

Chapter 8: Operator Display Windows

This chapter examines the configuration and use of the display windows available in WinFrog.

- I/O Devices
- Graphics
- Profile
- Vehicle Text
- Acoustics
- Anchor Handling
- Alarms
- Attitude
- Auditor
- Bird's Eye
- Calculations
- Controlled Remote
- Distance Counter
- Dynamic Tracking
- Helmsman
- Level Bubble
- Numerics
- Smart Remote Control
- Tracking Offsets
- Cable Model Large Window
- Cable Model Small Window

Any of these windows can be displayed in the WinFrog work area by simply choosing them from the **View** menu.

Note: some options, such as the **Graphics**, **I/O Devices**, **Calculations**, and **Vehicle Text** windows allow for multiple displays of the same type. Each additional window opened is labeled with a number to differentiate it from the original.

The main menu item **Window** lists all of the currently enabled windows with a checkmark next to the “**active**” window. When you click anywhere within the bounds of a window to make it active, it displays in front of all other windows. You can also choose the window's name from the list under **Window** in order to make it active. Any of the windows that are user-configurable must be made active before they can be modified.

Note: because of its importance, the **Vehicle Text** window can be configured to always be on top of other displays. See the **Vehicle Text** window section below for more details.

On non-initial launches of WinFrog, the windows previously used are displayed in the same layout because window configurations are saved in the **Winfrog_3.ini** file each time you exit WinFrog.

Maximizing Available Monitor Space

Since a large number of windows can be displayed simultaneously, all available monitor display space is quickly used. Even with the most basic WinFrog configurations, the monitor becomes filled, requiring you to limit your selections. Preferred selections typically include the **I/O Devices**, **Vehicle Text**, and **Graphics** windows. A split-screen graphics card and second monitor should be added if you intend to display any of the other available views on a regular basis.

To Maximize Available Monitor Space

WinFrog has four functions to help maximize the use of the available screen space:

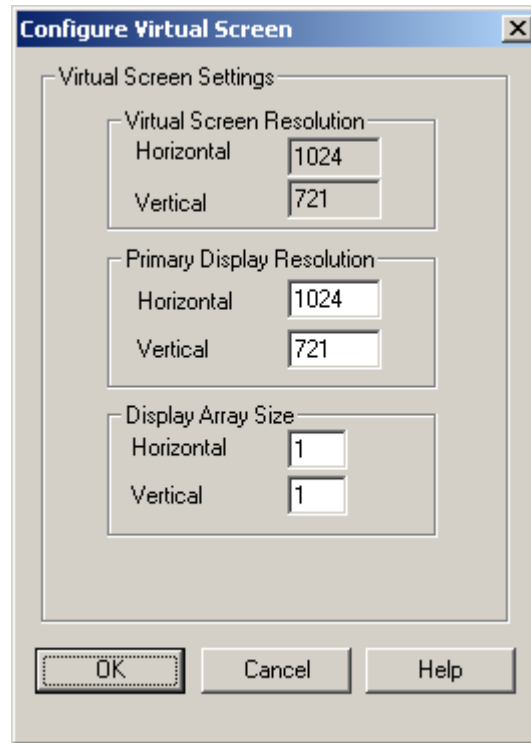
- 1 As mentioned above, the main menu item **Window** lists all of the currently enabled windows, with a checkmark located beside the **active** window. Making a window **active** will display it in front of any other window. Using this feature, you can overlap windows and quickly bring the required window to view as desired.
- 2 The main menu item **Configure > Virtual Screen** provides you the ability to configure additional “virtual screens.” Each can be individually configured for content and layout. (More on this feature in the section named **Virtual Screen Configuration** below.)
- 3 Also under the **Window** option is the **Cascade** feature. This function re-organizes all of the windows so that they are only partially overlapping. This allows for easy selection of all windows.
- 4 In the top right corner of each window are the three standard Windows™ functions: **Minimize**, **Maximize**, and **Close**. Select the **Minimize** button to shrink the window to display only the **Title bar**. You will be able to see this in the lower left corner of the WinFrog display. (**Note:** a minimized window may be hidden under the **Vehicle Text** window).

Virtual Screen Configuration

As mentioned above, WinFrog’s numerous displays are quickly able to cover all available monitor display space. To assist in efficient use of limited space, WinFrog allows you to configure up to 24 “virtual screens” and then choose which display will be viewed. The following sections detail the configuration and selection of virtual screens.

To Configure Virtual Screens

WinFrog's Virtual Screens are configured by selecting the main menu item **Configure > Virtual Screen**. The **Configure Virtual Screen** dialog box displays, as seen below.



Virtual Screen Resolution

Horizontal/Vertical

Displays the monitor's current horizontal and vertical resolution settings. This value is read from the computer's display settings and cannot be altered here.

Primary Display Resolution

Horizontal/Vertical

Enter the horizontal and vertical resolution settings desired for each virtual display. Typically, you would enter the same values as displayed above (Horizontal: 2048, Vertical: 721) in the **Virtual Screen Resolution** entry windows.

Display Array Size

Horizontal

Enter the number of virtual screen "columns" to be created. The new virtual screens are created to the **right of Display**

Vertical

Number 1 (see the next figure). For example, the drawing below depicts an entry of 4 in this window.

Enter the number of virtual screen “rows” to be created. The new virtual screens are created below the row containing **Display Number 1**. For example, the drawing below depicts an entry of 2 in this window.

Virtual Display Numbering

1	2	3	4
5	6	7	8

A shortcut button, with the number “1” on it, resides on the WinFrog toolbar for the default virtual screen. When you configure additional screens and exit this dialog, shortcut buttons are placed on the toolbar with numbers representing each virtual screen. Click a shortcut button to make that virtual screen the active window. Once the desired display number is selected, you can add or move the various WinFrog display windows to this virtual screen as desired.

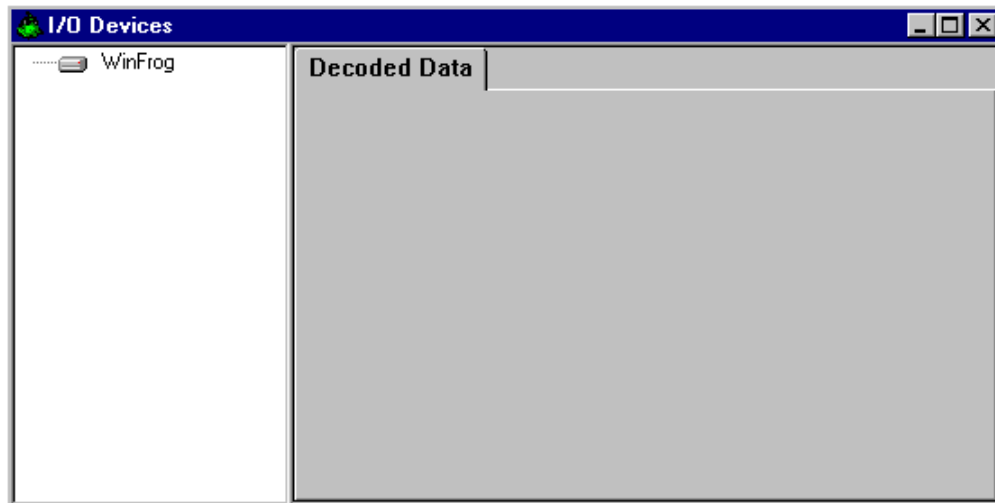
I/O Devices Window

WinFrog's **I/O Devices** window displays real-time data for all peripheral devices configured in WinFrog. This window allows you to view incoming and outgoing data, edit device interface protocols, and edit operating parameters for each device. For detailed information concerning configuring peripheral devices in WinFrog, refer to the **Peripheral (I/O) Devices** chapter.

Multiple **I/O Device** windows can be displayed at the same time, enabling you to view data from different devices at the same time. The size of each window can be altered by “grabbing” an edge or corner and dragging it “in” or “out,” as desired.

To Display the I/O Devices Window

- 1 From the **View** menu, choose **Devices**.



The **I/O Devices** window is divided into 2 sections: The left side of the window lists all devices that have been added to WinFrog, while the right side of the window displays **Decoded Data**.

To view the **Decoded Data** for a specific device, simply click on that particular device name in the left side of the **I/O Devices** window. The **Decoded Data** portion of the **I/O Devices** window updates approximately once every half second, displaying data for the chosen device.

The **I/O Devices** window also provides functions that allow you to edit, configure, add, and delete devices.

With the mouse pointer in the **left** side of the **I/O Devices** window, click the right mouse button to access the following options:

Edit I/O	Select this option to configure the input/output (I/O) parameters for the currently selected device.
Config	Select this option to configure “generic” parameters for the currently selected device, if available.
Add Device	Select this option to open the Add Devices dialog box.
Delete Device	Select this option to delete the currently selected device.

With the mouse pointer in the **right** side of the **I/O Devices** window, click the right mouse button to access the **Change Font** feature. Select **Change Font** to open a standard Windows™ **Font** configuration dialog box. Select the desired options then press **OK** to return to the **I/O Devices** window. Note: only the **Decoded Data** portion of the **I/O Devices** window uses the selected **Font** options.

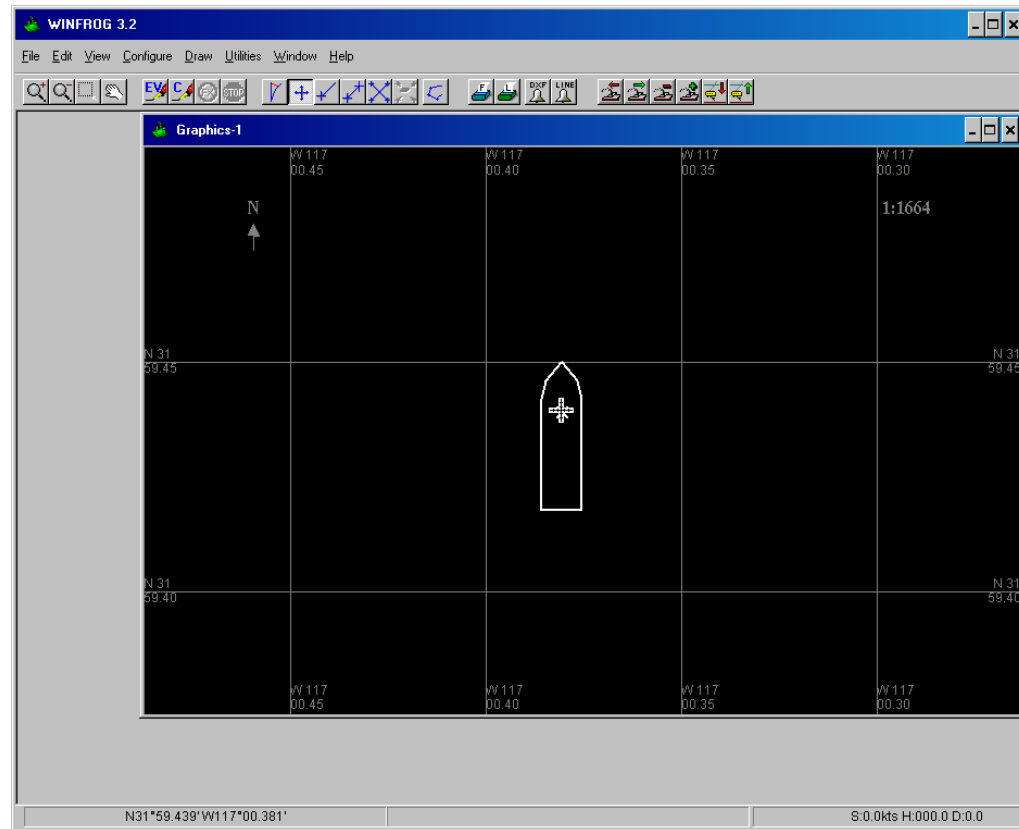
Graphics Window

The **Graphics** window is the main navigational display generated by WinFrog. The **Graphics** window can be configured to display all vehicles, survey lines, waypoints, picture file data, manual events, cable events, data logged using automatic events, xponder locations, and charts. In addition, the **Graphics** window can display latitude and longitude grid lines, Northing and Easting grid lines, a grid with an origin at the center of the **Graphics** window, a North arrow, scale, and chart information.

A feature that is useful for multi-vehicle applications is the ability to display more than one **Graphics** window. Each **Graphics** window can be independently configured to display different information.

To Display a Graphics Window

- 1 From the **View** menu, choose **Graphics**. WinFrog's default configuration will open the **Graphics** window in the top right corner of the WinFrog workspace.

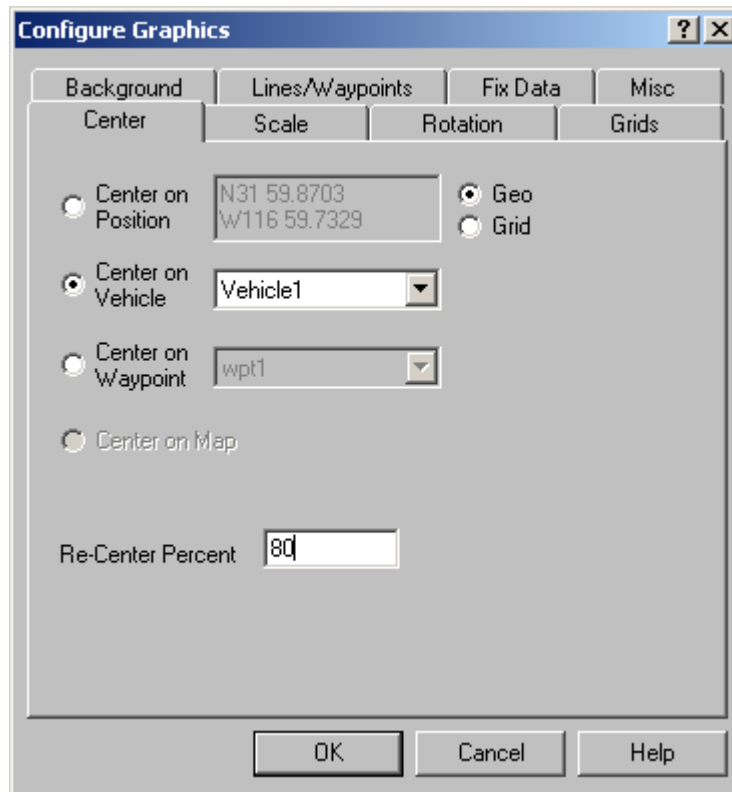


To Configure the Graphics Window

- 1 If more than one **Graphics** window is currently displayed, you must specify which one will be "active." To do so, either click the title bar of the one to be configured or select the main menu bar item **Window** and select the appropriate **Graphics** window.
 - 2a From the **Configure** menu, choose **Graphics**.Or
 - 2b Move the mouse pointer into the **Graphics** window, click the right mouse button, and select **Configure Graphics**.

The following parameters are configured using the **Configure Graphics** dialog box:

Center Tab



Center on Position/Geo/ Grid radio buttons

Select this option to center the **Graphics** window at the coordinates displayed in the box, regardless of the current vehicle position. The coordinates can be either entered in geographic latitude and longitude (if the **Geo** radio button is selected) or in grid Northing and Easting (if the **Grid** radio button is selected).

You can also manually position the center of the **Graphics** window by using the **Mouse Pan** function. To use this function you must first have the **Display Position** button enabled in the button toolbar. Now, select the **Mouse Pan** button from the button toolbar. Enabling this function changes the appearance of the mouse pointer to a “hand” icon when it is located within the limits of the **Graphics** Window. To designate a specific point as the center, simply move the “hand” to the desired location then, while holding the left mouse button down, move the “hand” to the desired location. This will re-center the **Graphics** screen to the specified point. Note that if you have a background map displayed and the **Move with Pan** checkbox in the Background tab unchecked, its position will not be updated until you have released the mouse button. This is to improve the refresh rate of the Graphics window when large files have been loaded.

Center on Vehicle radio button

Select this option to have WinFrog automatically re-center the **Graphics** screen in reference to the vehicle's current point of reference. If you decide to use the **Mouse Pan** function while in this mode, the software will automatically change to Center on Position on the point where you release the mouse button. **Note:** the **Graphics** screen may be constantly refreshing itself if the vehicle is moving and the depicted scale is quite small. This may make viewing of the **Graphics** display difficult.

Center on Waypoint radio button

Select this option to have WinFrog automatically re-center the **Graphics** screen in reference to the selected waypoint position. If you decide to use the **Mouse Pan** function while in this mode, the software will automatically change to Center on Position on the point where you release the mouse button.

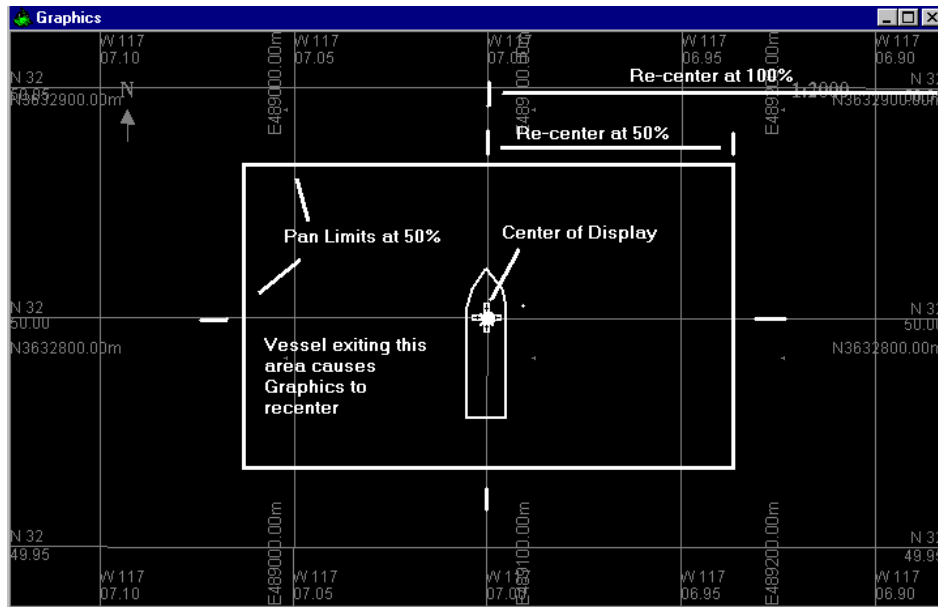
Center on Map

Select this option to center on the background map loaded from the Background tab.

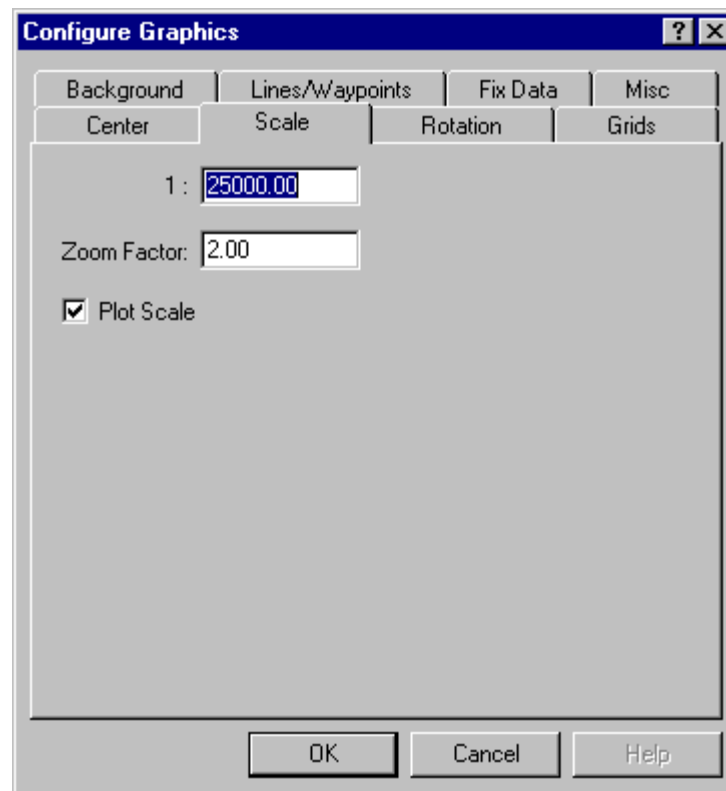
Re-Center Percent field

This field allows you to enter a value as a percentage. This is the percentage of the distance between the center and the display edge in which the current vehicle is permitted to travel before the **Graphics** window is refreshed. When the current vehicle reaches the re-center percentage limits of the **Graphics** window edge (in any direction), the **Graphics** window pans to return the current vehicle to the center of the **Graphics** window. **Note:** use this ability sparingly as too small of a percentage will cause WinFrog to refresh the screen too often, dramatically slowing system performance.

The next figure shows the permitted screen area available to the current vehicle in which to travel before a pan is performed to move the vehicle back to the center of the window.



Scale Tab



1: field

The value entered here configures the scale at which data are displayed in the **Graphics** window. One unit on the **Graphics** screen equals **X** (user-entered) units in the real world.

Zoom Factor field

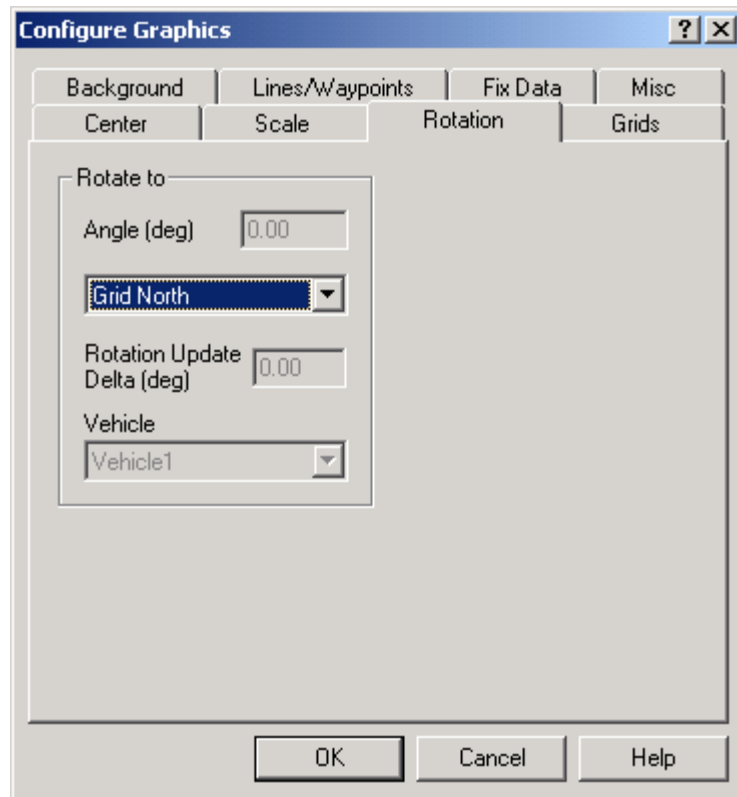
The value entered here configures the factor by which the scale of the display is increased when the display is zoomed out or decreased when zoomed in.

You can rapidly change the scale of the **Graphics** screen by selecting the **Zoom In** or **Zoom Out** buttons from the button menu bar.

Plot Scale checkbox

enable this to display the current **Scale** on the **Graphics** screen.

Rotation Tab



Rotate To Angle field

This option allows you to manually specify the Graphics display Rotation Angle. You must first select Manual from the dropdown box options, then highlight and enter the desired rotation Angle, as measured clockwise from North.

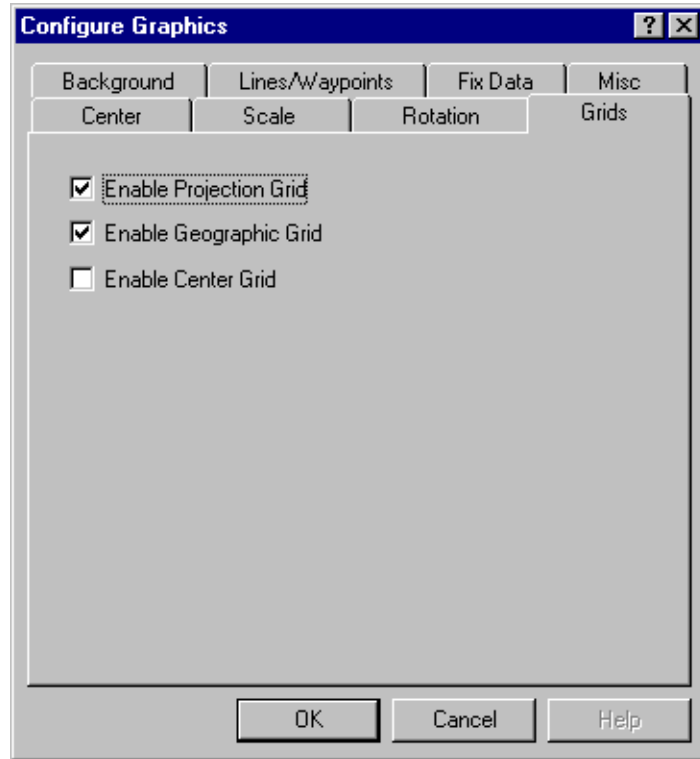
dropdown

Select from the dropdown options to have WinFrog align the **Graphics** window in accordance with one of the following provided options:

Grid North	the grid displays with zero rotation applied i.e. the North arrow will be straight “up” in the display.
Survey Line	the Graphics display is aligned with the Currently Tracked Segment of the selected Survey Line The orientation of the Graphics window will change as required so that the survey line is aligned from the bottom of the window to the top of the window. When the survey line is tracked in the forward direction, the Start of Line is at the bottom of the window. When the survey line is tracked in the reverse direction, the End of Line is at the bottom of the window.
Reverse Survey Line	rotates the Graphics display 180 degrees from the current survey line segment direction, as detailed above.
Manual	rotates the Graphics display to an angle of your preference. The value entered refers to degrees as measured clockwise from North.
Centered Vehicle Hdg	rotates the Graphics display to keep the bow of the centered vehicle pointed up. The rotation will automatically update when the heading of the vehicle the Graphics window is centered on changes by an amount equal to or greater than the amount specified in the ‘Rotation Update Delta’ field. The rotation will only update if the graphics window is centered on a vehicle. When this option is selected the ‘center grid’ display will no longer rotate with the background display.
Rotation Update Delta field	This field is enabled when the Centered Vehicle Hdg rotation option is selected. This option allows you to set the amount the heading of the centered vehicle must change before the graphics rotation angle is updated.
Vehicle dropdown	If you have chosen Survey Line or Reverse Survey Line in the Rotate To dropdown, you may select the survey line associated with a specific vehicle.

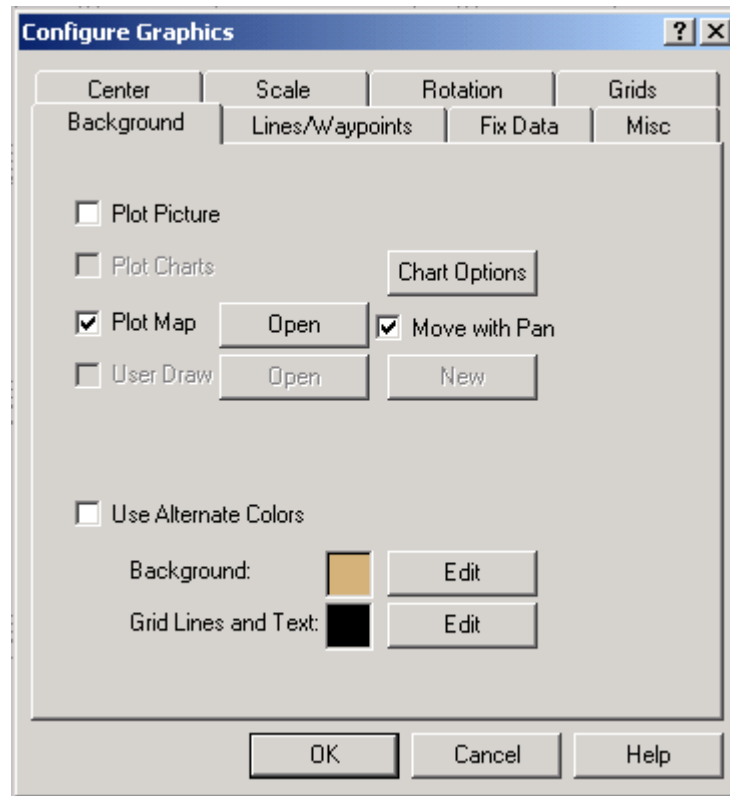
Note: Rotation options are not available when displaying a raster chart with the Blue Marble GeoView Library.

Grids Tab



- | | |
|-------------------------------|--|
| Enable Projection Grid | Select this option to enable the plotting of Northing and Easting grid values at regular intervals in the Graphics window. The grid values are also drawn as ticks and crosses to show the location of grid intersections. |
| Enable Geographic Grid | Select this option to enable the plotting of geographic (latitude and longitude) coordinates labels and lines in the Graphics display. |
| Enable Center Grid | Select this option to enable the plotting of a “cross” centered in the middle of the Graphics display. The cross is also annotated at regular intervals showing the distances from the center to the North, South, East, and West limits. |

Background Tab



Plot Picture

Select this option to enable the display of the contents of the **Working Picture File**. (See the **Working Picture File** section in the **Working Files** chapter for more details.)

Plot Charts

Select this option to enable the display of a raster chart. See the **Charts** section later in this chapter for more detail on chart configuration.

Chart Options button

Explained in the **Charts** section later in this chapter.

Plot Map

Select this option to enable the display of Blue Marble map (BMM) files. See the **Blue Marble Map File Support** section later in this chapter for more information.

Move with Pan

Select this option to move the background of a Blue Marble map (BMM) with the Pan action. See the **Blue Marble Map File Support** section later in this chapter for more information.

User Draw

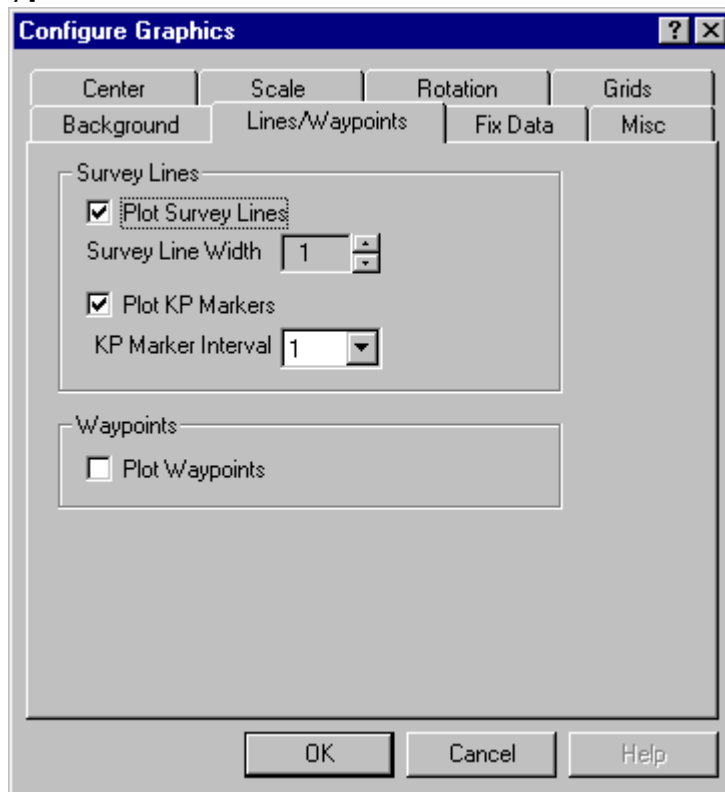
Select this option to enable the display of a Blue Marble Layer (BML) file on which to

draw graphic objects. The options available are to open an existing BML file or create a new BML file. See the **User Drawing Support** section later in this chapter for more information.

Use Alternate Colors

Select this option to configure WinFrog to use different colors for the **Background** and **Gridlines and Text** in the **Graphics** window. Use the **Edit** buttons to change the colors as desired. Note that if a background map is displayed using the Blue Marble library, no adjustment is made to avoid masking of features by the chosen background color, if the feature and the background are the same color.

Lines/Waypoints Tab



Plot Survey Lines

Select this option to display the contents of the **Working (.PTS) Survey Line** file. **Note:** if a vehicle is **tracking** a survey line, the line color will temporarily change from its original color (as defined in the **Working Survey Line File**) to the color of the vehicle.

Survey Line Width

Use the drop down menu to change the width of the survey line as seen in the Graphics and Bird's Eye displays.

Plot KP Markers

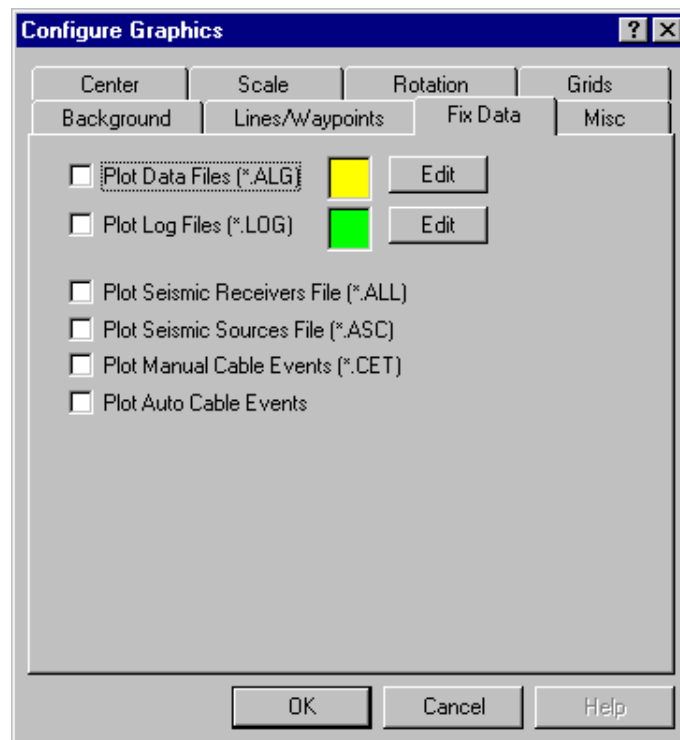
Select this option to enable display of KP Markers (as calculated on the currently tracked survey line) in the Graphics and Bird's Eye displays. Use the drop down menu to change between 0.5 km or 1 km intervals.

Plot Waypoints

Select this option to display the contents of the **Working (.WPT) Waypoint** file. Each individual waypoint can be displayed with a different color and icon, as defined in the **Edit Working Files... Waypoints > Waypoint** dialog box. See the **Working Waypoints** section of the **Working Files** chapter.

This customization helps you easily identify different types of waypoints, i.e. navigation hazards, cable events, and alter courses (A/Cs) can each be depicted differently. Similar to survey lines, a waypoint will change to the vehicle color after it is selected for tracking.

Fix Data Tab



Plot Data Files (*.ALG)

Select this option to enable the plotting of all individual automatic (**.DAT**) events contained in the **Working (.ALG) Data** file. Each event is shown as a fix-number-labeled **X** of user-defined color. A label is plotted only if the scale is greater than 1:7000.

Note: you can remove **.DAT** files from the **Working .ALG** file to limit the amount of data displayed on the **Graphics** screen. Likewise, you can add **.DAT** files back to the **Working Data .ALG** file to increase the amount of data shown.

Plot Log Files (*.LOG)

Select this option to enable the plotting of all **Manual Events** in the **Working Logs (.LOG) File** as name labeled squares of user-defined color. A label is plotted only if the scale is greater than 1:7000.

Plot Seismic_Receivers File (*.ALL)

Select this option to enable the plotting of all individual automatic **Receiver(.RCV)** events contained in the **Working Seismic_Receivers (.ALL)** file as green, fix-labeled **Xs**. A label is plotted only if the scale is less than 1:7000.

Note: you can remove **Receiver (.RCV)** files from the **Working Seismic_Receiver (.ALL)** file to limit the amount of data displayed on the **Graphics** screen. Likewise, you can add **Receiver (.RCV)** files back to the **Working Seismic_Receiver (.ALL)** file to increase the amount of data shown.

Plot Seismic_Source File (*.ASC)

Check this option to enable the plotting of all individual automatic **Seismic (.SRC)** events contained in the **Working Seismic_Source (.ASC)** file as red, fix-number-labeled **Xs**. A label is plotted only if the scale is less than 1:7000.

Note: you can remove **Seismic (.SRC)** files from the **Working Seismic_Source (.ASC)** file to limit the amount of data displayed on the **Graphics** screen. Likewise, you can add **Source (.SRC)** files back to the **Working Seismic_Source (.ASC)** file to increase the amount of data shown.

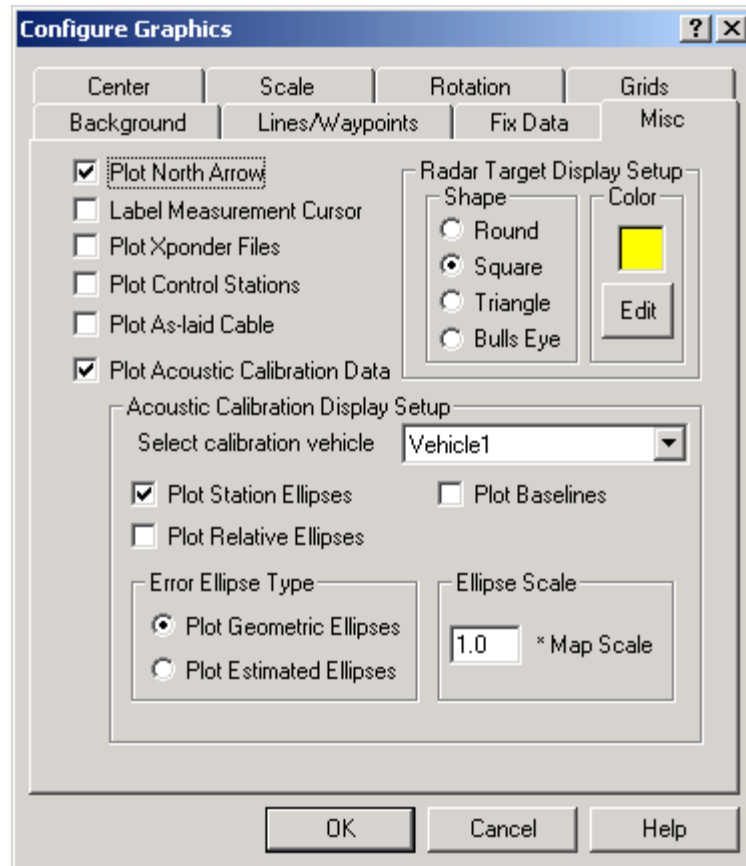
**Plot Manual Cable Events
(* .CET)**

Select this option to enable the plotting of all **Manual Events** in the **Working (.CET) Cable Events** file. A label is plotted only if the scale is less than 1:7000.

Plot Auto Cable Events

Plots all events automatically recorded in the currently open **Cable Database (.MDB)** file.

Misc Tab



Plot North Arrow

Select this option to plot a North Arrow in the top left-hand corner of the **Graphics** window.

Label Measurement Cursor

Select this option to label all measurement cursor lines with the associated range and bearing information. The information is displayed below the respective line upon completion of the measurement. The information is displayed in geographic or map projection grid terms depending upon the Units\Coordinates configuration setting. The range is displayed in the units selected

	for Units\General-Distances. The bearing is always based on the direction from the start point (large cross) to the end point (small cross) and is displayed as “ddd.dd°”.
Plot Xponder Files	Select this option to plot all fixed LBL and USBL transponders in the Working Transponders (.XPT) file as green, unfilled, name-labeled circles. A label is plotted only if the scale is less than 1:7000.
Plot Control Stations	Select this option to plot all Control Stations in the Working Control Stations (.CLS) file.
Plot As-Laid Cable	Select this option to plot the cable location as determined from the Working Cable Database (.MDB) file.
Plot Acoustic Calibration Data	Select this option to enable the plotting of the results, baselines observed and error ellipses of an LBL or USBL transponder position calibration directly from the calibration file currently in memory. Select which data to plot from the provided Acoustic Calibration Display Setup options (See Acoustic Display Setup description below). Note: A calibration file must be in WinFrog memory in order for it to be displayed.
Radar Target Display	If the Rho-Theta device RADAR Targets or NMEA RADAR is present and outputting radar targets they will be plotted on the Graphics window. This group box allows control of the plot. Select the color and shape in which to display all the targets.
Acoustic Calibration Display Setup	This section is enabled if the Plot Acoustic Calibration Data checkbox is selected. The calibration data to be displayed is taken from the acoustic calibration file currently in memory, whether loaded from file or available directly after logging and processing. Select the features to be displayed using the appropriate dropdown list and checkboxes.

Select Calibration Vehicle	The calibration data is associated with a vehicle. Select the respective vehicle from this dropdown list box. Note: Only those vehicles that have either an LBL TRANSCIVER or USBL HYDROPHONE data item associated with them are listed since these are the only vehicles with which an acoustic calibration file can be associated.
Plot Station Ellipses	The <i>absolute</i> error ellipses associated directly with a given station can be plotted by selecting this checkbox.
Plot Relative Ellipses	The <i>relative</i> error ellipses associated with a given station pair can be plotted by selecting this checkbox.
Plot Baselines	The baselines observed for the calibration are displayed by selecting this checkbox. Note: All baselines that were observed are displayed regardless of their current weighting or validity.
Error Ellipse Type	Geometric or estimated error ellipses can be displayed based on the radio button setting. For more information on these types of ellipse, please refer to the USBL & LBL Calibrations chapter, specifically the Viewing the LBL Solution Statistics section.
Ellipse Scale	The ellipse scale field allows you to enter the display scale to be used for displaying the error ellipse. This can be different from the map scale. This allows the error ellipses to be drawn large enough to be viewable in the Graphics window. The number in the field is multiplied by the current graphics scale factor to determine the scale at which the error ellipse is drawn.

Charts

WinFrog can be configured to display either **raster** or **vector** format charts in the **Graphics** and **Bird's Eye** displays.

See the instructions in the following sections for information on displaying **Maptech's .RML, .HDR** and **.BSB** format raster charts.

WinFrog also supports the use of the **Admiralty Raster Chart System (ARCS)** with a **Skipper** license. See the **ARCS Charts** section later in this chapter for information on displaying these chart files.

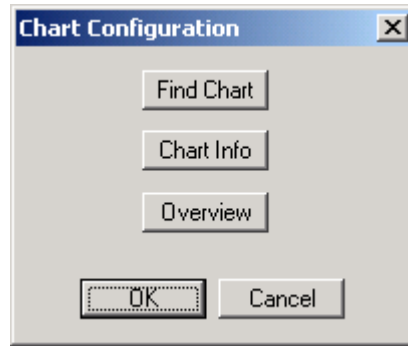
WinFrog now uses the **Blue Marble GeoView Library** to display other types of vector and raster files. The supported vector file types are DXF, DWG, SHP, MIF, DGN, and BML. The supported raster file types are JPG, BMP, TIF and GEOTIFF. See the **Blue Marble Map File Support** section later in this chapter for information on displaying Blue Marble Map (BMM) files that contain the supported file types.

Displaying a Raster Chart in WinFrog

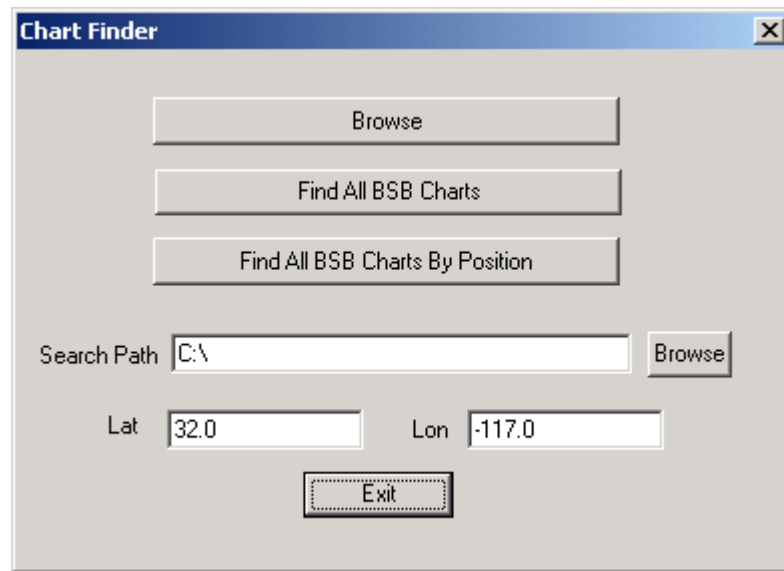
The following instructions apply to **Maptech's .RML, .HDR** and **.BSB** format raster charts. It is recommended that the charts be installed onto a local hard drive. The following sections detail the two methods available to display a RML, HDR or BSB raster chart in WinFrog.

To Display a Raster Chart - Method 1

- 1 From the **Configure** menu, choose **Graphics**.
- 2 On the **Background** tab of the **Configure Graphics** dialog box, select the **Plot Charts** checkbox.
- 3a If this is the first time you are displaying a chart, the **First Time Chart Selection** dialog box will appear. Click the **Browse for Chart** button and locate the desired chart file. Click **OK**.
- 3b If you have already displayed a chart and want to choose a different chart file, click the **Chart Options** button (on the **Background** tab of the **Configure Graphics** dialog box) to display the **Chart Configuration** dialog.



- 4 Click the **Find Chart** button. The **Chart Finder** dialog displays.



- 5 The **Chart Finder** dialog box provides three options for selecting **.BSB** charts.

Option 1: Click the **Browse** button to manually find the desired file. (This method can also be used to load **.RML** charts).

Option 2: Enter the **Search Path** in the provided entry window and select the **Find All BSB Charts** button. This will initiate an automatic search of the defined computer directories for the desired file.

Option 3: Enter a **Search Path** and the required **Latitude** and **Longitude** values in the provided entry windows, then select the **Find All BSB Charts By Position** button. This initiates an automatic search for a **.BSB** file that covers the specified coordinates.

- 6 Once the desired file is located, highlight the file name, and click **Open**.

Note: some **.BSB** files can refer to more than one chart. If more than one file is associated with the selected **.BSB** file, the **Select Chart** dialog box appears. Select the desired chart (by name) and click the **OK** button. WinFrog will briefly display a **Creating Chart** dialog box then automatically return to the **Chart**

Configuration dialog box. Click **OK** to close the **Chart Configuration** dialog box and return to the **Configure Graphics** dialog box.

See the section immediately following **Method 2** below for more information on viewing the selected chart. Also, see the section titled **Raster Chart Options in the Chart Configuration Dialog Box** below for more details on the other options found in the **Chart Configuration** dialog box.

To Display a Raster Chart - Method 2

- 1 From the **File** menu, choose **Select Working Files**.
- 2 Click the **Charts (*.RML)** radio button.
- 3 Either click **Browse** to navigate to the name of the desired chart or enter the file name and directory in the **File** and **Directory** fields at the bottom of the **Working Files** dialog box.

The **Files of Type** dropdown box in the **Browse** dialog box contains the following file types: ***.RML** (RMI Compressed), ***.HDR** (RMI PCX), and ***.BSB** (BSB/NOAA).

- 4 Click **OK** to close the window and return to the **Working Files** dialog box.
- 5 Click **OK** to close the **Working Files** dialog box.
- 6 From the **Configure** menu, choose **Graphics**.
- 7 On the **Background** tab of the **Configure Graphics** dialog box, select the **Plot Charts** checkbox. WinFrog will automatically load the specified chart.
- 8 Click **OK** to close the **Configure Graphics** dialog box.

See the next section for more information on viewing the selected chart. For more details on the other options found in the **Chart Configuration** dialog box, see the **Raster Chart Options in the Chart Configuration Dialog Box** section.

Raster Chart Viewing Tips/Hints

There are certain conditions that must be met before a raster chart can be seen in the **Graphics** display.

- 1 Obviously, the correct chart must be selected. It is preferable that the selected chart be located on the computer's hard drive rather than on a CD drive or some networked location.
- 2 If the chart is not visible, ensure that the **Graphics Display** is centered within the limits of the chart. See the section on **Chart Configuration** below for more details.

- 3 There is a limit to the scale at which raster charts can be viewed in the **Graphics Display**. This scale limit changes according to the **size** of the **Graphics Display** window. Above a certain scale, raster charts may not be visible. You may have to re-size the **Graphics Display** or change the scale to a smaller numerical value in order to view the chart.
- 4 All other selected **Graphics Display** elements display on top of the chart background. Some details may be invisible if the chart is of the same color as the selected option.
- 5 It is assumed that the chart datum is the same as configured in WinFrog's **Geodetics**. WinFrog will not adjust or convert the chart's coordinates if WinFrog's **Geodetics** are changed. This is a very important detail. The use of charts that are referenced to a different geodetic datum can cause very large positional errors. (See the **Chart Information** paragraph immediately below for details on determining the datum of a NOAA raster chart.)

Raster Chart Options in the Chart Configuration Dialog Box

The **Chart Configuration** dialog box (as seen below) contains two options that can provide you with valuable information about the currently loaded raster chart: **Chart Info** and **Overview**. (See the section above named **To Display a Raster Chart - Method 1** for details on accessing the **Chart Configuration** dialog box.)

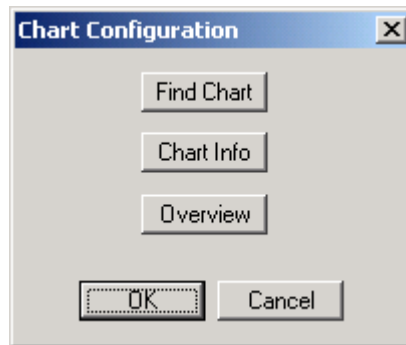
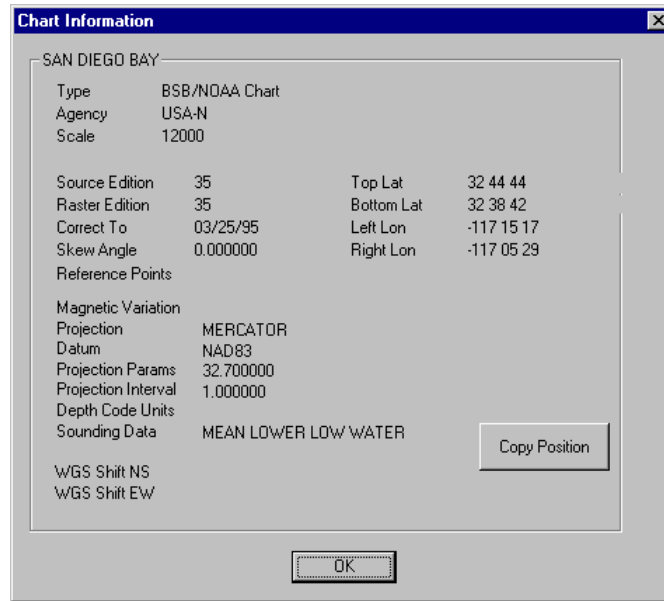


Chart Info button

displays the **Chart Information** dialog box. An example of the information provided for BSB/NOAA Raster charts is shown below.



The **Chart Information** dialog box displays a variety of important details about the loaded NOAA Raster chart including the **Geodetic Datum** that the chart refers to, as well as to which **Sounding Data** the displayed **depths** refer.

This dialog box also provides you with the geographical coordinates of the **Limits** of the chart. This information can assist you in “finding” the chart in the **Graphics** display.

Select the **Copy Position** button to have WinFrog calculate the chart’s center coordinates and copy them to the computer’s clipboard memory.

To Center the Graphics Display at the Middle of the Chart

- 1 Choose **Configure > Graphics** from the main menu.
- 2 On the **Center** tab, select the **Center on Position** radio button.
- 3 Highlight the coordinates and, with the mouse pointer still within the coordinate entry window, right-click.
- 4 Select **Paste**.

Note: the coordinates now change to the calculated chart center.

- 5 Click **OK** to close the **Configure Graphics** dialog box and enact the changes.

More options on the **Chart Configuration** dialog box:

Overview button

Click this button to display the extents of the loaded chart in a size-reduced **Overview** window. Click anywhere within the chart

limits to see that position's geographical coordinates.

Note: this option is only available when using **BSB/NOAA** charts.

Click **OK** to close this window and return to the **Chart Configuration** dialog box.

Find Chart button

Select this option to load a new chart.

Note: this feature is detailed earlier in this chapter in the section named **To Display a Raster Chart - Method 1**, with the exception of **Find All ARCS Charts**. This option is detailed below in the section named **ARC Charts**.

ARCS Charts

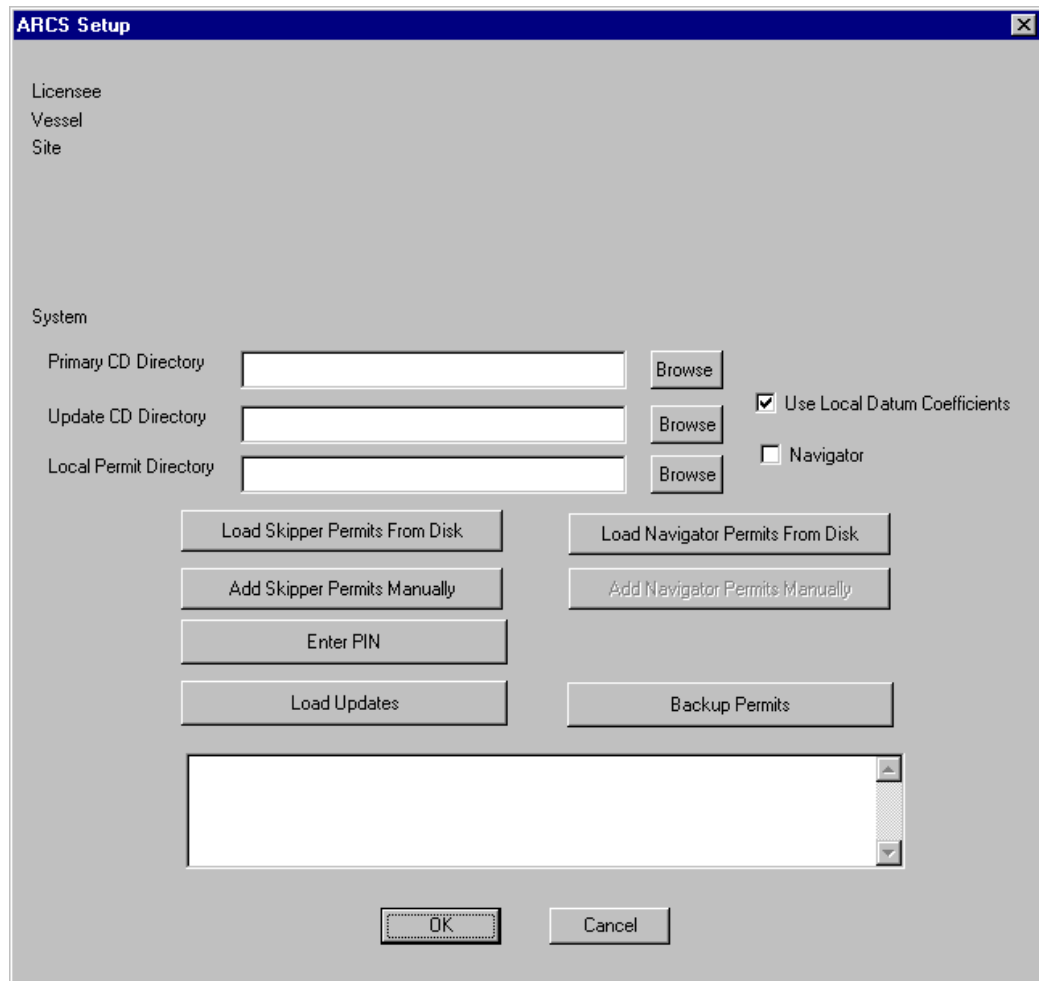
WinFrog supports the use of the **Admiralty Raster Chart System (ARCS)** with a **Skipper** license. As with **.BSB** charts, various chart options must be configured using **Configure Graphics > Chart Options**. In the case of **ARCS** charts, the various relevant parameters are accessed via the **ARCS Setup** dialog box.

Note: if you are using **ARCS** charts in WinFrog, it is advisable to purchase all **Skipper** permits for a work area at one time to synchronize the updates and to limit the number of CDs needed. Notes should be kept to maintain the correspondence between **Updates** and **Charts**.

There are three ways to use **ARCS** charts with **Updates**.

To Display an ARCS Chart Using 2 CD-ROM Drives

- 1 Insert the **primary ARCS** CD into one CD-ROM drive.
- 2 Insert the **Update ARCS** CD into another CD-ROM drive.
- 3 In the **Configure Graphics** dialog window select **Background > Chart Options**.
- 4 Select the **Setup ARCS** option to open the **ARCS Setup** window.



- 5 Click the **Browse** button to the right of the **Primary CD Directory** entry field.
- 6 Navigate to the **ChartCD** folder on the first CD-ROM and select it.
- 7 Click the **Browse** button to the right of the **Update CD Directory** entry field.
- 8 Navigate to the **UpdateCD** folder on the second CD-ROM and select it.
- 9 **Note:** do **not** shutdown WinFrog to complete this next step. Create a new directory for permit storage using a program such as **Explorer™**. This directory can be placed anywhere, but it is best if it is created at the root level of the hard drive. The new directory can have any **unique** name.
- 10 Click the **Browse** button to the right of the **Local Permit Directory** entry field.
- 11 Navigate to the newly created **Local Permit Directory** and select it.
- 12 Insert the **Permit** disk (containing the **Permits** for the desired chart) into the computer disk drive.

- 13 Click the **Load Skipper Permits from Disk** button to display an **Open** navigation dialog box.
- 14 Navigate to the desired **Permit (.SCP)** files on the disk.
- 15 Click **OK** to load the selected **Permits** and return to the **ARCS Setup** dialog box. The **Permit** files are added to the **Local Permit Directory**.
- 16 Click **OK** to return to the **Chart Configuration** dialog box.
- 17 Click **Find Charts** to open the **Chart Finder** dialog box.
- 18 Click **Find All ARCS Charts** to open the **ARC Charts Found** dialog box.
- 19 Select the chart you wish to display by double-clicking its number under the **Chart** column.
- 20 Click **Chart Info** in the **Chart Configuration** dialog box to open the **Chart Information** dialog box.
- 21 Click **Copy Position**.
- 22 Click **OK** to close the **Chart Information** dialog box and return to the **Chart Configuration** dialog box.
- 23 Click **OK** to close the **Chart Configuration** dialog box and return to the **Configure Graphics** dialog box.
- 24 Click **OK** to close the **Configure Graphics** dialog box and display the chart.

To Display an ARCS Chart by Copying the Chart CD to the Hard Drive

- 1 Insert the **Primary ARCS** CD into CD-ROM drive.
- 2 Create a new directory at the root level of the hard drive and name it **CHARTCD**.
- 3 Copy the contents of the CD to this newly created **CHARTCD** directory.
- 4 Click the **Browse** button to the right of the **Primary CD Directory** entry field.
- 5 Navigate to the newly created **ChartCD** folder at the root level of the hard drive and select it.
- 6 Remove the **Primary** CD from the CD-ROM drive and insert the **Update ARCS** CD into the CD-ROM drive.
- 7 Click the **Browse** to the right of the **Update CD Directory** entry field.
- 8 Navigate to the **UpdateCD** folder on the CD-ROM and select it.

- 9 Create a new directory for loading **Permits**.

This directory can be stored anywhere, but it would likely be stored at the root level of the hard drive. It can have any **unique** name.

- 10 Click the **Browse** button to the right of the **Local Permit Directory** entry field.
- 11 Navigate to the newly created directory for storing **Permits** and select it.
- 12 Insert the **Permit** disk which contains the **Permits** for the desired chart.
- 13 Click the **Load Skipper Permits from Disk** button to display an **Open** navigation dialog box.
- 14 Navigate to the desired **Permit** files on the disk.
- 15 Click **OK** to load the selected **Permits** and return to the **ARCS Setup** dialog box.
- 16 Click **OK** to return to the **Chart Configuration** dialog box.
- 17 Click **Find Charts** to open the **Chart Finder** dialog box.
- 18 Click **Find All ARCS Charts** to open the **ARC Charts Found** dialog box.
- 19 Select the chart to be displayed by double-clicking its number under the **Chart** column.
- 20 Click **Chart Info** in the **Chart Configuration** dialog box to open the **Chart Information** dialog box.
- 21 Click **Copy Position**.
- 22 Click **OK** to close the **Chart Information** dialog box and return to the **Chart Configuration** dialog box.
- 23 Click **OK** to close the **Chart Configuration** dialog box and return to the **Configure Graphics** dialog box.
- 24 Click **OK** to close the **Configure Graphics** dialog box and display the chart.

To Display an ARCS Chart by Copying Update Directories to the Hard Drive

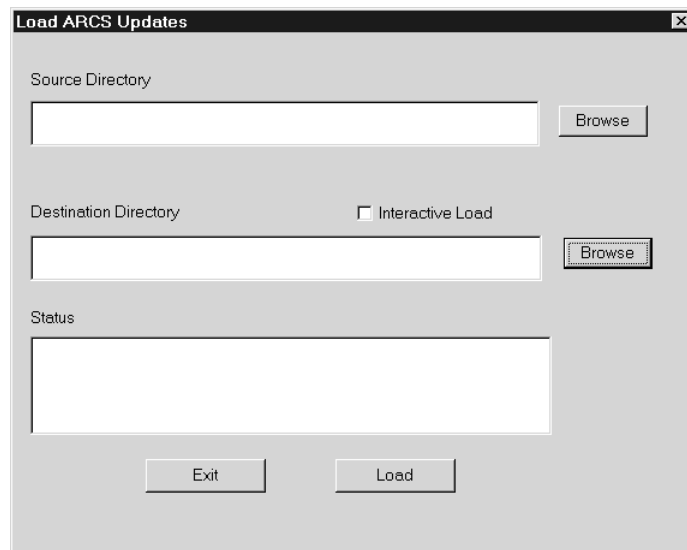
- 1 Insert the **ARCS Update** CD into the CD-ROM drive.
- 2 Create a new directory at the root level of the hard drive and give it the same name as it is labeled on the **Update** CD.

For example, **WEEKLY_11_97**.

- 3 Create a new directory for loading permits.

This directory can be stored anywhere, but it would likely be stored at the root level of the hard drive. It can have any unique name, *e. g.*, **ARCS Permits**.

- 4 Under the **System** title (mid-window area), to the right of the **Local Permit Directory** entry field, click the **Browse** button.
- 5 Navigate to the newly created directory for storing **Permits** and select it.
- 6 Insert the **Permit** diskette containing the **Permits** for the desired chart.
- 7 Click the **Load Skipper Permits from Disk** button to display an **Open** navigation dialog box.
- 8 Navigate to the desired **Permit** files on the diskette.
- 9 Click **OK** to load the selected **Permits** and return to the **ARCS Setup** dialog box.
- 10 In the **ARCS Setup** dialog box, click the **Load Updates** button.



- 11 In the **Load ARCS Updates** dialog box, click the **Browse** button next to the **Source Directory** field.
- 12 Navigate to the **ChartCD** folder on the update CD and select it.
- 13 In the **Load ARCS Updates** dialog box, click the **Browse** button next to the **Destination Directory** field.
- 14 Navigate to the directory created in Step 1 and select it.
- 15 Click the **Load** button to close the **Load ARCS Updates** dialog box and return to the **ARCS Setup** dialog box.

Updates for the licensed charts are copied from the CD to the directory on the hard drive.

- 16 Remove the **Update ARCS** CD from the CD-ROM drive and insert the **Primary ARCS** CD.
- 17 Under the **System** area, to the right of the **Primary CD Directory** entry field, click the **Browse** button.
- 18 Navigate to the **ChartCD** folder on the CD and select it.
- 19 Click **OK** to return to the **Chart Configuration** dialog box.
- 20 Click **Find Charts** to open the **Chart Finder** dialog box.
- 21 Click **Find All ARCS Charts** to open the **ARC Charts Found** dialog box.
- 22 Select the chart to be displayed by double clicking its number under the **Chart** column.
- 23 Click **Chart Info** in the **Chart Configuration** dialog box to open the **Chart Information** dialog box.
- 24 Click **Copy Position**.
- 25 Click **OK** to close the **Chart Information** dialog box and return to the **Chart Configuration** dialog box.
- 26 Click **OK** to close the **Chart Configuration** dialog box and return to the **Configure Graphics** dialog box.
- 27 Click **OK** to close the **Configure Graphics** dialog box and display the chart.

Notices button	Opens the Temporary and Preliminary Notices to Mariners dialog box to display a list of notices to mariners.
Notes button	Displays map Notes. These notes also contain Graphics window location coordinates.
Setup ARCS button	Opens the ARCS Setup dialog box.

Troubleshooting Chart Problems

Chart does not display, even when the vehicle's position is within the boundaries of the chart and the Graphics Display Scale is the same as the natural scale of the chart.

Ensure that WinFrog's **Geodetics** have been properly configured for the current position. Check the **Geographical** and **Projection Grid** lines in the **Graphics Display** and ensure that, with zero degrees display rotation, the lines run straight vertically and horizontally. If these lines are not straight, it is possible that the geodetics are configured incorrectly.

During WinFrog installation, the message "Chart.dll cannot be registered" is displayed.

Ensure that you are logged on to **WINNT** with **administrative** privileges while installing WinFrog.

Unable to open RMI PCX charts.

Ensure the correct directory is entered for the **Chart working directory**.

WinFrog runs very slowly when the charting option is selected.

Charting requires at least 32 megabytes of RAM under NT. For tight memory use, the RMI PCX charts may provide a performance improvement.

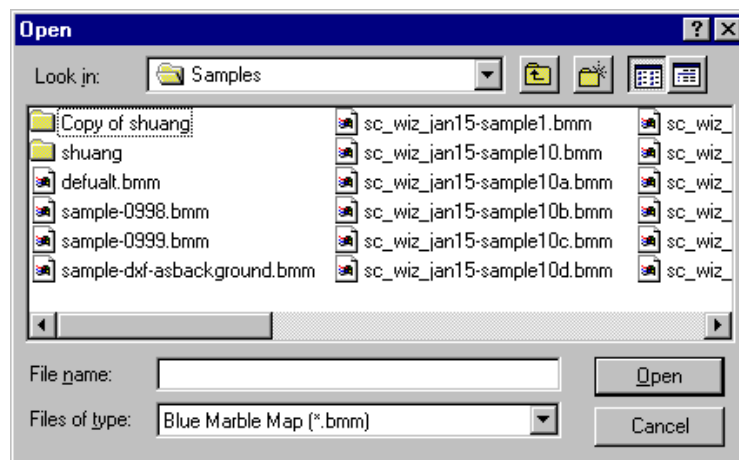
Blue Marble Map File Support

WinFrog can be configured to display a **Blue Marble Map (BMM)** file comprised of different layers of **raster** and **vector** maps. The supported raster file types are JPG, BMP, TIF and GEOTIFF. The supported vector file types are DXF, DWG, SHP, MIF, DGN, and BML.

In practical terms, the use of multiple layers of raster and vector files as background layers should be cautioned. This BMM file setup may result in performance degradation in updating the Graphics display in real time. For instructions on creating a BMM file, see the Map Wizard section in **Chapter 11 – Utilities**.

To Display a Blue Marble Map File

- 1 From the **Configure** menu, choose **Graphics**.
- 2 On the **Background** tab of the **Configure Graphics** dialog box, select the **Plot Map** checkbox to enable the display of Blue Marble Map (BMM) files. If desired, select the **Move with Pan** checkbox to allow the background of the BMM map to move with the Pan action. If you don't select this checkbox, the BMM will not move with the Pan action until you release the left mouse button. **Note:** The drawing speed of the background map varies with the size and format of the file. If dealing with a large graphics file, it may increase performance to leave this box unchecked.
- 3 Click the **Open** button to open a BMM file to display as a background image in the Graphics window. A BMM file must first be created using the Map Wizard as described in **Chapter 11 – Utilities**.
- 4 Select the BMM file to open from the File Open dialog.



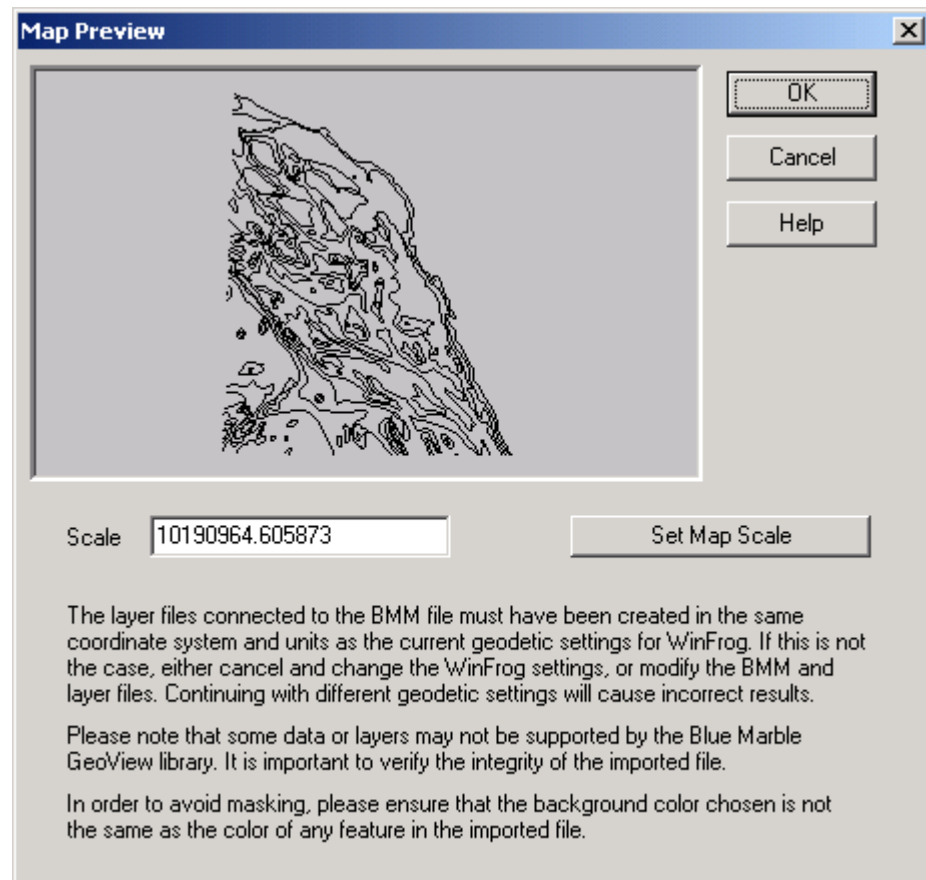
- 5 A **Map Preview** dialog opens with an overview display of the BMM file. Please ensure that the BMM file and layer files that are attached to it were

created in the same coordinate system and units as the settings in WinFrog. If this is not the case and the coordinate systems or units are not the same, click the **Cancel** button and select another BMM file or change the WinFrog geodetics configuration. Refer to **Chapter 3 – Geodetics & Units** for information on changing WinFrog geodetics. Note that if the systems differ and you open the file, the results will be unpredictable and any resulting image will be inaccurate.

Depending on the file format used, some layers and feature types may not be fully supported by the Blue Marble library. It is important to verify the integrity and completeness of the imported file. Also, care must be taken with the chosen background color. If features are the same color as the background color, they will be masked and will not be visible.

Upon previewing, if you find it is necessary to change the scale of the map view, enter a new scale and click the **Set Map Scale** button.

Click **OK** if you are at the desired map view scale.



- 6 Click **OK** on the **Configure Graphics** dialog box to use this BMM file as a background map.

When a BMM file is displayed in the Graphics window you can verify the name of the BMM file being displayed. This is done through the Graphics window pop-up menu. Right-click in the Graphics window to access the **Map File Name** option to view the name and path of the currently displayed file.

User Drawing Support

WinFrog offers the ability to draw graphic objects on the background in the Graphics window. The graphic objects can be drawn on: (1) an existing BMM file background, (2) an existing Blue Marble Layer (BML) file, or (3) a new, empty background. The following sections provide instructions for drawing objects in each of these scenarios.

User-drawn objects can be saved as a Blue Marble Layer (BML) file for use as a background layer in the Graphics window, or appended to an existing BML file. See **To Save Graphic Objects to a Blue Marble Layer File**.

The drawing options can be accessed in two ways: through the **Draw** menu, or through the drawing shortcut buttons on the toolbar. The toolbar buttons are:



- 1 Stop Drawing
- 2 Select Object
- 3 Draw Point
- 4 Draw Polyline
- 5 Draw Polygon
- 6 Draw Text
- 7 Draw Circle
- 8 Draw Arc
- 9 Draw Polyarc

Once object are drawn, certain attributes, such as line color, can be edited. See **To Edit User-Drawn Graphic Objects** later in this chapter.

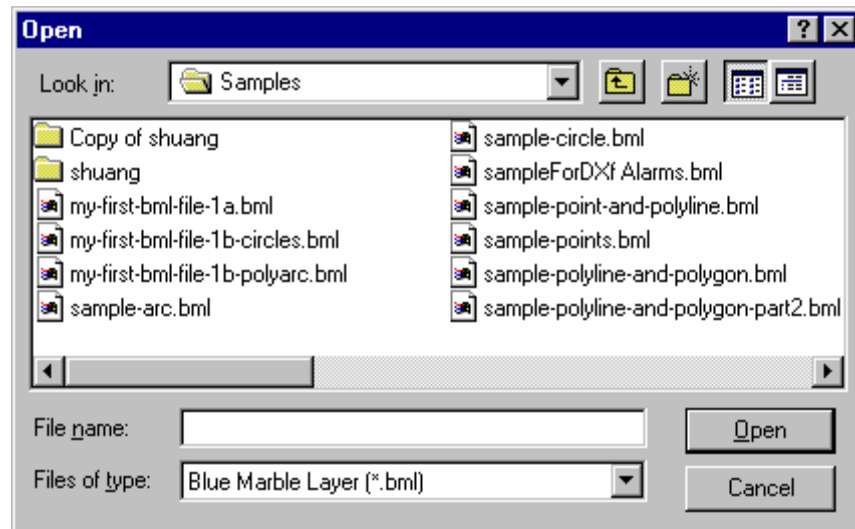
To Draw Graphic Objects When a Blue Marble Map (BMM) File is Displayed

- 1 Display a BMM file. For steps on how to display a BMM file in WinFrog, see the **Blue Marble Map File Support** section above.

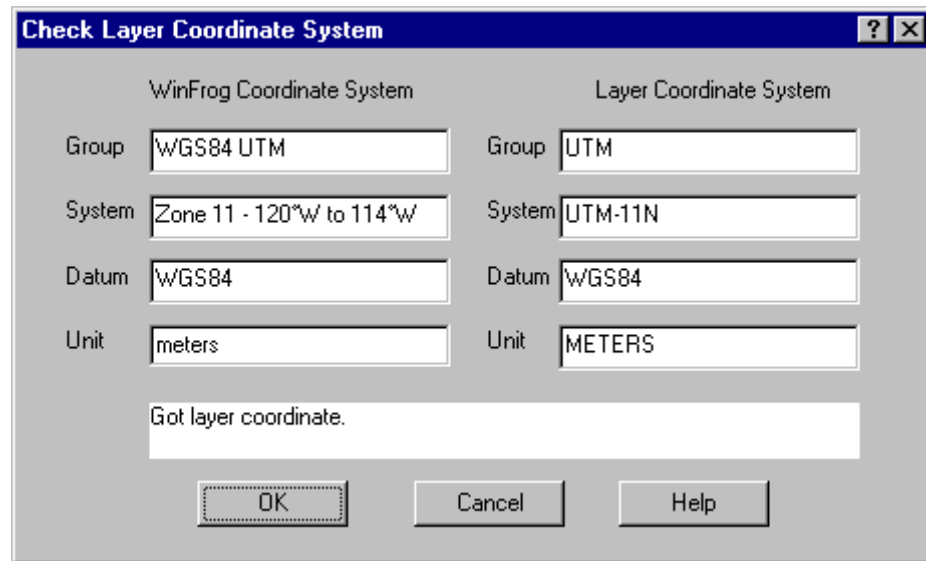
- 2 Select the appropriate toolbar button or **Draw** menu option for the graphic object you which to draw.
- 3 Position the mouse pointer on the Graphics window and click. The graphic object will be added at this position. For a Point object, a point symbol will be added at this location. For the Polyline, Polygon, Circle, Arc and Polyarc objects, the vertex of the specified object will be added. For the Text object, you will be prompted to enter the text for the specified location.
- 4 Repeat step 3 for each vertex in the Polyline, Polygon, Circle, Arc and Polyarc objects.
- 5 Once the object is drawn, select **Draw > Stop Drawing**, or click the Stop Drawing toolbar button, or right-click and select **Stop Drawing** from the pop-up menu.

To Draw Graphic Objects on an Existing Blue Marble Layer File (BML)

- 1 From the **Configure** menu, choose **Graphics**.
- 2 On the **Background** tab of the **Configure Graphics** dialog box, select the **User Draw** checkbox to enable the **Open** and **New** buttons.
- 3 Click the **Open** button to open a BML file to display as a background layer in the Graphics window.



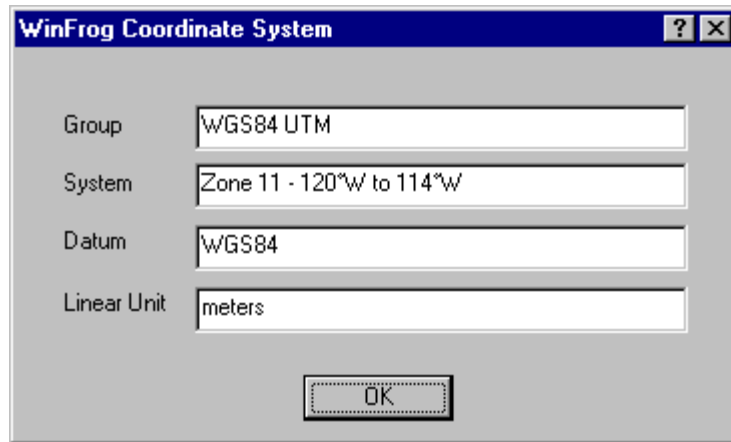
- 4 A **Check Layer Coordinate System** dialog opens with the WinFrog and BML Map file coordinate systems and units displayed. Click **OK** to proceed to the next step or **Cancel** if the displayed geodetics and units do not match. If the two geodetic systems differ, either select another BML file or change the WinFrog geodetic configuration. Refer to **Chapter 3 – Geodetics & Units** for information on changing the WinFrog geodetics.



- 5 A **Layer Preview** dialog opens with an overview display of the BML file. Click **OK** to display this file in the Graphics window or click **Cancel** to cancel this operation. Once the file is displayed in the Graphics window, you can follow the steps in the above section to draw graphic objects on this background.

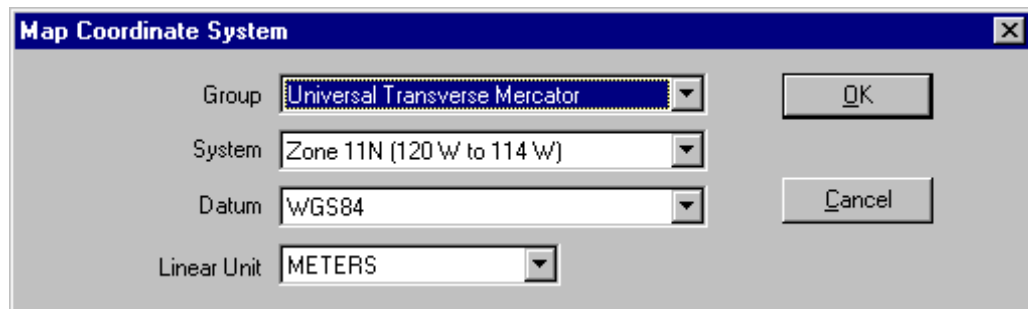
To Draw Graphic Objects on an Empty Background

- 1 From the **Configure** menu, choose **Graphics**.
- 2 On the **Background** tab of the **Configure Graphics** dialog box, select the **User Draw** checkbox to enable the **Open** and **New** buttons.
- 3 Click the **New** button to create a new background image in the Graphics window.
- 4 A **WinFrog Coordinate System** dialog box displays with the current WinFrog geodetics selected. (See **Chapter 3 – Geodetics & Units** for information on setting geodetics.) This dialog is informative only – you cannot change the settings. Click **OK** to proceed to the next step.

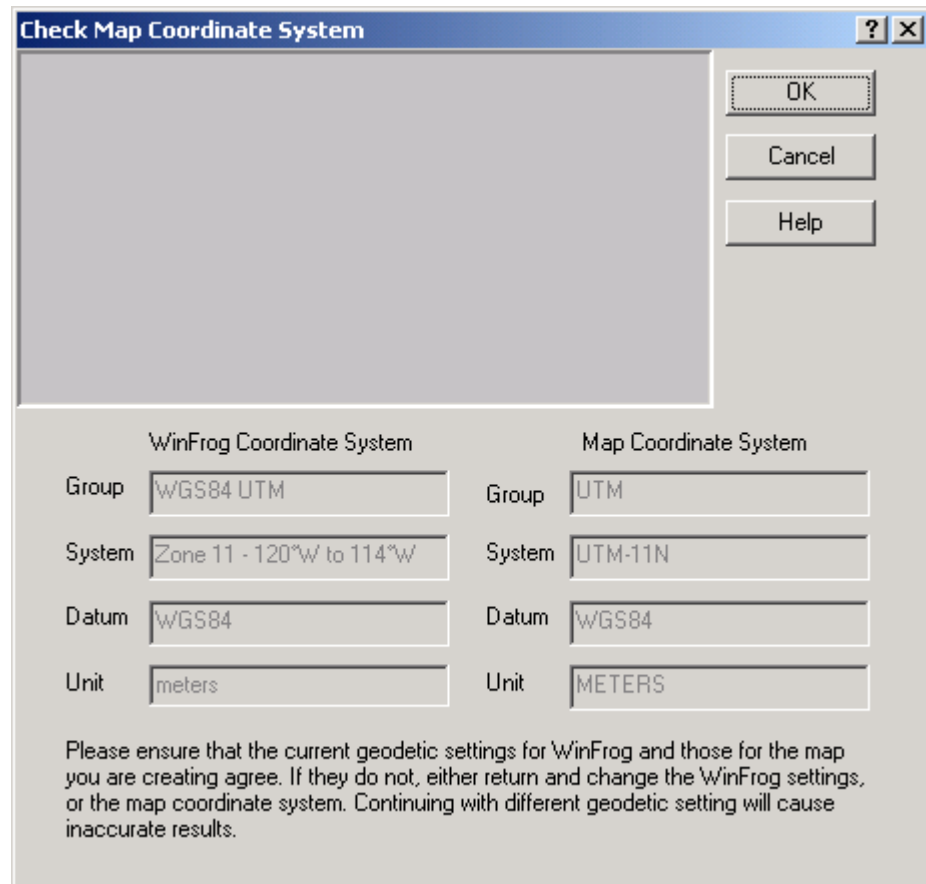


- 5 A **Map Coordinate System** dialog opens to configure the BML map file coordinate system. Set the BML file geodetics to the WinFrog geodetics from the previous step – this is very important, as incorrect settings will cause inaccurate results. Click **OK** to proceed to the next step or **Cancel** to cancel the operation.

Note: The BML file Geodetics should be set for the hemisphere that the active survey is being performed. In this example, use 11N for operations in the Northern Hemisphere and 11S for operations in the Southern Hemisphere for the UTM zone.



- 6 A **Check Map Coordinate System** dialog opens with an overview display of the newly created BML file in the top portion of this dialog and the WinFrog and BML Map file coordinate systems and units displayed in the bottom. Click **OK** to proceed if the coordinate systems and units match, or click **Cancel** to cancel this operation.



- 7 Click **OK** on the **Configure Graphics** dialog box. You can now draw graphic objects on this newly created background.

To Save Graphic Objects to a Blue Marble Layer File

- 1 When finished drawing the graphic objects you wish to create, select **Draw > Save**.
- 2 The **Save User Drawing** dialog box displays. Select the **Save** radio button.
- 3 A **Save As File** dialog box displays. Specify the name and location where the BML file will be saved.
- 4 The **Map Coordinate System** dialog box displays. Confirm that the Map Coordinate System geodetics are the same as the WinFrog geodetics. Click **OK** to create the BML file.

Creating and saving a BML file in this manner saves the file as an independent BML file, with the **.bml** file extension. Any BML files created can be displayed as a standalone background layer in the Graphics window or added as a layer into a new or existing BMM file.

Note: Saving graphic objects into an existing BML file will overwrite the file and

you will lose all previously saved objects. See the instructions in the following section for appending objects to an existing BML file.

To Append Graphic Objects to a Blue Marble Layer (BML) File

- 1 When finished drawing the graphic objects you wish to create, select **Draw > Save**.
- 2 The **Save User Drawing** dialog box displays. Select the **Append** radio button.
- 3 An **Open File** dialog box displays to select an existing BML file to which to append the additional graphic objects.

To Edit User-Drawn Graphic Objects

Certain attributes of user-drawn graphic objects can be edited, based on the type of object.

- 1 Click the **Select Object**  button on the toolbar and then click on the object you wish to edit. The object color changes to show that it is selected.
- 2 Right-click in the Graphics window and select **Edit Drawing** from the pop-up menu. A dialog will display with editing options based on the object selected.

Editing options for graphic objects:

Polyline, Polygon, Circle,

Arc and Polyarc

Color

Text

Text and text color

Point

Color, size and icon

Note: When editing the size of the Point object, a negative value indicates that the size is in pixels and the object size remains fixed when the map scale is changed; a positive value indicates that the size is in map units and the object size will change scale with the map when you zoom in or out; a size of zero (the default value) indicates that the bitmap is shown at its normal size.

- 3 Make your editing selections and click **OK** to exit.

Objects can also be deleted from the Graphics window pop-up menu. Select an object, right-click and choose **Delete Object**.

Displaying a C-Map Vector Chart in WinFrog

When you first install WinFrog, there are two installation options, **Typical** and **Custom**. Choosing a **Custom** installation provides you with the option to configure WinFrog to display **C-Map** files. You **MUST** choose this option in order to display C-Map files. If you did not initially install WinFrog using the **Custom** installation options, **WinFrog** must be **removed** and then **reinstalled**.

Note: **C-MAP** charts are purchased directly from **C-MAP**.

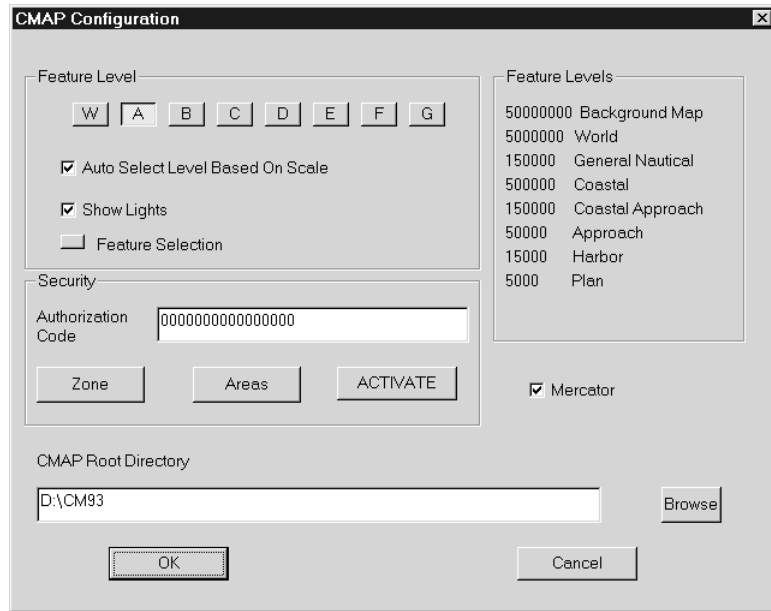
Note: WinFrog only supports **C-MAP CM-93 Edition 2**.

By default, **C-MAP** charts use a **Mercator** map projection to convert the geographical coordinates to grid coordinates. If a project requires it, the charts can be displayed using different geodetic parameters. See the section titled **To Use WinFrog's Map Projection** below.

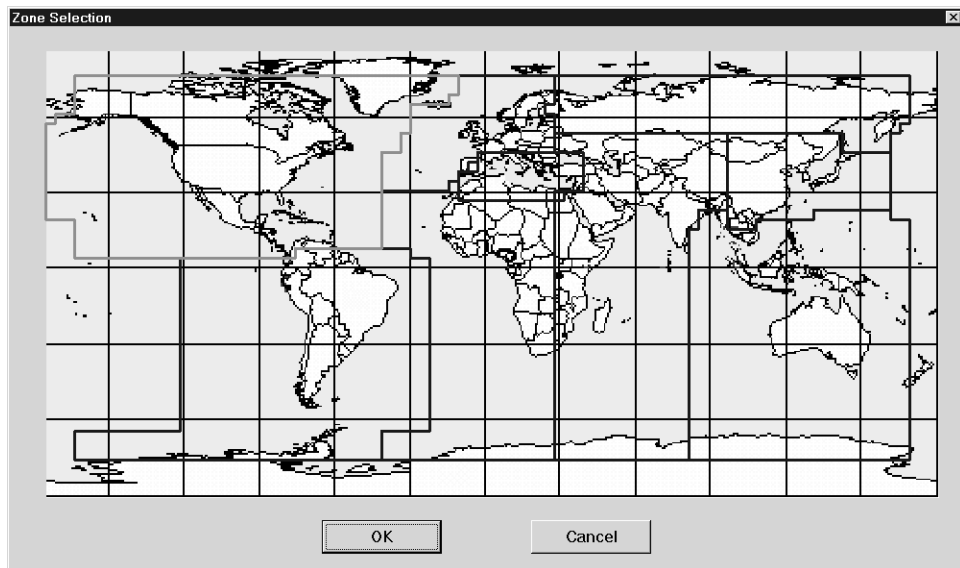
Note: **Resolution Mapping, Inc.'s .RML** and **.HDR** and **BSB/NOAA's .BSB** format raster charts, as well as **ARCS** charts **cannot** be displayed when the **C-MAP** display option is selected. **WinFrog** must be **removed** and then **reinstalled** in order to display these types of **Raster** charts. Other chart file types supported by the **Blue Marble GeoView Library** (**JPG, BMP, TIF** and **GEOTIFF** raster files and **DXF, DWG, SHP, MIF, DGN**, and **BML** vector files) **can** be displayed (as a layer in a **BMM** file) when the C-Map display option is selected.

To Display a C-Map Vector Chart

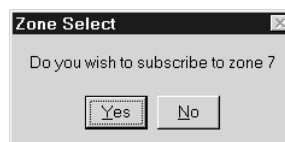
- 1 Insert the **C-Map** CD containing the region to be displayed.
- 2 Launch **WinFrog**.
- 3 From the **Configure** menu, choose **Graphics** to bring up the **Configure Graphics** dialog.
- 4 Select the **Background** tab.
- 5 Select the **Plot Charts** checkbox, then click the **Chart Options** button to display the **C-MAP Configuration** dialog as seen below.



- 6 In the **CMAP Root Directory** field (at the bottom of the **CMAP** dialog box), make sure the drive letter corresponds to the CD ROM drive containing the **CMAP** CD.
- 7 Click the **Zone** button to bring up the **Zone Selection** dialog box, as seen below.

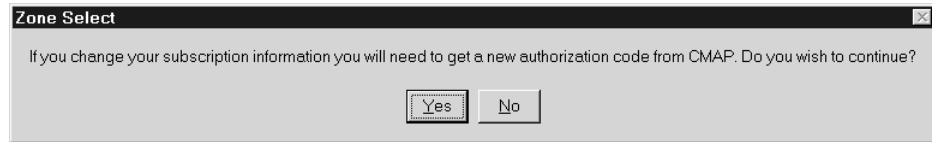


- 8 Select a **zone** by double-clicking within its boundaries.



The **Zone Select** dialog box opens, asking you to confirm the selection.

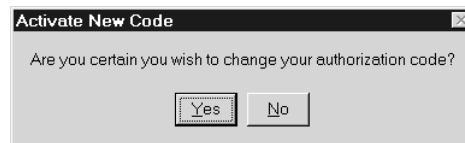
- 9 Click **Yes** or click **No** and repeat **Step 6**.
- 10 Click **OK**. Another **Zone Select** dialog box opens.



- 11 Click **Yes** or click **No** and repeat **Step 6**.

The **User Code** dialog box opens, displaying the following message: "**Your User Code is X. Contact C-MAP with this user code to receive an authorization code.**"

- 12 Click **OK**.
- 13 Once the **Authorization Code** is obtained, enter it in the **Authorization Code** entry field.
- 14 Click the **ACTIVATE** button.



- 15 Click **Yes** to confirm the change.
- 16 Click **OK** to close the **CMAP Configuration** dialog box.
- 17 Click **OK** to close the **Configure Graphics** dialog box and display the **C-Map vector** chart.

C-Map Vector Chart Feature Levels

C-Map Vector chart parameters can be modified via the **CMAP Configuration** dialog box.

When the **Auto Select Level Base on Scale** box is checked in the **CMAP Configuration** dialog box, the **precision** of the map displayed is related to the value entered by you in the **Scale 1:** entry field at the top of the **Configure Graphics** dialog box.

Scale	Feature Level	ID	Precision Values
>5,000,000	Background Map	W	not available
5,000,000	World Map	A	1500m
1,500,000	General Nautical	B	450m
500,000	Coastal	C	150m
150,000	Coastal Approach	D	45m
50,000	Approach	E	15m
15,000	Harbor	F	4.5m
5,000	Plan	G	1.5m

The letter **ID** in the **Feature Level** area of the **CMap Configuration** dialog box shows the feature level displayed in the **Graphics** window. If there is no chart available with the feature level corresponding to the user-entered scale, the **Graphics** window displays in white.

To Bypass the Default Precision Value Associated with an Entered Scale

- 1 Uncheck the **Auto Select Level Base on Scale** box in the **CMap Configuration** dialog box in order to display a desired feature level despite the entered scale.

Note: a high precision feature level displayed at a high scale can adversely affect performance while a low feature level displayed at a low scale can result in a loss of precision.

To Use WinFrog's Map Projection

By default, these charts are displayed using a Mercator map projection. You can choose to display the charts using the parameters configured in WinFrog's **Geodetics** dialog box instead.

- 1 In WinFrog, select the main menu item **Configure > Geodetics**, then configure the geodetic parameters, as required. See the **Configuring Geodetics and Units** chapter for more information on selecting the **Working Geodetics** in WinFrog.
- 2 In the **CMap Configuration** dialog box, un-check **Mercator**.

Note: **CMap** display performance is greater when the **Mercator** box is checked.

Visible Illuminations

Light sources shine a light toward the sea. However, obstacles can block the beam of light in certain directions. **Vector** maps can indicate where a vessel would be able to see a beacon of light shining from a lighthouse or other light sources.

To Indicate Illumination

- 1 Check the **Show Lights** box in the **Feature Level** area of the **CMAP Configuration** dialog box.

Profile Window

The **Profile** window displays a user-defined view of the water column and can include such information as **survey lines** and **waypoints**, as well as all WinFrog **vehicles**.

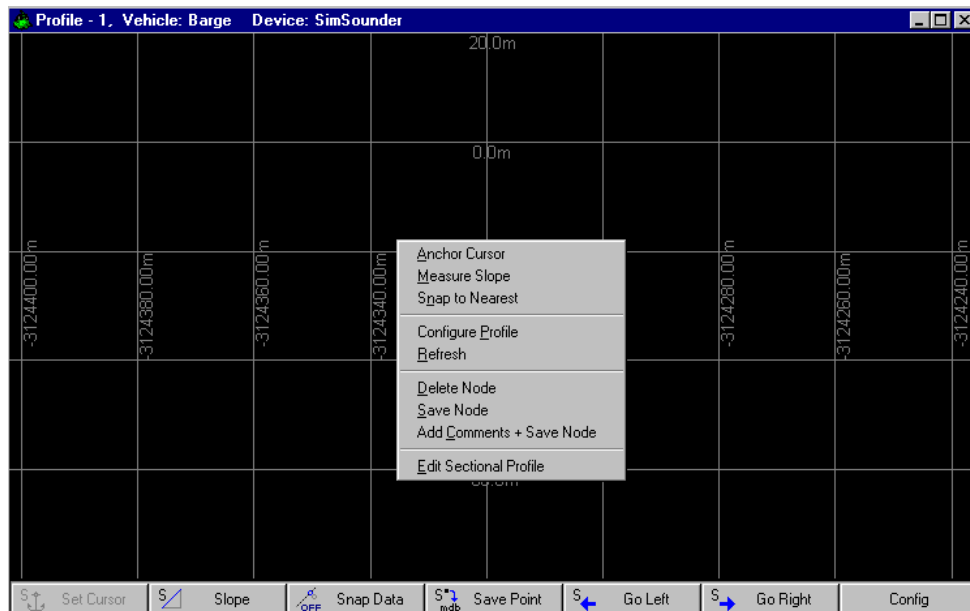
The inclusion of the above mentioned data in the **Profile** window is dependent upon the location of the various data relative to the configured location as well as the orientation of the **Profile** window. The following sections detail the configuration of the **Profile** window. See the **Working Files** chapter for more information on configuring three-dimensional survey line and waypoint data.

To Display the Profile Window

- 1 From the **View** menu, choose **Profile**. Multiple **Profile** windows can be displayed simultaneously, each with their own unique configuration. Each **Profile** window can be moved or have its size altered by “grabbing” the edge of the window and moving it as desired.

There are a variety of **Profile** window operation and configuration options presented when the mouse pointer is moved into the limits of the **Profile** window and the right mouse button is clicked. Most of these options are also presented in the **Profile** window **Toolbar** found at the bottom of the **Profile** window.

For typical, real world operations you would first configure the **Profile** window.



To Configure the Profile Window

There are three ways to access the **Configure Profile** dialog box.

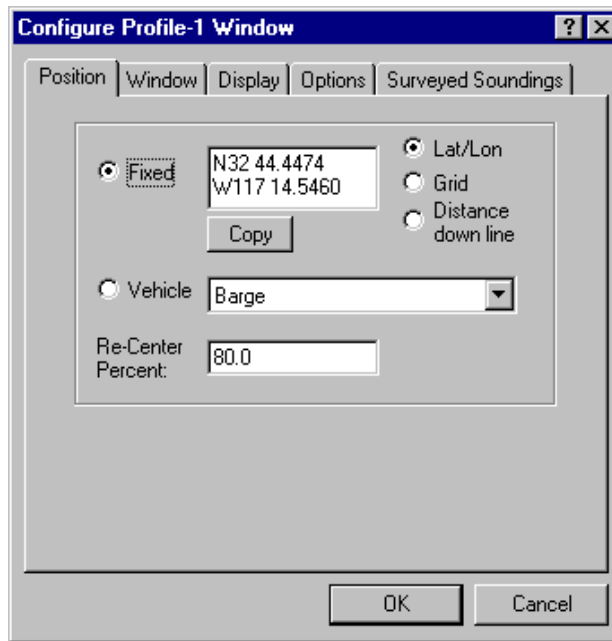
- 1 Select **Configure > Profile**.
- 2 Move the mouse pointer within the limits of the **Profile** window, right-click and select **Configure Profile**.
- 3 Select the **Config** button in the lower right corner of the **Profile** window on the toolbar.

Regardless of the method used, the result is the presentation of the **Configure Profile Window** dialog box.

The **Configure Profile** window is comprised of five different configuration categories that are accessed by selecting the appropriate tab. Each of these configuration options is detailed below.

Position Tab

The **Position** tab allows you to specify the way that the **Profile** window is centered horizontally.



Fixed radio button

Select this option to horizontally center the **Profile** window at the coordinates displayed in the box, regardless of the current vehicle position. The coordinates can be either entered in geographic latitude and longitude (if the **Geo** radio button is selected) or in grid Northing and Easting (if the **Grid** radio button is selected).

Vehicle radio button/ dropdown box

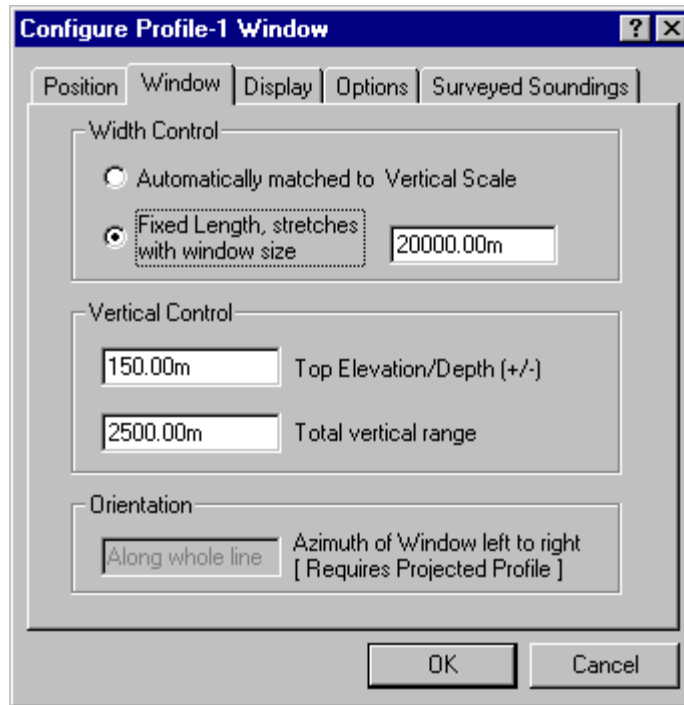
Select this radio button, then (from the dropdown box) choose the vehicle to which the **Profile** window display will be horizontally centered.

Re-Center Percent field

Enter a value in percent. This is the percentage of the distance between the center and the side edge of the display in which the current vehicle is permitted to travel before the **Profile** window is refreshed. When the current vehicle comes within the re-center percentage limits of the **Profile** window edge, the **Profile** window pans to return the current vehicle to the center (horizontally) of the **Profile** window.

Window Tab

The **Window** option allows you to control the **Horizontal Scale**, **Vertical Scale**, and **Orientation** of the data in the **Profile** window.



Width Control

Automatically matched to Vertical Scale

If selected, WinFrog automatically varies the length (width) of the **Profile** window to match the **Vertical Scale**.

Fixed Length, stretches with window size

If selected, allows you to manually define the length (width) of the Profile window. It is recommended that this option is selected to ensure the adequate horizontal information is visible, despite the fact that the display will not be to scale.

Vertical Control

Top Elevation/Depth

Enter a value to define the top of the water column displayed in the **Profile** window. This value designates where the top of the **Profile** window begins in relation to the surface of the water. The value **0** starts at the surface. A negative value starts below the surface. It is suggested that a value of

approximately 20 meters is entered to ensure that surface vehicles will be visible in the **Profile** window.

Total Vertical Range

Defines the total amount of the water column displayed in the **Profile** window, as measured down from the **Top Elevation** entry made above. This range is always entered as a positive value.

Orientation

Azimuth of Window

left to right

Enter the **Azimuth (horizontal bearing)** of the **Profile** display as it appears in the **Graphics** window.

To determine the **Azimuth**, visualize that you are looking straight down from high above the ocean surface and the **Profile** location. From this perspective, the **Profile** will appear simply as a thin straight line, the length as defined in the **Width Control** entry above.

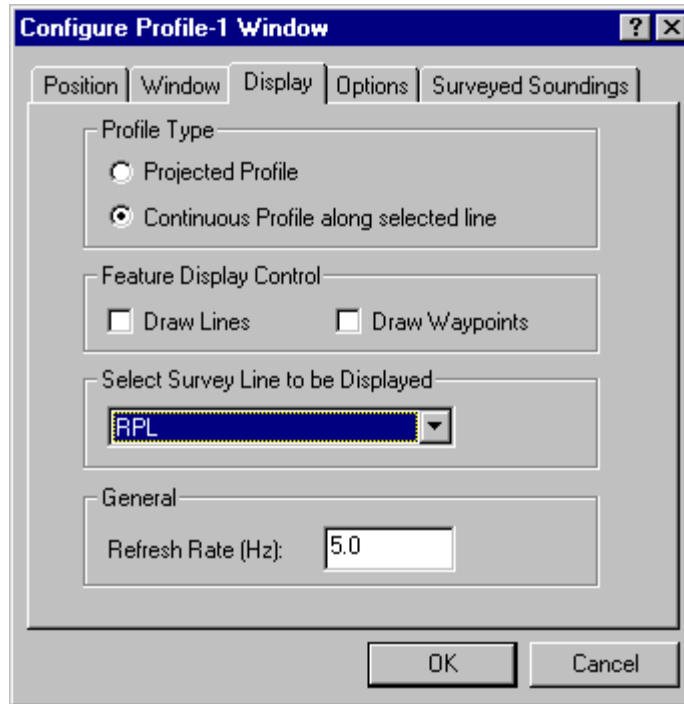
To define the **Azimuth** of the **Profile** line you must first decide from which side you wish to view the **Profile** (i.e. decide which end of the **Profile** will be to your viewing **left** and which side will be to your viewing **right** as you look **horizontally** at the mid-point of the **Profile**). The **Orientation** value entered here is the bearing of the line created by joining the left edge of the display to the right side of the display.

Typically, to view a **Survey Line** in profile view without scale distortion, the **Orientation** value will be the bearing of the **Survey Line** segment (or 180 degrees different, depending on how the **Survey Line** coordinates were entered).

Note: if **Continuous Profile along selected line** is chosen from the **Display** section (detailed in the section below), the **Orientation** entry window will display **Along whole line**, and not allow any numerical data entry.

Display Tab

The **Display** option provides you with the ability to configure various **Profile Display** features.



Profile Type

Projected Profile

Select this option to allow manual configuration of the **Window Tab** options, as detailed immediately above.

Continuous Profile along selected line

Select this option to have WinFrog automatically control the **Profile orientation** to suit the currently selected survey line, as detailed below.

Feature Display Control

Draw Lines/Draw Waypoints

Select the appropriate checkbox to draw lines and/or waypoints. These options enable the display of all contents of the appropriate **Working** file.

Select Survey Line to be Displayed

dropdown box

This selection is applied only when the **Profile Type** is **Continuous Profile along selected line**. This option allows for the

Profile display of an alternate **Survey Line**, perhaps one that contains more **downline** elevation information, such as slope changes for example.

If the real-time **Cable Model** is **not** running, this option defines the line projection for the **Profile** window. If the real-time **Cable Model** is running, the projection is defined by the survey line being **tracked** by the first vehicle. (This survey line should consist of only A/C's).

General

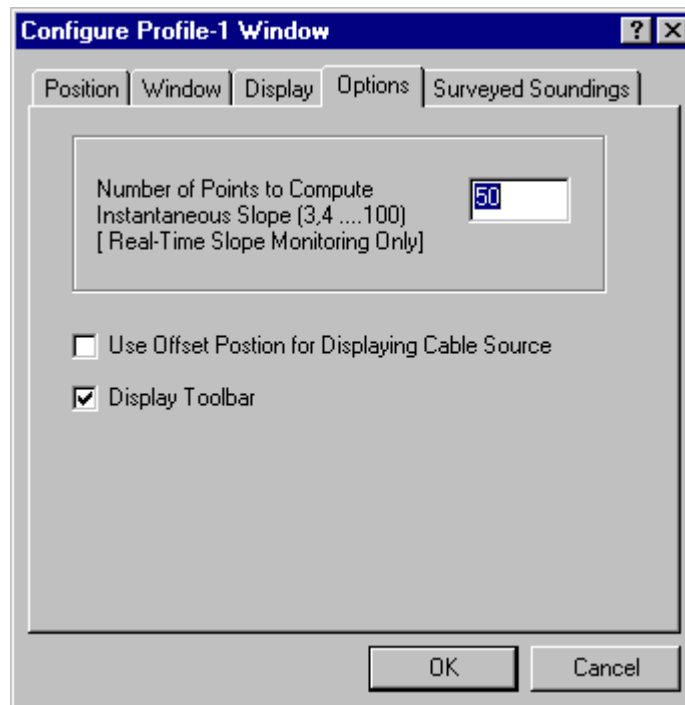
Refresh Rate (Hz)

Enter a value that configures the rate at which WinFrog will refresh the **Profile** window display. The default value of 5.0 Hz should be adequate for most applications.

Note: Do not enter too small a value, as the constant regeneration of the **Profile** window will slow the program.

Options Tab

The **Option** dialog box provides you with the ability to control three **Profile** window options, as detailed below.



**Number of Points to
Compute Instantaneous
Slope**

Enter a value (between 2 and 100) that defines the number of real-time echosounder observations (soundings) that will be used to determine the slope of the seabed. This value is applied only if **Real-Time Slope Monitoring** is enabled.

**Use Offset Position for
Displaying Cable Source**

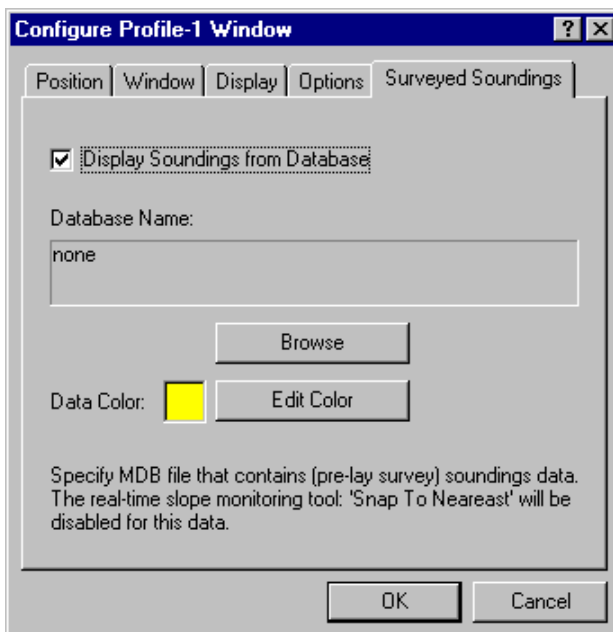
Select this option to enable a shift in the position that the echosounder data are plotted to the vessel's **Tracked Offset** position (i.e. the **Stern**, for example), as opposed to the vessel's **CRP** position. This visual adjustment to the real-time sounding data makes no notable difference to calculations in deeper water depths.

Display Toolbar

Select this option to enable the display of various **Profile** window **slope measurement** and **display movement** tools in the bottom of the **Profile** window. These toolbar options are detailed in the section below named **Profile Window Toolbar**.

Surveyed Soundings Tab

The **Surveyed Soundings** dialog box allows you to configure the display of **Pre-lay Sounding** data from a previously recorded **Database (.mdb)** file, as detailed below.



Display Soundings from Database

Select this option to enable the display of sounding data contained in a **.mdb** format file.

Browse

Select this button to navigate to the appropriate directory and select the desired **.mdb** file.

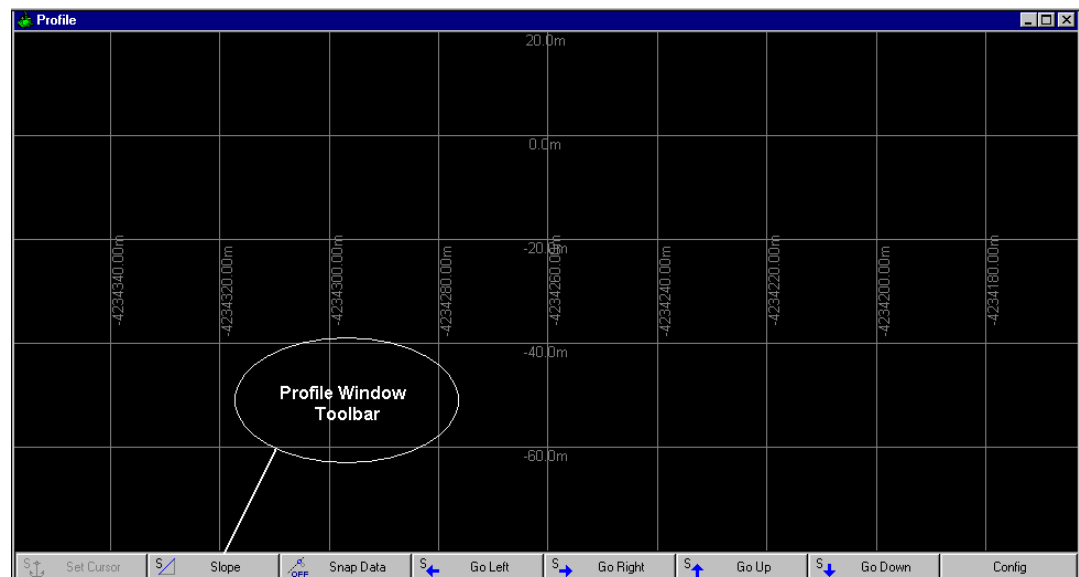
Edit Color

Select this button to change the color in which the loaded database soundings are plotted in the **Profile** window.

The Import Bathymetry utility (**Utilities > Import Bathymetry**) converts ASCII x,y,z bathymetry data into a WinFrog formatted soundings database file that can be displayed in the Profile window. To learn more about this utility refer to chapter 11: Utilities.

Profile Window Toolbar

At the bottom of the **Profile** window is a toolbar that provides you with shortcuts to seven different **Profile** window configuration and measurement functions. Several of these functions can also be accessed by right-clicking when the mouse pointer is located within the limits of the **Profile** window display. The following sections detail each of the toolbar items, in the order that they are found at the bottom of the **Profile** window.



Set Cursor

Selecting this button enables you to define the point **from** which slope measurements will be made, i.e. where the slope will be anchored. This

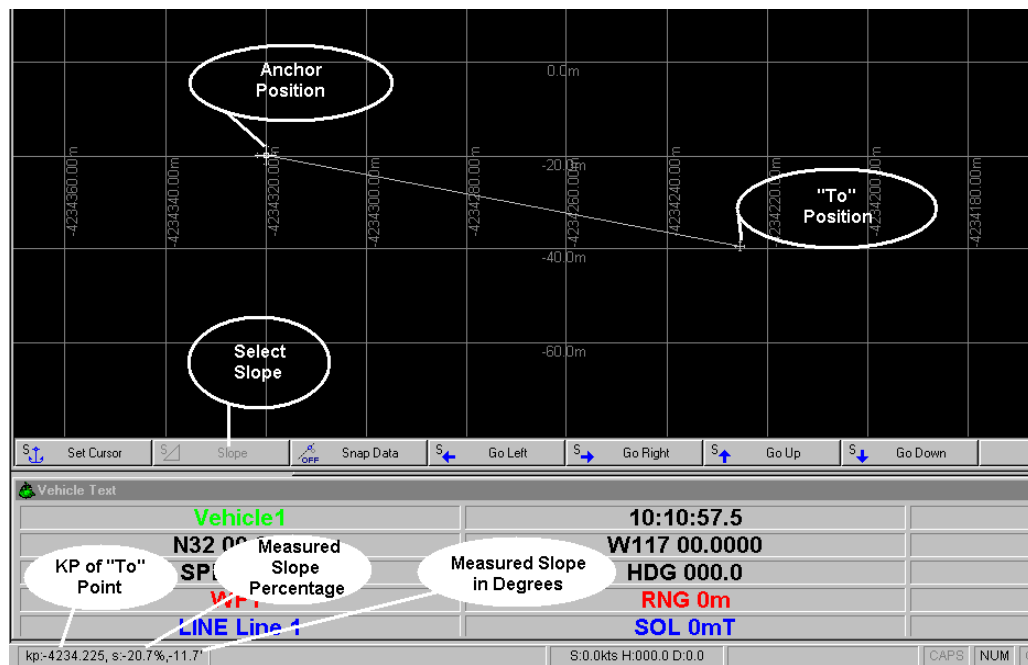
function is the same as the **Anchor Cursor** feature found in the “right-click menu” accessed while your cursor is in the **Profile** window.

To set the cursor, select this button (“graying” out the button text), then move the mouse pointer to the desired location in the **Profile** window and click. A “cross” will appear in the **Profile** window at the specified location.

Slope

Select this button to define the point **to** which slope measurements will be made, i.e. from where the slope was anchored (see above) to this new location. This function is the same as the **Measure Slope** feature found in the “right-click menu” accessed while your cursor is in the **Profile** window.

To measure slope, select this button (“graying” out the button text), then move the mouse pointer to the desired location in the **Profile** window and click the left mouse button. A line will now appear, connecting the previously set “anchor” position to this new point. WinFrog displays a variety of information related to this measurement in the bottom left corner of the display area below the **Vehicle Text** window.



As shown above, WinFrog calculates and displays the **To Point** KP value, the slope measured in degrees, and the measured slope percentage.

Snap Data

Select this button to instruct WinFrog to “snap” to an existing plotted sounding **to** which slope measurements will be made. This selection precludes the manual definition of a “To” point as defined above.

Go Left

Select this button to instruct WinFrog to move the viewer's perspective of the **Profile** window to the left, i.e. moves the contents incrementally to the right.

Go Right

Select this button to instruct WinFrog to move the viewer's perspective to the right, i.e. moves the **Profile** window contents incrementally to the left.

Go Up

Select this button to instruct WinFrog to move the viewer's perspective "up", thus moving the **Profile** window contents incrementally "down."

Go Down

Select this button to instruct WinFrog to move the viewer's perspective "down", thus moving the **Profile** window contents incrementally "up."

Config

Select this button to access the **Configure Profile** window dialog box, as detailed at the start of the **Profile Window** section.

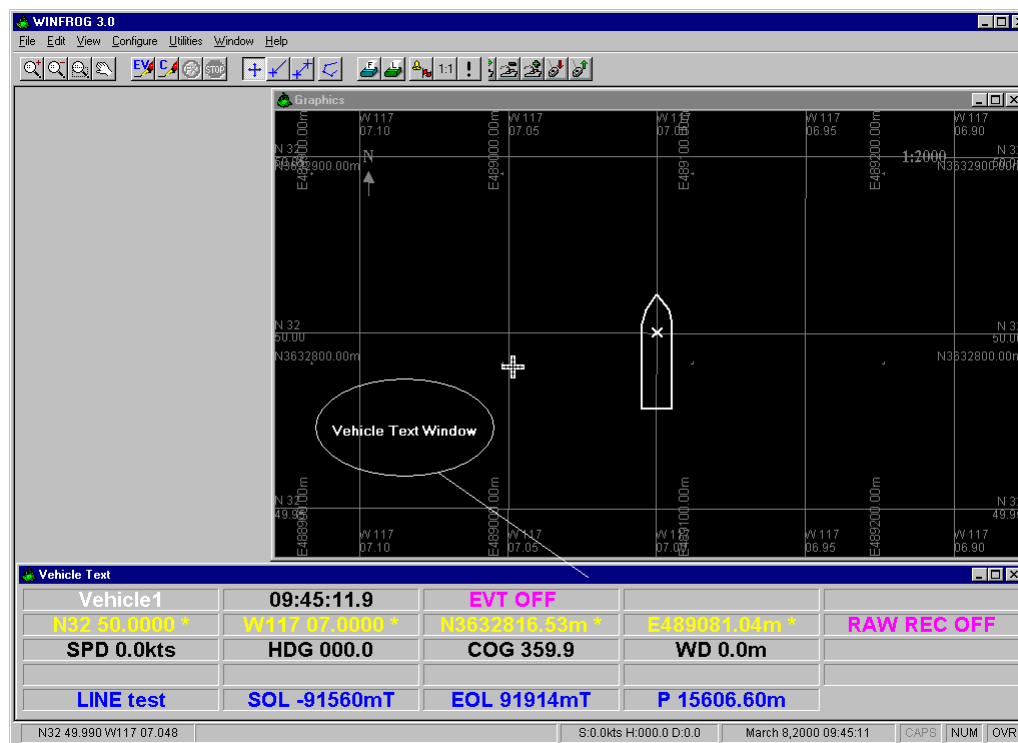
Vehicle Text Window

The **Vehicle Text** window displays real-time information for all vehicles in text form. This information can include the vehicle's **Name**, **Position**, **Heading**, and **Speed**, as well as a host of other data. You can display more than one **Vehicle Text** window at a time, with each **Vehicle Text** window configured differently than the others.

As well as displaying navigation data, the **Vehicle Text** window provides quick access to several commonly used WinFrog setup and configuration menus, including **Line Tracking**, **Waypoint Tracking**, **Automatic Event Configuration**, **Vehicle Offset** selection, and **Vehicle Configuration** options.

To View the Vehicle Text Window

- 1 From the **View** menu, choose **Vehicle Text**. The **Vehicle Text** window opens at the bottom of the WinFrog work area, as seen below.



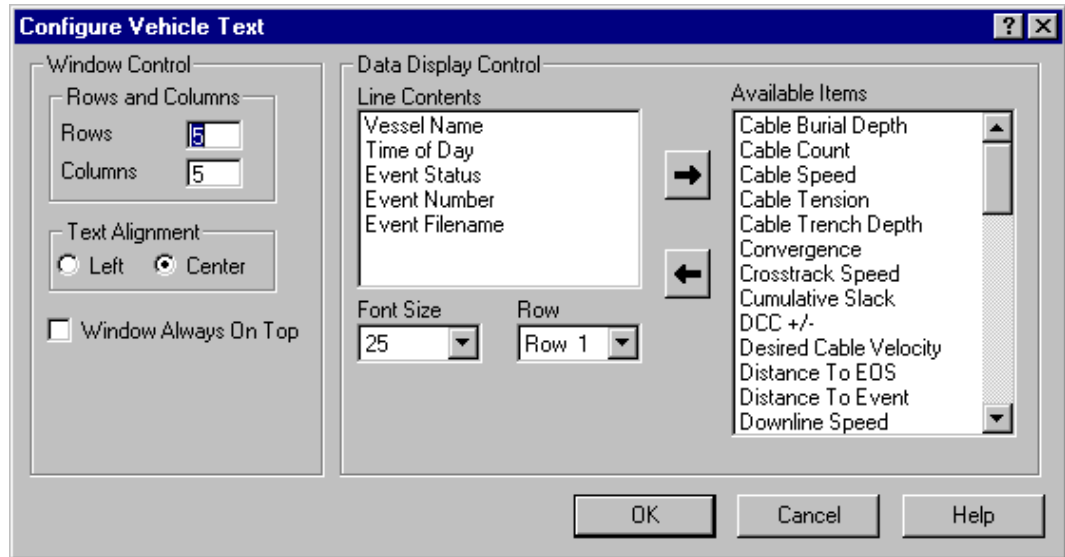
WinFrog carries a default configuration of the **Vehicle Text** window contents for the initial start up. The data displayed in this window (and the location of data items in the window) is configurable as detailed below. All modifications to the Vehicle Text window are saved in the **Winfrog_3.ini** file when the program is exited correctly.

To Configure the Vehicle Text Window

- 1a Select the main menu item **Configure > Vehicle Text**.

Or

- 1b Move the mouse pointer into the **Vehicle Text** window and click the right mouse button. Select **Configure Vehicle Text** from the presented menu options.



This window allows you to select which data items are displayed in the **Rows** and **Columns** of the **Vehicle Text** window, as well as the Font Size and Alignment of the selected data text.

Note: Row 1 refers to the top **row** of the **Vehicle Text** window.

Window Control

Rows/Columns

Enter the number of rows and columns (1 to 5) that you want to display in the **Vehicle Text** window.

Text Alignment

Left/Center radio buttons

Select the desired alignment option.

Window Always on Top

Select this option to ensure that the **Vehicle Text** window always displays on top of any overlapping windows. This ensures that the more important information found in the **Vehicle Text** window is always visible.

Data Display Control

Row dropdown

Use the dropdown menu to select the **row** that you want to modify.

Line Contents box

Lists the items currently displayed in the selected **row** of the **Vehicle Text** window. To add items to this list, first ensure that the desired row is selected. Next, select the desired item listed in the **Available Items** box and click the **left** arrow. This adds the

selection to the **Line Contents** box and removes it from the **Available Items** list. To remove contents from the **Line Contents** box, select the desired item and click the **right** arrow. This removes the item from the **Line Contents** box and adds it (in alphabetical order) to the **Available Items** list. Each item can be listed only once in the **Vehicle Text** window.

Note: some items may appear as blank boxes in the **Vehicle Text** window until valid data exists for that field. For example, by default, **Row 4** is configured to display waypoint tracking data (**Wpt Name**, **Wpt Range**, **Wpt Bearing**). If no waypoint is being tracked, these three data items will remain blank.

Font Size

Select the size of the font used to display items in the row number shown in the **Row** dropdown list.

Available Items

The items available for display in the **Vehicle Text** window are described below.

Item Name	Sample Entry	Text Color
ACOUSTIC - Velocity Filename	VEL: Filename.VEL	Black
ACOUSTIC - Xponder Filename	XPDR: Filename.XPT	Black
ATTD - Pitch	PITCH 0.0	Black
ATTD - Roll	ROLL 1.0	Black
CM - Cumulative Slack	Cum Slack 0.0	Blue
CM - Desired Cable Velocity	C dSPD 50.0 m/m	Black
CM - Expected Tension	dTen 3.5	Black
CM - Observed Ship Slack	SLACK 0.5	Black
CM - Slack	SLACK 0.2	Blue
EVENT - Distance To Event	DTE 322.2m	Red
EVENT - Filename	File: line1.dat	Magenta
EVENT - Number	FIX#: 103	Magenta
EVENT - Status	EVT: Enabled	Magenta
EVENT - Raw Filename	270-1428.RAW	Magenta
EVENT - Raw Record Status	Raw Record Off	Magenta
GRAPHICS - Convergence	45.0	Black
GRAPHICS - DXF Filename	DXF: filename	Magenta
LINE - Bearing	LN BRNG 065.0T	Blue
LINE - Crosstrack Speed	XTRK 0.5 kts	Black
LINE - DCC +/-	DCC 16.85m	Black
LINE - Port/Starboard	P 1.7m	Blue
LINE - Left/Right Indicator	R 3.20m	Blue
LINE - Distance To EOL	EOL 322.2mT	Blue
LINE - Distance To EOS	EOS 262.6m	Blue

Item Name	Sample Entry	Text Color
LINE - Distance To SOL	SOL 322.2mT	Blue
LINE - Downline Speed	DWNL SPD5.6 kts	Black
LINE - FP	STA 11 +13.45	Blue
LINE - KP	KP 001.224T	Blue
LINE - Name	LINE line 1	Blue
LINE - Segment Number	LINE SEG# 3	Blue
MAGNETOMETER Altitude	MAG Alt: 0.0m	Black
MAGNETOMETER Depth	MAG D: 0.0m	Black
MAGNETOMETER Mag Field	MAG: 0.000nT	Black
MISC - Reserved 1	blank	blank
MISC - Reserved 2	blank	blank
NAV - Course Over Ground	45.0	Black
NAV - ETA	ETA 00:00	Black
NAV - Heading	HDG 110.0	Black
NAV - Layback	LBK 100.00m	Blue
NAV - Offset Name	TO: bow	Black
NAV - Req'd Layback HDG	REQD HDG 110.0	Blue
NAV - Speed	SPD 3.00 kts	Black
NAV - Speed Through Water	STW 0.0kts	Black
NAV - Tide	Tide 0.00m	Black
NAV - Time of Day	12:00:00.0	Black
NAV - Vessel Name	Vehicle1	Vehicle color
NAV - Water Depth	WD 0.00m	Black
NAV - R Wind Direction	RWD 45.0	Black
NAV - R Wind Speed	RWS 8.0 kts	Black
NAV - T Wind Direction	TWD 45.0	Black
NAV - T Wind Speed	TWS 8.0 kts	Black
POS - Easting	E356789.0	Black
POS - Northing	N3456789.0	Black
POS - Latitude	N25 35.0000	Black
POS - Longitude	W116 59.8245	Black
POS - Elevation Above MSL	ELEV 0.00m	Black
POS - Standard Error/HDOP	HDOP 0.00m	Black
POS - Time of Position	12:00:00.0	Black
ROV - Altitude	ROV Alt 20.00m	Black
ROV - Depressor Angle	Dep Angle: 0.00000	Black
ROV - Depth	ROV D 0.00m	Black
ROV - Jet Knife Angle	KNFANG	Black
ROV - Jet Knife Depth	SNF D	Black
ROV - Stinger Angle	Stngr Ang: 0.00000	Black
ROV - Trench Depth	DOT 1.20m	Red
SEISMIC - Shotpoint Distance	SP DIST: 10.00m	Black
SEISMIC - Shotpoint Error	SP ERR: 0.20m	Black
TENSION - LCE(Ch3)	LCE TEN 5.33t	Black
TENSION - CDE1(Ch4)	CDE1 TEN 1.44t	Black
TENSION - CDE2(Ch5)	CDE2 TEN 0.22t	Black

Item Name	Sample Entry	Text Color
TEL CABLE - Angle	C angle: 0.0	Red
TEL CABLE - Burial Depth	DOB 0.00m	Red
TEL CABLE - Count(Ch1)	C cnt 1122.0 m	Red
TEL CABLE - Speed(Ch1)	Csped 1.5 m/s	Red
TEL CABLE - Tension(Ch1)	C ten 6.25 tn	Red
TOW CABLE – Count(Ch2)	T Cnt 0.00m	Red
TOW CABLE – Speed(Ch2)	TOW SPD 25m/m	Red
TOW CABLE – Tension(Ch2)	TOW TEN 0.00tn	Red
WPT - Bearing	BRG 346.7T	Red
WPT - Name	WPT Anode1	Red
WPT - Range	RNG 531m	Red
WPT - Vertical Range	vRng 0m	Red
WPT - Direct Range	dRng 531m	Red

To Remove a Vehicle's Data from Display in the Vehicle Text Window

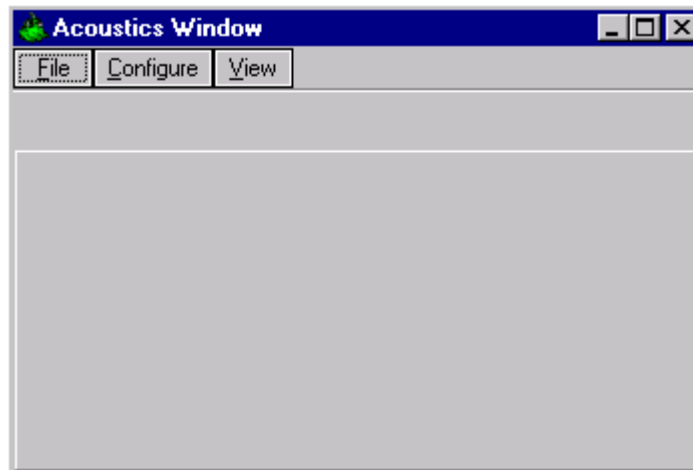
- 1 Select the main menu item **Configure > Vehicles > Vehicle Presentation > Vehicle Window Data > Off.**

Acoustics Window

The **Acoustics Window** provides you with the means to configure and monitor all aspects of the WinFrog acoustic operation. This window supports multiple sub-windows that provide these features for different parts of the acoustic operation.

To Display the Acoustics Window

- 1 From the **View** menu, choose **Acoustics**



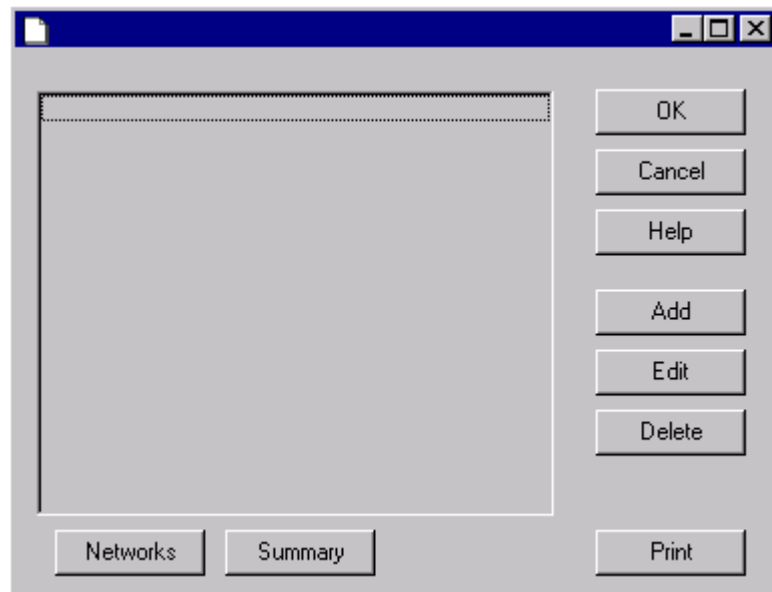
This window provides access to the configuration options and sub-windows from the three menu buttons located at the top of the window.

Working Files Options

You are able to work with **transponder** and **velocities** files directly from the **Acoustics Window** using the **File** menu item. This is a more efficient process than using the WinFrog main menu **File** item.

New

Click the **File** item, select **New** and you are able to select either **Xponders** or **Velocity**. Choosing either one moves you directly to the new Xponders or Velocities window.



Proceed from this point as described in the **Working Files** chapter for Xponder and Velocity files.

Set To Working

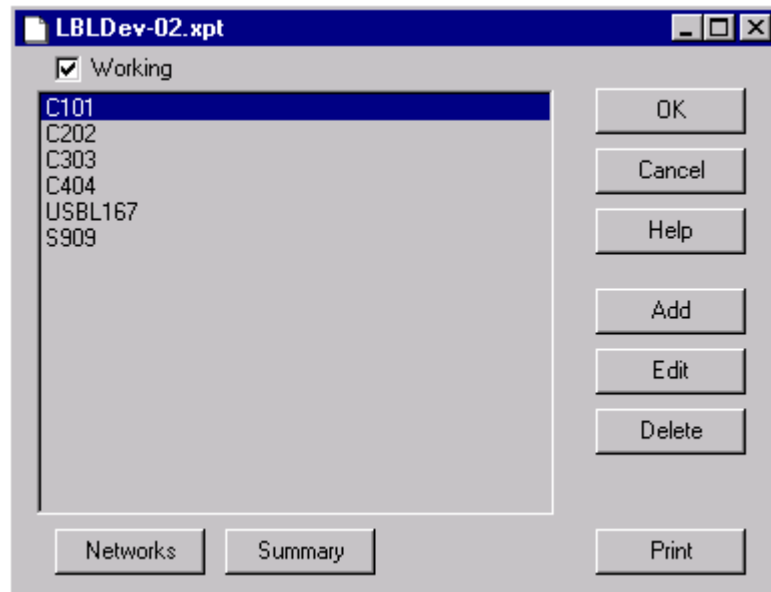
This option allows you to directly set a selected Xponders or Velocities file to be the Working version.

Click the **File** item, select **Set to Working** and then select either **Xponders** or **Velocity**. Choosing either one moves you directly to the browse dialog showing only the appropriate file types. Select the desired file and click **OK**. The selected file is automatically set to be the Working copy.

Note: If there is currently a **Working Xponders** file, you are alerted to this and the operation is aborted. If this occurs, you must open the current Working Xponders file and un-check the Working checkbox and exit with OK. Now a new Working Xponders file can be set. This check is not currently implemented for the **Working Velocities** file.

Edit

This option allows you to directly access the current **Working Xponders** or **Velocities** files for editing. Click the **File** item, select **New** and you are able to select either **Xponders** or **Velocity**. Choosing either one moves you directly to the Xponders or Velocities window.



Proceed from this point as described in the **Working Files** chapter for Xponder and Velocity files.

Direct Configure Options

From the **Configure** menu item, you are able to select the vehicle with which to associate the acoustic calibration features and configure and control the acoustic calibration.

Select Vehicle for Calibration

This option allows you to select the vehicle with which the window will associate all acoustic calibration control and monitoring.

Click the **Configure** item, select **Select Vehicle for Calibration** and you are able to select from a pop up list of all vehicles with either an **LBL TRANSCEIVER** or **USBL HYDROPHONE** data type attached to it. Select the appropriate vehicle.

In subsequent repeats of the aforementioned steps, the selected vehicle is displayed with a checkmark beside its name.

Note: This setting is not saved when the Acoustics Window is closed.

Calibration

This option provides direct access to the **Calibration** dialog for the selected vehicle. If a calibration vehicle has not been selected, you are so informed and the **Calibration** dialog is not accessed.

Click the **Configure** item, select **Calibration**.

Calibration for Survey 2

Data Collection/Control

☒ Off ☐ On Apply Data Collection Setup Now

☐ LBL Ranges ☐ II Ranges 0 Points in Memory

C101 Clear

☐ USBL Data Min Interval (seconds)

1 Graphics

☐ On ☒ Off

☐ LBL Baselines Setup

☐ Depths Setup

Data Load/Save

Current File

Load Save AutoSave AutoSave Off

Calibration Calculations

Edit Data Recalc LBL Xpdr Report

Calculate Reset USBL USBL Report

Statistics Edit Xponder

OK Cancel Help

Proceed from this point as described in the **Acoustic Calibration** chapter.

Viewing Windows

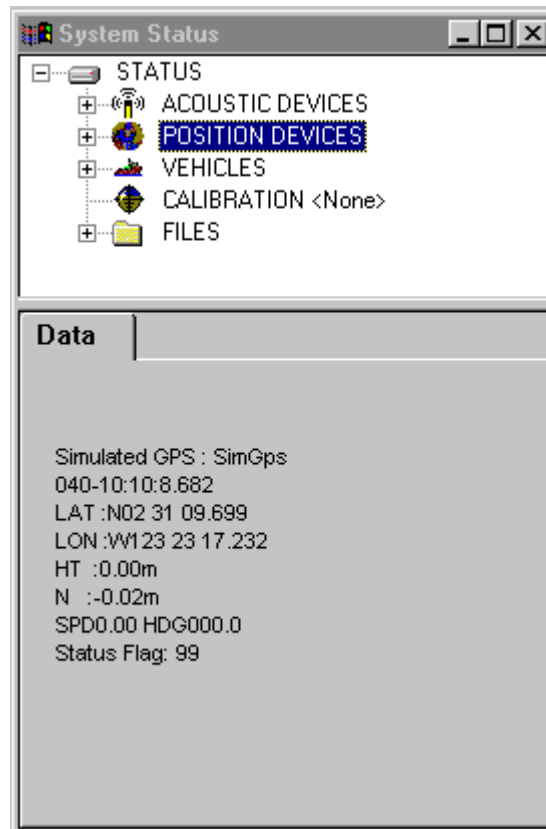
The **Acoustics Window** allows you to access several windows that provide the means to monitor the WinFrog system and operation as it pertains to acoustics. Some of these support direct access to the configuration of the WinFrog components they are monitoring.

These windows are accessed from the **View** menu item. The following sections detail each available window.

System Status

This window presents a summary of the WinFrog system as it relates to acoustic operations. The information is constantly updated and reflects the current respective configurations and information.

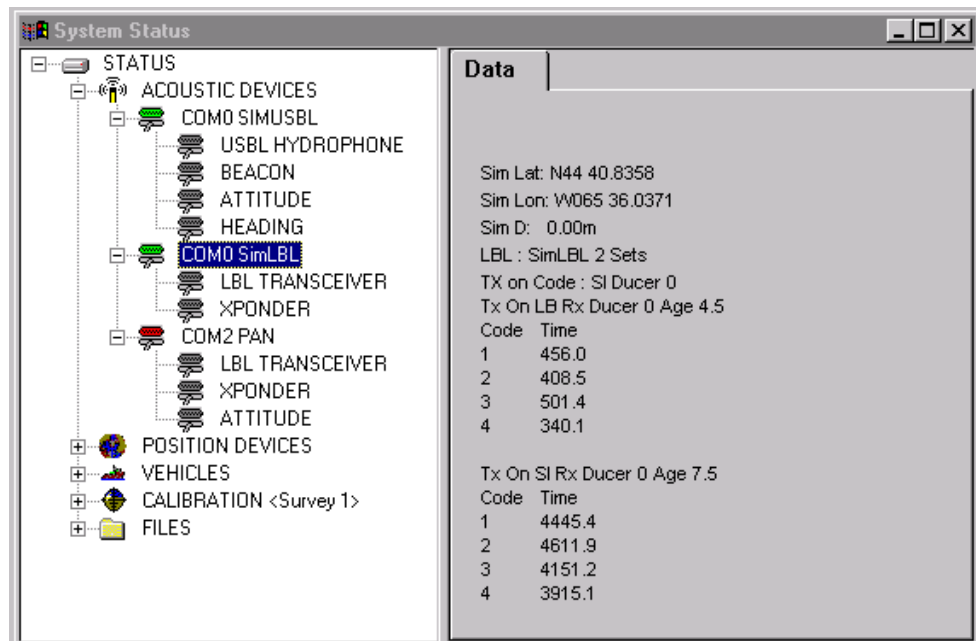
Click the **View** item and select **System Status**.



This split window presents the configuration of WinFrog in a tree format in one panel and data in the other panel. The split can be configured to vertical or horizontal via a pop-up menu using the right mouse button in the tree section. The font used in the data section can be modified via a pop-up menu using the right mouse button in the data section.

The tree nodes include icons to indicate an appropriate status.

ACOUSTIC DEVICES Node



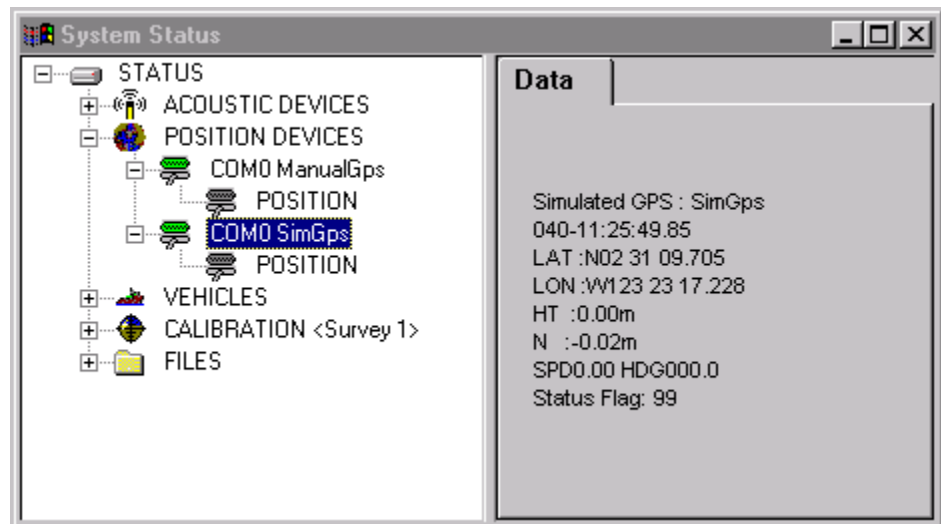
This node lists all the LBL and USBL acoustic devices that have been added to WinFrog. The devices are listed with an icon indicating the status of the serial port. Each device node can be expanded to list the data types associated with it.

Select a device and click the right mouse button to open a pop-up menu that presents direct access to the selected devices configuration.

Note: Devices can not be added to WinFrog from this window.

For more details, see the **I/O Devices Window** section in this chapter.

POSITION DEVICES Node

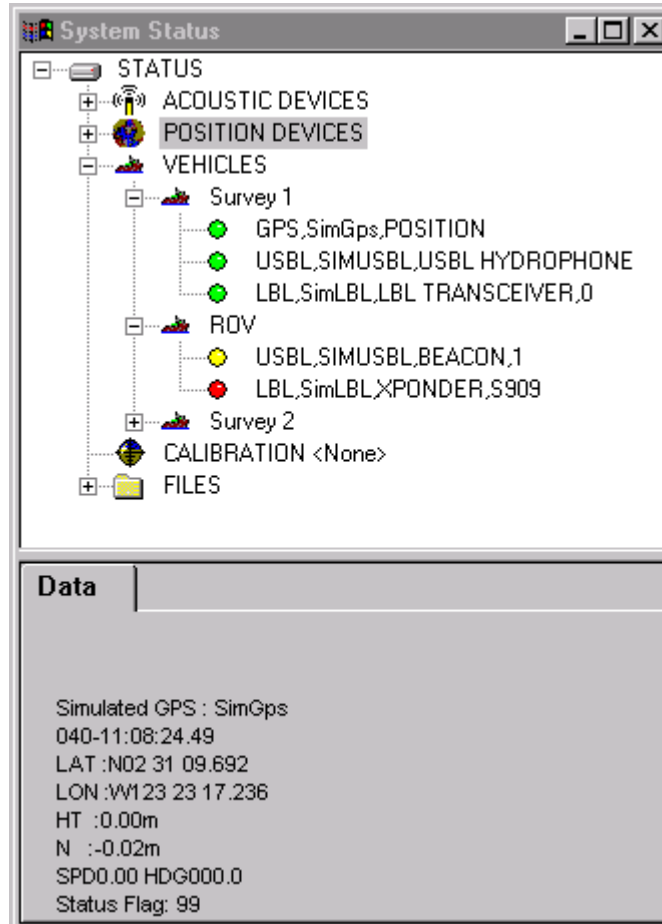


This node lists all the position type devices (GPS) that have been added to WinFrog. The devices are listed with an icon indicating the status of the serial port. Each device node can be expanded to list the data types associated with it.

Select a device and click the right mouse button to open a pop-up menu that presents direct access to the selected devices configuration.

For more details, see the **I/O Devices Window** section in this chapter.

VEHICLES Node



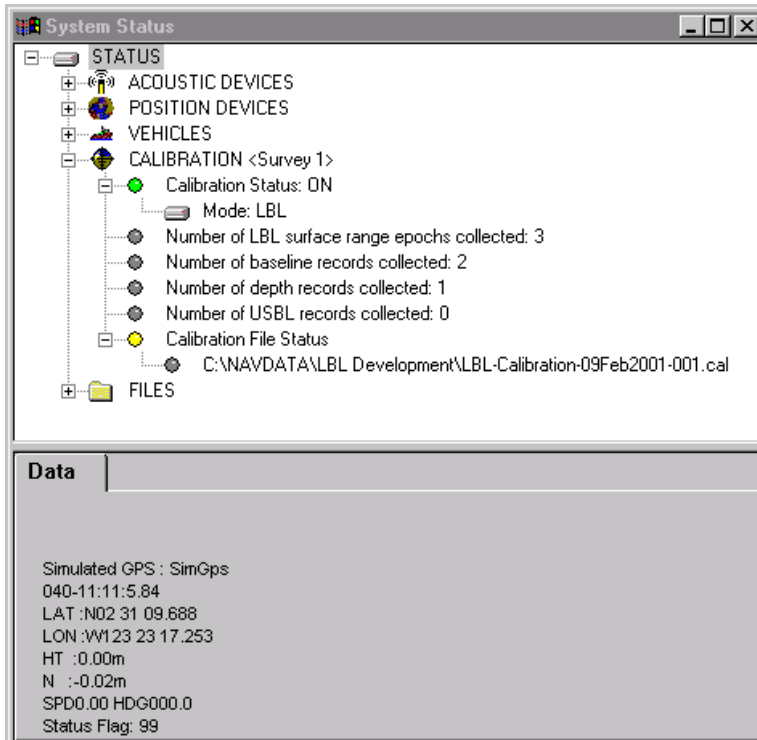
This node lists all the WinFrog vehicles that have an acoustic data type attached to them. These nodes can be expanded to list the POSITION, LBL and USBL data types attached to the respective vehicle. Note that only these data types are listed.

The data type nodes include an LED indicating the status of that data type's position calculations. A yellow LED indicates that the status is unknown or the position calculation was successful but the result was gated. A red LED indicates that the position calculation failed. This failure may be due to insufficient data. A green LED indicates that the position calculation was successful and accepted.

Select a data type and click the right mouse button to open a pop-up menu that presents direct access to the selected data type configuration.

For details on configuring the data types, see the **Vehicle Data Source**, **LBL Operation** and **USBL Operation** chapters.

CALIBRATION Node



This node summarizes the calibration status for the vehicle selected for the calibration for the window (see **Select Vehicle for Calibration**). The primary node caption includes the name of the vehicle selected or None if one has not been selected.

The node can be expanded to provide details on the calibration. For details on the information displayed here, see the **Acoustic Calibration** chapter.

Calibration Status

This node shows the current status of the calibration data collection, both with an LED (green, collection is on, red, collection is off) but also with an **ON** and **OFF** statement. In addition, this node can be expanded to show the current collection mode.

Mode This states the current calibration data collection mode, either LBL, II, USBL, Baselines or Depths. In addition, it includes the status if the collection is Paused or Aborting.

Number of LBL surface range epochs collected

This lists the total number of surface position and LBL range data records in the current calibration data set.

Number of baseline records collected

This lists the total number of baseline observation records in the current calibration data set.

Number of depth records collected

This lists the total number of depth observation records in the current calibration data set.

Number of USBL records collected

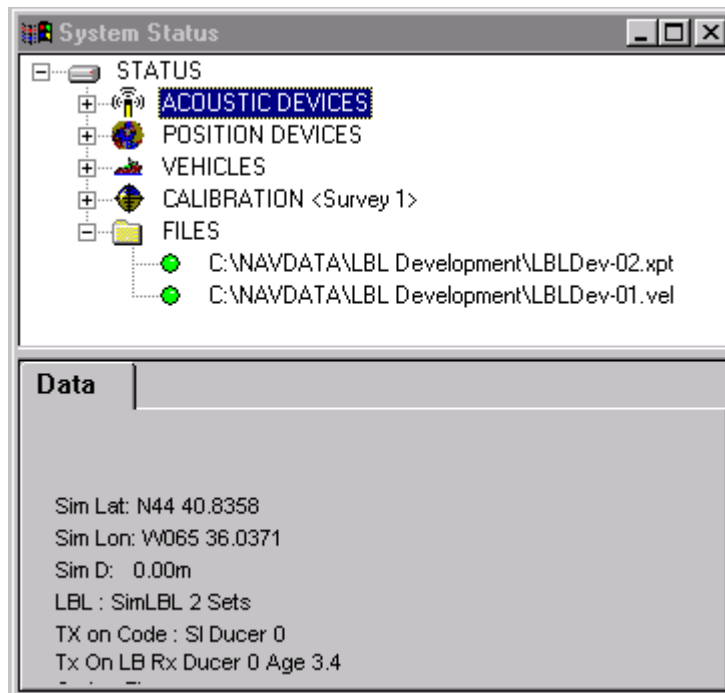
This lists the total number of surface position and USBL range data records in the current calibration data set.

Calibration File Status

This node shows the current status of the calibration data file with respect to actually being saved to disk. The node LED is red if the file has not been saved once. It is yellow if the file has been saved at least once but there is new data in the data set and the file should be saved again soon. The LED is green if the file has been saved and is current, that is, there are no new data points.

Name This lists the name of the current calibration data set file.

FILES Node



This node expands to summarize the associated **Working Xponders** and **Working Velocities** file status.

The names of the current **Working Xponders** and **Working Velocities** files are listed with a green LED associated with each indicating that the file is loaded and set to Working. In either case, if a Working file is not present, the LED flashes between yellow and red and the message **>>>LOAD AN XPONDER FILE<<<** or **>>>LOAD A VELOCITY FILE<<<** is shown in place of the file name.

Calibration Status

This window presents a summary of the current calibration data set for the selected calibration vehicle, whether loaded from a file, or currently being collected or any combination of these. The window is constantly updated and represents the current status of the calibration data set.

Click the **View** item and select **Calibration Status**.

Acoustic Calibration Status Window

Data Collection Mode: Baselines (Active)

Calibration File: \\Aholman-nt\share\geoff\SummaryTest0001-USBL-

Created: January 09, 2004 20:05:34

Last Saved(UTC, System): December 31, 2003 14:49:08

Calibration Start Time: January 19, 2004 15:15:49

Last Observation Epoch:

Current Time(UTC, System): January 19, 2004 19:15:59

Surface Range Summary:

Station	Type	Tx	Address	Total # Ranges	# Weighted Ran...	
Test1	LBL	1	101	153	99	
Test2	LBL	2	202	152	112	
Test3	LBL	3	303	153	133	
Test4	LBL	4	404	153	108	
			---	---	---	

BaseLine Summary:

From Station	To Station	# Fwd Su...	# Fwd Fail...	# Fwd W...	# Rev Su...	# Rev Fail...	# Rev W...	Mean Ra...	Mean Sca...	Expected ...
Test1, 101	Test2, 202	4	4	4	2	3	1	307.054	228.058m	228.333m
Test1, 101	Test3, 303	4	1	3	3	2	3	485.351	360.229m	359.758m
Test1, 101	Test4, 404	1	4	1	2	3	2	493.235	366.081m	366.851m

Depth Summary:

Station Name, Address	# Succ...	# Failed...	# Weig...	Mean Raw ...	Mean Scale...	Expected D...	
Test1, 101	4	1	4	101.450	100.540	101.000	
Test2, 202	4	1	4	102.775	101.865	102.000	
Test3, 303	4	1	2	104.050	103.140	103.000	
Test4, 404	4	1	4	104.925	104.015	104.000	

Current Collection Process: BaseLine Data

Started: January 19, 2004 15:15:49 Elapsed Time: 00:00:10

From Station	To Station	# Attempts	Raw BL (TWTT)	Reduced BL	
Test1, 101	Test2, 202	2	306.461	227.859m	

The information is presented in a header followed by four list windows.

Header

This section summarizes the overall calibration data information.

Data Collection Mode

This displays the current data collection mode and its status.

The possible modes are as follows:

- LBL Standard Surface Range
- LBL II Surface Range
- USBL Surface Range
- Baselines
- Transponder Depths

In the case of the first three, the only status is **(Active)**, in the case of the last two the status could be **(Active)** or **(Paused)**.

Calibration File	This gives the path and name of the file used for the current calibration data set.
Created	This is the date and time the file was created (WinFrog clock).
Last Saved	This is the time the file was last saved (computer clock).
Calibration Start Time	This is the time the calibration was started (WinFrog clock).
Last Observation Epoch	This is the time the timestamp of the last data epoch (WinFrog clock).
Current Time	This is the current time (computer clock).

Surface Range Summary

This list window summarizes the surface based observations. This includes both surface position and LBL range data records and surface position and USBL range data records. They are listed by type, name and address/beacon code.

Station Name	The stations that have been ranged to as part of the calibration data set.
Type	The data type, either LBL , USBL (XYZ) or USBL (TWTT) .
Tx	The LBL transmit channel or the USBL beacon ID.
Address	The LBL address or the USBL beacon ID.
Total # Ranges	The cumulative total of the ranges for the associated station.
# Weighted Ranges	The cumulative total of the ranges for the associated station that are weighted in the solution.

Baseline Summary

This list window summarizes all the observed baseline station pairs. Any pair is only listed once in the list and includes the forward and reverse observations. For a given pair, the From

station is assigned to the station of the pair that is detected first in the calibration data set station information list.

From Station	The From station in the baseline pair by name and transponder address.
To Station	The To station in the baseline pair by name and transponder address.
# Fwd Successful	The total number of successful forward baseline observations.
# Fwd Failed	The total number of failed forward baseline observations.
# Fwd Weighted	The total number of forward baseline observations weighted in the solution.
# Rev Successful	The total number of successful reverse baseline observations.
# Rev Failed	The total number of failed reverse baseline observations.
# Rev Weighted	The total number of reverse baseline observations weighted in the solution.
Mean Raw BL	The mean of all the weighted raw baseline observations.
Mean Scaled BL	The mean of all the weighted scaled baseline observations.
Expected BL	The expected baseline distance.

Depth Summary

This list window summarizes all the depth observations.

Station Name, Address	The stations that have had depth observations made to them.
# Successful Depths	The number of successful depth observations.
# Failed Depths	The number of failed depth observations.
# Weighted Depths	The number of weighted depth observations.

Mean Raw Depth	The mean of all the weighted raw depth observations. Note that this is the raw depth observation and therefore in the case of a digiquartz sensor, will be the frequency count, not an actual depth.
Mean Scaled Elevation	The mean of all the weighted depth observations reduced to a station elevation.
Expected Elevation	The respective station elevation as a reference for the observations.

Current Collection Process Summary

This list window summarizes the current collection process. The associated header states the current process type, start time and elapsed time.

The list window itself provides the columns that relate to the respective current process.

LBL Ranging

Station Name	This column lists the station name and address of the occupying transponder.
Data Time	This column gives the epoch of the current observation.
Observed Range (TWTT)	This column gives the current raw range, that is, the two-way-travel-time in milliseconds.
Red. Range	This column gives the current reduced range.

USBL Ranging

Station Name	This column lists the term USBL and the beacon code.
Data Time	This column gives the epoch of the observation.
Obs. X	This column gives the current raw observed X value of the USBL data.

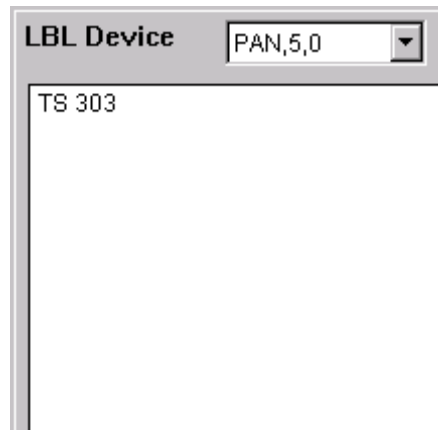
Obs. Y	This column gives the current raw observed Y value of the USBL data.
Obs. Z	This column gives the current raw observed Z value of the USBL data, except that the sign convention has been changed to represent the local ship based coordinate reference frame in that this Z term is a negative.
Baseline Data	
From Station	This column lists the From station in the baseline pair by name and transponder address.
To Station	This column lists the To station in the baseline pair by name and transponder address.
#Obs collected	This is the number of forward and reverse baseline observations collected.
Depths	
Station	This column lists the station by name and transponder address.
#Obs collected	This is the number of depth observations collected.
Raw Obs	This column lists the current raw depth observation. Note that this is the raw depth observation and therefore in the case of a digiquartz sensor, will be the frequency count, not an actual depth.
Reduced Elevation	This column lists current depth observation reduced to a station elevation.

Terminal

This window enables you to communicate directly with a selected LBL acoustic device using a **Terminal Window**.

To view, click the **View** item and select **Terminal**. While open, this item is displayed in the View menu with a checkmark.

To close, click the **View** item and select **Terminal**.



From the drop down list of available LBL acoustic devices, select the one to communicate with.

Click the mouse in the terminal section of the window. Enter the command to send to the device and hit **Enter**. While waiting for the response, the terminal section is set to read only. When the response is received it is displayed in the terminal section and this section becomes active again.

If a response is not received after 30 seconds, the terminal section is updated to display a TIME OUT message and re-activated.

If the appropriate devices are not available, an appropriate message is displayed in the terminal section.

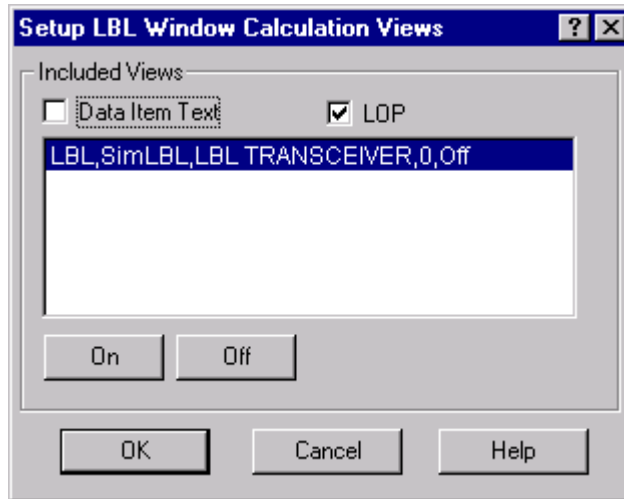
Calculations

This window provides similar functionality to the **Calculations Window** (see section earlier in this chapter) modified to reflect the needs for monitoring the acoustic operations.

To view, click the **View** item and select **Calculations**.

To configure, select the vehicle from the dropdown list of vehicles (this list contains only those vehicles with acoustic data types attached to them).

Then click the **Setup** button to access the configuration dialog.

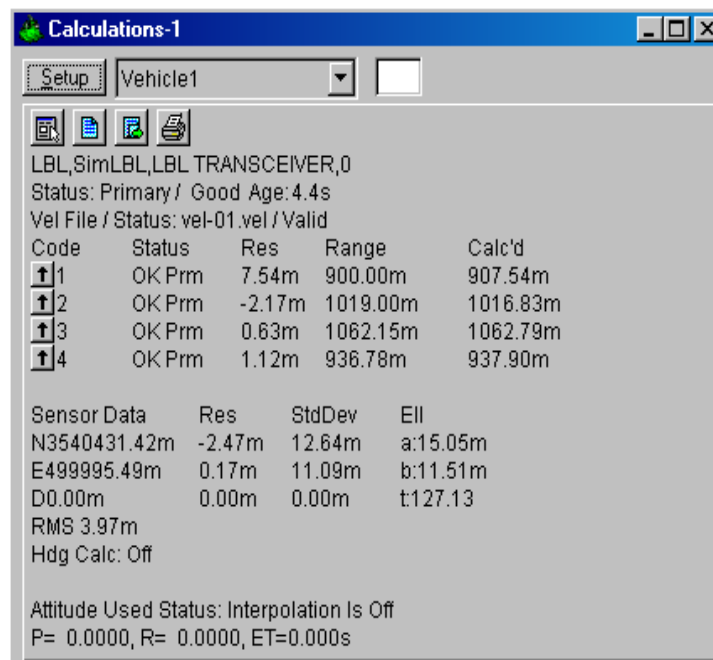


Only acoustic related data types are listed. The presentation options are **Data Item Text** and **LOP**.

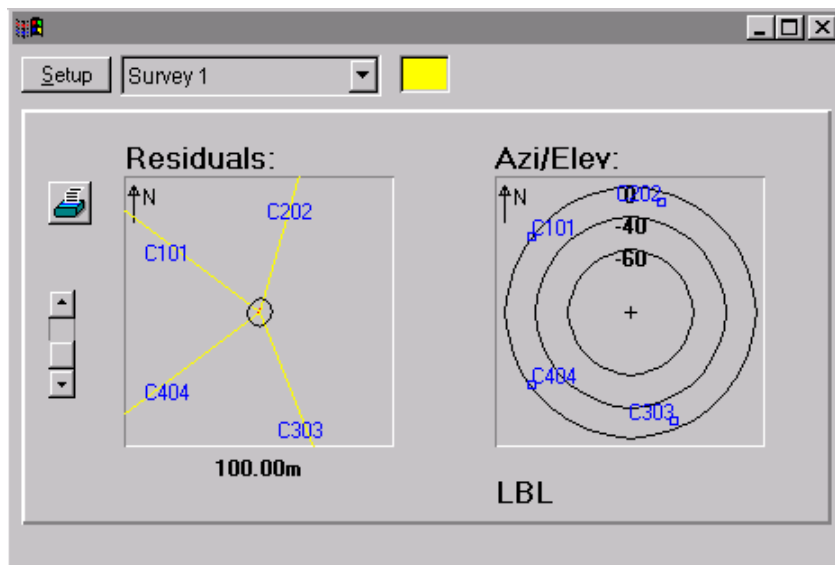
To enable the display of a data type for viewing, select the desired data type and click the **On** button. To disable, repeat this process but click the **Off** button.

Then select one or both display options and click **OK**.

The following figure is an example of an **LBL TRANSCEIVER** data type using the **Data Item Text** option.



The following figure is an example of an **LBL TRANSCEIVER** data type using the **LOP** option.

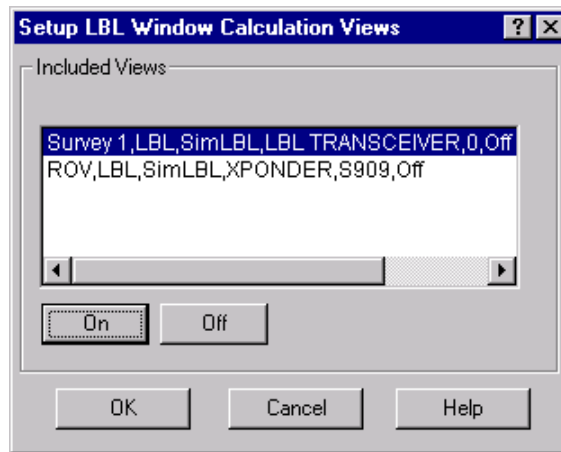


For more details on the windows presented, refer to the **LBL Operations** and **USBL Operations** chapters.

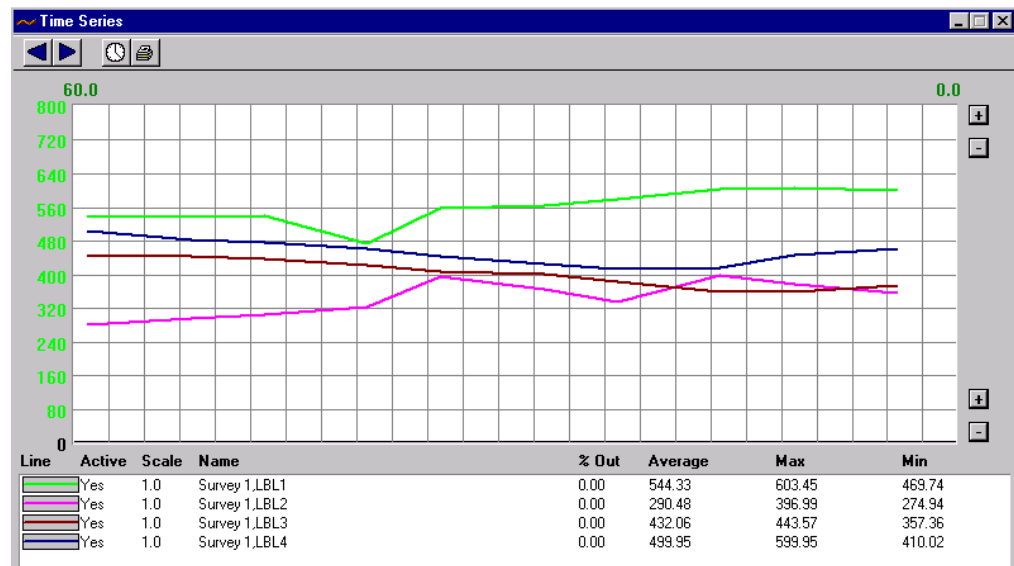
Time Series

This window provides a time series view of the data associated with the acoustic data types.

To view, click the **View** item and select **Time Series**. Immediately, the configuration dialog pops up.



All data types available for viewing using the time series window are listed in the list box. They are given by vehicle name, device type, device name and data type name. Select one and click the **On** button. If you wish to view more than one, select another and click the **On** button again. Note that the window will become cluttered and difficult to interpret if too many data types are displayed. Click **OK** to exit this dialog and view the time series window.

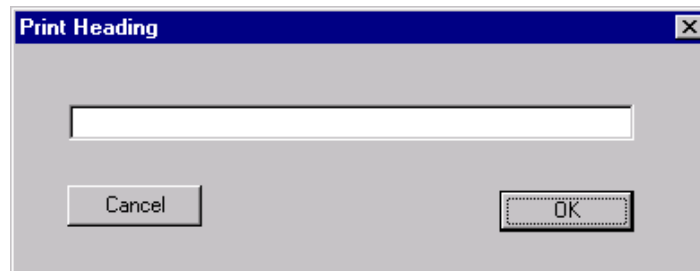


The window provides a comprehensive time series display of the pertinent data and includes a legend and button control for changing the viewing window.

The left and right arrows in the tool bar control the length of the time series. The +/- buttons on the right side of the window control the respective top and bottom limits of the time series.

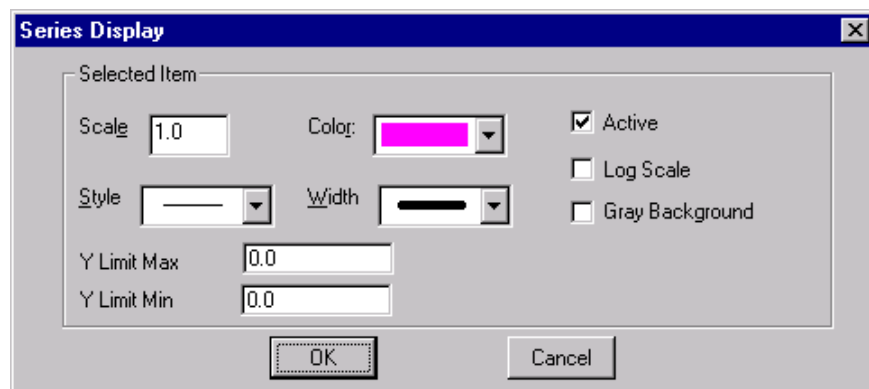
Clicking the **Clock** button in the tool bar toggles between freezing and unfreezing the time series plot.

Clicking the **Printer** button in the tool bar generates a printout of the time series window. When this is clicked, you are prompted for a heading for the printout.



This is followed by the typical Windows printer setup dialog box.

To configure the individual data plot lines, double click on the respective data in the legend to access the configuration dialog.



From this dialog, the line color and width can be selected. The plot for the respective data can also be enabled or disabled by checking or un-checking the **Active** checkbox. In addition, the background can be toggled between gray and white by checking or un-checking the **Gray Background** checkbox.

To reconfigure the data type selected for display, go to **View** and select **Time Series**. The configuration dialog pops up. Re-configure as required.

Extended Status

This window provides a view of the extended status of Sonardyne transponders.

To view, click the **View** item and select **Extended Status**.

The screenshot shows a window titled "Compatt Status" with a dropdown menu at the top left displaying "C202,202". The window is divided into several sections with read-only fields:

General	
Address	N/A
Firmware Ver	
Jitter	N/A
Tilted	NO
Enabled	NO
Sim Rx Card	N/A

Battery	
Type	Unkwn
Current Count	0
Maximum	
Voltage	0.00
Override	NO
Low Alarm	NO

TXPower	
LBL Ranging	LOW
Telem Start Pulse	LOW
Telem Data	LOW

Rx Status	
Channel	N/A
Gain	
TAT	0.00
CIF Rx	OFF
IIF Rx	OFF
USBL Rx	OFF
IIF reply	

Waits	
Before Interrog	0.00
For Reply	0.00
Between telem	0.00

Last Update:

A dropdown list box at the top left of the window presents a list of the transponders available for viewing in this window. When selected, the extended status information is displayed in the appropriate read only boxes.

For details on the information presented in this window, see **Working Xponders** in the **Working Files** chapter.

Anchor Handling Window

The **Anchor Handling** window displays navigation and anchor handling data for use in anchor placement tasks. This window generically refers to the vehicle that is attached to the anchors as a “**Barge**.” It allows you to monitor and record all anchor handling operations including picking up anchors off of a **Barge**, navigating toward a defined **Target** location, and dropping the anchor’s **On-Bottom** coordinates. The **Barge** vehicle, **Tug** vehicles, and **Anchors** can be selected from dropdown menus in the **Anchor Handling** window. It is also possible to view multiple **Anchor Handling** windows, if required. The size of each window can be altered by “grabbing” an edge or corner and dragging it “in” or “out” as desired.

You must configure the **Barge** vehicle and its **Anchors** before this window can be used. Any WinFrog vehicle that has been configured as **Fairlead Possible** is considered to be a **Barge**. Onboard anchor positions (i.e. **Fairlead** positions) are configured under the vehicle’s **Fairlead** option. **Fairleads** are defined as the physical location on the barge where the anchor lines lead to the **Anchors**.

To Configure a Vehicle as a Barge Vehicle

- 1 Select the main menu item **Configure > Vehicles**.
- 2 Highlight the barge vehicle (i.e. the vehicle that has the anchors onboard) and select the **Vehicle Presentation** option.
- 3 In the **Anchor Fairleads** category, select **Possible** then click **OK** to return to the **Configure Vehicles** dialog box.
- 4 Now, with the same vehicle name still highlighted, select the **Setup Fairleads/Anchors** option.

The **Fairleads** dialog box is used to configure up to **16 Fairleads** (i.e. the **onboard** positions of up to **16** anchors), as seen in the next figure.

On	Name	Fore/Aft	Port/Stbd	Northing	Easting	Status
☒	Anchor1	49.00m	-20.00m	N0.00m	E0.00m	ON BOARD
☒	Anchor2	50.00m	-19.00m	N0.00m	E0.00m	ON BOARD
☒	Anchor3	50.00m	19.00m	N0.00m	E0.00m	ON BOARD
☒	Anchor4	49.00m	20.00m	N0.00m	E0.00m	ON BOARD
☒	Anchor5	-49.00m	20.00m	N0.00m	E0.00m	ON BOARD
☒	Anchor6	-50.00m	19.00m	N0.00m	E0.00m	ON BOARD
☒	Anchor7	-50.00m	-19.00m	N0.00m	E0.00m	ON BOARD
☒	Anchor8	-49.00m	-20.00m	N0.00m	E0.00m	ON BOARD
☐		0.00m	0.00m	N0.00m	E0.00m	ON BOARD
☐		0.00m	0.00m	N0.00m	E0.00m	ON BOARD
☐		0.00m	0.00m	N0.00m	E0.00m	ON BOARD
☐		0.00m	0.00m	N0.00m	E0.00m	ON BOARD
☐		0.00m	0.00m	N0.00m	E0.00m	ON BOARD
☐		0.00m	0.00m	N0.00m	E0.00m	ON BOARD
☐		0.00m	0.00m	N0.00m	E0.00m	ON BOARD
☐		0.00m	0.00m	N0.00m	E0.00m	ON BOARD
☐		0.00m	0.00m	N0.00m	E0.00m	ON BOARD

Static Color

Edit

Active Color

Edit

OK

Cancel

Help

5 Enter a **Name** and the **Offsets**, as measured from the vehicle's CRP, for each anchor.

6 Check the **On** box to enable plotting of that anchor on the **Graphics** screen.

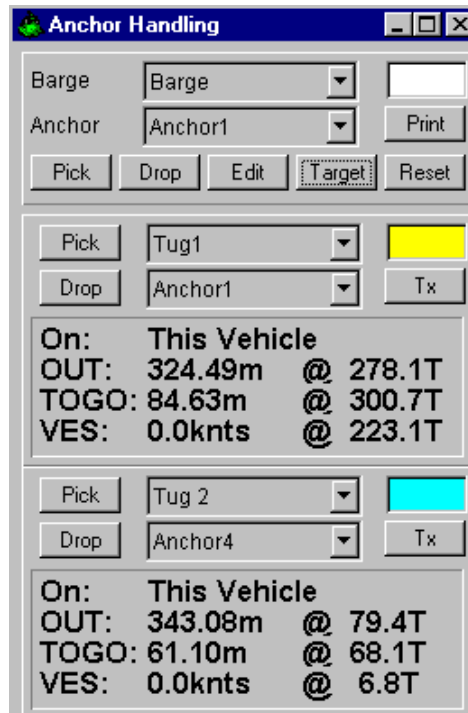
Note: do not enter any values into the **Northing**, **Easting**, or **Status** windows. These windows will update as the anchors are picked up by other vehicles or as they are dropped on the bottom.

Select the appropriate **Edit** button at the bottom of the **Fairlead** dialog box to change the colors of the **Fairleads** in the **Graphics** screen. The **Static Color** is for when the anchor is not being handled (i.e. onboard the barge or on the bottom). The **Active Color** is used when the anchor has been picked up.

Once all Fairleads are configured as desired, select **OK** to close the **Fairleads** window and return to the **Configure Vehicle** window.

To Display and Configure the Anchor Handling Window

- 1 Choose the main menu item **View > Anchor Handling**.



Top Area - Barge Vehicle Buttons

Barge dropdown	lists all of the vehicles that have been configured as Anchor Fairleads Possible . Typically, only one vehicle should be designated Fairleads Possible .
Anchor dropdown	lists all anchors that have been configured on the vehicle selected in the Barge menu above (Configure > Vehicles > Fairleads).
Color box	shows the color of the selected barge vehicle.
Print button	prints a summary of anchor locations; can be directed to the printer and/or an .rtf file.
Pick button	changes the selected Anchor Status to On Board the selected barge vehicle at its configured fairlead location (i.e. the barge picks up the anchor).
Drop button	changes the selected Anchor Status to On Bottom and updates the Anchor Target position to the anchor's current position (i.e. the anchor has been dropped to the bottom directly from the barge, rather than being

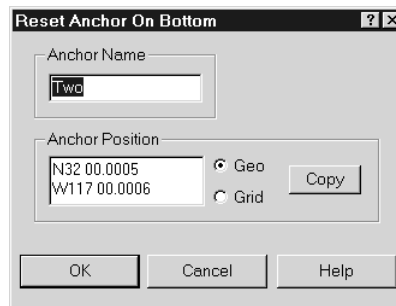
first handled by a **Tug** vehicle).

Target button

When selected, causes a blue square, labeled as per the selected anchor, to appear at the drop target coordinates. To remove the blue target square from the **Graphics** screen, choose the appropriate anchor and select **Target** again.

Reset button

Opens the **Reset Anchor on Bottom** dialog box to allow you to relocate the anchor on the bottom, if it has moved. The position that shows in the **Reset Anchor on Bottom** dialog box is the last known bottom position for the anchor. Enter a new position as desired.



Edit button

Select this button to open the **Anchor** dialog box, as seen below. This window allows you to edit the selected anchor's (i.e. Fairlead's) previously entered **Name** and onboard **Location** and also define a **Target** position.

Anchor dialog box

Plot checkbox

Select this option to enable plotting of this anchor in the **Graphics** display.

Name

Entry field

Highlight this window and change the **Name** of the selected anchor as required.

Fairlead

Fore/Aft and **Port/Stbd**

Highlight the **Fore/Aft** or **Port/Stbd** entry field and change the previously configured **Anchor/Fairlead** location.

Anchor to MidBuoy

Entry fields

MidBuoys are buoys placed along an anchor cable to lift the cable off of the bottom. Midbuoys are used when the anchor line is knowingly placed across an existing pipeline or cable to prevent damage to the existing structure. Highlight the appropriate window and enter the desired **Anchor to Fairlead** distance.

Target Location

Position and Range/Bearing

You can enter anchor **Target Location** information as either a **Position** (grid or geographical coordinates) or as a

Range/Bearing relative to the barge's location and heading.

If **Position** is selected, you can enter the coordinates manually or click the **Copy** button to copy the coordinates from WinFrog's temporary clipboard memory. (For example, if you click on the **Graphics** screen with the **Display Position** option enabled, the coordinates are written to the "clipboard.")

If **Range/Bearing** is selected, you must enter a **Range** (distance) from the (onboard) fairlead position and the **angle** from the **Vehicle's Bow**. **Note:** this is a relative angle measured **clockwise from the vehicle's bow**, **not** an absolute bearing from North.

Note: if the target position is altered with the anchor on the bottom, the anchor's position is overwritten by the new target position. Any changes made within this dialog box are entered directly into the **Fairleads** dialog box. (See the **To Configure Fairleads and Anchors** section of the **Vehicles** chapter.)

Bottom Areas - Anchor Handling Vehicles

The three areas repeated immediately below the barge vehicle buttons are for the display of **Anchor Handling Vehicle** (i.e. "tugs") data. The buttons and dropdown menus are repeated in each area so that the three vehicles/anchors can be tracked and viewed at the same time.

If there are more than three vehicles being handled at one time, you will need to view another **Anchor Handling** window and configure each sub-window area for a different vehicle/anchor.

Upper Untitled dropdown	lists all of the Anchor Handling Vehicles ("Tugs")- i.e. those vehicles that have been configured Not Anchor Fairleads Possible . (Configure > Vehicles > Vehicle Presentation).
Lower Untitled dropdown	lists all of the anchors (fairleads) that have been configured on the barge vehicle.
Color box	shows the color of the selected Anchor Handling Vehicle (i.e. Tug).
Pick button	Click this button to tell WinFrog that this vehicle has picked up the anchor displayed just below. (It will be picked up at the

Tracked Offset on this vehicle). This results in several changes:

The **On:** line, just below, will indicate that the anchor is now on this vehicle.

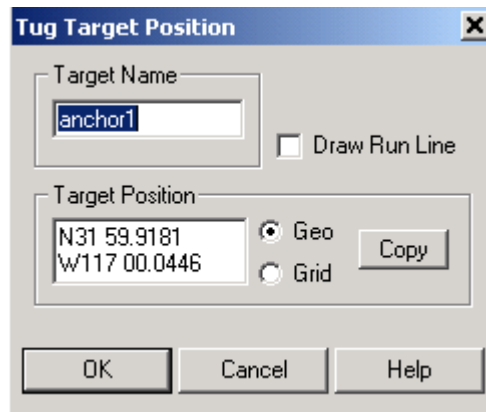
The **Graphics** display will draw a line from the original onboard (barge) location to the (tug) vehicle's present location. WinFrog changes the selected anchor **Status** to **On Board** the selected anchor handling vehicle at its tracked offset. This also generates an event that is written to the **Working Logs (.LOG)** file and output to the printer. See the Eventing chapter for more details on the **Working Logs** file.

Drop button

changes the selected anchor's **Status** to **On Bottom** and updates the anchor's **Target** position to the anchor's current position and turns off the anchor run line drawing and tracking. This also generates an event that is written to the **Working Logs** file and output to the printer.

Tx button

opens the **Tug Target Position** dialog box to enable you to transmit the **Target** position to a Tug Vehicle and to draw and track an **Anchor Run Line** (see section below). This obviously requires a telemetry system to be in place and operational.



On: displays the anchor state, i.e. whether it is on a vehicle or **On Bottom**.

OUT: displays the **distance** and **bearing** from the **fairlead** location on the barge to its present location.

TOGO:	displays the distance and bearing from the present anchor location to its target location.
VES:	displays the tug's present speed and heading . Again, this requires telemetry hardware to be in place to provide the barge with the tug's positioning information.

Anchor Events

When the **Pick** and **Drop** buttons are clicked, WinFrog generates an event. This event is automatically logged to the current **Manual Log** file. In addition, the event can be printed to the printer. You can control whether or not the events are printed in real-time. The default when a window is opened is to print the events. This setting is saved to and loaded from the .ini and .cfg files.

To Configure the Anchor Event Printing

- 1 Move the cursor to a point in the Anchor window where it is not over one of the buttons or data entry fields and then right-click.
- 2 The pop-up menu lists one option, **Print Event**. Click this item to toggle the setting on and off. If it is on, the item is listed with a checkmark beside it.

Anchor Run Lines

The **Draw Run Line** checkbox in the **Tug Target Position** dialog box allows you to draw and track run lines between the fairlead and the target anchor positions.

This option allows you to display locally and transmit to controlled and smart remotes, a run line from the fairleads to the target anchor positions. Because multiple anchors may be ran at the same time, the users at the master and at the smart remotes (i.e., winch operators) may want to view run lines for more than one Fairlead/Anchor. The users at the controlled remotes would likely only be concerned about the run line for their particular anchor.

The anchor run lines are survey lines and set as the tracked line for the corresponding vehicle in the Graphics windows, and as line data in the Vehicle Text window.

The checkbox allows you to turn on/off the drawing of the anchor run line at the corresponding controlled remote. Only the run line pertaining to the specified tug should be drawn at the corresponding controlled remote. When the run line is drawn the run line tracking is on, and when the drawing turns off the run line tracking is off too.

The **Drop** button in **Bottom Area – Anchor Handling Vehicles** changes the selected anchor's **Status** to **On Bottom** and turns off the anchor run line drawing and tracking.

Alarms Window

WinFrog's **Alarm** feature provides you with the ability to configure alarms to respond to almost any real-time condition. The **Alarms** window displays the real-time (instantaneous) conditions of the various alarms with the use of standard "status colors"; **green** indicating a **good** status, **yellow** for **caution**, and **red** for **full alarm**. **Note:** the **Alarm** window remains blank until you configure the required alarms. This section details both the configuration and display of alarms.

To Display the Alarms Window

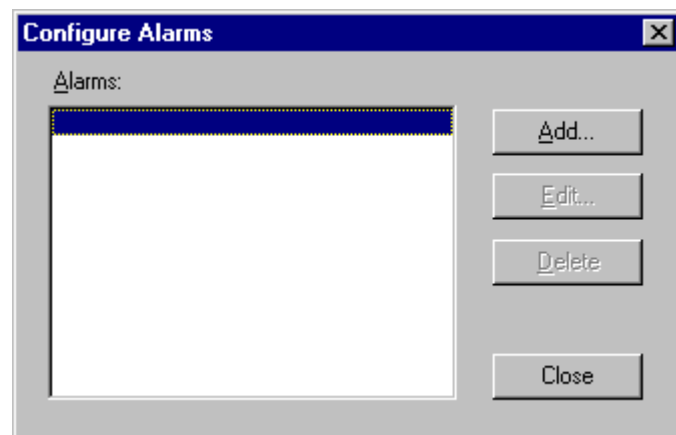
- 1 From the **View** menu, choose **Alarms**.

An empty **Alarms** window displays. The **Alarm** window can be changed in size or moved by "grabbing" the display window edges (or title bar) with the mouse pointer and moving it as desired.

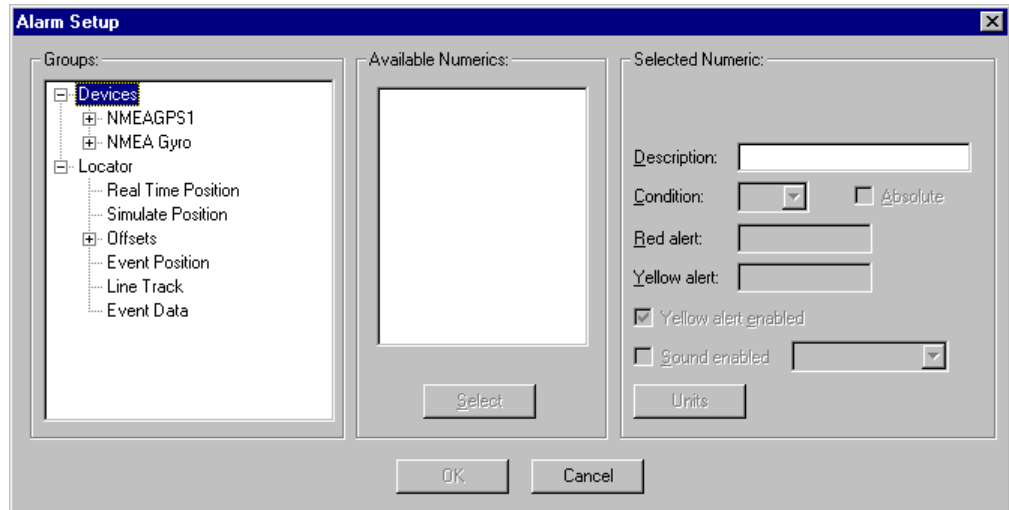
To Configure Alarms

- 1 Select the main menu item **Configure > Alarms**.

An empty **Configure Alarms** window appears, as seen below.



- 2 Click on the **Add** button to bring up the **Alarm Setup** window, as seen below.



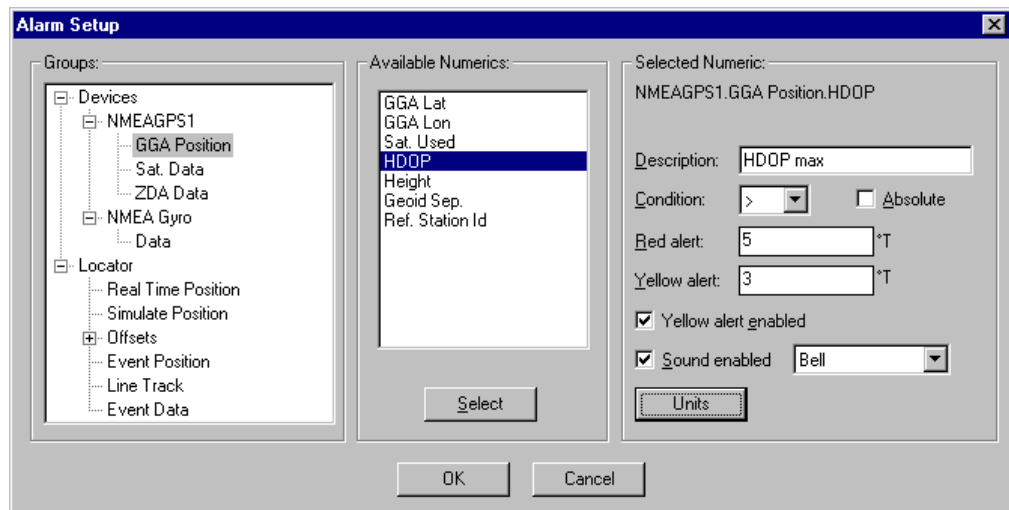
Click on the “+” symbol beside a **Device** or **Vehicle Name** to expand the list of items that can be added to the **Alarm** list. All items which can be selected for a particular **Vehicle** or **Device** are listed in the **Available Numerics** portion of the **Alarm Setup** window.

- 3a** Double-click on the desired item in the **Available Numerics** window to select it and have it displayed in the **Selected Numeric** portion of the window.

Or

- 3b** Highlight the desired item and click on the **Select** button.

In the display seen below, the **GGA Position HDOP** value has been selected.



- 4** Type in a description for the device in the **Description** entry window.
- 5** Select the appropriate condition from the **Condition** dropdown box.

Note: ensure that the correct units are being used for the alarm. Select the

Units button in the bottom of the **Selected Numeric** portion of the **Alarm Setup** window to change units as required.

- 6 Enter the appropriate **Red Alert** and **Yellow Alert** values.
- 7 Enable the **Yellow Alert** (optional).
- 8 Enable the **Sound Alert** and choose the desired option from the dropdown menu (optional).
- 9 Repeat steps 3 through 8 to configure additional alarms. Select **OK** to return to the **Configure Alarms** window once all desired alarms are added.
- 10 Select the **Edit...** button to change a configured alarm, if required.
- 11 Select **Close** from the **Configure Alarms** dialog box to close the window and save the changes.

The **Alarms** display window now shows the configured alarms and the current status of each.

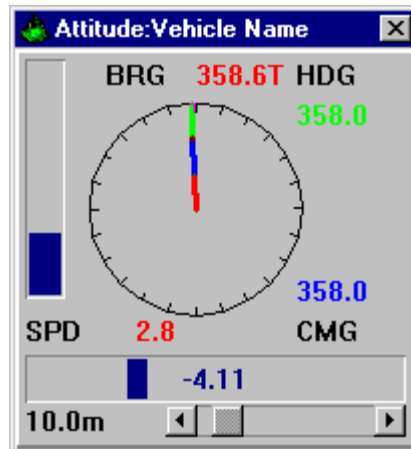
Attitude Window

The **Attitude** window graphically displays a variety of navigation information relating to the **current** vehicle. (The **current** vehicle is the one that is displayed in the **Vehicle Text** window). The information displayed in the **Attitude** window can also be simultaneously displayed in text form in the **Vehicle Text** window. However, in time critical operations, the information can be seen much easier and quicker using the **Attitude** window.

Note: only one **Attitude** window can be displayed at a time and the window size is not configurable.

To Display the Attitude Window

- 1 From the **View** menu, choose **Attitude**.



The following information is found in the **Attitude** window, clockwise from the top.

BRG	displays (in red) the bearing of the survey line segment currently being tracked by the current vehicle. If a survey line is not being tracked, BRG represents the bearing to a tracked waypoint. If neither are being tracked, BRG will show the last BRG value used. The BRG value is also graphically represented in red on the “compass” in the center of the display.
HDG	displays (in green) the heading of the current vehicle. The HDG value is also graphically represented in green on the “compass” in the center of the display.
CMG	displays (in blue) the Course Made Good of the current vehicle. The CMG is the inverse bearing between the last two filtered positions. The CMG is also graphically represented in blue on the “compass” in the center of the display.
SPD	On the left side of the Attitude window is the Speed (SPD) Indicator bar. As the current vehicle’s speed increases, the blue bar will grow to reflect the increase in speed, ranging from 0 to 10 knots.
Slide bar	Along the bottom of the Attitude window, the blue Cross Track Error Indicator bar moves from side to side as the vehicle crosses the currently tracked survey line segment. If

the vehicle is to the **Port** of the currently tracked survey line segment, the “tab” is to the left of center.

The numbers in this section of the **Attitude** window also indicate whether the vehicle is to the left or right of the currently tracked survey line segment. A **negative** offset value means the vehicle is to the **Port** of the line segment (in terms of the direction that the line coordinates were entered and the direction that the line is being tracked).

Use the adjustable bar at the bottom of the window to change the **Scale** of the **Cross Track Indicator**. The value shown in the bottom left corner is **one half** of the **entire** width of the **Cross Track Indicator**.

Auditor Window

WinFrog’s **Auditor** Window allows you to keep track of all significant operations that have occurred in the current WinFrog session. **Note:** the term “significant operations” is used to refer only to those items that have some affect on the overall configuration of the program. These are noted in the **Auditor** display. For example, operations such as enabling or disabling displays, zooming in or out, or enabling or disabling waypoint or survey line tracking are not considered significant and are **not** noted in the **Auditor** display window.

Items that are included in the **Auditor** window include any changes to the **Working Geodetics**, **Working Files**, or **Working Units**.

To Display the Auditor Window

- 1 From the **View** menu, choose **Auditor**.

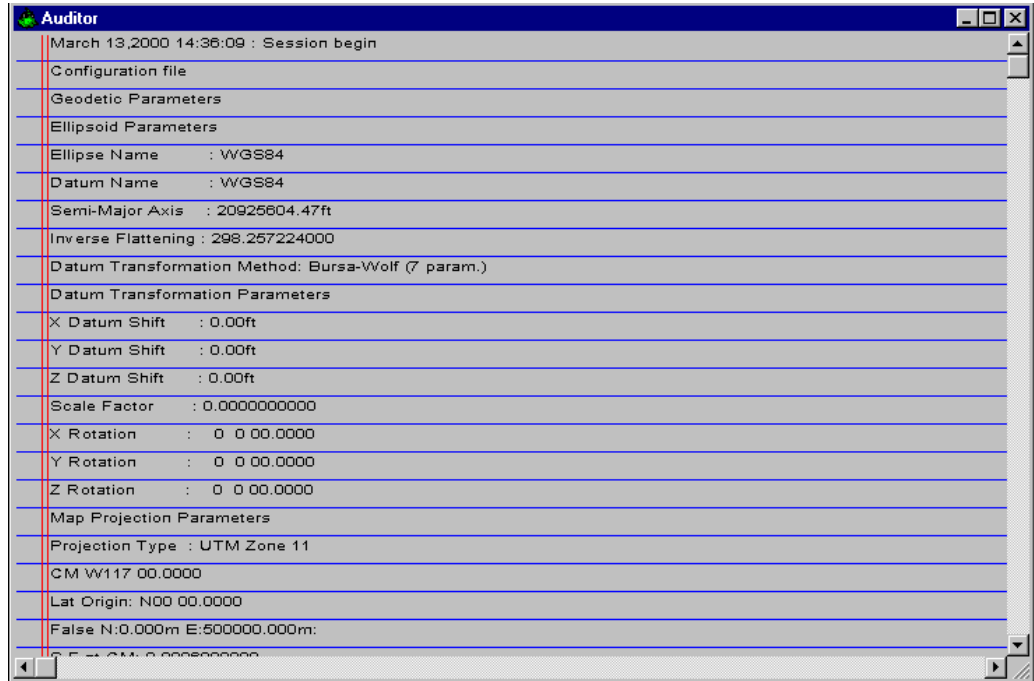
An empty **Auditor** window appears. The **Auditor** window can be changed in size or moved to a new location by “grabbing” the display window edges (or title bar) with the mouse pointer and moving the mouse as desired.

If the **Auditor** window was enabled when WinFrog was last shutdown, you can simply re-open it rather than display a new window.

To Re-Open the Auditor Window

- 1 Select the main menu item **Window**, then select **Auditor**.

The **Auditor** window will now appear in the size and location that it was last configured, with the significant items displayed, as per the example seen below.



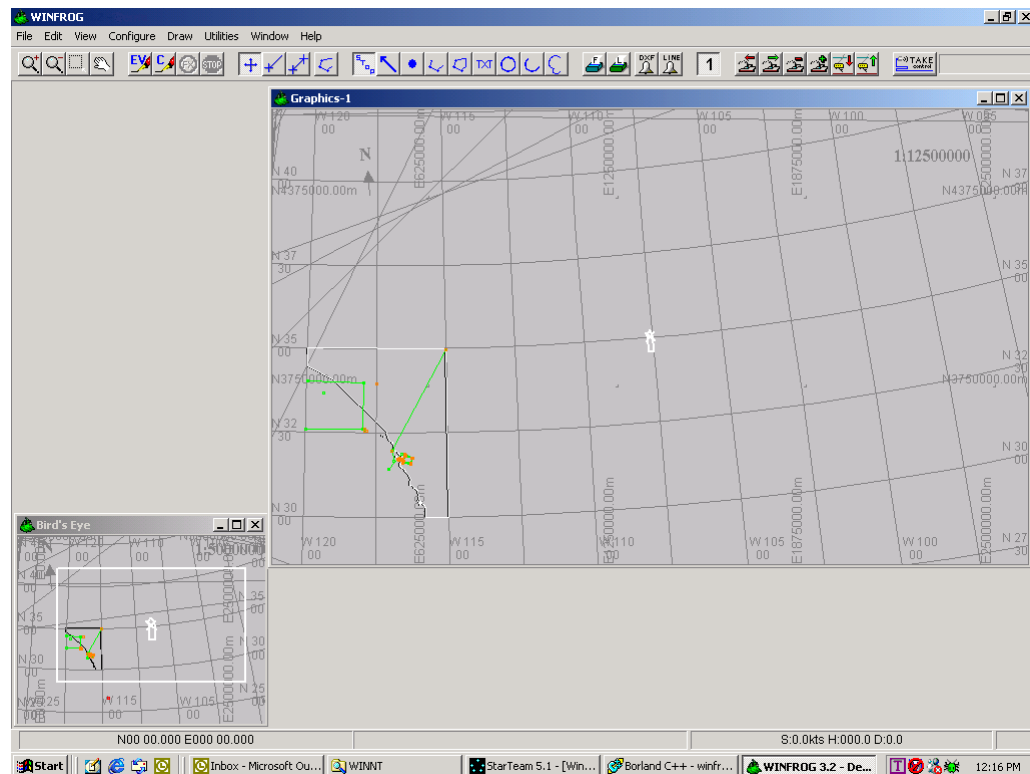
Bird's Eye Window

The **Bird's Eye** window provides all of the same display options and functionality available in the **Graphics** display. In addition to these features, the **Bird's Eye** display also plots a “box” that depicts the location and limits of the **Graphics** window. This box always remains correct in scale, even as the **Bird's Eye** and **Graphics** display scales are changed. Although WinFrog can display several **Graphics** windows, only one **Bird's Eye** window can be displayed. The **Bird's Eye** window is configured in the same way as the **Graphics** window.

To Display the Bird's Eye Window

- 1 From the **View** menu, choose **Bird's Eye**.

By default, the **Bird's Eye** display is located in the lower left corner of the WinFrog display space. The location and size of the **Bird's Eye** display can be changed by simply clicking and dragging the edges of the display box.



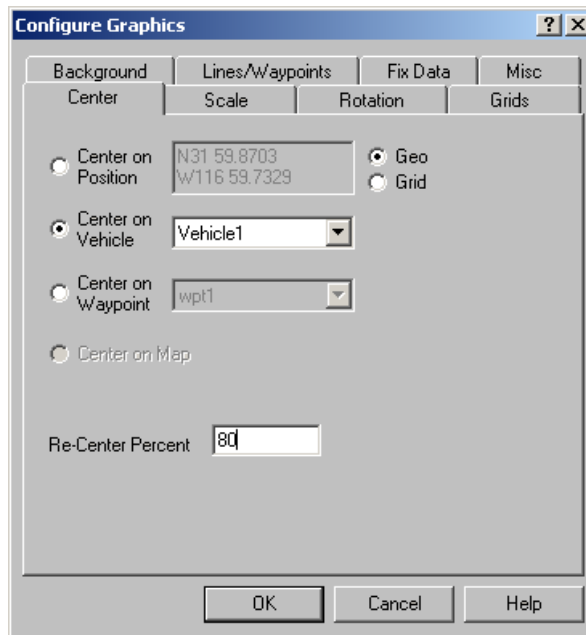
A white box is drawn on the **Bird's Eye** window to represent the area currently displayed in the related **Graphics** window. **Note:** the white box may not be visible if the **Bird's Eye** window is zoomed in very close or is centered on a different point from the **Graphics** window.

To Configure the Bird's Eye Window

1a With the **Bird's Eye** window selected, choose the main menu item **Configure > Bird's Eye**.

Or

1b Move the mouse pointer into the **Bird's Eye** display box limits, right-click and select the **Configure** option.



The display parameters that can be configured for the **Bird's Eye** window are identical to, but independent of, those for the **Graphics** window. This allows you to display the same (or different) information as the **Graphics** window.

Refer to the **Configure Graphics** window section earlier in this chapter for information describing the various configuration options for the **Bird's Eye** window.

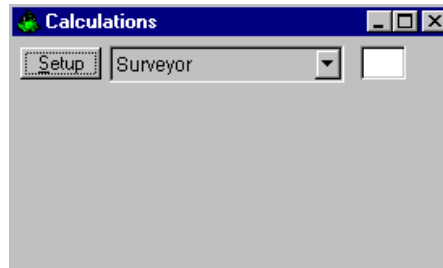
Calculations Window

The **Calculations** window displays real-time **Data**, **Statistics**, and **Quality Control** information for any device that has been added to a WinFrog vehicle. Several **Calculations** windows can be displayed at once, giving you the capability to simultaneously display information for several vehicles and devices.

Note: each **Calculations** Window can display data for any number of devices, but for organizational purposes it is recommended that you open a new **Calculations** window for each device.

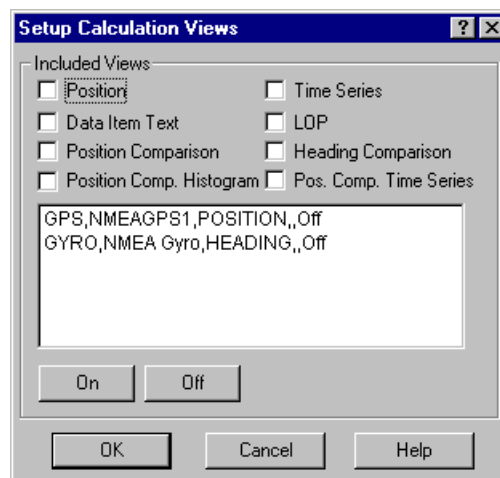
To Display a Calculations Window

- 1 From the **View** menu, choose **Calculations**.



To Configure the Calculations Window

- 1 If there is more than one **Calculations** window currently displayed, click the title bar of the one to be configured to make it the **active** window.
- 2 Select the appropriate vehicle from the dropdown menu list.
- 3 Click the **Setup** button to bring up the **Setup Calculation Views** window, as seen in the next figure.



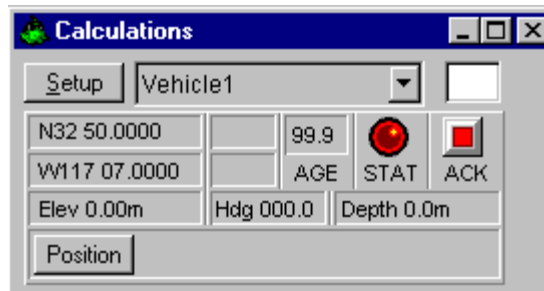
All of the devices that have been added to that vehicle's position are displayed in the white window area.

- 4 Choose the device for which you wish to see data displayed.
- 5 Click the **On** button.
- 6 Check the desired box in the **Included Views** area at the top of the **Setup Calculation Views** dialog box. Each of these options will enable a different data display in the **Calculations** window, as defined below.

Position box

Displays **Position** data in the top of the **Calculations** window, as seen below. (This option is the only one that does not require

any devices to be turned on in the **Calculations** window as described in Steps 3 and 4 above).



The selected vehicle's current **Latitude**, **Longitude**, **Elevation**, **Heading**, and **Water Depth** are updated every program cycle.

AGE box displays the age of the WinFrog position.
STAT button is a visual cue that indicates the status of the filtered position. A **green** cue indicates the position is **good**, a **yellow** cue indicates the position is **degraded** (the position calculation has failed for more than 15 seconds), and a **red** cue indicates the position is **invalid** (the position calculation has failed for more than 30 seconds). If the cue turns red, an alarm sounds, which can be silenced by clicking the **ACK** button.

ACK button used to silence the status alarm
Position button (located below the **Elev.** information)
 This button is a shortcut to the selected vehicle's **Configure Vehicle-Devices** window. This provides you quick access to edit any devices that have been added to the vehicle's position calculations.

Data Item Text box Select this option to display the latest data from all devices that have been turned **On** in the **Setup Calculation Views** dialog box. Typically, this option is just used to display information for GPS device(s), particularly for **GPS Pseudorange Calculations** and **Multi-Ref** solution data.

Three buttons are displayed in a device's **Data Item Text** window, directly above the device information, four if the selected data item supports the fix print option. The

functions of each button from the left are as follows:

The first button provides a shortcut to the configuration menu for that particular device, as used by that vehicle.

The second button is not used.

The third button is used to toggle through different information pages for that device, if available.

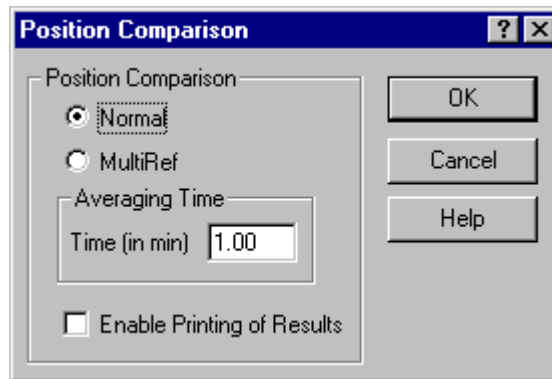
The fourth button prints a fix report for the epoch displayed when the button is clicked. You are then prompted for print options – print directly to the printer and/or print to an rtf file.

Position Comparison box

Select this option to display the coordinates of all **Primary** and **Secondary** positioning devices as well as real-time comparisons between their positions. **Survey Line** and **Waypoint** tracking data averaged over time can also be displayed. This comparison is user-configured and can be written to file for subsequent viewing and QC analysis.

To Perform a Position Comparison

- 1 Select the **Position Comparison** checkbox in the **Setup Calculation Views** dialog.
- 2 Turn **On** the **Primary** and **Secondary** devices.
- 3 Select **OK** to return to the **Calculations** window.
- 4 Select the **Edit** button.



There are two **Position Comparison** options available: **Normal** and **MultiRef**.

Normal	displays the comparison information between the Primary and Secondary positioning devices.
MultiRef	displays the comparison information between the weighted mean multi-reference position and the individual (single reference station) solutions.

An **Averaging Time** must be entered for either of these options.

- 5 Choose **Normal** or **MultiRef** and enter an **Averaging Time**.

When you return to the **Calculations** window, your **Averaging Time** input displays as **Time Remaining** and counts down to zero. The comparison, which will automatically repeat itself, can also be manually controlled by using the **Start** and **Stop** buttons. These data are not recorded to any files.

Position Comparison Display

The first line of the **Position Comparison** section of the **Calculations** window lists the **Primary Positioning Device** with its user-assigned name.

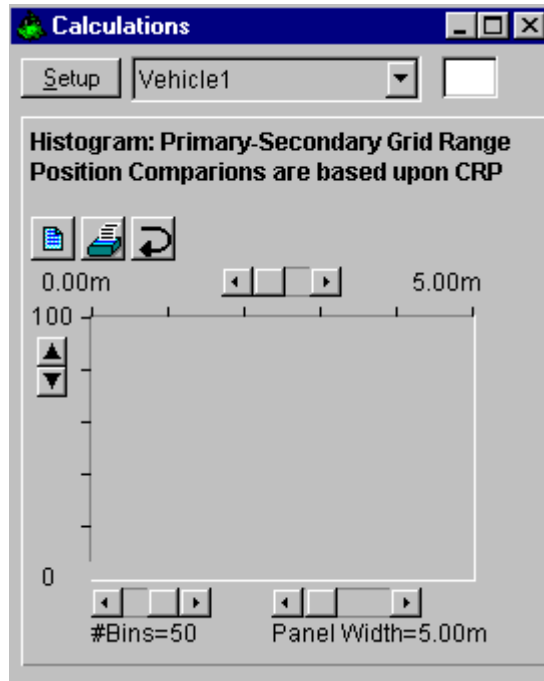
The second line displays that device's position in grid Northing and Easting.

The third and fourth lines display the same information for the **Secondary Positioning Device**.

The fifth line displays the instantaneous differences in the Northings and Eastings between the two devices.

Below that information is the **Average Position Comparison**. By default, the average is based on a one-minute time period. If there is another **Secondary** positioning device, the same information appears for it as it does for the first secondary. The bottom line displays the time remaining (in minutes) for the **Comparison Average**.

Position Comp. Histogram	Select this option to enable a Calculations window display that plots a real-time histogram of the Position Comparison between the Primary and Secondary Positioning devices. Note: this window does not require any devices to be turned On in the Calculation window's Config option.
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To Configure a Position Comparison Histogram

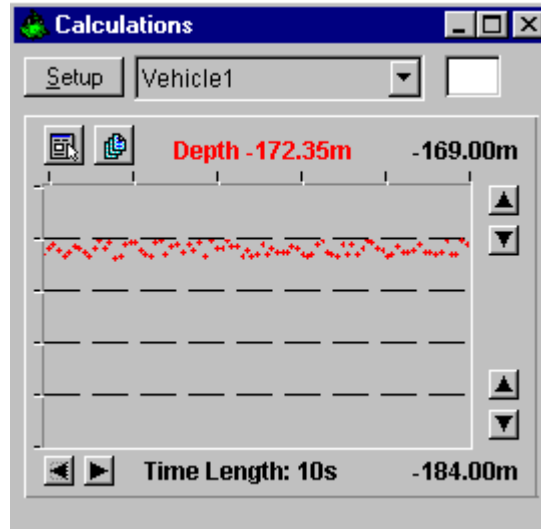
- 1 Click and move the sliding bar above the display window to set the **Center of the Plot**. (This is the absolute value of combined Northing and Easting errors).
- 2 Click on the radio buttons on the left of the display window to set the overall **Height** of the display to see changes in data more clearly
- 3 Select and slide the bar at the bottom left corner of the window to set the **Number of Bins** that are displayed.
- 4 Select and slide the bar at the bottom right corner to set the **Horizontal Panel Width** (range) of the window.

Note: the **Center** value will change as you change the **Width** value at the bottom of the screen. This may cause your data to “disappear” from the display window, requiring you to re-center the data to a realistic value.

Time Series

Select this option to display a graphical representation of a device’s **Data relative to Time**. This can be used to view how the position, water depth, etc. change over time. The data displayed in the **Time Series** graph are for the selected device, set to **On**. Only one data item can be graphed in each window at a time, but you can simultaneously display multiple **Time Series**

windows in the same **Calculations** display. A new window will be created for each device turned **On** in the **Calculations** window **Setup**. This window is typically used for the display of sounder depth data.



To Configure the Time Series Graph

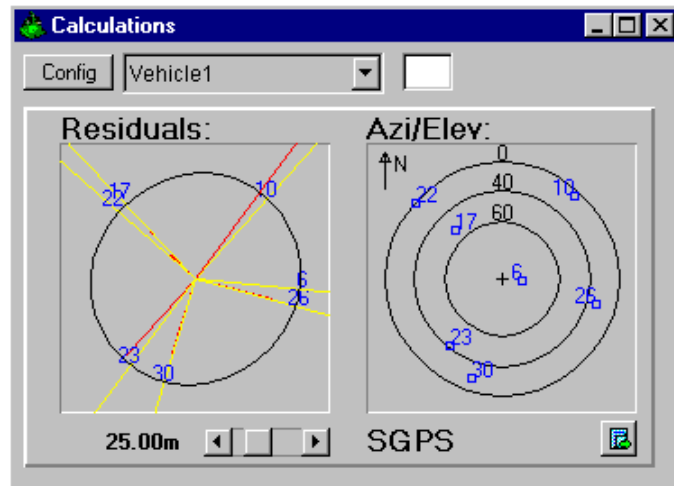
- 1 Select the adjustment arrows on the right side of the time series window to change the **Top** and **Bottom** limits of the data display (in the same units as the device data).

This is used to set both the vertical scale of the display as well as the center of the data.

- 2 Select the adjustment arrows found at the bottom of the display window to set the time range (i.e. the horizontal scale) of the plot in seconds.

LOP

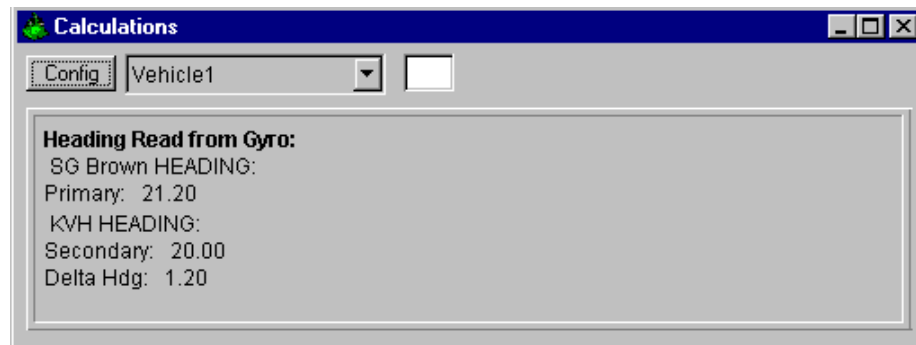
This **Setup Calculations Views** window option is used to display “Lines of Position”. This term is derived from the time when shore-based ranging systems were the primary method of vehicle positioning, before GPS. The term “Line of Position” refers to a range used in the position determination. The **LOP** display in the **Calculation** window can be used to display “ranges” from range/range, LBL acoustic, and GPS pseudorange devices. The example below shows the ranges from GPS satellites used in the pseudorange solution.



The azimuth and elevation of the GPS satellites used in the pseudorange solution are displayed too.

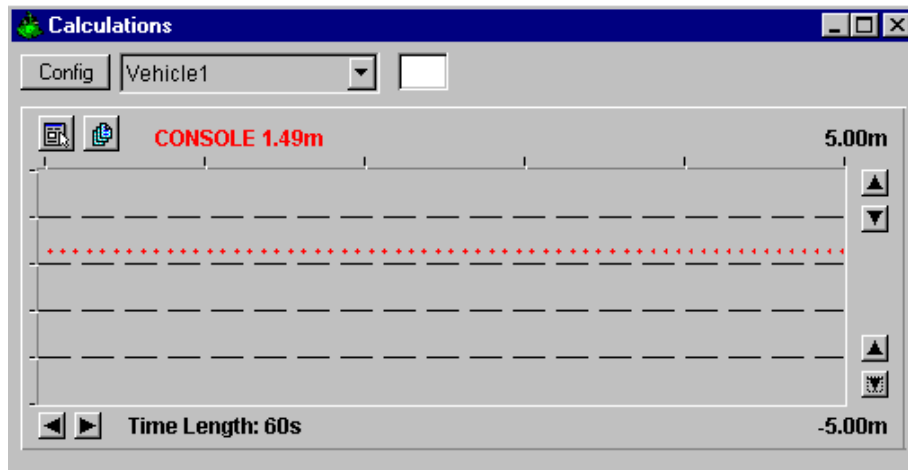
Heading Comparison

This **Setup Calculations View** window option is used to present a comparison of the data from a vehicle's **Primary** and **Secondary** heading devices, as seen in the next figure.

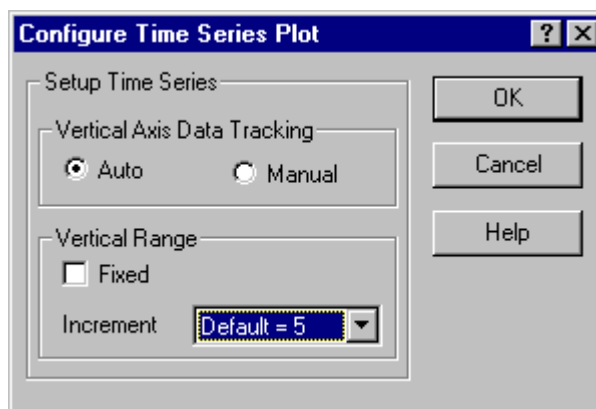


Pos. Comp. Time Series

This option is used to present a graphical time series comparison of the data from a vehicle's **Primary** and **Secondary** positioning devices, as seen in the next figure.



Use the **Up** and **Down** arrows on the right side of the window to change the center value and the width of the display window. Click on the left “page” icon to access the **Configure Time Series Plot** dialog window, as seen below.



Use the **Configure Time Series Plot** dialog window to configure **Automatic** or **Manual** control of the **Vertical** (distance) **Axis** mid-point and the total range of the vertical data displayed.

Controlled Remote Window

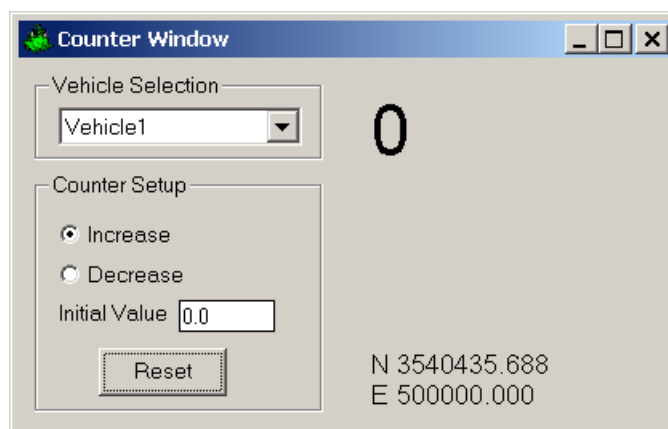
WinFrog’s **Controlled Remote** window allows you to configure a “**remote**” WinFrog system and display real-time data for that vehicle. A **remote** WinFrog system is a WinFrog system connected to another WinFrog system via a token ring telemetry network. See the **Controlled Remote Tug Telemetry** chapter for complete details on the use of the **Controlled Remote** window.

Distance Counter Window

WinFrog's **Distance Counter** feature is used for calculating and displaying an incremental counter of the distance between a selected **Offset** point on a vehicle from a specified starting location. The initial value of the counter can be set to an arbitrary value and can be set to increase or decrease as the vessel moves to or from the start.

To Display the Distance Counter Window

- 1 From the **View** menu, choose **Distance Counter**.



Vehicle Selection	Select the vehicle from the drop down list that you wish to use with the counter.
Counter Setup	
Increase	Causes the counter value to increase as the vessel moves away from the initial position, or decrease as it moves towards the position.
Decrease	Causes the counter value to decrease as the vessel moves away from the initial position, or increase as it moves towards the position.
Initial Value	Enter the desired initial value of the counter at the start position. The counter will start to increment or decrement from this value.
Reset	Click this button for any changes you have made to take effect. No changes are made to the counter settings until this button is clicked.
Counter Value	The counter value is displayed in the top right corner of the window. The counter displays the grid distance in the current distance units between the selected start location and the current location of the vehicle or specified offset.

Start Location

At the bottom right corner of the window is the start location where the counter started to increment/decrement. The start location is selected whenever the **Reset** button is clicked.

Note also that the font, size and color of the counter and start position can be changed by right-clicking on the window to display the font popup menu. Select either **Change Counter Font** or **Change Start Position Font** to open a standard font selection dialog.

When the window is closed but WinFrog is not shut down, all settings for the initial counter value, direction and start location are lost and need to be reset when the window is opened again.

Dynamic Tracking Window

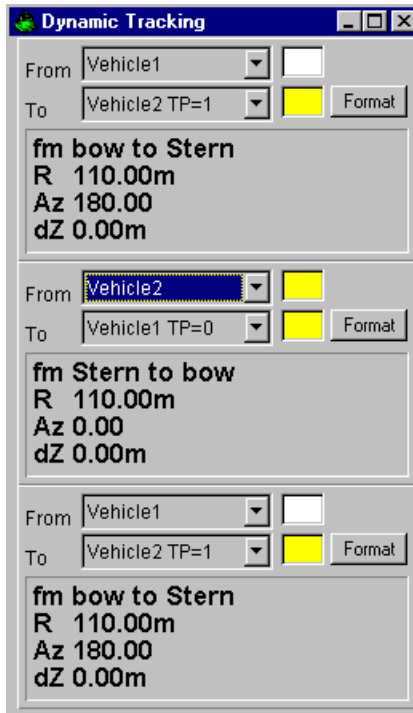
WinFrog's **Dynamic Tracking** feature is used for calculating and displaying the positional difference from a **Tracking Offset** point on one vehicle to a **Tracking Offset** point on another vehicle. The positional difference can be displayed in four different formats:

- 1 **Range, Bearing, and Difference in Depth**
- 2 **Difference X, Y, and Z**
- 3 **Difference North, East, and Depth**
- 4 **Range, Relative Bearing and Difference in Depth**

Each combination of **Tracking Offsets** is referred to as a **Track Pair**. The **Dynamic Tracking** window displays the positional differences of up to three **Track Pairs**. **Track Pairs** are configured using the main menu item **Configure > Vehicles > Setup Dynamic Tracking**. This option displays the **Setup Dynamic Tracking** dialog box. For more details about configuring **Track Pairs**, see the **Dynamic Tracking** section in the **Vehicles** chapter.

To Display the Dynamic Tracking Window

- 1 From the **View** menu, choose **Dynamic Tracking**.



The **Dynamic Tracking** window displays information for a maximum of three different enabled Track Pairs. For more details about using this window, see the **To View the Dynamic Tracking Information** section in the **Vehicles** chapter.

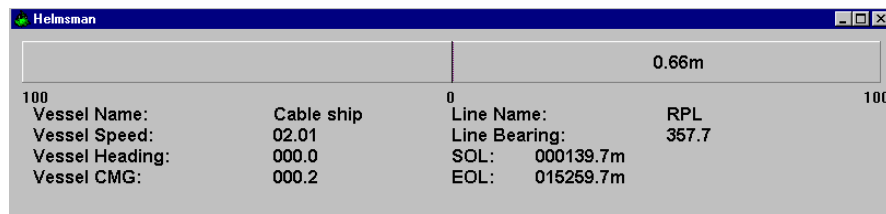
Helmsman Display

The **Helmsman** display shows **survey line tracking** and **navigation** information in both graphic and text formats, specifically intended for quick reference by the helmsman. Only one **Helmsman Display** can be viewed at a time, displaying information for the currently active vehicle (i.e. the vehicle that appears in the **Vehicle Text** window).

Note: the size and shape of the **Helmsman** display can be altered by “grabbing” an edge or corner and dragging it “in” or “out” as desired.

To View the Helmsman Display

- 1 From the **View** menu, choose **Helmsman**.



The following information is found in the **Helmsman** display window:

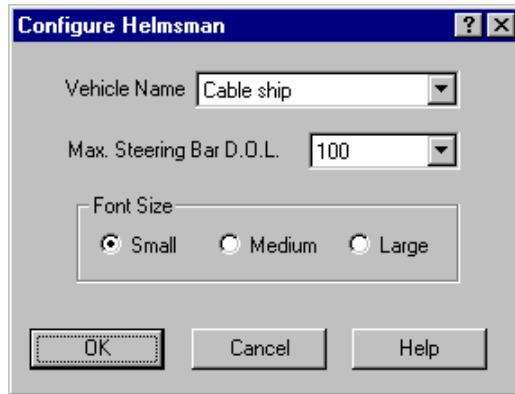
Steering Bar	The top portion of the window graphically displays the amount that the vehicle's currently tracked reference point is perpendicularly Offtrack from the current Tracked Survey Line Segment . The bar will "grow" in size from the center to the appropriate side as the vehicle moves further offtrack. The Offtrack distance is also displayed numerically in this portion of the window. Note: the numerical value is always positive , regardless of which side of the line the vehicle is on.
Vessel Name	the Name of the current vehicle.
Vessel Speed	the calculated Speed of the vessel.
Vessel Heading	the vessel's heading (as received from a gyro or other interfaced directional device, plus any user-configured offset).
Vessel CMG	the vessel's calculated Course Made Good .
Line Bearing	displays the bearing of the current segment of the survey line being tracked.
Line Name	displays the name of the survey line being tracked.
SOL	displays the distance to the Start Of Line .
EOL	displays the distance to the End Of Line .

The numbers in the moving bar will change to reflect the distance from the center of the display to the edge. Select the main menu item **Configure > Units > Distances** to change the units displayed.

If no **Survey Line** is currently being tracked, **0.0** is displayed and no changes will occur in this part of the display.

To Configure the Helmsman Display

- 1 Move the mouse pointer to within the limits of the **Helmsman** display, then press the right mouse button. The **Configure Helmsman** dialog box displays.



Vehicle Name dropdown

Choose the appropriate vehicle from the options presented in the dropdown box.

Max Steering Bar D.O.L.
dropdown

Select from the options presented in the dropdown box to change the maximum horizontal **Distance Off Line** (D.O.L.) to be depicted in the **Steering Bar** section of the **Helmsman** display.

Font Size radio buttons

Select the desired **Font** size.

- 2 Adjust the **Vehicle Name**, the **D.O.L.**, and the **Font Size** options accordingly.
- 3 Click **OK**.

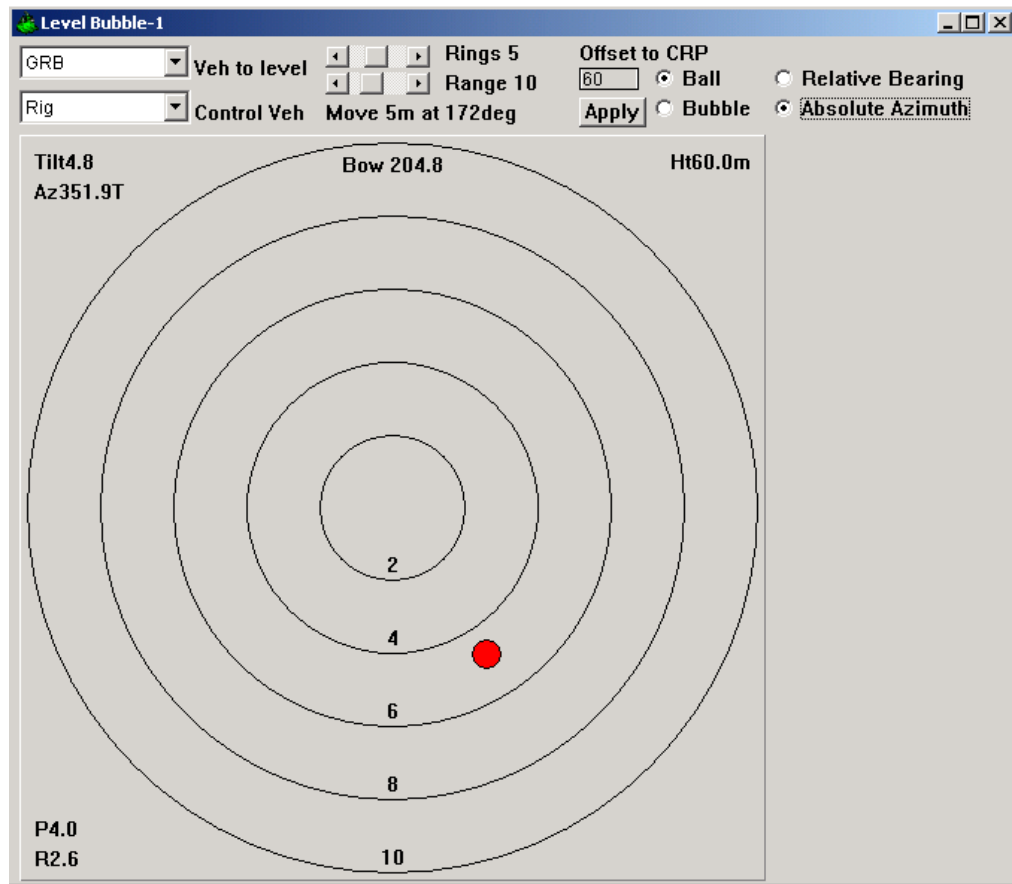
Level Bubble Window

This window displays the pitch and roll of a vehicle using a bull's eye display. If desired, it can also estimate the approximate amount of movement a surface vehicle would need to move, and its direction, in order to bring a subsurface vehicle to the level position. This assumes the surface vehicle is overtop the subsurface vehicle and is attached by some semi-ridged structure such as a drill stem. The vehicles' CRP elevations are used to determine the vertical distance between the vehicles. If there is casing below the bottom vehicle the operator may enter an offset to the fulcrum point.

Up to five Level Bubble windows may be displayed.

To Display a Level Bubble Window

- 1 From the **View** menu, choose **Level Bubble**.



To Configure the Level Bubble Window

- 1 Select the vehicle whose attitude is to be monitored from the top dropdown list box (Veh to level).
- 2 Using the slider bars, select the number of rings and the total range (1° to 50°) desired. Depending upon the number of rings selected, the full range may not be displayed; either change the number of rings or the range to display the full range.
- 3 The red circle indicates the levelness of the vehicle. The circle may simulate either a bubble (air in oil) or a ball (steel in oil). The two radio buttons, Ball and Bubble, determines the mode. If Bubble is selected and the vehicle has positive pitch (bow up) the red circle will move towards the bow. If in the same situation Ball was selected, the red circle would move towards the stern.
- 4 The top of the bull's eye is always considered the bow of the vehicle being leveled.
- 5 In the top left corner of the bull's eye is the total tilt of the vehicle. Below this is either the azimuth or bearing relative to the bow of the tilt. The remaining

two radio buttons, Relative Bearing and Absolute Azimuth, determine which is displayed. If the Relative Bearing is chosen, the angle is measured from the bow to the red circle. If the Absolute Azimuth is chosen, the angle is measured from true north to the red circle.

- 6 Displayed in the lower left of the bull's eye is the pitch and roll in degrees. Positive pitch is bow up; positive roll is starboard down.
- 7 If there is a leveling vehicle as described above, select it from the lower dropdown list box (Control Veh).
- 8 To level the lower vehicle use the display "Move 25 m at 323 degrees" located below the slide buttons. The distance to move uses the tilt angle and difference in the CRP elevations; the angle is the true azimuth indicating the direction to move the rig. To correct the height difference for a section of casing which will act as the pivot point or to correct this difference for any other offset, enter a value in the Offset to CRP edit box and click the **Apply** button. This value will be added to the elevation difference and displayed in the upper right corner of the bull's eye. This elevation difference is always considered positive.

Numerics Display

The **Numerics** display provides you the ability to view various user-selected real-time **Device** and **Vehicle** data items. This display expands on the data presented in the **I/O Devices** and **Vehicle Text** windows. See the appropriate sections found earlier in this chapter for more information on these other windows.

To View the Numerics Display

- 1 From the **View** menu, choose **Numerics**.

A blank **Numerics** window displays. As with most WinFrog windows, the **Numerics** window can be moved by "grabbing" the top bar of the window and dragging the window to the desired location. The window can also be changed in size by "grabbing" any edge of the window and "dragging" it as desired.

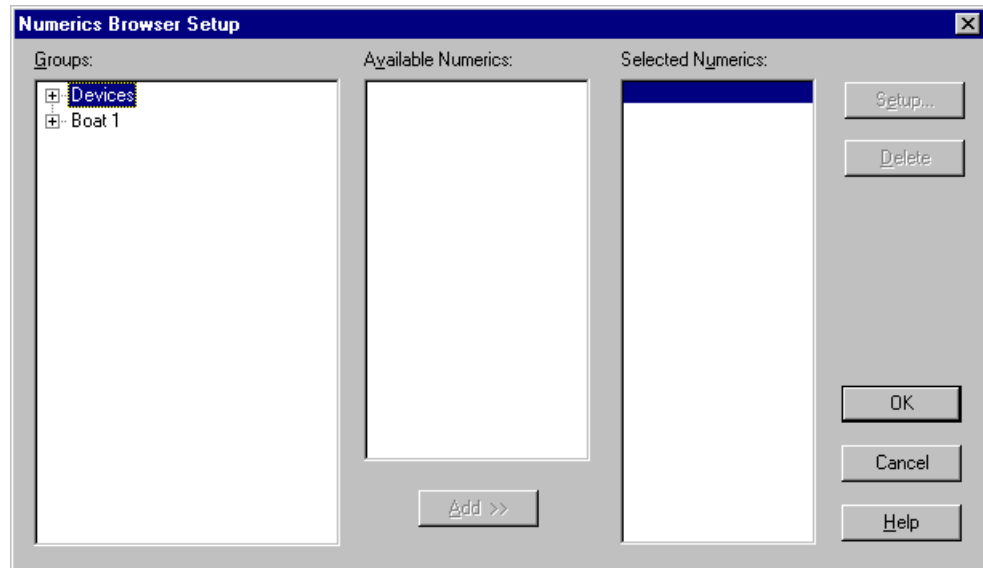
To Configure the Numerics Display

- 1 To configure this display, move the mouse pointer to within the limits of the Numerics display and click the right mouse button.

A small dialog box appears offering **Setup...** and **Font Size...** options. Select the appropriate option.

Setup

Select this option to display the **Numerics Browser Setup** window.



Groups

This section of the **Numerics Browser Setup** window divides the available data into two source groups: **Devices** and **Vehicles**.

Devices

This grouping contains all devices that have been added to WinFrog. Click on the “+” symbol beside the word “**Devices**” to see a list of these devices. Click on the “+” symbol beside a specific device name to see what data are available from this device. Select the data name to see what **numerics** are available from this data type, listed in the **Available Numerics** window.

Vehicles

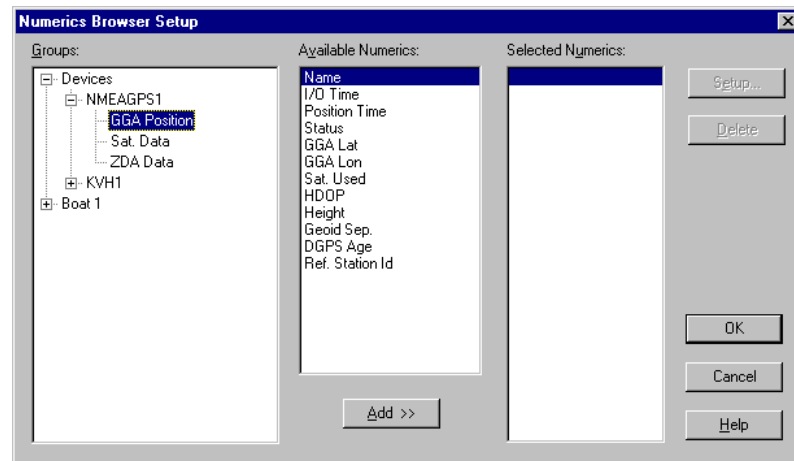
The name of each vehicle added to WinFrog will be listed in the **Groups** section. Click on the “+” beside a vehicle name to see what data categories are available for that vehicle. Click on a data category to see what data items are available for each vehicle data category, listed in the **Available Numerics** window.

Available Numerics

Available Numerics

This section of the **Numerics Browser Setup** window lists all individual **Numeric** items associated with the highlighted “group” data

item. The example below shows what **Available Numerics** are associated with a NMEA GPS device.



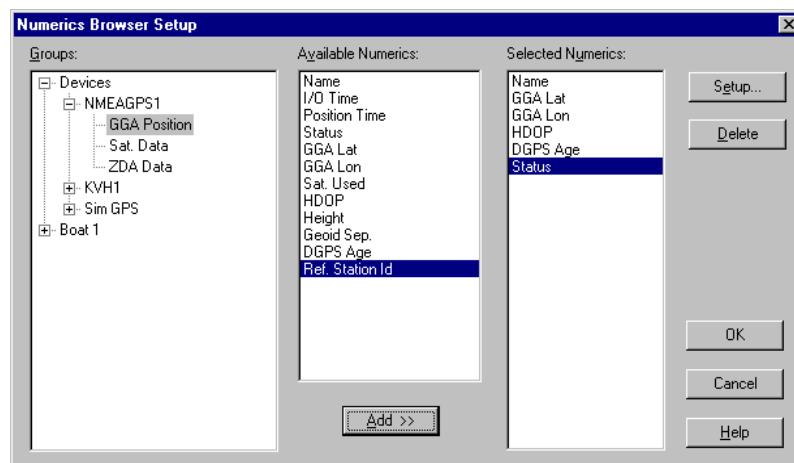
Selected Numerics

This portion of the **Numerics Browser Setup** dialog box lists the items that have been selected from the **Available Numerics** listing.

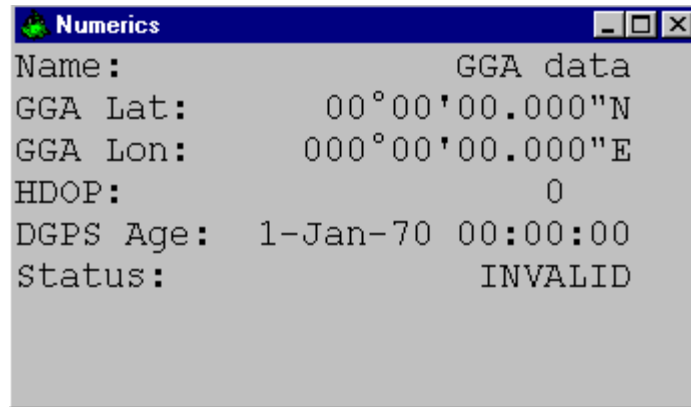
To Add an Item to the Numerics Display

- 1 Highlight the **Available Numeric** item
- 2 Click the **Add>>** button.

In the example below several items have been added from the **Available Numerics** for a GGA Position.

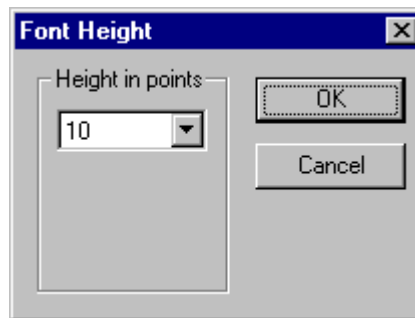


- 3 Once all desired items have been added, select the **OK** button to return you to the Numerics display, which now reflects the changes just made.



Font Size

Select this option to display the **Font Height** window as seen below. Use the dropdown to select the desired **Font Height**.



Smart Remote Control

WinFrog supports the operation of Smart Remotes. A WinFrog system that is not configured with real-time inputs and outputs may provide the means to view and monitor the positioning and navigation being performed by the primary WinFrog system. A Smart Remote does not require a license. A computer running WinFrog in demonstration mode can be operated as a Smart Remote.

To simplify the operation of the Smart Remotes, WinFrog provides the means for you to configure the Smart Remotes from the primary WinFrog system, referred to as a master in this section. The Smart Remotes will simply be referred to as remotes.

Network Communications

WinFrog uses UDP/IP to communicate between the master and remotes. This requires a suitably configured Ethernet card to be installed in the computer. When WinFrog is launched, whether it's to be used as a remote or a master, it retrieves the IP address of the computer's Ethernet card. This is used to read/write the required remote navigation information. If at launch, WinFrog

detects two or more Ethernet cards and none has been directly selected as the card to use, a dialog will appear allowing you to choose which card to use. If the computer does not have an Ethernet card when WinFrog is launched, or if the Ethernet cable is not connected, WinFrog will not be able to retrieve the IP address. In these cases, a message will appear to indicate this and instruct you to select, from the main menu, **Configure > Smart Remote Options > Select Ethernet Card** to select the card address when the Ethernet cable has been reconnected. In the case of an Ethernet card not being present, the PC will need to be powered down, a card installed and WinFrog re-launched.

As previously mentioned, WinFrog uses UDP/IP to send navigation data to the remote computers. It uses port 7050 for this. This data is broadcast and can be received by all the suitably configured computers on the network. This is determined by the subnet mask entered as part of the TCP/IP Properties for the particular card in use. The remote does not respond to this data.

The master uses port 7060 to send configuration data to the remotes. But first the master sends a command on port 7050 to inform the remotes to open and listen on port 7060 for the configuration data. This communications involves transmission of configuration data by the master and a confirmation of receipt by the selected computers. It should be noted that the output of the navigation data on port 7050 is suspended during configuration updates.

Remote Position Data Reception

If any vehicle on a given WinFrog system is configured to Network for the Data Source, that WinFrog listens for data from a master. The data is transmitted in packets. Each navigation packet contains the complete position information for all vehicles in a compressed format. The packet that informs a remote that it is to be configured only contains the computer's name. When a remote receives a packet it checks to see if it is a message informing it that a configuration update is going to be transmitted (see **Remote Configuration**) and if so, is it intended for this computer (see **Master Operation**). If a data packet is detected, the vehicle names in the packet are compared to those of the vehicles configured to Network for the Data Source at the remote. The comparison is case sensitive. If a match is found, the position data is assigned to that vehicle. If no match is found, the data is discarded.

After the receipt of position data from the master, the remote sets a time out clock. If new data is not received within 15 seconds, a message appears indicating a data time out. This message will not appear again until the reception of another position data packet restarts the timeout clock.

Note: It is critical that the names assigned to the vehicles configured at the remote is identical to that used at the master, including case. The use of the remote configuration ensures this.

Note: It is important to note that the remote will accept position data from any master. There should be only one master on the network at one time. If the overall system includes a primary and secondary WinFrog, the primary should be used to send the position data to the remotes. If it fails, you must turn the data transmission on at the secondary. The remotes do not require a configuration update in this case.

Remote Configuration

After launching WinFrog on the remote computer, the remote can be configured manually at the remote computer or remotely from the master. It is important to note that for the purpose of this section, configuration refers to the critical components of WinFrog that are required for the successful operation of a Smart Remote, specifically the geodetic and map projection parameters; vehicle name, shape and presentation; and though not so critical, the working survey lines and waypoint files and the BMM file used for the Graphics windows background display.

For manual configuration refer to Chapter 9, Network Data Source Configuration.

To execute the remote configuration, after launching WinFrog first check that the system is configured to accept remote configuration. This is done from the main menu item **Configure > Smart Remote Options > Enable Configuration by Master**. If the remote is configured to accept remote configurations, there will be a checkmark beside this item. Click this item to toggle between enabled and disabled. This setting is saved to and loaded from the *.ini and *.cfg files. The default setting is enabled for a WinFrog running in demonstration mode, disabled for a licensed WinFrog.

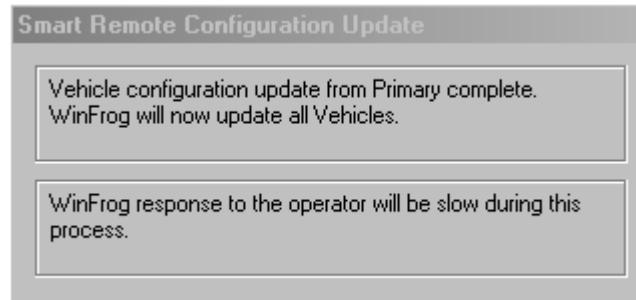
Second, open the desired Graphics, Vehicle Text and Dynamic Tracking windows. The master cannot open windows on the remote. Furthermore, if no Graphics windows are open on the remote when executing the remote configuration, the BMM map files assigned will not take affect.

The master sends data in three stages to match the configuration of a remote to itself:

- 1) Primary Configuration Components:
 - Geodetic and Map Projection parameters.
 - Display Units.
 - Vehicles including their names, colors, shape (at the remote each vehicle is set to Network for the Data Source and defaulted to Network for Waypoint, Line and Offset Source). Only vehicles that are configured at the master are setup at the remote. Any vehicles present at the remote that are not present at the master are removed.

- All dynamic tracking information.
- 2) Assigns the file name and path for the remote's Working Survey Line and Waypoints Files to those of the master.
 - 3) Creates copies of the BMM files displayed in the Graphics windows at the master and then links the remote Graphics windows to these files.

When a remote configuration is taking place, a window such as the one below is displayed at the remote stating the process being executed.



Note: The remote will accept a configuration update from any master. There should be only one master on the network at one time.

Note: The transmission of the primary configuration components starts with the Geodetics, then the units and then the transmission of the list of vehicles to be configured, followed by the configuration for each vehicle. The master then waits for the remote to inform it when the vehicle updating is completed before continuing. The above figure is the message displayed at this time. During this time, the remote will be very slow to respond to operator interaction (mouse clicks such as Zoom In). This is normal.

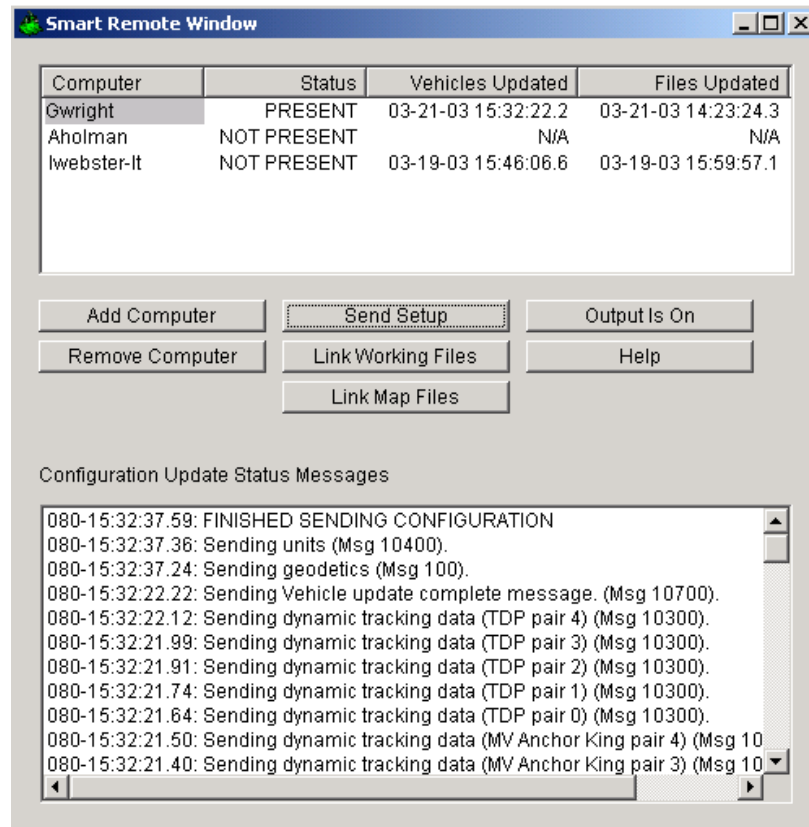
Note: The remote must have access to the Working Survey Line and Waypoint files and the *.BMM file and any files that are referenced in the BMM file if it is to use these. This requires that the immediate parent folders in which the files are located be shared and that permission be granted to the remote computer's user to access the files. This is most easily accomplished by ensuring that the **Master** computer has a **Guest** account. It is very strongly recommended that this access be limited to **Read Only** to ensure that the remote operator is not able to change them.

Note: When WinFrog is launched at the remote, if the Ethernet cable is not connected the Ethernet card will not be detected. After reconnection of the cable it is necessary to select the card from the main menu item **Configure > Smart Remote Options > Select Ethernet Card**.

Master WinFrog Operation

The WinFrog that is to operate as the master must be configured to do so. The configuration is performed from the **Smart Control Window**. This window is

opened from the main menu item **View**. The window appears as below, though initially, the computer list window and the status message list box are empty.



The following details the window components and button functions.

- Computer List Window** The computers that have been added are listed in this window. Note that these are the computers that can then be selected for remote configuration. The addition, selection or removal of computers does not affect the transmission of the position data packets. Computers can be selected by clicking on the name. Multiple computers can be selected by pressing the **Ctrl** key while clicking on the computer name.
- Status** Indicates whether or not the computer was detected when a configuration update was transmitted to it.
- Vehicles Updated** This is the date and time of the last successful update of this remote for the primary configuration components.
- Files Updated** This is the date and time of the last successful update or refresh of this remote for the Working or Map Files.

Add Computer	Click this button to browse the network and select a computer to add to the list of those that can then be selected to receive configuration updates.
Remove Computer	Click this button to remove any computers selected in the computer list window.
Send Setup	Click this button to instigate the transmission of the primary configuration components to those computers selected in the computer list window. While the transmission of the configuration is taking place, this button changes to an Abort button. Clicking this cause the configuration update to abort.
Link Working Files	Click this button to instigate the transmission of the Working Survey Line and Waypoint File names and paths to those computers selected in the computer list window.
Link Map Files	Click this button to instigate the transmission of the file names and paths for those BMM files that are configured as the backgrounds for those Graphics windows open at the master to those computers selected in the computer list window. If the respective Graphics windows are open at the remote, they will display the same layer files as their corresponding Graphics window at the master. This includes the setting of the Plot Map option in the Graphics window configuration Background tab.
Output is On/Off	This button toggles the broadcast of the position data on and off. The button text indicates the current status. This is not affected by those computers added or selected, as it controls the broadcast of the position data packets, which are then received by all computers on the network. When a configuration update is in progress, the output is suspended and this button displays Output Is Suspended and is disabled. When the configuration is completed, the button and the position output mode returns to normal. Note: This output must be turned on in order for remotes to operate regardless of whether or not they are configured remotely or locally.
Help	Access the help for Smart Remote configuration and operation.

Configuration Update Status Messages

The messages detailing what the Smart Remote Control is executing are listed in this box.

With the exception of the **Add Computer**, **Output is On/Off** and **Help** buttons, the buttons are only active when there are computers listed in the computer list window and at least one computer selected.

Note: When a configuration is initiated, all the selected computers are set to **NOT PRESENT** in the computer list. WinFrog looks for responses from all selected computers before sending the next packet. When a computer responds to confirm that it has received the configuration packet, it is set to **PRESENT**. If after five seconds not all computers have responded, the computers that have not responded are removed from the list of those that are expected to respond (they will still appear selected in the list) and the next packet is transmitted. If no computers respond, the configuration is aborted.

The **Smart Control Window** can be closed without affecting the transmission of the position data packets. Unlike most WinFrog windows, the next time it is opened, it will open in the same location at the same size it was when it was closed. The computer list is also maintained.

Note: The **Smart Control Window** cannot be opened if the computer is currently receiving a configuration or refresh command.

Note: When WinFrog is launched at the master, if the Ethernet cable is not connected, the Ethernet card will not be detected. After reconnection of the cable it is necessary to select the card from the main menu item **Configure > Smart Remote Options > Select Ethernet Card**. This selects the card for port 7050. Then close and open the Smart Remote window for a refresh so the configuration port (7060) can be used. Both ports are required for operations at the master.

Tracking Offsets Window

The **Tracking Offsets** window displays the real-time **Working Map Projection** coordinates of all **Tracking Offsets** configured on a vehicle, as well as survey Line tracking **Distance Down Line (DDL)** and **Distance Cross Course (DCC)** information, if a survey line is being tracked.

Only one **Tracking Offsets** window can be displayed in WinFrog, but the same window can be used to view **Tracking Offsets** for any WinFrog vehicle by simply toggling the **Vehicle** button located in the top of the **Tracking Offsets** window.

The **Tracking Offsets** window can only be configured for size. Only those **Tracking Offsets** that are configured with their **Plot** option enabled will be seen in the **Offsets** window.

Note: although the **Tracking Offsets** window displays the position of all **Plot** option enabled **Tracking Offsets**, only the coordinates displayed in the **Vehicle Text** window (i.e. the single **Tracking Offsets** point that is currently enabled) are recorded by WinFrog during **Automatic** or **Manual Eventing**.

Vehicle **Tracking Offsets** are configured by selecting the main menu item **Configure > Vehicles > Configure Offsets**. For more information, see **To Configure Offsets** in **Chapter 6: Vehicles**.

To Display the Tracking Offsets Window

- 1 From the **View** menu, choose **Tracking Offsets**.



The screenshot shows a window titled "Tracking Offsets" with a "Vehicle" button in the top left. The window contains a table with tracking data for a "Barge" vehicle. The table has four columns: Location, Elevation (EL), Easting (E), and Northing (N). Each location entry is followed by its Elevation, Easting, and Northing coordinates, as well as DDL and DCC values.

Barge			
Bead Stall	EL0.00m	E487802.29m	N3631933.94m
		DDL: 10192.02m	DCC: 51.15m
Stinger end	EL0.00m	E487802.24m	N3631893.96m
		DDL: 10152.02m	DCC: 51.37m
Port Bow	EL0.00m	E487792.34m	N3631973.94m
		DDL: 10231.96m	DCC: 40.92m
Stbd Bow	EL0.00m	E487812.33m	N3631973.91m
		DDL: 10232.08m	DCC: 60.92m
Stbd Stern	EL0.00m	E487812.26m	N3631913.93m
		DDL: 10172.08m	DCC: 61.26m
Port Stern	EL0.00m	E487702.30m	N3631914.07m
		DDL: 10171.46m	DCC: -48.74m

In the **Tracking Offsets** display above, the **Barge** vehicle is configured with 6 **Tracking Offsets** and is also tracking a survey line. As mentioned above, to see information for other vehicles, select the **Vehicle** button in the top right corner of the window.

Cable Model Windows

WinFrog’s **Cable Model** extension module provides real-time calculation and display of cable lay operational status. The real-time cable lay information calculated includes **Desired** and **Actual Slack** values, as well as cable installation “**Ahead and Behind**” information. This information, and various other data pertinent to the installation of a cable, is displayed in both the **Cable Model Large** window and the **Cable Model Small** window.

Details of the configuration and use of the **Cable Model** windows are found in the **Cable Management Extension Module User’s Guide**.