the depth values and using the mouse wheel to change it. You can also double click on one of the depth value to open the Menu where you can input the numerical value using a keyboard.

Tips: If you put the cursor over the color scale and use the mouse wheel (in manual mode), it will change both the upper and lower boundary at the same time (span).

Other Overlays

The Chart button in the Ribbons allows the user to display various additional overlays:

- Select "Tidal Height Stations" to display Tidal Gauge on the Charts.
- Select "Tidal Currents" to display Currents Arrows on the Charts.
- Select "Grid" to display a Lat/Lon grid on the Charts.

Adjusting Vector Charts Display

Unlike *Raster* charts,*Vector* charts can provide control over the level of information displayed. Vector charts are made up of individual objects and data layers such as navigations aids, spot soundings and land features that can be displayed or hidden. These adjustments are made from the Vector Chart and S-52 Display Menu.

Vector Chart Menu

"Chart Object Size" is a slider that allows the user to change the size of the Vector Charts Depth Sounding and Objects (Buoys, Wrecks, Obstructions, etc...)

"Chart Color Palette" allows the user to change the colors (or "theme") of the Charts.

"Chart Symbol" allows the user to change the buoys icons to either a "S52" or "International" representation.

The Shallow/Safety/Deep Contour parameters are used to color the various depth areas on the Vector Chart. The transition between colors is based upon the depth contour lines of the vector chart. If no contour line (corresponding to the exact value you selected) is available on the vector charts, the color transition will happen at the next (deeper) contour line available.

In addition to these screen rendering parameters, the Vector Chart Menu allows you to turn ON or OFF the display of specific object (such as Buoys Name or Light Description).

S-52 Display Menu

This menu allows fine tuning of the vector chart objects that are displayed on the screen. The S52 Vector Chart Display Mode provides quick access to five different levels of detail for vector charts :

- "base" shows the minimum set of objects necessary for planning.
- "standard" adds other objects (such as restricted areas or channels) that are necessary for safe navigation
- "Other" display all of the objects available
- "Fishing" adds objects that are useful for fishing
- "Custom" uses the settings defined under the S-52 Custom menu (checked boxes)

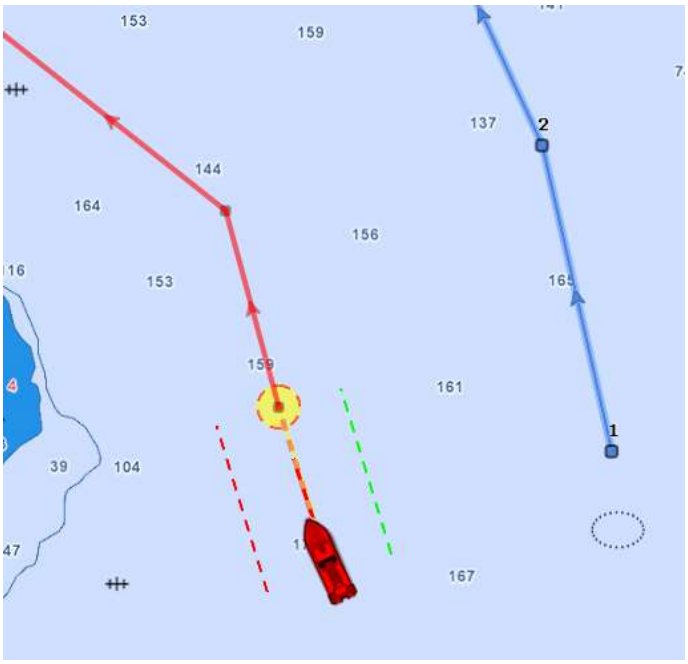
Note: The five modes are directly available by clicking on the Chart Button in the Ribbon (under "S-52 Display")

Routes

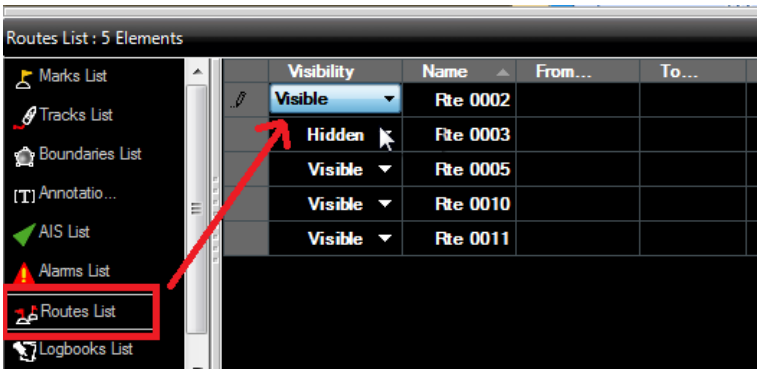
Route Introduction

TimeZero Trident allows for the creation of an unlimited number of routes, with only one activated at a time. An active route is displayed in red and has special priority in the navigation system. An route is activated, the first Waypoint becomes active (surrounded in yellow) and the leg to reach that Waypoint displays the Cross Track Alarm (red and green dashed lines).

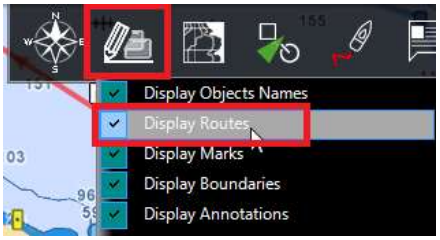
On the picture below, the route on the left is activated (the route on the right in a Planning Route):



You can hide any route by right clicking on it and choosing "Hide". To display a route that has been previously "hidden", open the "Route List" by clicking on the "List" ribbon button (available by default in the Planning Workspace) and set the corresponding route to "Visible":



Note that all routes can be hidden by deselecting "Display Route" from the "Marks" Ribbon Button



Note: It is not possible to hide the Active Route. The Active Route will always be displayed on the chart even if the route has been hidden.

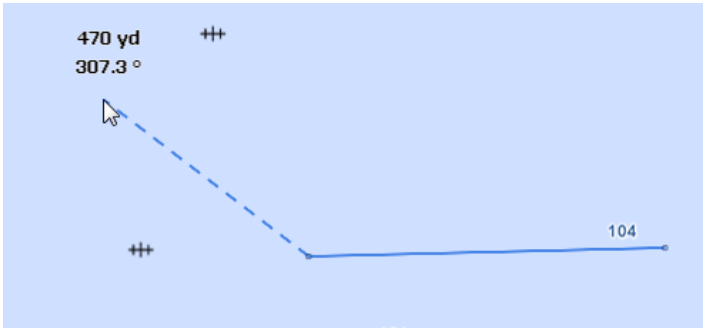
Creating a Route

When creating or editing a route, it is recommended to use the Planning Work Space. This Work Space allows you to access advanced features such as displaying advanced route details or making simulations and animations.

To create a new Planning Route:

1. Click on the "Route" Tool located in the ToolBar
2. Place the cursor at the starting point and click on the chart; This sets the location of the first Waypoint
3. Move the cursor to the next desired destination and click on the chart. Continue with this procedure to add additional Waypoint
4. When all of the desired Waypoints are added, right click to create the last Waypoint and choose "End Route" or press the Esc key on the Keyboard. Alternatively, double click at the creation of the last Waypoint.

While in route creation mode, the mouse cursor will display a small plus sign to indicate that a Waypoint will be added when the mouse is clicked. After the creation of the first Waypoint, a dashed line will be drawn between the last Waypoint and the cursor. This line represents the leg-line that is about to be created. In addition, the distance and bearing of the leg-line from the previous Waypoint is also displayed near the mouse cursor:



While creating a route the chart will moves automatically to follow the route. To move the chart manually, click and hold, then move the cursor to the edge of the screen where you want the chart to scroll to. The arrow keys on the keyboard can also be used to scroll the chart while building a route.

When clicking on an existing Mark while creating a route, the route will use that Mark instead of creating a new Waypoint sharing it with any other routes that might be using it, too. Moving, deleting, and changing a shared Mark will affect all of the routes that share it.

Right click on the selected route and select "FlyOver" to move and follow the route on the chart.

Great Circle Route:

TimeZero Trident is capable of displaying great circle or rhumb line routes. The great-circle route is the shortest path between two points on a sphere, like the Earth. A rhumb line route crosses all meridians of longitude at the same angle. Since the charts displayed by TimeZero Trident are Mercator projections, rhumb line routes appear as straight lines and great-circle routes appear as curved lines.

When the "Great Circle Navigation" option is enabled, TimeZero Trident divides the route into shorter rhumb line segments that follow the great circle path. You can adjust the minimal distance at which TimeZero Tridentl starts to divide the route into shorter rhumb line segments in the "Routes" option.

Editing Routes

To move a Waypoint, place the cursor on top of it, then click and drag the Waypoint to the new location. Most of the advanced route editing operations can be performed by right clicking directly on any leg of a route and selecting the appropriate option from the drop-down menu.

Note: TimeZero Trident offers a very powerful unlimited Undo/Redo function. Every editing operation can be Undone or Redone multiple times by clicking the arrows in the status bar. The corresponding keyboard shortcuts (CTRL-Z, CTRL-Y) can also be used

Extend a Route

To add Waypoints to the end of the route, right click on any leg of the route and choose "Extend Route". TimeZero will automatically center the display on the last Waypoint and enter into Route Building mode.

Insert a Waypoint

To insert a new Waypoint in the middle of a route (to avoid an obstacle, for example), right click on any leg of the route and choose "Insert Waypoint". Move the cursor to the new position desired to insert the Waypoint, and click.

Reverse Route

To reverse the direction of a route, right click on any leg of the route, and then, choose "Reverse Route".

Delete Route

To delete a Route, right click on any leg of the route and choose "Delete Route".

Note: An Active Route cannot be deleted; it must be deactivated first by selecting "Cancel navigation"

Split Route

To split a route into two parts, Right Click on any leg of the route; and then, choose "Split Route". This will turn the route into two routes by removing the leg-line that was right clicked on.

"Fork" Route

A route can be "forked" from any Waypoint. Simply right click on the Waypoint you want to fork the new route from and choose "Fork Route".

Rename Route

To rename a Route, right click on any leg of the route and choose "Rename Route".

Lock and Unlock Route

Right click anywhere on a leg or a waypoint and choose "Lock Route" (or "Lock Waypoint" to lock a route or Waypoint). When a route or waypoint is locked, you will not be able to move it or delete it (a dialog box will appear if you try to erase an object which is locked). Use the same process to unlock a Route or a Waypoint.

Route Detail & Simulation

The Route Detail displays the selected planning route in a tabular format together with information about the route as a whole. The Route Detail can also be used to calculate an *ETA* for each Waypoint along the route and will help you selecting the best departure or arrival possible. Nobeltec TimeZero Trident computes automatically the Speed over Ground (SOG) according to the Speed through Water (that you can customize) and local currents.

Opening and Closing the Route Detail

Note: Although you can display the Route Detail in the Navigation Work Space, it is highly recommended to work with the Route Detail in the Planning Work Space (that provides Virtual Time and Simulation functions).

Select the Planning Work Space, right click on a leg-line of the route you want to see and then select "Show Route Detail". Double-clicking on any leg-line of the route will also display the Route Detail.

To close the Route Detail, Click the X button at the top right of the route detail list.

Using the Route Detail

The top part of the Route Detail displays information about time of departure and ETA (Estimated Time of Arrival). The time of departure can be selected as the present time or another selected date. When a time of departure is selected, Nobeltec TimeZero Trident will calculate the ETA according to the parameters available in the table (speed, current,...).

Nobeltec TimeZero Trident also allows the user to set a date of arrival rather than a date of departure. This is useful when you need to arrive at a specific time (because of tidal currents for example). In this case, Nobeltec TimeZero Trident will calculate the time of departure.

The information appearing in Bold in the table (such as "Speed") can be edited by double clicking on the cell to be edited. After changing the value, press the Enter key, or click outside the value to accept the new value, or press the Esc key to cancel the change.

Values that can be changed include: the waypoint name, the waypoint position and the intended speed. The other values are calculated by Nobeltec TimeZero Trident, and cannot be changed directly.

- Leg To: Sequence number of the Waypoint. Each line of the list gives you information about the leg, allowing you to reach a specific Waypoint. The "Leg To" is the number of that Waypoint.
- COG: The "Course Over Ground" is the direction (bearing) of the route leg as it would be on a paper charts.
- Speed: Intended speed of the boat (this value can be edited individually for each leg). You can set this value for each leg or use the Action menu.
- SOG: Speed over Ground being calculated based upon the surface Speed
- CTS: Course to Steer. This value can be different from the COG if currents are available.
- TTG: "Time to Go" is the time to navigate on the leg

- ETA: The Estimated Date of Arrival to that Waypoint

The Route Detail "Action" menu provides quick access to main functions and parameters. It can be found on the right side title bar of the list. It includes the following options:

- Activate Route: To activate the planned route and start navigating. Note that this option is not available when Nobeltec TimeZero Trident is started in Home Planning mode or when no GPS is available.
- Reverse Route: To reverse the direction of the planning route.
- Set Speed of all legs: To adjust the intended speed for all the legs of the planning route.
- Configure List: To add or remove columns of the Route Detail table
- Copy to clipboard: To copy the list information as displayed on your screen. You can paste this information in a text editor or Excel for further editing
- Export list in text file format : To export the list information as displayed on your screen. Each field is separated by a Tab.

Route Simulation

When a line of the Route Detail list is selected, the virtual time will change to match the *ETA* at the selected Waypoint and a virtual boat (blue icon) will appear. This function is very useful when Weather Data or Tidal information is displayed because they will automatically adjust to the predicted time.

To select a specific row (or line) of the Route Detail, click inside the first grey column in front of the specific line:

:

The chart will automatically center on that Waypoint and the Virtual Time Control will automatically adjust the Chart Time to that *ETA*. The Tides Gages, Currents arrows and Weather (if displayed on the chart) will automatically refresh to display the conditions at that waypoint.

As soon as you adjust the Departure (or Arrival) date and change the speed (either the speed of all legs or the speed of each leg individually), Nobeltec TimeZero Trident will compute the simulation with the new parameters taking into account the currents (if available).

By default, Nobeltec TimeZero Trident uses the current which is closest to the middle of the leg (surrounded in red below). If you want to assign another current station for a specific leg, right click on the leg, select "Assign Tidal Current" then click on the new current stations. Currents that have been assigned manually to a leg will not display "Auto" in the Tidal Current name column.

To determine the best time of departure (or arrival):

- Select either the departure time or the arrival time close to your intended departure or arrival
- Scroll at the very end of the Route Detail and look at the "Total TTG" of the last line
- Change the departure or arrival minutes or hours in the direction that will minimize the Total Time To Go value
- Continue until the Time To Go value just begin to increase (this means that you are very close from the best departure or arrival time)

Navigating a Route

Activating a Route

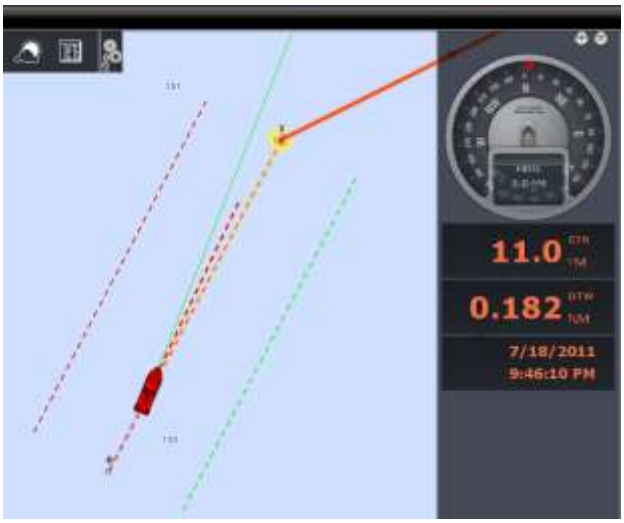
Once a route is created and checked for obstacles and other hazards, the route can be activated for navigation. This section describes the process and tools Nobeltec TimeZero Trident provides to do this.

Note: Nobeltec TimeZero Trident needs to be started in "Navigation" mode with a valid GPS fix for the route activation to be available.

First, select the "Navigation" workspace. Right click on the desired route to navigate; then choose "Activate Route". A route can also be activated by right clicking on a Waypoint or even the middle of a leg and choosing "Activate Route from this Point". This automatically skips all previous Waypoints from activation.

The "Go To" tool may also be used to activate a specific route. Select this tool from the Toolbar and click on the route to activate for navigation. If a Waypoint is clicked on, this will activate the route from this point and automatically skips all the previous Waypoints.

When a Route is activated:



- The Active Route is displayed in red
- The Active Leg is drawn with dashed lines
- The Active Waypoint is surrounded by a glowing yellow circle
- When "Display *XTE* Alarm lines" is enabled from the Routes Options, the Cross Track Limit Area appears delimited with two colored dashed lines: green on the starboard of the Ship icon, red on the port of the Ship icon. This value can be adjusted from the Alarms Options ("XTE Alarm Value").
- The Active Route information such as Bearing, distance to next Waypoint, *ETA*, etc ... are displayed in the NavData.
- The Waypoint Arrival Circle is drawn with a red dashed line. This value can be adjusted from the Routes Options ("Switching Circle Radius").
- The Active Waypoint Distance and Bearing information are transmitted to the Pilot, if configured.

If the cross-track-error gets large enough to start causing alerts, select the "Restart" function from the "Route" button in the Ribbon (or right click on the route or on the boat), to realign the intended course and head directly to the active Waypoint without reverting to the original course.

If the vessel is off course (after avoiding an obstacle for example), the next Waypoint can be activated by selecting the "Skip Waypoint" function from the "Route" button in the Ribbon (or by right clicking on the active Waypoint).

To create an instant "Go To" Waypoint:

With the "Go To" Tool:

- Select the "Go To" tool from the Toolbar
- Click on the intended destination within the chart or on an existing Waypoint

Using the Right Click Contextual Menu:

- Right Click on the chart on the intended destination
- Select "Go To"

This will create an Instant Active Waypoint for navigation.

Tips: If you want to create an Instant Active Waypoint using coordinates, double click on the "Go To" tool. This will display a window where you can enter the coordinate.

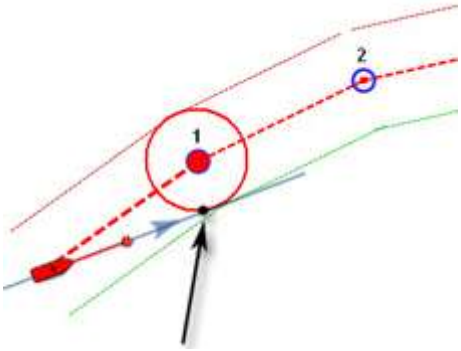
Note: Any Instant Active Waypoint created with the Go To tool will be erased when the Active Route is canceled. To save the destination drop a Mark using the Mark Tool onto the Active Instant Waypoint.

Waypoint Switching Mode

Upon arrival at a Waypoint, the switching notification is triggered and the next Waypoint is activated automatically. Waypoint arrival parameters are determined by the "Waypoint Switching Mode" selected in the Routes Options:

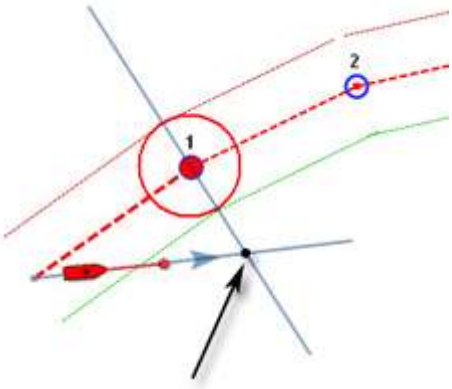
Circle:

In this mode, the next Waypoint is automatically switched when your boat icon enters the active Waypoint's arrival circle. The value of the arrival circle is set from the Routes Options ("Switching Circle Radius"):



Cross Line (also known as "Perpendicular"):

In this mode, the next Waypoint is automatically switched when your boat crosses the line through the Waypoint that is perpendicular to the leg line.



Circle and cross line:

This is the default selection. In this mode, the next Waypoint is automatically switched when the boat enters the active Waypoint's arrival circle or crosses the line through the Waypoint that is perpendicular to the leg line.

Note: Upon arrival at the last Waypoint, the route is automatically cancelled (de-activated).

Cancelling the Active Route

To deactivate or stop the navigation, select "Cancel Navigation" from the "Route" button in the Ribbon (or right click on the Active Route)".

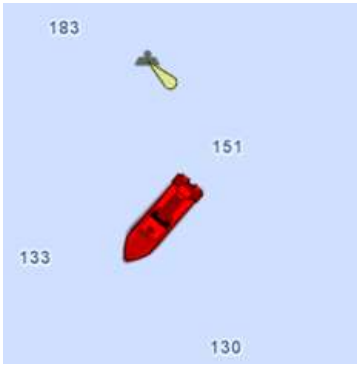
When a Route is deactivated, it reverts to a Planning Route.

Note: An Active Route is automatically cancelled when reaching the last Waypoint of the route.

Ship & Track

Ship Icon

When Nobeltec TimeZero Trident is started in Navigation mode and is receiving a valid position, a boat icon is displayed on the chart:



Note: If you cannot locate the ship icon on the chart, click on the "Center On" button in the Toolbar to center the charts on your ship's position

The icon in red represents the boat and indicates its position and heading (or course if heading data is not available).

Note: If the position source is lost the Ship icon is displayed in black at the last known position value and the GPS alarm is triggered

Icon Size

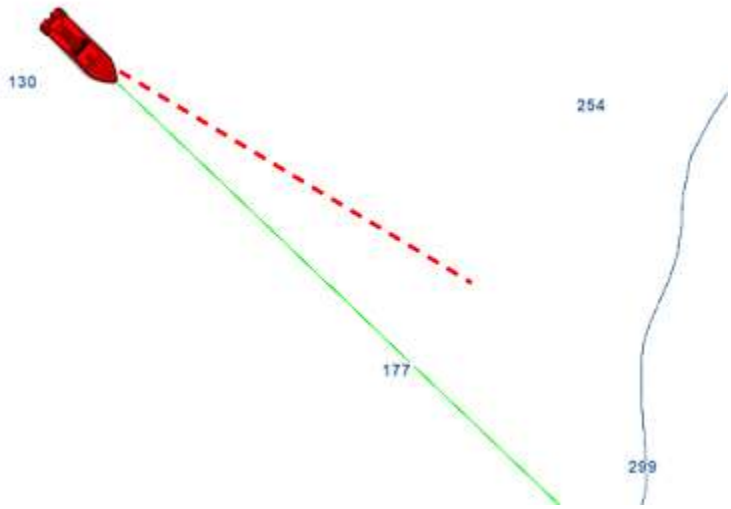
The size of the icon can be selected from the Initial Setup Options ("Size of Static Icon").

When sufficiently zoomed in on the chart, the ship icon will be displayed in real size according to the scale of the chart and the "Boat Length" parameter.

When the Plotter is displayed in 3D, a three dimensional model of the vessel icon is displayed. The model can be customized from the Initial Setup Options ("Boat Icon").

Course & heading Vector

The Heading line and/or Course vector can be displayed. To do so, right click on the Ship Icon (or select the "Mode" Ribbon Button) and enable or disable the corresponding option.



The COG vector (displayed in red dashes) is calculated by the GPS. It indicates the direction of movement relative to a ground position. The length of the COG vector varies according to the speed of the boat and can be configured to show the predicted position in a specified amount of time. This setting is available in the Ship & Tracks Options ("COG/SOG Predictor Time")

The Heading Line (displayed as a green line) is sent by an Electronic Compass and shows the direction of the bow of boat.

Tracks

Enabling / Disabling Track Recording

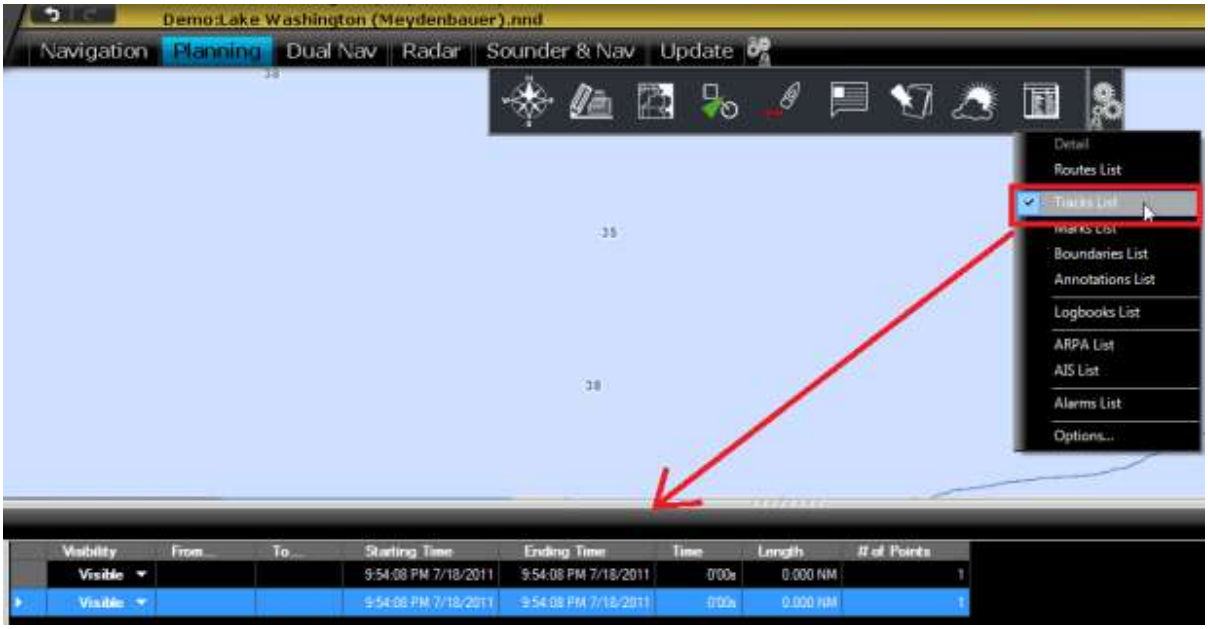
To enable or disable the track recording, click on the "Track" Button in the ToolBar:

When the track is being recorded, the "Track" Button turns yellow.

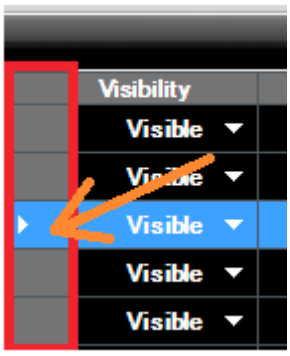
Click on the button again to toggle OFF the track recording

Display the Track List:

To display the list of all the tracks, select the "Lists" button from the "Planning" Work Space Ribbon and click on "Track List":



To select and center a track on the Chart, click on the first column corresponding to the track you want to display:



Convert a Track into a Route

Right Click on a track (either on the Chart or from the Track list) and select "Follow Track". The route will follow the track direction.

Note: If you right click on the track being recorded (the "Active Track"), select "Track Back" to convert the Track into a Route and automatically reverse it.

Man Over Board

The "Man Over Board" button is hidden by default. To make it available in the Toolbar, click on the "Configure" button and add it to the Work Space configuration.

Double-click on the MOB button to activate the MOB function.

When the MOB is activated:

- An Instant Waypoint is created at the current ship position and the Route is activated
- The Navigation Work Space is automatically selected
- The chart is automatically zoomed and centered on the MOB location
- The MOB alarm is activated in the status bar.

Note: When a MOB is triggered, the Waypoint Switching parameters are disabled and the MOB Waypoint remains active until manually cancelled

To return to Normal Mode:

Cancel the MOB by selecting "Cancel Navigation" from the "Route" button located in the Ribbon.

Note: Simple click on the MOB button will just create a mark at the current location (event)

Weather

Requesting a Weather File

In order to be able to request a weather file, you have to register your copy of Nobeltec at www.nobeltec.com.

You can request a Weather file from the "Update" Work Space. This Work Space offers dedicated buttons and tools that allow you to define an area and request a weather file. If you have a direct Internet connection, the Weather file can be downloaded directly from Nobeltec. If you are using a Satellite Phone or low-bandwidth connection, you can request the file by E-mail.

To request a weather file:

- Select the "Update" workspace then pan and zoom the chart to display roughly the area where you want to receive a weather forecast.
- Select the "Update Area" Tool from the Toolbar.
- Click and drag the cursor on the chart to draw an area.
- Click on the "Update" button in the Ribbon and select "Weather Update Wizard" to launch the Wizard. This will help you to configure and retrieve your weather file.
- Follow the on screen instructions to select the type of data you want to receive and the forecast length

Note: Selecting "Accurate Data" will generate a weather file with the best forecast accuracy possible. Selecting "Normal Data" will generate a weather file with a lower forecast accuracy reducing its file size (and download time)

When you choose to retrieve the Weather file by e-mail or when subscribing to a request, you can select the type of compression used. Some e-mail providers will only allow you to transfer attachment files that are compressed or have a specific extension:

- No Compression: No compression will be used and the plain GRIB file (.grb) will be sent
- ZIP Compression: A ZIP compression will be used (.grbzip)
- BZ2: A BZ2 compression will be used (.grbzip)

Note: When you choose to subscribe to a request, e-mails with an updated weather file will be sent automatically on a specific schedule that you can define. To cancel a subscription before the scheduled ending, log in to your account at www.nobeltec.com.

Tips: When requesting a Weather File by e-mail or when subscribing to a request, Nobeltec will use the default e-mail client. To change the default e-mail client of the computer, open Internet Explorer, select the TOOLS menu, INTERNET OPTIONS, PROGRAMS.

Opening a Weather File

When you download a Weather File from the Update Work Space, Nobeltec automatically opens the file. You just have to select the "Planning" Work Space, select the "Weather" button in the Ribbons and click on "Display Weather".

When receiving the GRIB file by e-mail or from a third party provider, you first need to open the GRIB file in Nobeltec:

- Click on the Nobeltec Button and select "Open Weather File"
- Browse and select the GRIB file then click on "Open"

Tip: When receiving the weather file by e-mail, you can directly open the attachment and load it in Nobeltec by double clicking on it.

Note: The weather files that are automatically downloaded from the "Update" Work Space are stored in the "Weather" folder located in "My Nobeltec"

Animate Weather Forecast

The Planning workspace allows you to play time-lapse movies of Weather Forecast thanks to the "Virtual Time Control"

To make an animation:

- Display Weather Information on the chart (select "Display Weather" from the "Weather" button located in the Ribbon)
- Click the "Up Arrows"  to expand the Virtual Time Control (if previously collapsed)
- Click on the "Play/Pause" button to start/pause the movie (from the current time)
- To change the start date of the animation by clicking on the "Calendar" button 
- To reset the virtual time back to the current time, click on the "Actual Time" button 
- To start the animation from the beginning of the Weather Forecast, click on the "File Start" button 
- To step forward and backward using the file forecast interval, click on the "Step Back/Forward" buttons 

You can also "scrub" the weather file by dragging the marker on the time scale or by putting the mouse cursor over the time scale and using the wheel:

Note: Whenever the Chart Time is different from the current computer local time, the Virtual Time Control is surrounded in yellow.

Marks and Objects

Creating & Editing Marks

Marks are used to plot specific locations such as fishing spots, harbors or preferred anchorages. All Marks are displayed in the Marks List. Marks can be created graphically by placing the cursor at the desired location on the chart and clicking the left mouse button or manually by entering the Latitude/Longitude.

Note: Waypoints (Marks created using the Route Building tool) will not appear in the Marks List. Only the Marks created with the Mark Tool will. The Waypoint list is available in the Route Detail list when the corresponding route is selected

Creating Marks graphically:

Click on the Mark Tool located in the Toolbar and click on the Chart to drop a Mark.

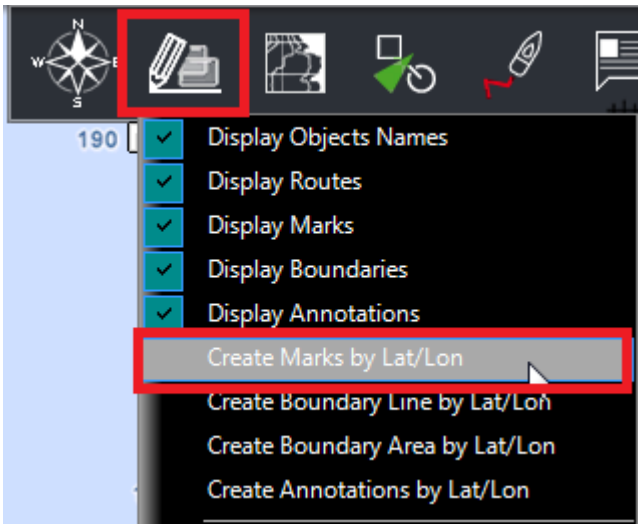
You can also right click anywhere on the Chart and choose "Create" -> "Mark".

The default color defined in the Marks & Boundaries options will be used.

Note: The software will automatically select the Panning Tool (Hand) by default when a Mark is dropped after using the Mark Tool. To add several Marks without having to select the Mark Tool each time, deselect "Enable Auto Hand Tool Selection" from the "General" options. When you are finished creating Marks, the Panning Tool must then be manually reselected.

Creating Marks Manually:

To create a Mark by entering the Latitude/Longitude, double click on the Mark Tool located in the Toolbar. This will display a window to enter the Latitude/Longitude numerically. You may also click on the "Marks" Ribbon button and select "Create Mark by Lat/Long":



Moving a Mark:

When the option *"Allow Unselected Object to be Moved"* is enabled (enabled by default in the General Options), put the cursor over a mark then drag it (hold the left click mouse button and move it) to its new position. When *"Allow Unselected Object to be Moved"* is disabled, you have to select the mark first (left click on it) then drag it.

Note: If you have lots of marks on your screen, and you move them by mistake when panning the charts, you may want to disable "Allow Unselected Object to be Moved" from the General Options.

If you want to enter new coordinates for a mark, double click on the mark (or right click and choose "Mark Properties") to display the Property window. Enter the new coordinates in the corresponding fields.

Changing Marks Icon and Color

Double click on a mark (or right click and choose "Mark Properties") to display the Property window. Change the color and/or icon from the corresponding fields.

Tips: If you want to assign the same color to multiple marks, use the "Select" tool to select multiple marks then right click on one of the selected mark.

Adjusting Marks Size

The Marks Size is a global setting (found under the Marks & Boundaries Options) that will affect all marks displayed on the screen.

Add Photography to a Mark

Right click on a mark and choose "Add Photo". This displays a dialog that allows you to browse for a picture. When a picture has been added, move the cursor over the mark and the picture will be displayed on screen in the "Pop Up" window.

Delete or Rename Mark

Right click on a mark and choose the corresponding option (Rename Mark or Delete Mark) from the drop down menu.

Lock and Unlock Mark

Right click on a Mark and choose "Lock Mark" to lock a Mark. When a Mark is locked, you will not be able to move it or delete it (a dialog box will appear if you try to erase it). Use the same process to unlock a Mark.

Hiding Marks

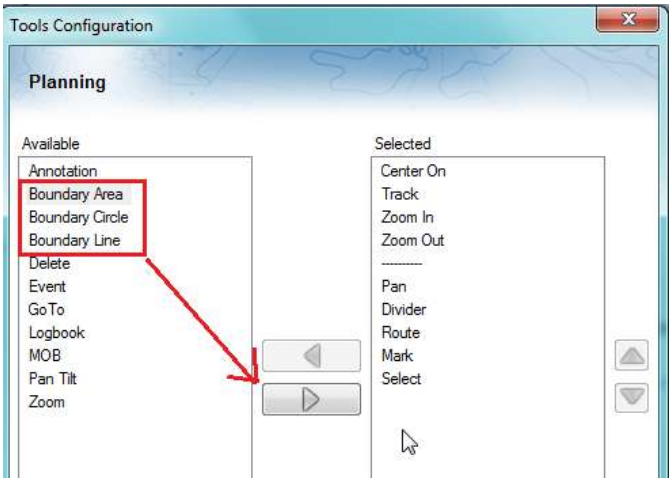
You can hide any mark by right clicking on it and choosing "Hide". To display a mark that has been previously "hidden", open the "Mark List" by clicking on the "List" ribbon button (available by default in the Planning Workspace) and set the corresponding mark to "Visible".

Note that all marks can be hidden by deselecting "Display Mark" from the "Marks" Ribbon Button.

Creating & Editing Boundaries

Creating Boundaries graphically:

Lines, Areas and Circles can be created in TimeZero Trident using the corresponding tool in the Toolbar. If the Tools are not displayed, click on the "Configure Tools" button (at the lower end of the Toolbar) to add the tools you want to appear:



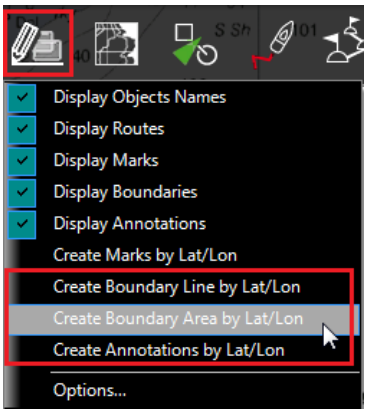
Click on the corresponding Boundary Tool (Area, Circle or Line) and click on the Chart to create the boundary. For areas and lines, double click on the last point to close the area or end the line.

You can also right click anywhere on the Chart and choose "Create" -> "Boundary".

The default color and transparency (for areas and circles) defined in the Marks & Boundaries options will be used.

Creating Boundaries Manually:

To create a Boundary by entering the Latitude/Longitude, double click on the corresponding Boundary Tool located in the Toolbar. This will display a window to enter the Latitude/Longitude numerically. You may also click on the "Marks" Ribbon button and select the corresponding option:



Delete or Rename Boundary

Right click on a boundary and choose the corresponding option (Rename Mark or Delete Mark) from the drop down menu.

Note: When right clicking on a boundary to display the corresponding contextual menu, make sure that the boundary is displayed entirely on the screen. If the boundary is partially displayed (because the screen is zoomed in), the right click menu will not show options for editing the boundary. In this case, zoom out until the boundary is displayed entirely on the screen then right click on it again.

Moving a Boundary:

When the option *"Allow Unselected Object to be Moved"* is enabled (enabled by default in the General Options), put the cursor over a boundary then drag it (click and hold while moving) to its new position. When *"Allow Unselected Object to be Moved"* is disabled, you have to select the boundary first (click on it) then drag it.

Note: When moving a boundary, make sure that the boundary is displayed entirely on the screen. If the boundary is partially displayed (because the screen is zoomed in), you will not be able to move it. In this case, zoom out until the boundary is displayed entirely on the screen then right click on it again.

Note: If you have lots of boundaries on your screen and move them by mistake when panning the charts, you may want to disable "Allow Unselected Object to be Moved" from the General Options.

If you want to enter new coordinates for a boundary point, double click on one of the points to open the point's property window. To move a circle by entering new coordinates, double click on its center.

Changing Boundaries Color and Contour

Double click on a boundary (or right click and choose "Boundary Properties") to display the Property window. Change the color and/or contour from the corresponding fields.

Tips: If you want to assign the same color to multiple boundaries, use the "Select" tool to select multiple boundaries then right click on one of the selected boundary.

Changing Boundary Area and Circle transparency

Double click on a circle or area (or right click and choose "Boundary Properties") to display the Property window. Change the transparency from the corresponding field.

Adjusting Boundary Contour Thickness

The Boundary Contour Thickness is a global setting (found under the Marks & Boundaries Options) that will affect all boundaries displayed on the screen.

Lock and Unlock Boundary

Right click on a boundary and choose "Lock Boundary" to lock a boundary. When a boundary is locked, you will not be able to move it or delete it (a dialog box will appear if you try to erase it). Use the same process to unlock a boundary.

Hiding Boundaries

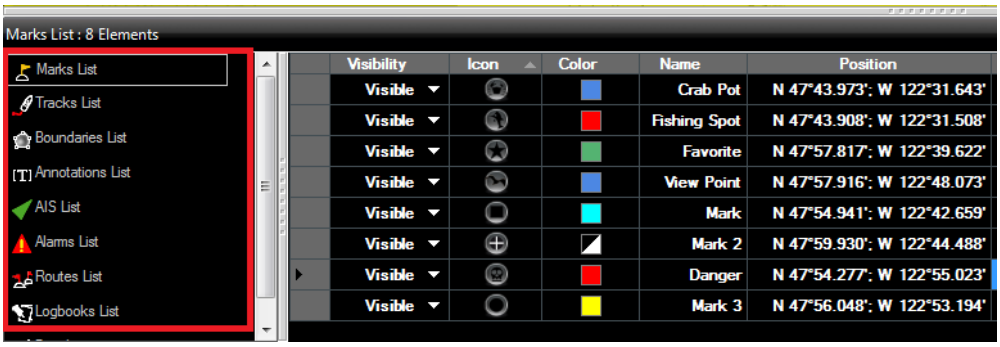
You can hide any boundary by right clicking on it and choosing "Hide". To display a boundary that has been previously "hidden", open the "Boundary List" by clicking on the "List" ribbon button (available by default in the Planning Workspace) and set the corresponding boundary to "Visible".

Note that all boundary can be hidden by deselecting "Display boundary" from the "Marks" Ribbon Button

Marks and Objects List

To display a list of Marks, Boundaries or Annotations, click on the "List" button in the ribbon (displayed by default in the "Planning" Work Space)

Once the list tab is open at the bottom of the screen, you can change list category from the left pane:



To select a specific row (or line), click inside the first grey column in front of the specific line:

When a line is selected, the chart will be centered on the corresponding object.

The information displayed in the table (rows) can be customized by clicking on "Action" (on the right side of the List Title Bar) and choosing "Configure List".

This information can be exported in a file (text format) or copied to the clipboard by clicking on the corresponding item under the "Action" menu. The fields in the text file are delimited using Tabs. We recommended using Windows Excel to open the file (for proper formatting).

The "Filter" button (also available on the right side of the List Title Bar) allows you to filter the Marks, Boundaries or Annotations displayed in the list using various criteria. Once the list is filtered, select an object to center the chart on it (this is particularly useful to retrieve Marks created at a specific date)

Note: The filters do not affect what is displayed on the chart. The filters only affect what is displayed inside the list.

Online Services

ActiveCaptain

To understand the ActiveCaptain features one must first understand what Active Captain is and how the ActiveCaptain service is different from traditional Points of Interest (POI) or marina databases.

ActiveCaptain is what is called a "crowd sourced" data service whereby hundreds of thousands of users of a service participate in building and consuming the data. The ActiveCaptain Interactive Cruising Guidebook database is stored, maintained and synchronized in the TimeZero PC software directly. An Internet connection is not necessary to access any of the POI marina, anchorage, local knowledge, or hazard markers data. When Time Zero is installed, the ActiveCaptain data (i.e. Location, Marina Names, Phone numbers, etc) will appear with the click of a mouse. When a customer registers for a free ActiveCaptain account, access to the full data set and reviews will automatically be activated. Registered ActiveCaptain users are also able to update the ActiveCaptain database directly from Nobeltec TimeZero Trident, giving them the very latest details up to the minute.

Register to be an "ActiveCaptain":

To register and for more information about the growing ActiveCaptain POI Database and its features, make sure to visit http://www.activecaptain.com.

Once you are registered, enter your login/password information under the ActiveCaptain Options. As soon as the account is validated in TimeZero (Internet Connection required), you will have access to the full ActiveCaptain information as well as the Update feature.

Displaying ActiveCaptain Markers on the chart

To display the ActiveCaptain Markers on the chart, click on the "POI" button and select the corresponding ActiveCaptain data layer ("AC Marina", "AC Anchorages", "AC Local Knowledge", "AC Hazards").

Note: If the "POI" button is not available in the Ribbon, click on the "Configure Ribbons" icon to add it to the workspace configuration

Tips: It is possible to setup advanced filters for some markers (Marinas and Local Knowledge) from the ActiveCaptain Options.

To display basic marker information, rollover or click on any marker. To access the full marker information, double click on any marker. This will open the Marker Property window that contains multiple tabs (sorted by category).

Updating ActiveCaptain Markers

To update the ActiveCaptain database, select the "Update" Work Space and click on the "Update" button located in the Ribbon. This will open the ActiveCaptain Update Wizard that will guide you.

Note: The update area is not used for ActiveCaptain (only for the Weather). When you update ActiveCaptain, the entire worldwide database is updated.

Post a Marker Review

When the PC is connected to the Internet, you can post a review directly from Nobeltec TimeZero Trident. Just open the marker properties (double click on it), select the "Review" tab and click on "Rate it..."

AIS Online

IMPORTANT: THE AIS ONLINE FEATURE SHOULD NOT BE USED IN NAVIGATION. THERE IS A SIGNIFICANT DELAY (IN BETWEEN 5 MINUTES TO ONE HOUR) IN BETWEEN THE ONLINE REPORTS AND REAL TARGETS.

If the PC is connected to the Internet, Nobeltec TimeZero Trident can display AIS information from the MarineTraffic web site. It provides free real-time information, about ship movements and ports, mainly across the coast-lines of Europe and North America.

By default, the AIS online layer is turned OFF in Nobeltec. To display it, select "AIS Online" from the "Targets" button in the Ribbon.

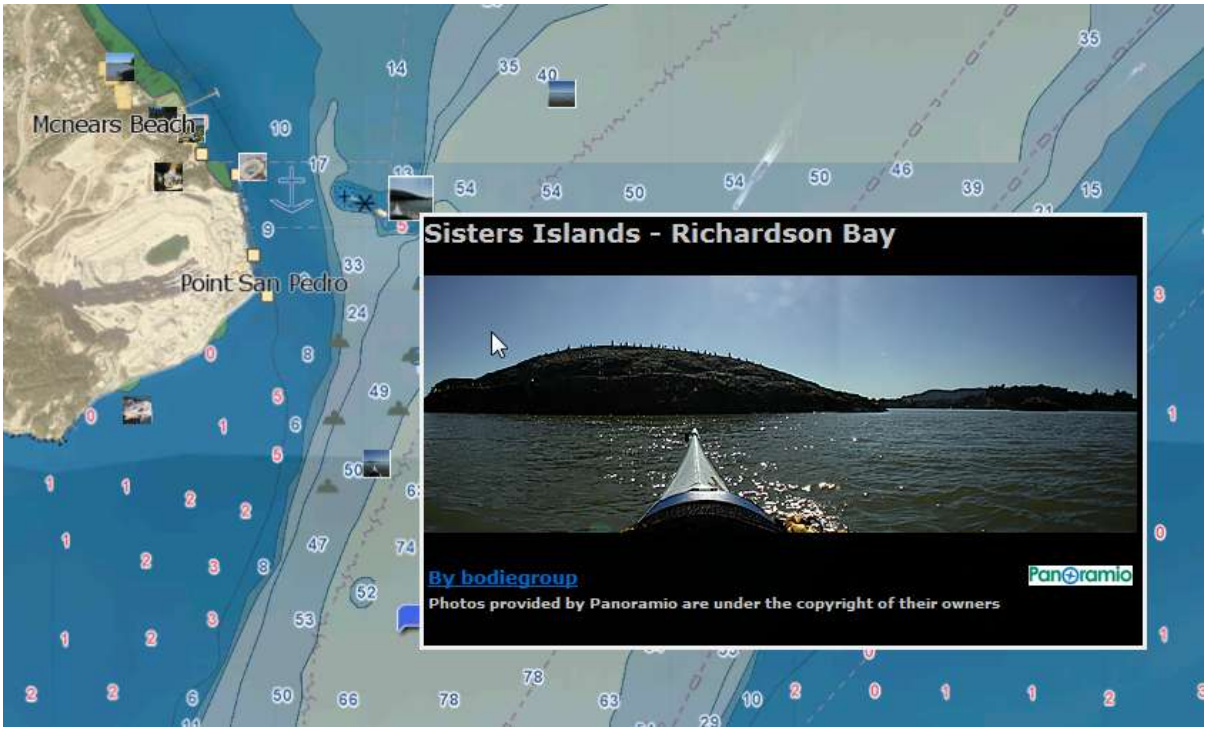
If you have started Nobeltec TimeZero Trident in "Home Planning" mode, the AIS online will appear everywhere. If you have started Nobeltec in "Navigation" mode, the AIS filter parameters in the Targets Options applies ("Hide AIS targets Farther than...").

AIS Online appears in orange ("real" AIS targets appear in blue for Class A and green for Class B).

To access AIS Online target information, rollover the AIS icon with your cursor or click on it. In addition to basic data (such as speed, course, ...), the AIS online displays a picture of the ship (when available):

Panoramio

Panoramio is a website that enables digital photographers to geolocate, store and organize their photographs. When the PC is connected to the Internet Nobeltec TimeZero Trident automatically downloads and displays the Panoramio pictures if the "Panoramio" layer is selected from the "POI" button in the ribbon. Rollover or click on a picture icon to display a bigger version:



Note that you can right click on any Panoramio picture icons on the chart to save them in your "My Photo" database (allowing offline access later on)

Installation

InSight Radar Connection

The "InSight Radar Plus Pack" needs to be unlocked prior to configure an InSight 2 series Radar in TimeZero Trident. Please note that TimeZero Trident is **only** compatible with Ethernet Based Radar (it is not compatible with older Serial 2kW dome or IR2BB)

The IR2 Radar connects to the PC through the control box using an Ethernet connection (100Base-T). The IR2 Radar is either assigned an IP address (by a DHCP Server), or if necessary, uses its default IP address (192.168.0.1) to communicate over the Ethernet network. If a DHCP (or Router) is used on your network, the PC and the Radar will use the IP address assigned automatically to them by the DHCP server.

Note: The DHCP server must assign IP address with a subnet mask of 255.255.255.0

If you don't have a DHCP server on your network (for example if the Radar is directly connected to the PC using a crossover Ethernet cable or if a simple HUB or Switch is used), the Radar will default to a fixed IP address 192.168.0.1 after one minute. In this case, you need to make sure that your PC is also assigned with a fixed IP address that "matches" the Network (192.168.0.x). We recommend using 192.168.0.100 with a subnet mask of 255.255.255.0.

Once the Radar and PC are configured on the same Ethernet network, you need to run the Radar Installation Wizard located in the Windows "Start" menu under "Programs->Nobeltec TimeZero"

Note: Make sure that TimeZero Trident is closed when launching the Radar Installation Wizard

The Radar Installation Wizard will detect the Radar and allow you to perform the Radar Initial Setup. Once a Radar has been detected, open TimeZero Trident. The Radar Work Space and feature will now be available. Set up the Heading Align, Trigger Delay and Presets adjustments as described in the Radar Options paragraph.

Important: Please refer to the IR2 Installer's Guide PDF document located on the Software Installation DVD (inside the "Document" folder) if you need more information.

NavNet3D Connection

The "Furuno Radar Plus Pack" needs to be unlocked prior to configure NavNet3D in TimeZero Trident.

Nobeltec TimeZero Trident connects to a Furuno NavNet3D "MFD" (Multi Function Display) and "DRS" (Digital Radar Sensor) through an Ethernet connection (100Base-T). The computer needs to have an IP address that "matches" the Furuno Network (172.31.x.x/255.255.0.0) in order to exchange information with the MFD and DRS. We highly recommended using 172.31.3.150 as a fixed IP address for the computer with a subnet mask of 255.255.0.0.

Once the computer's IP address has been assigned, launch Nobeltec TimeZero Trident in Navigation Mode. Select the Connection Wizard and perform an "Automatic Detection". Nobeltec TimeZero Trident will automatically detect the Navigation Data available on the NavNet3D network (GPS, Heading, AIS, Wind,...).

Note: Make sure that the NavNet3D MFD setup as a Master is turned on **before** starting Nobeltec TimeZero Trident.

Important note about DHCP Server and Router on a NavNet3D Network:

Using a Router (with a DHCP server) is **absolutely forbidden** on a NavNet3D Network. The NavNet3D MFD "Master" is already a DHCP server (and would conflict with any other third party DHCP server). If the computer is set up to acquire an automatic IP address, the NavNet3D MFD set as a Master needs to be

turned ON before the computer is connected to the network (or before the computer is turned ON, if the Ethernet cable stays connected to the computer at all times). If the computer is connected to the network or turned ON prior to the NavNet, the computer will not acquire a valid IP address and the Ethernet connection must be repaired manually. That is why it is recommended to setup a fixed IP address (172.31.3.150 / 255.255.0.0).

Note: Some PC Network Interface (under Windows7) cannot acquire an IP address from the NavNet3D DHCP server (from the Master). In these rare case there is no other way but to fix the IP address of the PC or use the Windows "Alternate IP Configuration"

FAR 2XX7 Connection

The "Furuno Radar Plus Pack" needs to be unlocked prior configuring a FAR 2XX7 series Radar in TimeZero Trident.

Check and Assign Radar Hostname(s)

When multiple radars are networked or inter-switched together, a unique number must be assigned to each processor. Note that for TimeZero Trident to correctly detect the radar, one FAR2xx7 must be assigned to "RADAR1" (IP address = 172.31.3.6).

To assign the radar number, hold "HL OFF" and press the "MENU" key 5 times on the FAR 2XX7. The "Initialize" menu will appear. Select "Installation" (4), then Radar NO (4). Once the radar number is changed, the radar must be restarted to store the new setting. If applicable, follow the same procedure for each radar on the network, and then confirm that each radar number is unique. You cannot have two radars on the same network with the same name or number.

Note: Whenever a network change is made, it is recommended that all radars are powered down and restarted.

To confirm the network settings and communications between multiple radars, power up all of the radars in the network, then right click on the Radar Antenna box (top left corner). The antenna information for all of the available radars in a network will appear on the right in the menu panel. Be sure that all the radars on the network are listed in this panel. If not, check the cables and the network settings.

Repeat Navigation Data over the network

One FAR2xx7 can be set up to output Position, COG and SOG on the network. Select the FAR2xx7 that you want to use to broadcast the information and right click on the "Own Ship Position" box. Select ON for the "SIO Data LAN Output" (3).

Note: Only one FAR 2XX7 can be set up to repeat Position, COG and SOG on the network

Configure the computer

Nobeltec TimeZero Trident connects to a Furuno FAR 2XX7 radar through an Ethernet connection (100Base-T). The computer needs to have an IP address that "matches" the Furuno Network (172.31.x.x/255.255.0.0) in order to exchange information with the radar. We highly recommended using 172.31.3.150 as a fix IP address for the computer with a subnet mask of 255.255.0.0.

Once the IP address of the computer has been assigned, launch Nobeltec TimeZero Trident in Navigation Mode. Select the Connection Wizard and perform an "Automatic Detection". Nobeltec TimeZero Trident will automatically detect the Navigation Data shared on the network by the FAR2XX7. Note that the FAR2XX7 will **only** share GPS, Heading, and COG/SOG over the network. If you want AIS, Depth or any other data, you will have to connect it directly to the computer (or use an Ethernet Sensor such as the Furuno AIS FA30 or Ethernet Sounder DFF1).

Note: Heading will NOT appear as detected in the Configuration Wizard. This is normal because the Heading is extracted from the Radar Echo information and not from the Navigation Data.

ARPA Configuration

2XX7 Configuration:

The ARPA target output must be setup through the LAN for all the FAR2xx7 on the network. Hold "HL OFF" and pres the "MENU" key 5 times. The "Initialize" menu appears. First, select "ARP Preset" (6). Select "True" for "TTM Output" (2). Select "Back" to return to the "Initialize" menu and select "Other" (8). Set "INS" (5) to "LAN". Repeat this process for each processor on the network.

TimeZero Trident Configuration:

In order for the ARPA target to be received over the network, you need to configure it manually in the software:

- Open the Connection Wizard
- Select "Manual Port Configuration" and click on "Next"
- Select "Add/Configure UDP Connection" and click on "Next"
- Select the IP address that begins with 172.31.x.x from the "Network Adapter" drop down menu and type "10028" for the "UDP Port". Click on "Next"
- When Nobeltec TimeZero Trident is done analyzing the port, select "UDP 10028" in the list on the left and make sure that "ARPA" is checked in the list on the right. Click "Next" then "Finish".

Furuno DFF1/DFF3 Sounders

On the Furuno BlackBox Sounder:

- Ensure that Mode Switches are in the "Down-Up-Up-Down" position for the DFF1 and that the internal DIP switches 1 and 2 are set to OFF for the DFF3.
- Connect an Ethernet cable from the DFF1 or DFF3 to a switch, hub, or directly to computer.

Note: When connecting directly to a computer, you will need a crossover cable.

On the computer:

Open the Network Connections List window:

- Windows 7 / Vista: Click on the Start Button and in the "Search Programs and Files" box, type ncpa.cpl and press Enter.
- Windows XP: Click on the Start Button and click on Run. Type ncpa.cpl in the Run Box and press Enter.

Right-click on the network adapter that the DFF1 or DFF3 sounder will be plugged into. This will typically be "Local Area Connection".

Click on "Properties"

Select "Internet Protocol (TCP/IP)" or "Internet Protocol Version 4 (TCP/IPv4)" from the items list.

Click the Properties button

On the General tab of the Internet Protocol Properties window:

Select "Use the following IP address"

- IP Address: 172.31.3.100
- Subnet mask: 255.255.0.0

Click OK

Click Close

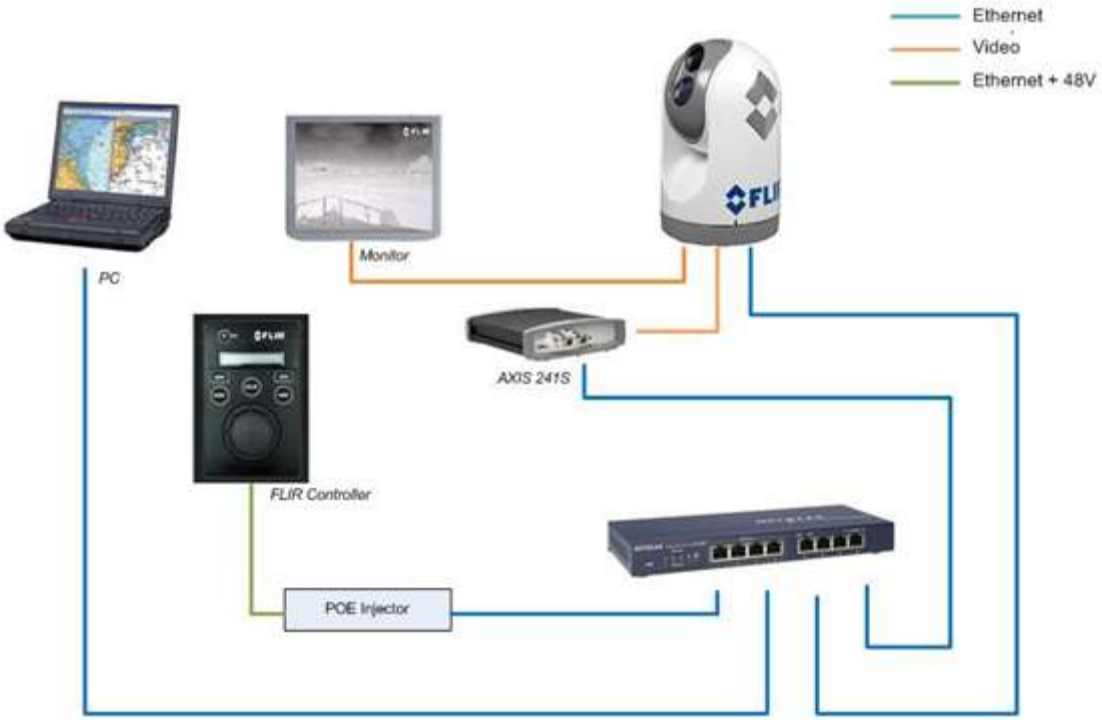
Close Network Connections List window

Launch Nobeltec TimeZero Trident and make sure that the "Furuno Sounder Module" is enabled

FLIR M-Series

FLIR M-Series

Nobeltec TimeZero Trident can be connected to a FLIR M-Series, which can be controlled Ethernet. Below is a picture showing a typical connection diagram:



Note that the FLIR M-Series does not output video via Ethernet. According to the model, the FLIR M-Series has one or two analog video outputs (on BNC connection) which can be connected to a monitor, an AXIS Video encoder or a Video Amplifier/Distributor (if the video needs to be split to multiple monitors. If you want the video to be displayed on Nobeltec TimeZero Trident (inside a NavData), you will have to use an AXIS Video encoder (AXIS 241S) in order to convert the analog video feed into IP video.

Note: If the Monitor is nearby the PC, the AXIS 241S Video Encoder is optional. You can control the Camera from TimeZero while looking directly at the monitor

M-Series Configuration

It is recommended to assign the M-Series, the Controller (JCU) and the computer a fix IP address. In this example, we will use a traditional Class C network configuration (192.168.1.X / 255.255.255.0). Make sure to not use the same IP address twice.

Example:

- Computer = 192.168.1.1
- FLIR M-Series = 192.168.1.2
- JCU (FLIR Joystick) = 192.168.1.3
- Optional AXIS 241S = 192.168.1.4

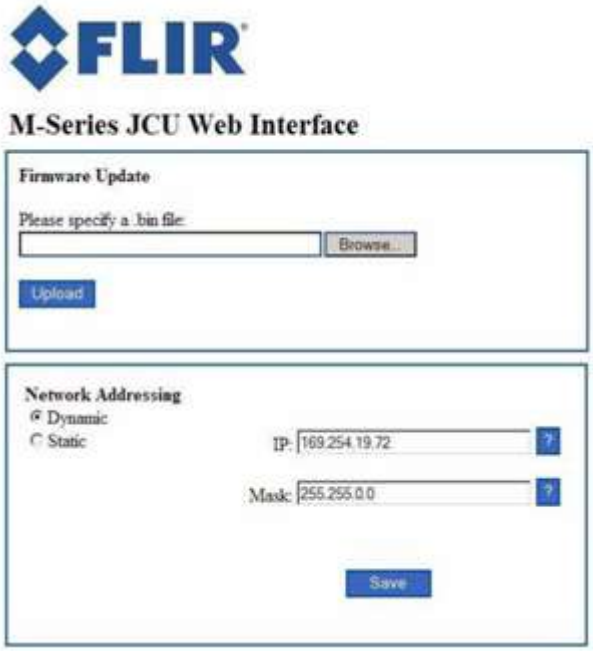
The FLIR M-Series and the JCU controller are UPnP-enabled devices. You can see the list of UPnP-enabled device from your computer by opening "My Network Places". They will appear with a generic icon based on the device type.

Note: If the devices do not appear, check to make sure that your computer is setup to display UPnP notifications:
- Start the Control Panel and go to Add/Remove programs
- On the left-hand side, select the Add/Remove Windows components
- From the Windows Component Wizard, scroll down to Networking Services, then highlight and select the "Details" button
- Check the box to enable the UPnP User Interface and select OK
- Select Next when returning to the Windows Component Wizard
- Select Finish

Double click on the M-SERIES icon to open its configuration web page. To configure a fixed IP address, select the Static option rather than Dynamic. The screen will refresh, and the IP, Mask, and Gateway fields will change from grey to white, indicating that they can accept user entries. Once you have entered the appropriate information, click on the "Save" link.

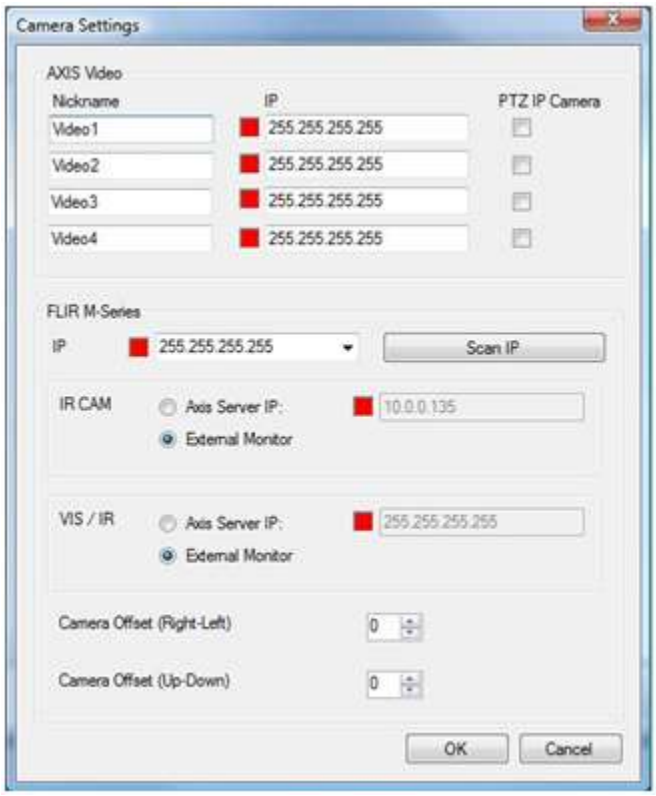
JCU (M-Series Joystick) Configuration

Go back to "My Network Places" and double click on the JCU to open its web page and set the IP address in the same way.



TimeZero Configuration:

Open the "Initial Setup" menu and click on "Camera Install". The M-Series is configured on the bottom part of the window.



First click on "Scan IP". This will automatically enter the IP address for the M-Series (192.168.1.2 in this example). If the M-Series is correctly detected, you should see a green light.

Note: If the M-Series is not detected, you may have to enable the discovery settings of the FLIR Internal Server ("Nexus"). Please refer to the chapter FLIR Nexus Server Activation for more information.

If you use an AXIS Video encoder, select the corresponding option and enter the IP address of the AXIS241S (192.168.1.4 in this example)

Once the configuration has been completed, click on "OK" to close the window. The camera control (using the right click on the chart) will now be available and the camera field of view will automatically appear.

FLIR Nexus Server Activation

In some instance, the internal server of the M-Series ("NEXUS" server) is configured in a way that prevents the PC from discovering and controlling it. If you have are unable to discover and control the M-Series from TimeZero and are able to use the Web Control of the M-Series to control it via a web browser, follow the instructions below.

Note: If you cannot display the internal FLIR web server from the computer or are not able to control the camera from the Web Interface, then you might have a network configuration problem.

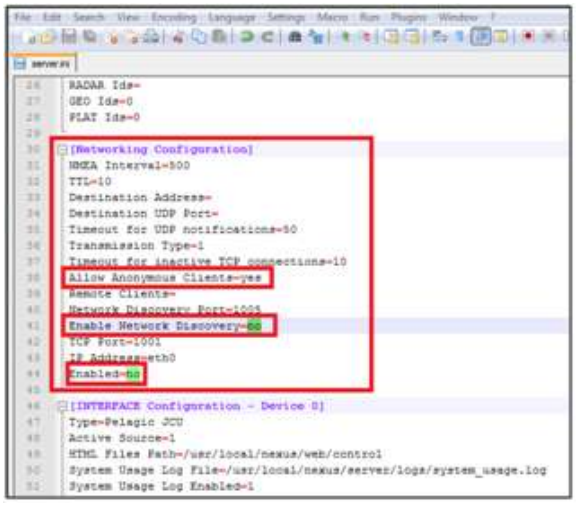
Open a Web Browser and type the IP address of the M-Series: http://<IP ADRESS >.

Example: http://192.168.1.2

Note: To access the Web Server configuration, type in the IP address (do not add any port numbers)

The Nexus configuration page should appear. Log in as an admin.

Click on the "Configuration File" menu, scroll to the very bottom of the page and click on "Download Configuration File". Save the file somewhere on your computer (on the desktop for example) and open the configuration file ("server.ini") with NotePad and look for the section "[Networking Configuration]"



Set "Enable Network Discovery", "Enabled" and "Allow Anonymous Clients" to "yes":

Save the file, making sure that you don't modify anything else.

Go back to the Nexus Configuration page (you might have to log in again), select "Configuration File" and scroll down to the bottom of the page. Click on "Choose file" and select the "server.ini" file you just modified. Click on "Upload".

The FLIR M-Series Nexus server needs to be restarted to take the changes into account. Go to the very top of the page (header) and click on "Stop"

Wait until the Start button appears, then click on it. TimeZero should now be able to detect and control the Camera.

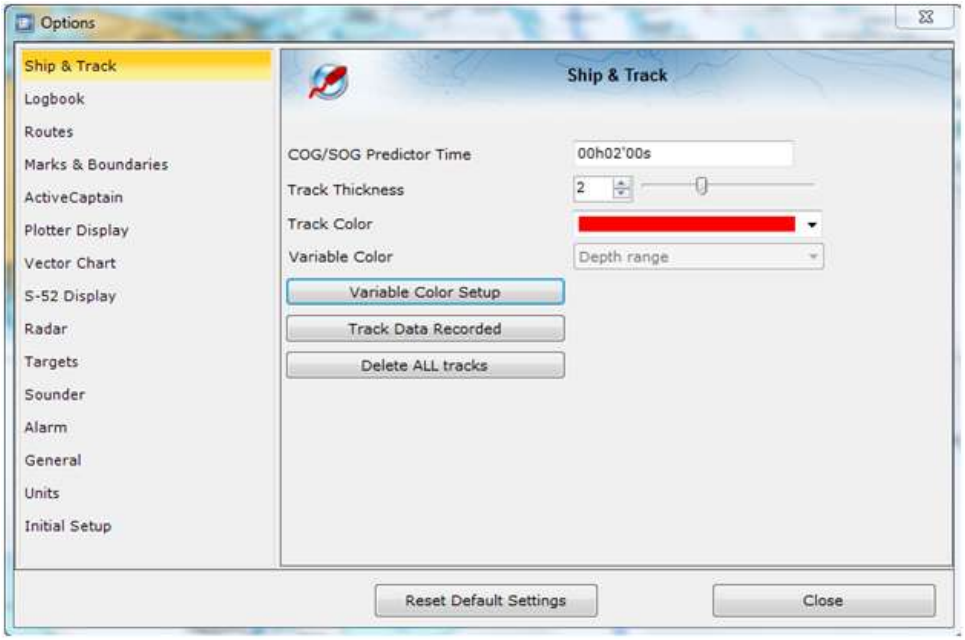
Reference

Options

Options Overview

All preferences and settings within Nobeltec TimeZero Trident are set using the Options window found under the "Nobeltec" button. The Options window is comprised of a categorized list of options to the left, and the main display area to the right which contains all of the controls that the user can customize. At the bottom of the Options window a "Reset Default Settings" button allows you to reset the settings of the current page to the factory default.

Note: The "Reset Default Settings" button only affects the selected page (or category)



Note that some categories (such as Radar and Sounder) will only appear when specific Plus Packs are unlocked. Other categories (such as "NN3D Chart Server") will only appear when a specific sensor (a NavNet3D MFD in this example) has been detected.

Ship & Tracks

The Ship & Track options are used to configure the vessel's COG & SOG predictor line and various track recording and display options.

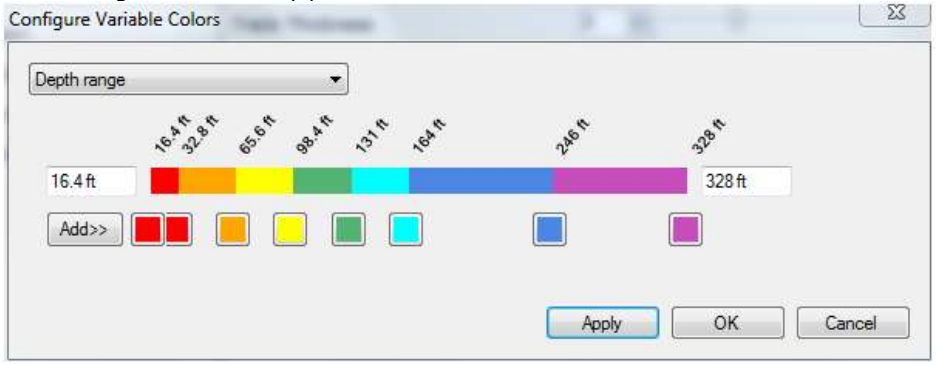
- **COG/SOG Predictor Time:** Increases the time value to make the Course Over Ground (COG) & Speed Over Ground (SOG) predictor line longer. Decreases the time value to make the predictor lines smaller.

- **Track Thickness:** Increases or decreases the thickness of all Track lines . This is a global setting and will affect all track lines on the screen.

- **Track Color:** Changes the default Track line color to one of 8 set colors, or Variable colors depending on Depth, Sea Surface Temperature (from the sounder or SmartDucer) or Speed.

- **Variable Color:** This option can be set to Depth, Sea Surface Temperature or Speed, but only if the Track Color option is set to Variable.

- **Variable Color Setup:** Press the Variable Color Setup button to access the control where you can alter the Track line coloring based on Depth range, Sea Surface Temperature (SST) range, or Speed. Users can adjust the minimum maximum values of the ranges as well as adding and customizing color to satisfy particular needs.



- **Track Data Recorded:** By default, Depth, Sea Surface Temperature and Speed over Ground are recorded within the track. It is possible to record more data (up to 10) by checking the appropriate box.
  Note: Recording data beside Depth, SST and Speed is for future use

- **Delete ALL Tracks:** Push this button to delete all Tracks that you have created to date.

Logbook

The Logbook allows users to create a log of their voyage by recording manual (using the "Logbook" button in the Toolbar) or automatic events. The Logbook options are used to setup automatic conditions.

- **Enable Logging:** Turns On or Off automatic Logging.

- **Record Every...:** A time interval from 20 minutes up to 1 day

- **Additional Condition:** User can select additional environmental conditions of Heading, Wind Force, Wind Direction and Depth to log as they change.

- **Conditional Criteria:** User can increase or decrease threshold values to trigger logging for the following environmental conditions.

    - *Heading Condition:* will trigger an automatic logbook event if the heading changes by the set amount within 1 minute

    - *Wind Direction Condition:* will trigger an automatic logbook event if the wind direction changes by the set amount within 1 minute

    - *Wind Force Condition:* will trigger an automatic logbook event if the wind speed changes by the set amount within 1 minute

- **Delete ALL Logbooks**: Push this button to delete all the Logbook data you have created to date.

Routes

The Route options allow users to configure settings related to routes behavior and appearance.

- **Route Color:** changes the default Route color

- **Route Thickness:** changes the thickness of all routes. This is a global settings and will affect all the routes displayed on the screen

- **Prompt for Route Name**: check this option to have the software prompt for a Route Name after creating a route.

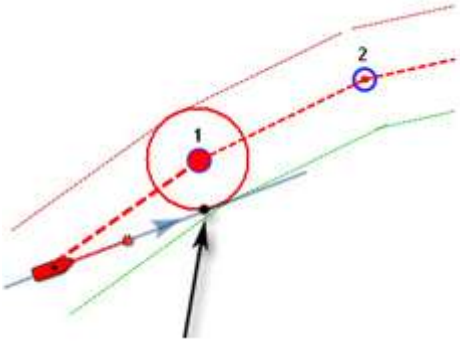
- **Great Circle Navigation:** when this option is checked, the software will compute and display distance (with the divider tool) using the Great Circle distance (shortest distance between points on the surface of the Earth)

- **Maximum Dist Between Waypoints:** this option (only available when "Great Circle Navigation" is checked) is used to automatically chop a route along the great circle path when the distance between two consecutive waypoints is bigger that the set value. These shorter resulting legs can be considered as straight ("rhumb line") segments that follow the shortest path on a Mercator projection using fixed bearing (on each segment).

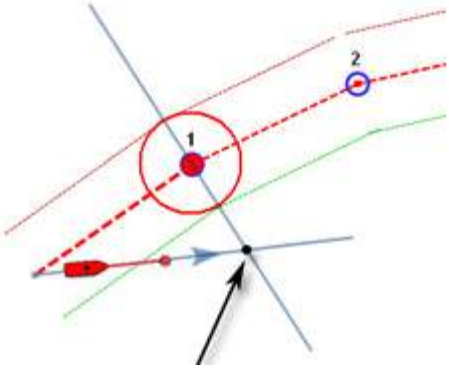
- **Route Auto Zoom:** when this option is checked, the software will automatically adjust the zoom level when a new Waypoint is activated along a route. The software will either zoom in or zoom out in order to show the current position and the next Waypoint.
Note: The Route Auto Zoom will only work if the boat is displayed on the screen (the software will not attempt to adjust the zoom level if you are panning on another area)

- **Waypoint Switching Mode:** this setting determines how the software switches to the next Waypoint automatically in a route

    - *Circle:* in this mode, the next Waypoint is automatically switched when your boat icon enters the active Waypoint's switching circle



    - *Cross Line (also known as "perpendicular")*: in this mode, the next Waypoint is automatically switched when your boat crosses the line through the Waypoint that is perpendicular to the active leg line



- *Circle and Cross line:* in this mode, the next Waypoint is automatically switched if it enters the switching circle or crosses the line.

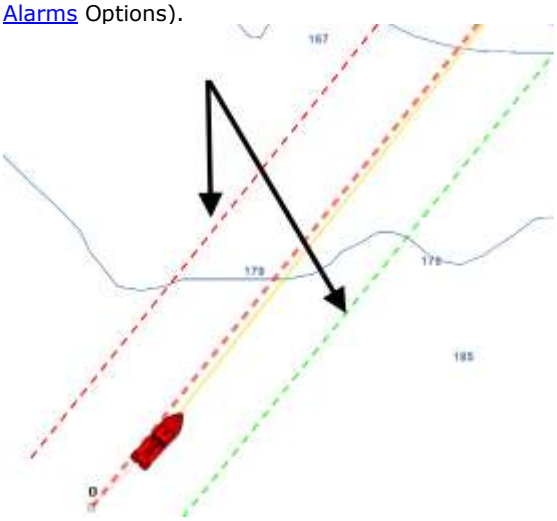
- **Switching Circle Radius:** this option sets the radius of the switching circle and arrival alarm. This is a global setting that affects all Waypoint in a route.

- **Waypoint Switching Notification:** when this option is checked, a notification will appear in the status bar (on top of the screen) whenever the active Waypoint is automatically switched. A sound will also be triggered if the option "Alarm and Notification Sound" is checked in the "Alarm" options.

- **End of Route Notification:** when this option is checked, a notification will appear in the status bar (on top of the screen) whenever the last Waypoint of a Route is reached. A sound will also be triggered if the option "Alarm and Notification Sound" is checked in the "Alarm" options.

- **Intelligent Waypoint Centering:** when this option is checked, the chart will automatically pan when a route is being built.

- **Display XTE Alarm Lines**: when this option is checked, a red and green dash line (respectively port and starboard) will appear on each side of the active leg (when a route is activated). These lines are a graphical representation of the Cross Track Alarm value (that can be setup in the Alarms Options).



Note: In order to see the XTE Alarm Lines on the chart, you may have to zoom in at a closer range

- **Fuel:** Fuel options are used to configure the display of estimated maximum fuel range calculations within the TimeZero software. Fuel tank levels and fuel flow information come from NMEA2000 sensors (or J1939 sensors that are converted to NMEA2000 data streams)

  - *Show Max Range on Route:* this option turns on or off the display of the estimated maximum fuel range overlay on a Route line.

  - *Max Range On Route Color:* allows the user to change the color of the maximum fuel range overlay on a Route line.

  - *Show Vessel Fuel Range Ring:* this option turns on or off the display of the estimated maximum fuel range ring (a range ring centered around the vessel)

  - *Vessel Fuel Range Color:* allows the user to change the color of the maximum fuel range ring.

    - *Use First (Second, Third or Fourth) Fuel Tank In Vessel Calculations:* allows the user to decide to use the First, Second, Third or Fourth fuel tanks on their vessel for the purposes of calculating estimated maximum fuel range

- **SAR Interval:** Search and Rescue (SAR) Interval value for auto routing density. Values can be manually entered, or if the user uses the SAR Interval Table, the value will be automatically populated with a distance appropriate for the search conditions.

Marks & Boundaries

The Marks & Boundaries options allow users to configure settings related to marks, events and boundaries (line, area and circle)

- **Display Objects Names:** this option displays object names next to the object. This is a global settings that affects all the marks, routes and boundaries displayed on the screen.
- **Configure Prefixes:** enables the user to customize the default name assigned to a new object.
- **Mark Symbol:** changes the default Mark icon.
- **Mark Color**: changes the default Mark color.
- **Mark Size:** changes the mark size (ranges from 50-200). This is a global settings that affects all marks displayed on the screen.
- **Event Mark Symbol:** changes the default mark icon used when an event is triggered (when the "Event" tool or ENTER key is used).
- **Event Mark Color:** changes the default mark color used when an event is triggered.
- **Attach Picture with Event:** Enables the user to attach a screenshot of the navigation screen to event marks when they are created.
- **Boundaries Color:** changes the default Boundary color.
- **Boundaries Transparency**: This option determines the default intensity of boundary transparency (ranges from 0-80).
- **Boundaries Contour:** changes the default Boundary contour style.
- **Boundaries Contour Thickness:** changes the boundary contour thickness. This is a global setting that affects all boundaries displayed on the screen.
- **Annotation Color:** changes default Annotation color.
- **Annotation Size:** changes default Annotation size (ranges from 5-50).
- **Icon Set:** Allows the user to choose between a modern or classic icon set.
- **Delete All Routes And Marks:** Pressing this button erases all existing routes and marks

ActiveCaptain

The ActiveCaptain options allow users to enter their ActiveCaptain credentials and set advanced marker filters

- **Login/Password:** enter the Email address used to register your ActiveCaptain account and your password

- **Only Show Marinas with:** this allows the user to show only Marinas that have information regarding specific features. Leave all the options un-check to show all marinas.

- **Local Knowledge to show:** this allows the user to show only specific "local knowledge" marker type. Leave all the options checked to show all "local knowledge" markers.

Plotter Display

The Plotter Display options allow users to configure settings related to the Navigation and Planning WorkSpaces

- **Day/Night Mode**: adjusts the screen's brightness and vector chart color palette (for night or day). When set to Automatic, TimeZero will automatically switch modes according to your local sunset and sunrise time.

- **Inverse Chart Palette in Day Mode:** force the night chart color palette at all times.

- **Chart Boundaries:** selecting this option displays all chart areas boundaries:

    - The areas having detailed Nautical Charts (either Raster, Jeppesen, Navionics, S57 or Fishing charts according to the current selection) are surrounded in purple

    - The areas having detailed Satellite Pictures are surrounded in green

- **Display Raster Chart Unit Legend:** This option displays a raster chart depth unit legend in the lower left hand corner of the screen.

- **Grid Interval:** indicates the grid interval (ranges from very low to very high) that can be turned ON and OFF from the "Chart" button located in the Ribbon

- **Transparencies**: The following objects' transparency can be adjusted:

    - *PhotoFusion Transparency Offset:* Manipulates the intensity of PhotoFusion transparency offset (ranges from 0-80)

    - *Tidal Currents Transparency*: Manipulates the intensity of tidal Currents transparency (ranges from 0-80)

    - *Depth Shading Transparency*: Manipulates the intensity of depth shading transparency (ranges from 0-80)

    - *Weather Color Transparency*: Manipulates the intensity of weather color transparency (ranges from 0-80)

- **3D Display:** While in 3D mode, the following options control the exaggeration of depth and altitude displayed:

    - *3D Alti Exaggeration*: Determines the exaggeration of land altitudes displayed while in 3D mode.

    - *3D Bathy Exaggeration*: Determines the exaggeration of water depths displayed while in 3D mode.

- **Depth Shading Values:** When the depth shading is turned on (from the "Chart" button located in the Ribbon), the range and hue of the depth color scale can be controlled using the following options:
    - *Auto Depth Shading Color Scale*: Automates the range of water depths to be shaded according to the area displayed on the screen. TimeZero looks for the shallowest and deepest points and automatically adjusts the range accordingly. In this mode, the color scale range is continuously updated as you pan or zoom the charts
    - *Minimum Value:* Fixes the minimum water depth value to be shaded.
    - *Maximum Value:* Fixes the maximum water depth value to be shaded.
    - *Depth Color Palette:* Determines the color palette used for depth shading.
- **Sea Surface Temperature (SST) Values**: The range of Sea Surface Temperature shading can be controlled using the following options:
    - *Auto Color Scale:* Automates the range of temperatures to be shaded. TimeZero looks for the warmest and coldest points and automatically adjusts the range. In this mode, the color scale range is continuously updated as you pan or zoom the charts
    - *Minimum Value*: Fixes the minimum water temperature value to be shaded.
    - *Maximum Value*: Fixes the maximum water temperature value to be shaded.

Vector Charts

The Vector Charts options allow users to configure common settings related to the Vector Chart display.

- **Chart Object Size:** Adjusts the size of the vector charts object icons (buoys, wrecks,...) and text displayed on the screen.
- **Chart Color Palette:** Determines the colors (or "theme") of the Charts.
- **Chart Symbols:** Determines the symbols (for buoys) to either the "S52" or "International" representation.
- **Shallow/Safety/Deep Contour:** These parameters are used to color the various depth area of the Vector Chart. The transition between colors is based upon the depth contour lines of the vector chart. Note that if there is no contour line available on the vector chart corresponding to the exact value you selected, the color transition will occur at the next deepest (safer) contour line available.

In addition to these screen rendering parameters, the Vector Chart Menu allows you to turn ON or OFF the display of specific object (such as Buoy Names or Light Description).

Note: More advanced settings (advanced vector chart layers) are available from the S-52 Display options.

S-52 Display

The Vector Chart engine in Nobeltec TimeZero Trident follows the IHO "S-52" presentation guidelines. The "S-52 Vector Chart Display Mode" provides quick access to five different levels of detail for vector charts:

- "base": shows the minimum set of objects necessary for planning.
- "standard": adds other objects that enhance planning (adds important text, lights, ...)

- "Other": adds other layers of information necessary for safe navigation (contour lines, obstructions,...)
- "Fishing": removes some land information from the "Other" configuration
- "Custom": When this option is selected, all object layers appear and can be enable or disable individually

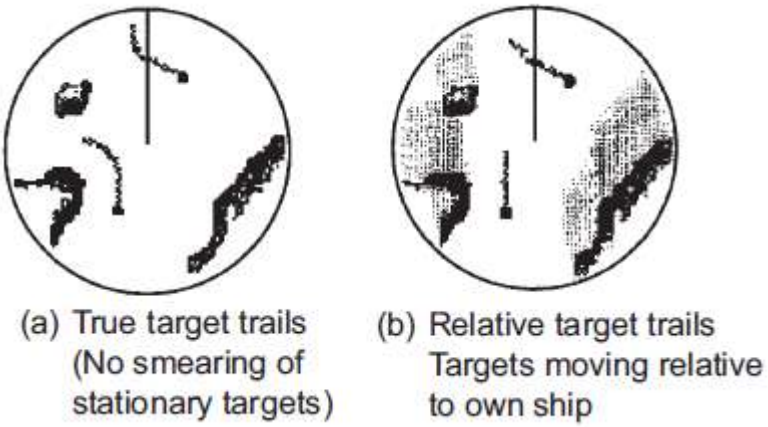
Radar

The Radar options allow you to configure various advanced Radar Setup and Displays preferences. These Radar Options will only be available if you have unlocked a Radar Plus Pack.

Note: If you are using an InSight Radar (or a Koden Ethernet Radar), you first need to run the Radar Connection Wizard available from the Windows "Start" menu under "Nobeltec TZ". Please refer to the InSight Radar Connection chapter for more information.

- **Background Color:** Determines the background color of the radar display.
- **Echo Color:** Determines echo color.
- **Echo Transparency for Overlay:** Adjusts the intensity of echo transparency on the chart (this does not affect the Radar Work Space)
- **Sweep Fade:** The sweep fade displays a "traditional" radar animation. This feature automatically reduces the brilliance of weak signals (noise, sea clutter, rain clutter, etc.) and unnecessary echoes like radar interference.
- **EBL Reference:** When set to "True", the EBL (*Electronic Bearing Line*) is referenced to the North. When set to relative, the EBL is referenced to the bow of your vessel.
- **Rings Interval:** You can manually adjust the number of Radar Range rings you want to display in the Radar Work Space. Leave the option set to "Automatic" if you want TimeZero to automatically adjust the number of rings according to the Radar Range and size of your screen (or window).
- **Bearing Scale Mode:** When set to "True", the Bearing Scale (numbers displayed on the outer circle of the Radar Work Space) is referenced to the North. When set to relative, the Bearing Scale is referenced to the bow of your vessel.
- **Own Ship Icon:** Check this option if you want to display a real sized ship icon in the Radar Work Space. Note that the ship icon will only appear at small range (according to your own ship beam and width).
- **Trail:** Echo trails show the movements of radar echos relative or true to your vessel. The trails disappear overtime (according to the "Trail Length" parameter). When set to "True" mode, only objects that are moving in reference to the water (such as another ship) will show a trail on the screen. Fixed objects on the water (such as buoys or a rock) will not show a trail even if your own ship is moving. When set to "relative" mode, any objects that move relative to your boat will leave a trail on the screen. So if your own ship is moving toward a stationary target (buoys for

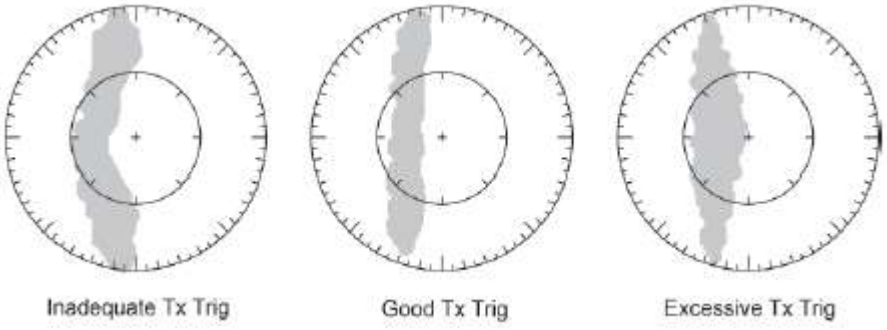
example), the target will leave a trail (smearing):



- **Radar Initial Setup:** These settings are used to adjust the initial setup of the Nobeltec InSight Radars (or Koden Ethernet radars). Note that this section will not appear if you are using a Furuno Ethernet Radar (either FAR2xx7 or NavNet3D DRS) as these initial settings are performed from the Radar or MFD unit directly.

    - *Antenna Heading Align:* It is not always possible to install a radar so that the front of the radar is exactly parallel with the boat's keel or center line. The Antenna Heading Align adjustment can compensate for this discrepancy. This process allows you to align the radar transceiver with the center line of the boat and only needs to be set once. Note that this is a different function than aligning your heading sensor. To adjust the Radar Antenna Alignment, it is best to display the Radar Work Space in "Head Up" mode and aim the bow of your vessel (during calm weather) at a buoy while underway. The buoy target should appear straight up on the Radar Screen.

    - *Trigger Delay:* The transmit trigger delay is a setting that, when configured incorrectly, can cause a donut-shaped ring to appear in the center of the radar image. Trigger delay should be initially set to reduce the size of the ring. Trigger Delay can also affect the radar image of a linear object such as a breakwater or riverfront. These can appear deformed due to excessive or inadequate trigger delay. Properly setting the delay may require on-thewater tuning when looking at a straight object (refinement of the Transmit Trigger is best viewed using radar overlay on the Chart).



In most cases, Transmit Trigger settings remain between 125 and 160.

    - *Sector Blanking:* This feature is used to indicate a zone where the radar does not transmit a pulse. This is necessary if:
    - Two or more radars are mounted within each others beam;
    - There is a significant structure near the radar that causes strong returns, overwhelming the circuitry of the radar; or
    - You wish to prevent radiating a particular zone of the radar (for example, your radar is mounted low on the fly bridge).

- **Presets:** Note that this section will not appear if you are using a Furuno Ethernet Radar (either FAR2xx7 or NavNet3D DRS). The Presets settings are used to adjust the "range of operation" of specifics value. For example, if you are using the Radar in Manual Gain and find that you have to "push" the manual gain value very high to see good targets, you may want to increase the "Manual Gain Preset". This will internally increase the manual gain value range and you will be able to backup the Manual Gain value to reach the same level of gain. Note that you have an independent Manual and Automatic Preset for Gain and the Sea Clutter (STC). The various controls will be enabled or greyed out according to the Radar current value. So if you want to adjust the Manual Gain Preset, make sure that the Radar is in Manual Gain.

    - *Auto Gain Preset:* To adjust the Auto Gain preset make sure that the Sea Clutter is set to 0 (manual Sea = 0). Set the Radar to Auto Gain (from the Radar Ribbon button) and pick a range suitable for navigation (around 3NM). Adjust the Auto Gain Preset control down if the image looks too strong or up if the image looks too faint.

    - *Manual Gain Preset:* To adjust the Manual Gain preset make sure that the Sea Clutter is set to 0 (manual Sea = 0). Set the Radar to Manual Gain at 50% (from the Radar Ribbon button) and pick a range suitable for navigation (around 3NM). Adjust the Manual Gain Preset control down if the image looks too strong or up if the image looks too faint.

    - *Auto Sea Preset:* The Auto Sea Preset is only used for range above 1NM (under 1NM TimeZero uses the Auto Harbor Sea preset instead). To adjust the Auto Sea preset, set the radar range to 12nm and select Auto Sea (from the Radar Ribbon button) to turn on that function. Set the Auto Sea preset to 10. Set the STC Curve preset to 4. From the Radar Ribbon button, manually adjust the gain until you get secondary echoes (noise) throughout the image. From the Options panel, adjust the Auto Sea preset value up until most of the weak echoes for an 8nm radius are eliminated. Adjust the radar range to 1.5nm and verify that strong echoes from nearby vessels or land are not eliminated. If land or vessel echoes are small or have been eliminated, decrease the Auto Sea preset.

    - *Manual Sea Preset:* To adjust the Manual Sea preset, set the radar range to 12nm and set the Sea Clutter to Manual at 50% (from the Radar Ribbon button). Set the Auto Sea preset to 10. Set the STC Curve preset to 4. From the Radar Ribbon button, manually adjust the gain until you get secondary echoes (noise) throughout the image. From the Options panel, adjust the Manual Sea preset value up until most of the weak echoes for an 8nm radius are eliminated. Adjust the radar range to 1.5nm and verify that strong echoes from nearby vessels or land are not eliminated. If land or vessel echoes are small or have been eliminated, decrease the Manual Sea preset.

    - *Auto Harbor Sea Preset:* To adjust the Harbor Sea Clutter Preset, set the radar range to 1nm and select Auto Sea (from the Radar Ribbon button) to turn on that function. Set the Harbor Sea preset to 10. Set the STC Curve preset to 4. From the Radar Ribbon button, manually adjust the gain until you get secondary echoes (noise) throughout the image. From the Options panel, adjust the Auto Harbor Sea preset value up until most of the weak echoes are eliminated. Adjust the radar range to 1/8nm and verify that strong echoes from nearby vessels or land are not eliminated. If land or vessel echoes are small or have been eliminated, decrease the Auto Harbor Sea preset.

    - *Auto Tune Preset:* Nobeltec radars are always in "Auto Tune" mode. To optimize the image, it is necessary to set the auto tune preset. Once established, you should not need to adjust the auto tune preset unless the image quality deteriorates. Generally, you should adjust the auto tune preset on average once a year to make sure you have the highest quality image. Adjust the auto tune control down until you see the image start to deteriorate. Note the value of the setting. Adjust the auto tune control up past the point where the image looks good until it starts to deteriorate. Take note of the setting value. Set the controls at a point between the two extreme settings, where the quality of the image is at its best.

    - *STC Curve:* The STC Curve function allows you to control all modes of the Sea Clutter profile of the radar. By default, the STC Curve profile is set to a value of 4. For most applications, there should be no need to change this setting. However, you may want to adjust this value to get a better application of Sea Clutter if the radar is mounted higher or lower than a typical installation. To adjust the STC Curve profile, set the radar range

to 12nm, set Gain and Sea Clutter to manual settings (from the Radar Ribbon button). When the STC curve profile is set to a lower number, the sea clutter is only applied in an area closer to the vessel. Setting the curve profile to a higher number causes STC to be applied to more of the image. Note that if the STC curve profile is not set correctly, adjusting the sea clutter (manual or automatic) may not have the desired impact. If you notice that increasing the sea clutter control has no impact on the image, your STC curve profile is too low. On the other hand if you notice that echoes disappear too quickly, your STC profile may be too high.

- **Scan Radar Source:** Click on this button to display all radars connected to the computer. Clicking on one of the radar name allows you to select the radar you want to use in the software. Note that you can also select the Radar Source directly from the Radar Ribbon button.

- **Advanced ARPA Settings:** These advanced ARPA settings should not be modified by the end user directly. Only adjust these values if you are given specific instructions by Technical Support or your dealer.

Targets

The Targets options allow users to configure settings related to the Targets display.

- **Display Target ID:** Check this option to display target names below the target icons. Note that TimeZero will always try to display the name first (either available inside the AIS information or inside the Buddy List). If a name is not available, TimeZero will display the *MMSI* number instead.

- **Deactivate AIS Targets farther than...:** AIS targets will either be "Active" or "Deactivated". An "Active" AIS target is displayed with a regular sized icon and with a label (if the "Display Target ID" setting is checked). A deactivated target appears smaller and without its label. Use the "Deactivate AIS Targets farther than" setting to help declutter your screen.

- **Buddy List (AIS & DSC):** Press this button to show a window that allows you to replace the *MMSI* number (in case of DSC) or AIS name to a customized name.

Sounder

The Sounder options allow you to configure various advanced Sounder Setup and Displays preferences. These Sounder Options will only be available if you have unlocked the Furuno Sounder Plus Pack.

- **Day Background Color:** Determines the sounder screen background color in day mode.

- **Night Background Color:** Determines the sounder screen background color in night mode.

Note: The Day/Night setting can be found under the Plotter Display options.

- **Echo Color Levels:** Displays returns in 8, 16 or 64 colors.

- **Monochrome Mode:** Displays the sounder image in black and white.

- **Zoom Reference Lines:** Shows or hides the zoom marker that appears in the bottom zoom and marker zoom modes (not implemented yet)

- **A-Scope Peak Hold:** This option allows you to hold the echo return in the A-Scope for a couple of seconds.

- **High Resolution**: This option is only relevant when TimeZero is used in conjunction with a Furuno NavNet3D MFD. Turn on this feature to "smooth" sounder echoes when they take a "jagged" appearance on the MFD.

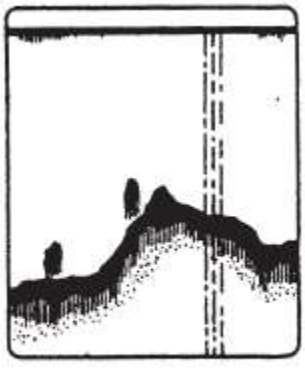
- **Picture Advance:** Adjusts the speed at which the sounder view scrolls across the page.

- **Bottom Range Shift Area:** Select the position where you want the bottom of the echo to be located on the screen (when the Sounder is set to Auto Range from the Sounder "Mode" Ribbon button). For example, setting 75% would place the bottom echo at a position equivalent to 75% from the top of the display.

- **Zero Line Rejection:** Check this option to mask the echoes near the top of the screen (that are caused by the transducer itself). Use the "Zero Line Range" settings to increase or decrease the height of the mask.

- **Interference Rejection:** Interferences from other fish finders and electrical equipment can introduce artifacts (or noise) on the sounder screen:

Interference from other sounder



Interference from electrical equipment

When this type of interference appears on the screen, use the lowest interference rejection setting possible that removes the noise on the screen. Three or four levels are available

- **Clutter:** Increase this setting to remove low intensity "spots" of noise that can appear all over the screen when sediment in the water or noise are picked up by the sounder.

- **Color Erase:** Increase this setting to remove weak sounder return from the screen (remove the colors that are used to display weak echo)

- **White Marker:** Allows the user to change one color of the sounder color palette to white. This can be helpful in making certain returns stand out.

- **White Edge:** Check this option to display a white line over the bottom. This can be helpful to distinguish fish that are close to the bottom (they would appear above the white line)

- **TVG:** (Time Varying Gain) Increase this setting to reduce gain near the surface in either High or Low frequency while maintaining the gain for deeper water.

- **Transmit Rate:** In normal use, leave this setting to the maximum value. If you are in shallow waters, set it to "Auto" (or manually decrease the value) to prevent second reflection echoes that appear between the surface and the bottom echo.

- **ACCU-FISH:** Check this option to automatically mark any return that the sounder identifies as fish. Note that when ACCU_FISH is enabled, the sounder will work in dual frequency mode (as both frequencies are needed to detect fish automatically). Running your sounder in dual frequency lower the refresh speed.

    - *Fading:* Indicates the time, after detection, that fish information will disappear from the screen.

    - *Fish Info:* Fish information is displayed in either depth or size of detected fish.

    - *Info Size:* Adjusts the size of fish information (percentage offset)

    - *Fish Symbols:* This option determines the fish symbol used to mark detected fish.

    - *Fish Color:* This option determines the color of fish symbols displayed.

    - *Symbol Size:* Adjusts the size of fish symbols.

- **Transmit Status:** The sounder can be put into either TX (transmit) or Stby (standby) mode.

- **Scan Sounder Source**: Click on this button to display all sounders connected to the computer. Clicking on one sounder name allows you to select the sounder you want to use in the software.

Alarms

The Alarm options allow you to configure all of the various alarms and warnings that can be trigger by the software.

- **XTE Alarm** (Cross Track Error): An alarm sounds when the vessel has strayed a designated distance ("XTE Alarm Value") from the active route. Note that you can display a graphical representation of the Cross Track Error limit on the chart by enabling the "Display XTE Alarm Lines" available in the Routes options.

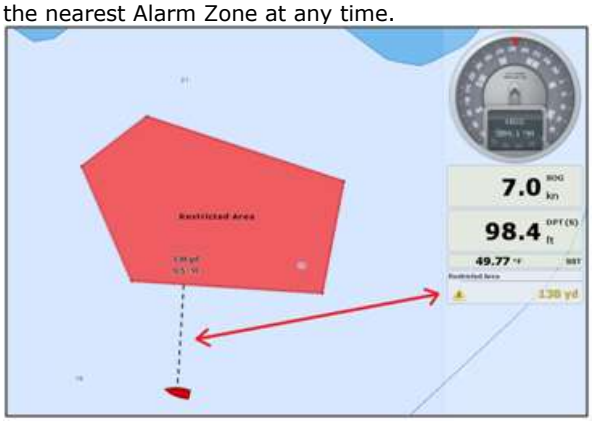
- **Alarm Zone:** User can create Boundary Zones on the chart (using the "Boundary Area" tool or by right clicking on the chart and select "Create -> Boundary Area") and then set them as Alarm Zones by right clicking on them and selecting "Alarm". Once Boundary Alarms are created, the "Alarm Zone" setting will define their behavior:

    - OFF: No alarm will be triggered even if the boat enters in an Alarm Zone

    - ON: An alarm will be triggered as soon as the boat enters in any Alarm Zone

    - Progressive: When the boat reach the distance set in "Progressive Alarm Zone Value" from any Alarm Zone, a notification will be displayed (to warn the user from the proximity). When the boat enters any Alarm Zone, an alarm is triggered. Note that a dedicated NavData ("Alarm Zone NavData") can be setup to display the distance from

the nearest Alarm Zone at any time.



- **Depth Alarm**: An alarm sounds when the vessel passes over water shallower than a designated depth value.
- **CPA/TCPA Alarm** (Closest Point of Approach/Time to Closest Point of Approach): An alarm sounds when the vessel's CPA/TCPA fall below the designated values.
- **Proximity AIS Target Alarm:** An alarm sounds when the vessel passes within a designated distance from an AIS target..
- **GuardZone Alarm Level:** Set the sensitivity of the Radar Guard Alarm Zone (increase the value to increase the sensitivity)
- **GuardZone Alarm In/Out:** Sets if the Radar Guard Alarm Zone responds to echos entering or leaving the Guard Zone
- **Anchor Watch Alarm:** An alarm sounds when the vessel strays a designated distance from where the user set anchor. Note that you can enable/disable the Anchor Alarm by right clicking directly on the Own Ship icon.
- **Alarm Sound:** This option allows the user to choose the alarm sound.
- **Notification Sound:** This option allows the user to choose the notification sound.
- **Alarm and Notification Sound:** This option allows the user to enable or disable the Alarm or Notification sound. When this option is disabled, alarm and notifications will only be displayed in the status bar (at the top of the screen) and will not trigger any sound.
- **Sound Alarm Until Acknowledged:** When the "Alarm and Notification Sound" is enabled, and this setting disabled, the Alarm will only sound one time (when it is triggered). If you check "Sound Alarm Until Acknowledged", the Alarm Sound will repeat over and over until the user clicks the Status Bar (to acknowledge the Alarm).
- **Save Log File as…:** Saves a history of all alarms to the user's computer.

General

The General options allow you to configure various TimeZero settings:

- **Connect to the Internet:** Allows the user to indicate whether the system connects to the internet "never," "at launch," or "when necessary".

- **Tidal Step:** Sets the duration of tidal step (ranging from 5 minutes to 12 hours) that is used when the user clicks on the "Step Forward" button of the Virtual Time Control (available in the Planning Work Space). Note that if weather information is displayed on the screen, the steps used are the forecast interval.

- **Duration of Animation:** Sets the duration of animation (ranging from 5 seconds to 3 minutes). If you find that the weather animation moves too quickly, increase this setting.

- **NavData Transparency:** This option manipulates the intensity of NavData transparency (ranges from 0-90)

- **NavData Multi Data Dwell Time:** When multiple numeric data are assigned to the same NavData panel, the "Multi Data Dwell Time" adjusts the time (from 2 to 10 seconds) that each piece of data will be displayed before switching to the next one. To add multiple data to the same NavData panel, right click on a numerical NavData (NavData displaying Number), select "Add" and click on the Data you want to add.

- **Hide Undocked NavData:** Check this option to hide undocked NavData when the NavData tab is closed

- **NavData Size:** Determines the size of the NavData bar on the right side of the screen (ranges from 50-150).

- **Toolbar Size:** Determines the size of the Toolbar on the left side of the screen (ranges from 25-100).

- **Ribbons Size:** Determines the size of the Ribbons at the top of the screen.

- **Auto Hide Ribbon and Toolbar:** This option automatically hides the Ribbon and Toolbar when the cursor stops moving after a designated period of time ("Auto Hide Delay").

- **Display Tooltip Over Object:** Determines how quickly the Tooltip appears when hovering over an object. If you don't like the Tooltips to appear when the mouse is over an object, set this option to OFF. You can always display the Tooltip by left clicking on any objects.

- **Center on Screen when Zooming with Hand:** Check this option if you want the plotter to zoom in on the center of the screen when using the mouse wheel (instead of zooming on the cursor location).

- **Enable Auto Hand Tool Selection:** Leave this option checked if you want TimeZero to automatically select the panning tool (Hand Tool) after creating a route or object. Un-check this option if you want to create multiple objects in a row.

- **Allow Unselected Object to be Moved:** Leave this option checked if you want to be able to move an object by dragging it on the map. If you have lots of marks and objects drawn on the chart, you might accidently move an object when you just want to move the chart. In this case, un-check this option. This will force you to first select (by clicking) an object before being able to drag it to move it.
  Note that you can also "Lock" objects (using the Right Click) if you want to protect them from accidental modifications.

- **Customize Function Keys:** The user can create shortcut keys to control various system settings.

- **Dual Monitor:** Enables the user to use dual monitors to view the software. This option will only be available when (at least) two monitors in extended mode are detected.

- **TrackBall Mode (panning charts)**: This option allows you to drag the chart indefinitely without having to release and reposition the cursor when the edge of the screen is reached. This option can be particularly useful with trackball and mouse.

- **Power Consumption Optimization:** This option adjusts software power consumption in order to aid either performance or battery conservation.

Units

The Units options allow you to setup the units that you want to use for various data displayed on screen.

Simply select the corresponding unit you would like to use for each data.

Initial Setup

- **Boat Length:** Enter the vessel length

- **Boat Icon:** Users can choose the shape of the boat icon when the plotter is used in 3D (the shape of the 2D icon is fixed and cannot be changed)

- **Static Icon Size:** Users can choose the size of the 2D boat icon. Note that if you zoom to a very small range, the vessel icon size (in either 2D or 3D) will be displayed at its real scale (size) on the chart according to the "Boat Length" parameter.

- **Average Boat Speed:** Enter the type of boat (either "Sailing", "Commercial" or "Power Boat"). This setting is used in the software to set some internal parameters such as the maximum scale of the Speed Analog Gage NavData.

- **NavData Maximum Depth:** Used to set the maximum scale of the Depth Analog Gage NavData

- **Depth Display**: Users can choose to display the depth below the waterline or below keel. This requires the user to enter proper values for "Keel Draft" and "Transducer Draft". If you leave these values set at 0, the depth displayed by the software will be the depth below the transducer no matter what selection you make.

- **CCRP**: The CCRP (Consistent Common Reference Point) settings allows you to define offsets for GPS, Radar, and Transducers. TimeZero uses this information mainly for aligning the radar overlay on the chart. As set by IMO regulations, the CCRP is the location at the ship icon, to which all horizontal measurements, such as target range, bearing, relative course/speed, closest point of approach, or time to closest point of approach are referenced. Usually this is the Wheelhouse position on the boat. When entering all the settings (for CCRP, GPS, Radar,…) remember that the longitudinal positions are always positive (from Bow to Stern) while the lateral position is negative for Port and positive for Starboard (0 is the middle of the vessel)

- **Fuel Rate Display:** Used to set the maximum scale of the Fuel Rate Analog Gage NavData.

- **Fuel Tank Nickname:** TimeZero can decode up to four fuel tank levels. Each fuel tank sensor must have a different instance number. The Software will sort all of the fuel tank sensors by ascending instance number. So if you have three fuel tanks with instance numbers 0, 2 and 5. TimeZero will map the first fuel tank to the one that has instance 0, the second to the one that has instance 2 and the third one to the one that has instance 5.

- **Camera Install**: Nobeltec TimeZero Trident can display one AXIS IP Camera in a NavData. You can enter up to 4 AXIS Camera IP addresses (with corresponding nicknames) and then right click on the Camera NavData to change the source at any time. If the AXIS Camera has PTZ (Pan / Tilt / Zoom) controls, make sure to check the corresponding "PTZ" checkbox. This will enable buttons to be displayed in the Camera NavData (when the cursor is inside the NavData) to control the AXIS IP Camera directly from the software.

Nobeltec TimeZero Trident can also control a FLIR M-Series Camera. Please refer to the FLIR M-Series installation paragraph.

Getting More Help

How to Contact Nobeltec

If you have a question about your Nobeltec Navigation Software, please first review this User's Guide. If you cannot find the answer you are looking for, please contact Nobeltec Customer Support.

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Support email: support@nobeltec.com
Web site: www.nobeltec.com

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