

HELMSMAN'S DISPLAY 4

USER INTERFACE MANUAL

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1 Helmsman's Display 4

The Helmsman's Display 4 is a completely new solution and brings online navigation in a 3D environment. It opens new possibilities for handling larger amounts of data, support of new formats, native 3D providing optimal 3D performance, full Windows 10 integration, tailored display layout, tracking of multiple 3D objects the same time, possibility for using online background maps and much more.

Helmsman's Display is developed to meet the needs of an industry in constant change. Together with feedback from all our valued customers we will continue to develop this product to the ever-changing requirements of the market.

This approach brings several additional functionalities:

- Bathymetric surveys with live DTM from multibeam
- Live laser point cloud data
- 3D structures and vessels
- Cable and anchor installations
- ROV support
- Towed side-scan sonars and vehicles

2 What is new?

2.1 Templates

The use of several templates based on work scope allows the user to define the desired layout and save it. You can have multiple layouts (e.g. one for MBES/LiDAR survey, one for ROV operations, one for eventing in case you have a separate operator or one for QC-ing).

You can define screen layouts and save them as a named template. A template will include information on which windows, data sources, view settings, dockings, window sizes and placements are saved.

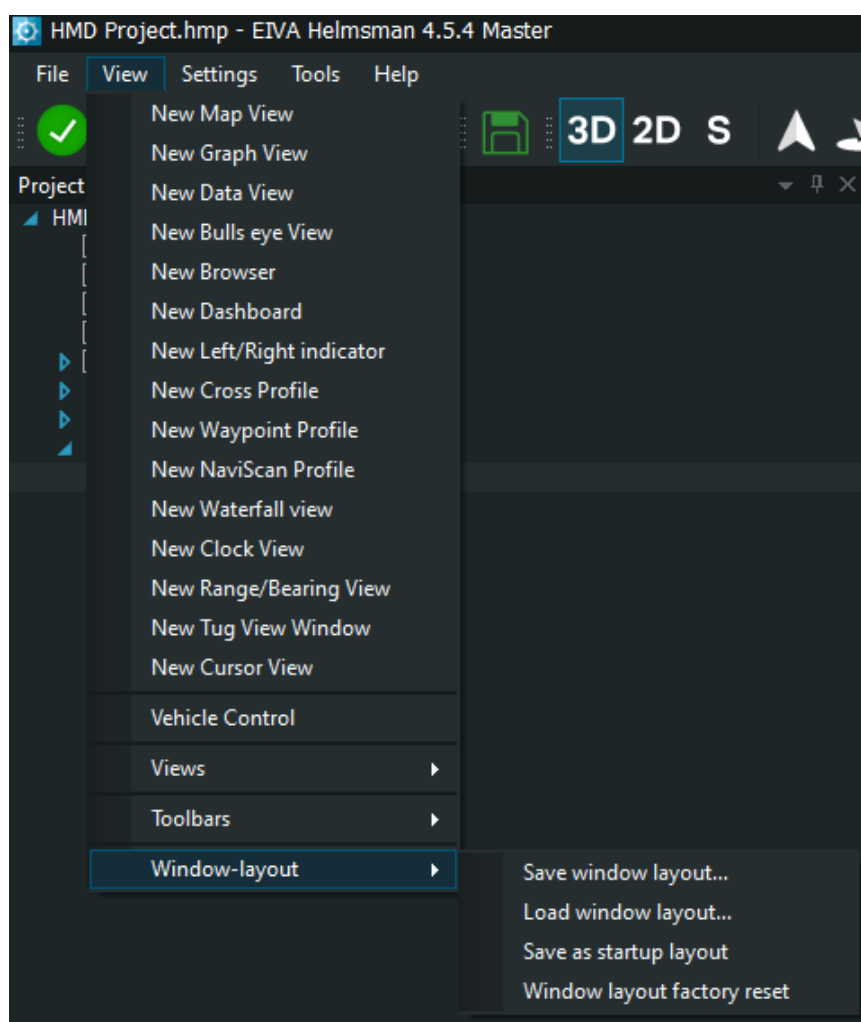


Figure 1 Where to find the Window-layout options

By default, the saving and loading of the templates will be done in the folder
C:\ProgramData\EIVA\Helmsman\Layout.

2.2 Connection

Connecting and getting data from NaviPac and NaviScan is simple. You should click on connect and it will provide you with a list of NaviPac and SceneServers online on your network as well as any defined external network servers.

The selected connection will be saved with your project and re-established on start-up. There is an icon showing you if there is any issue with your connection to the NaviPac server.

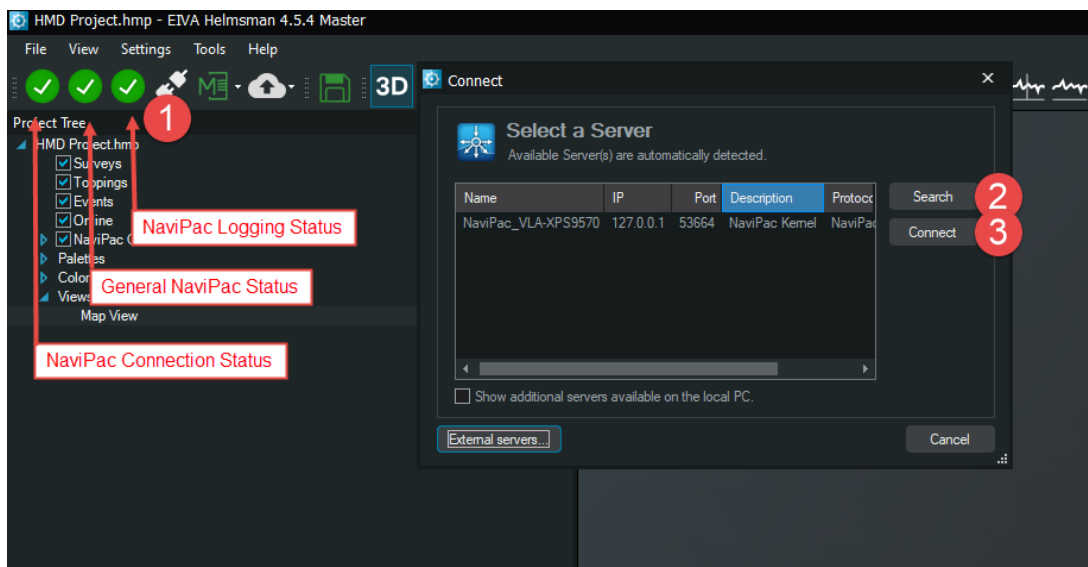


Figure 2 How to connect to a server and where to find the Status icons

2.3 Maps and drawings

Helmsman's Display supports a wide range of online map servers and formats. It allows for multiple 3D views simultaneously, unlimited data size, map tile servers and navigation charts providers, AutoCAD, S-57 and MicroStation 2D drawings.

The background Maps can be added by using the Select Background Map from the View Toolbar.

Maps can be downloaded on shore and used offline if the survey area does not have good internet connectivity by following [this procedure](#).

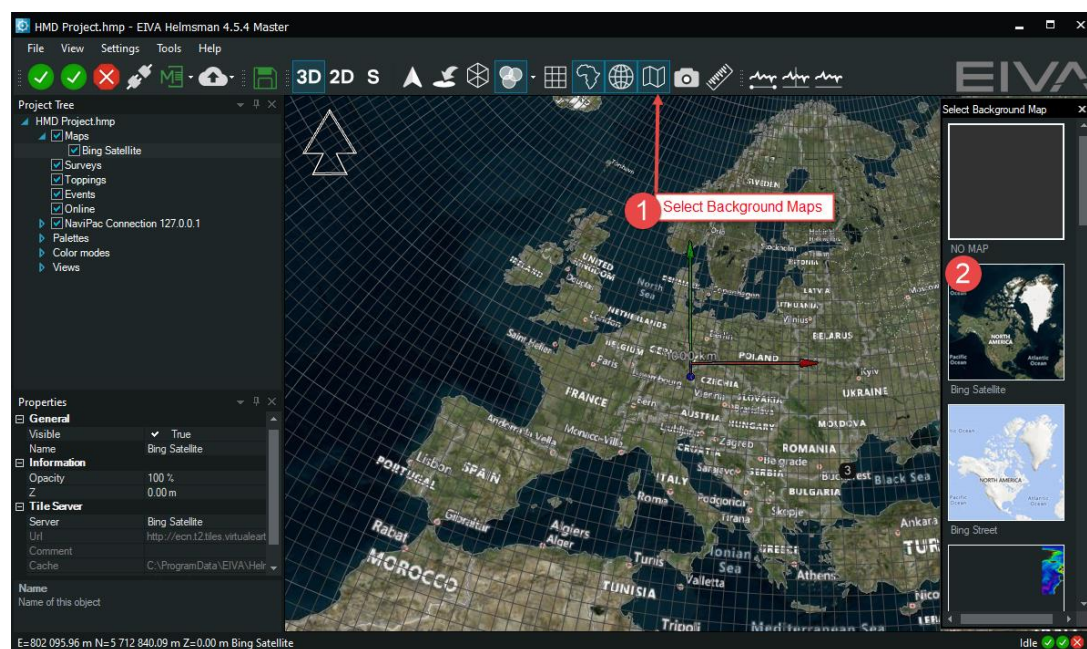


Figure 3 Background Maps - button location and standard map servers

2.4 Data Views, Dashboards and Graphs

The Helmsman's Display 4 is also coming with an upgrade of how a user can monitor and present live data.

The user can define which real time items are shown and have a good control on what data to display, rename label, control sizes independently, show/hide columns and control logging/view time. The data can come from sensors or processed through DataMon. Mathematical functions can also be used to calculate values in the live display. This is presented in more detail in chapter [4.3 Graph Views](#), [4.4 Dashboards](#) and [4.5 Data View](#).

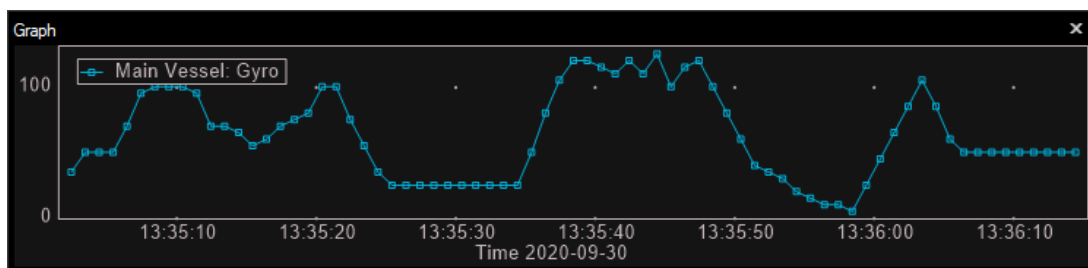


Figure 4 Graph View



Figure 5 Data view and Dashboard

2.5 Auto-follow

The auto-follow functionality allows for several ways of focusing on or tracking objects. These are:

- Select object to Follow
- North Up Follow Mode
- Runline Up Follow Mode
- Gyro Up Follow Mode
- CMG Up Follow Mode
- Decide view angle or look forward
- Keep object in the center of the screen (but do not shift the map before it leaves the defined area)

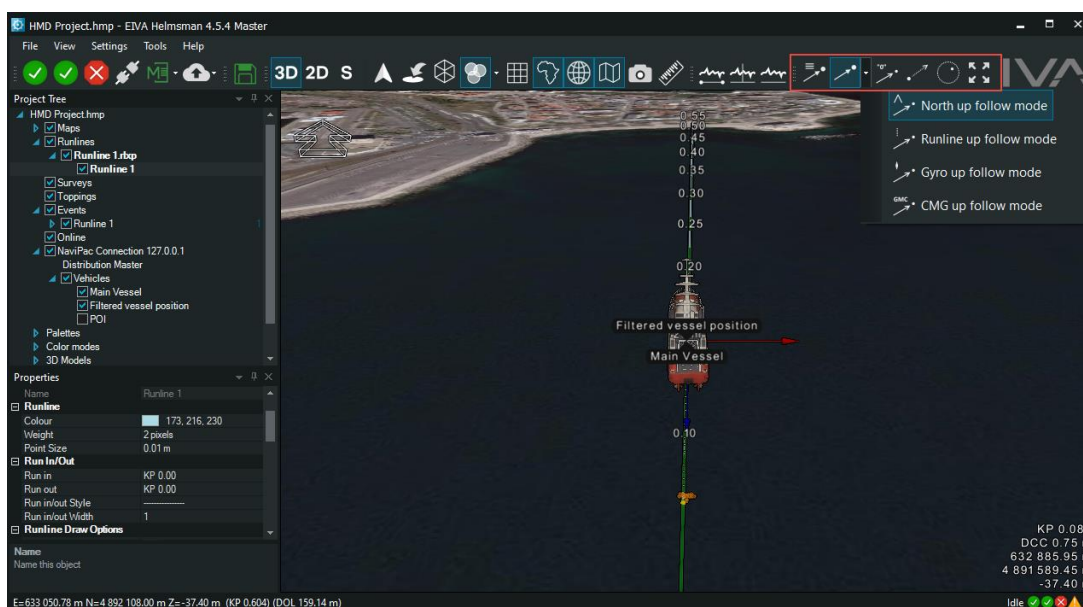


Figure 6 The Follow toolbar and follow options

2.6 Live 3D data

The collected data can be viewed in real time if you are connecting the Helmsman's Display to NaviScan. This can be done using the same procedure as described in chapter [2.2 Connection](#) for NaviPac and/or NaviScan.

Online DTMs can be filtered in real time using EIVA's EC-3D tools.

This will allow you to view and control:

- Raw point cloud data (MBE, LiDAR, laser)
- Real-time DTM
- Generate coverage on top of maps or previous surveys

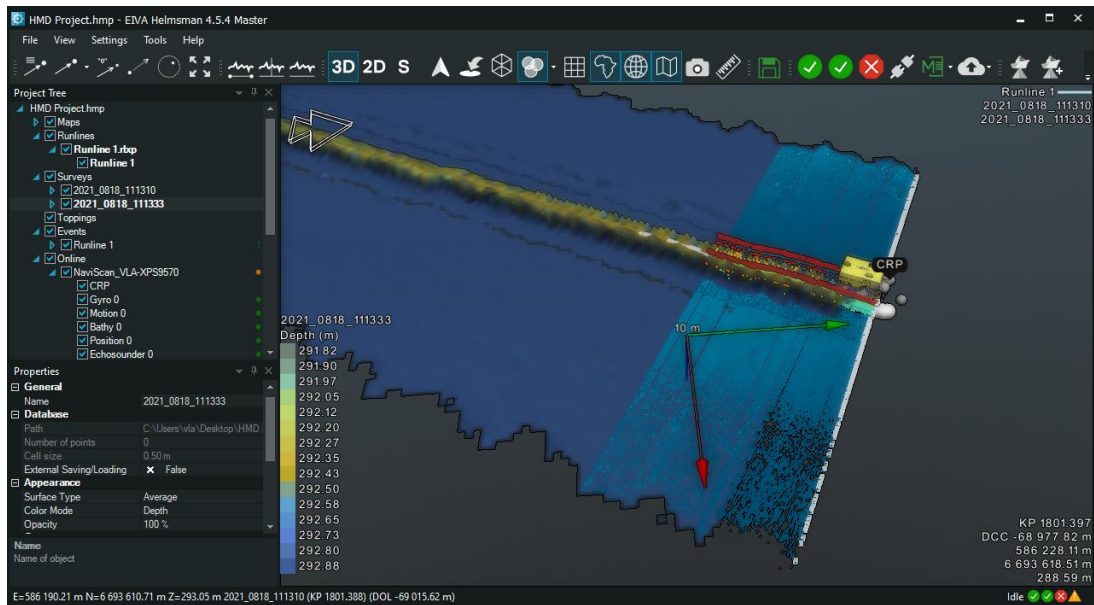


Figure 7 Real time DTM and point cloud during ROV-mounted dual head MBES survey

2.7 NaviModel features

Being based on NaviModel, the Helmsman's Display also brings with it the following additional features:

- Difference Models
- Gap Analysis
- Trench / rock dump design
- Digitized lines
- Cross Profiles
- Live profiles between moving objects
- Volume Calculations
- Measurement
- Full online Eventing package
- Video file playback

3 Menu Bar

The Menu bar is located on the upper left corner of the display.

3.1 File

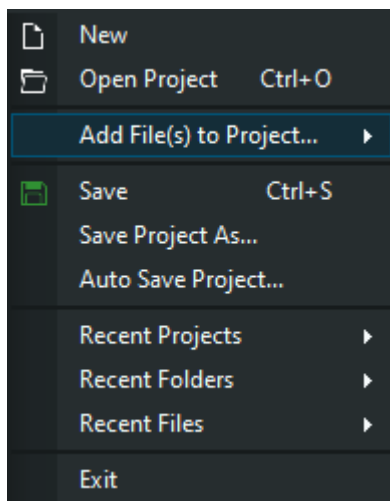


Figure 8 The File menu

The File menu contains the following sub-menus:

- **New** - Create a new Helmsman's Display project
- **Open Project** - Open an already existing project
- **Add File(s) to Project** - Allows for adding files; new files can be also added by drag and drop
- **Save** - Save recent changes in the project
- **Save Project As...** - save as a new Project
- **Auto Save Project...** - allows the setting up of a time interval at which the changes will be automatically saved
- **Recent Projects** – easy selection of recent opened Projects (ordered chronologically from recent to old)
- **Recent Folders** – shows a list of folders where projects and files have been saved (ordered chronologically from recent to old)
- **Recent Files** – allows for quick access to previous saved files or projects

3.2 View

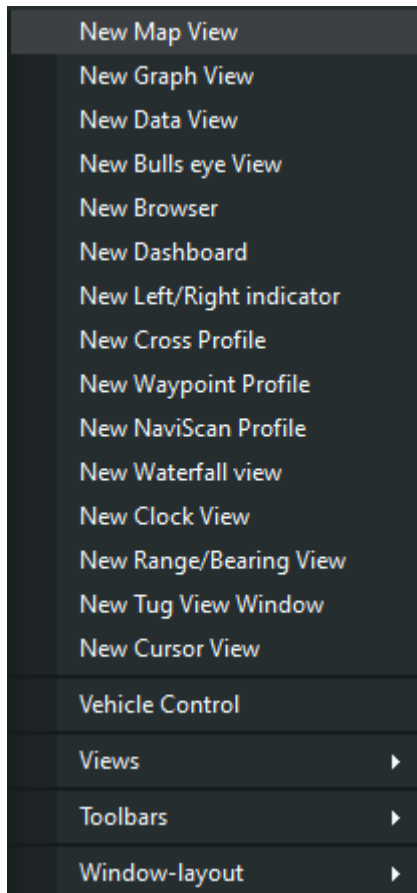


Figure 9 The View Menu

The View menu contains the following sub-menus:

- **New Map View** – opens a new Map View. The new Map View can be used to display the site from another perspective (e.g. an overview map or a detailed view of an ROV survey)
- **New Graph View** – allows for the setting of a Graph View
- **New Bulls eye View** – opens a Bulls eye View
- **New Browser** – opens a web browser in Helmsman's Display
- **New Dashboard** – opens a New Dashboard. You can choose what elements to be displayed
- **New Data View** – opens a new numerical Data View with both a graph and numerical value. The columns can be adjusted
- **New Left/Right Indicator** – opens a new view which shows the user information about the location of one vehicle compared to a line, e.g. vessel following a runline.
- **New Cross Profile** – opens a new Cross Profile.

- **New Waypoint profile** – opens a new waypoint profile view. It shows a dynamic view between the selected vehicles on the X axis and depth on the Y axis.
- **New NaviScan profile** – opens a NaviScan profile
- **New Range and Bearing View** - opens a new range and bearing view between user selected objects. The user can also choose to see the dX, dY, dZ and 2D and 3D ranges
- **Vehicle Control** – opens the Vehicle Control view. This is similar to the old **Runline Control** in previous version
- **Views** – opens a list of views the user can have visible in the HMD 4 project

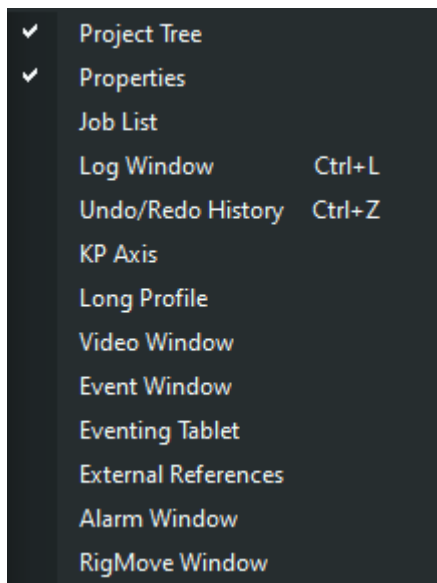


Figure 10 The Views sub-menu

- **Toolbars** – the user can select here which toolbars should be displayed

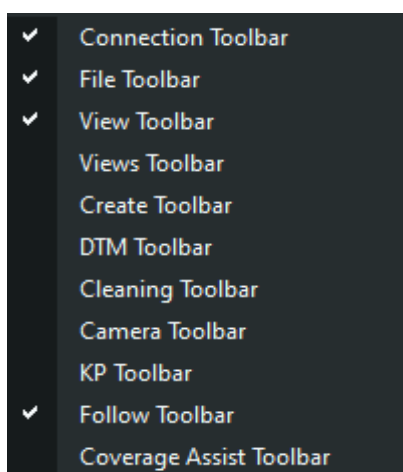


Figure 11 The Toolbars list

- **Window-layout** – provides the options for using window layouts. You can save the current lay-out, load a user defined template or manage the startup layout (see chapter [2.1 Templates](#))

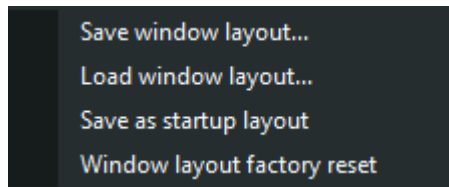


Figure 12 The Layout options

3.3 Settings

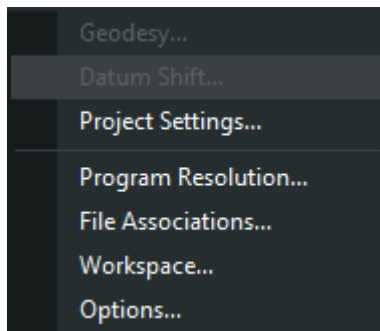


Figure 13 The Settings menu

The Settings menu contains the following sub-menus:

- **Geodesy** and **Datum Shift** – are greyed out as they are taken directly from **NaviPac**

- **Project Settings** – here you can set up the units (e.g. metric or imperial system)

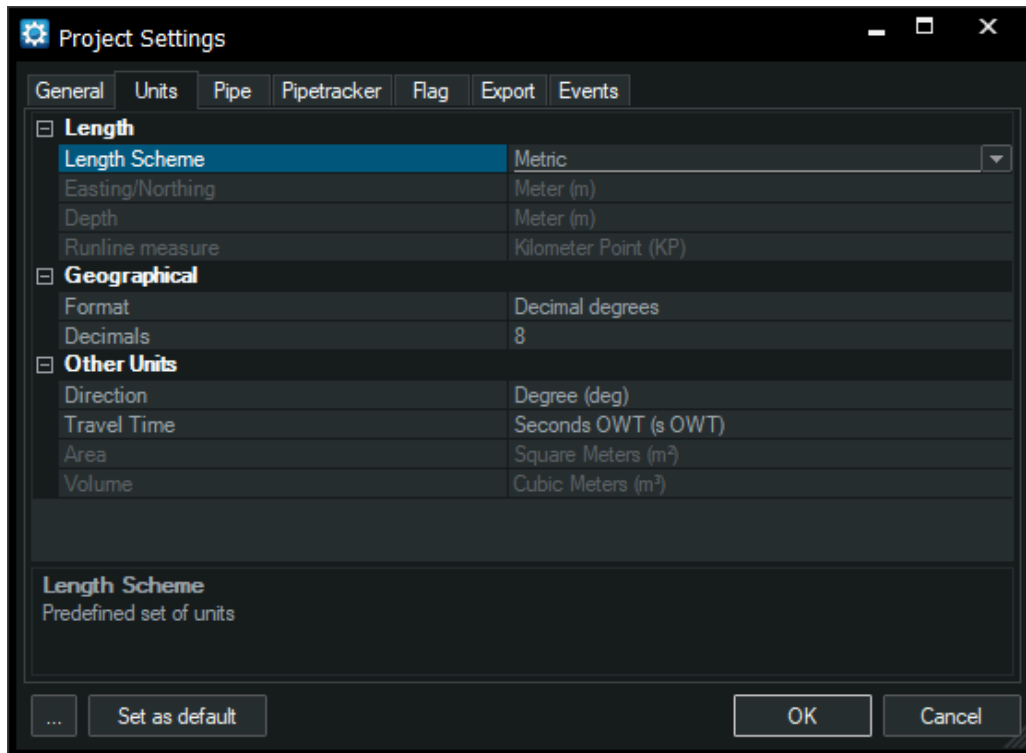


Figure 14 The Project Settings window

- **Program Resolution** – opens a window where the user can adjust the video resolution

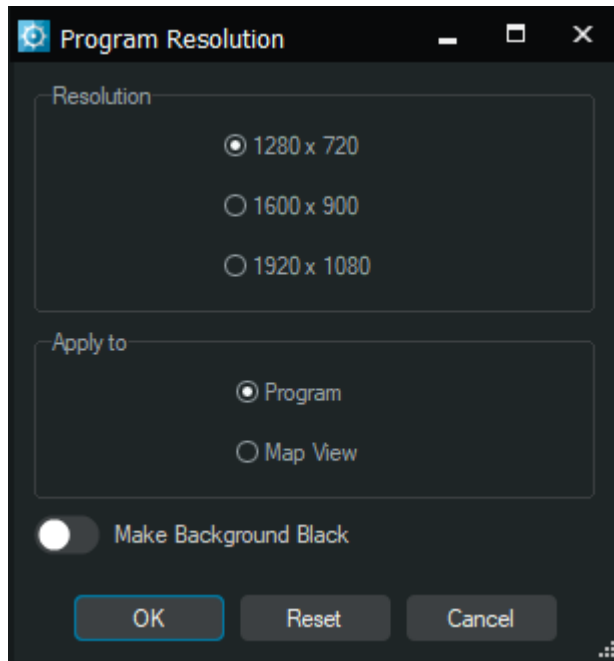


Figure 15 The Program Resolution window

- **Workspace** – opens a window where you can select a workspace

- **Options** – opens a window where the user can adjust general visual, runline, online eventing and shortcuts settings



Figure 16 The Options window

3.4 Tools

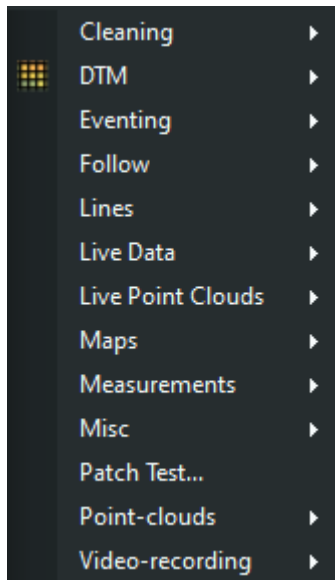


Figure 17 The Tools menu

The View menu contains the following sub-menus:

- **Cleaning** – limited to Histogram Plane and Spike filters (for more advanced cleaning options the user needs to use NaviModel)
- **DTM** – from here the user can create difference models choose palettes, opacity and fill DTM secondary cells
- **Eventing** – options for creating and QC-ing Event Collections, freespan and burial events
- **Follow** – provides a submenu with options for following vehicles and objects, like the [Follow Toolbar](#)
- **Lines** – here the user can create new digitized lines, runlines, waypoints and enable the Vehicle Control
- **Live Data** – opens a sub-menu where the user can set up custom live data views, live distance between objects or to DTM, volume differences, depth of burial or KP
- **Live Point Clouds** – allows the user to set up a new live point cloud in the project. It requires XYZ incoming data from NaviScan and can be used as a live QC tool of MBE and LiDAR data.
- **Maps** – allows for the choosing of different items to be presented in the map view or adjust settings
- **Measurements** – the user can select to measure or toggle on/off profiles
- **Misc** – allows the user to set up the Virtual Buoy Manager, Node Sorter, Live Folder and the Side Scan Sonar Classifier tool
- **Patch Test** – opens the Patch Test tool where the user can calibrate for the latency, roll, pitch and heading differences between the IMU and position and MBE head
- **Point Clouds** – opens a sub-menu with tools for the management and processing of point clouds

- **Video-recording** – allows the user to record video and take screenshots

3.5 Help

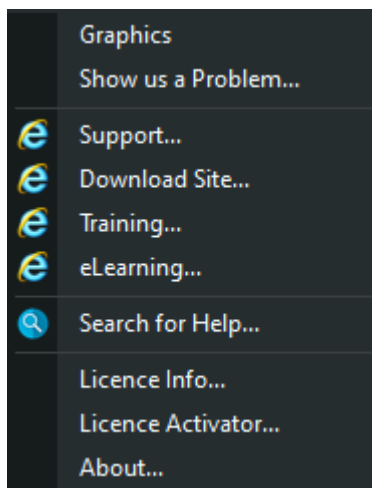


Figure 18 The Help menu

The Help menu contains the following sub-menus:

- **Graphics** – this will open a window that will run a diagnostic of your graphic card driver (OpenGL) and which version is recommended for use with the current version of Helmsman's Display
- **Show us a Problem** – will open the Step Recorder tool in Windows and will generate a screen-by-screen view of all interactions. The tool is intended for bug recording and should be sent to the EIVA Support team for investigation.
- **Support** – a link to EIVA Support webpage where you can find the contact details
- **Download site** – a link to EIVA download site, where you can find the latest installers
- **Training** – a link to EIVA Training webpage where you can check the schedule for future training courses
- **eLearning** – a link to EIVA eLearning webpage
- **Search for Help** – will automatically search on our website based on a chosen keyword / phrase
- **License Info** – will open a window where the user can check information regarding his dongle and PC Code
- **License Activator** – will open the License Activator window, where the user can use an activation key to set up his license. The license is required by NaviPac to run on the main navigation PC. Helmsman's Display can be used as a standalone program without a license in Line Planning and Remote distribution modes
- **About** – will open a window with information regarding the Helmsman and NaviPac version

4 Views

The Views in **Helmsman's Display 4** consists of a large choice of dynamic and user definable views.

The user can choose to have the **Views** docked or floating and combine them with statistical and graph data and profiles.

Docking a view can be done by dragging the view until the icon of a rectangle with an arrow in from appears.

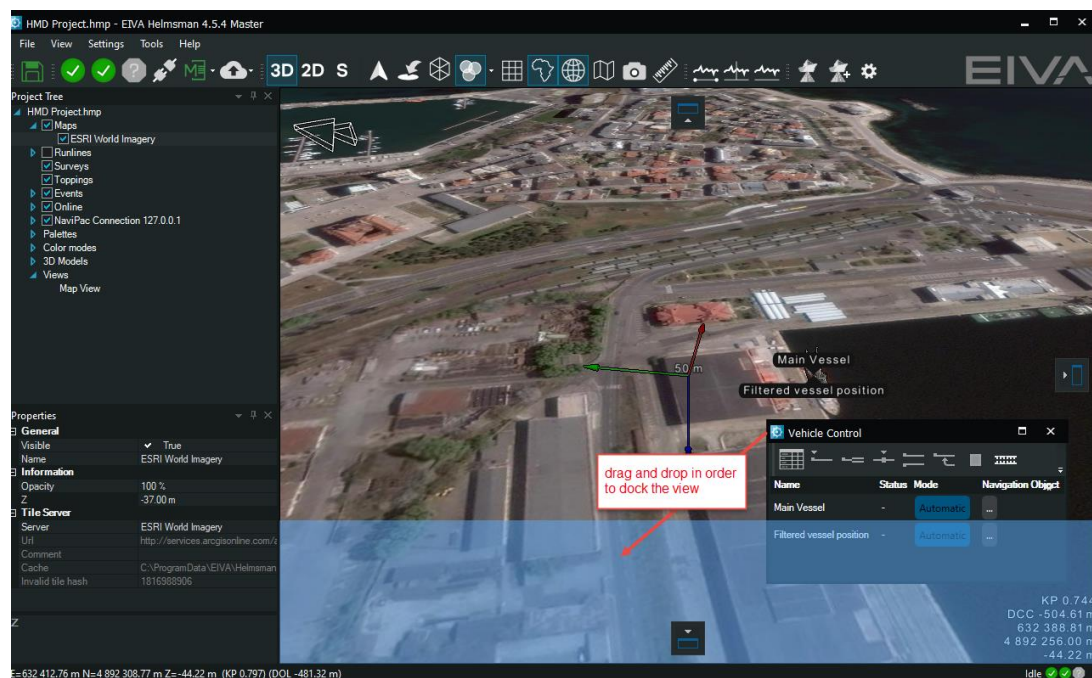


Figure 19 Dock View

The **Helmsman's Display** can be run in both 2D and 3D mode.

4.1 General Views

There are several views in Helmsman's Display which are common in any setup. The two most common are the **Project Tree** and **Properties**.

The **Project Tree** contains all used items, connections, pallets, views and data. The top line is the name of the project.

By selecting an item in the **Project Tree**, the user can adjust its settings in the **Properties** view.

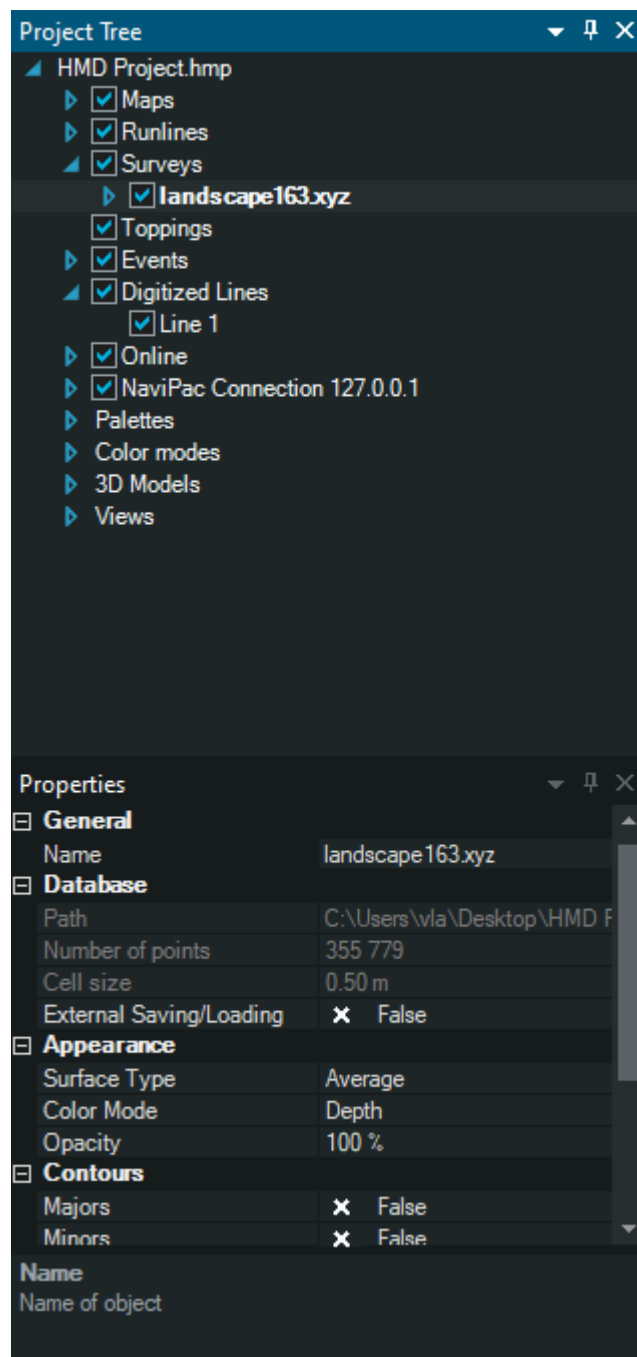


Figure 20 Project Tree and properties for a DTM

In the upper right corner, the user has the option to close the **View** or auto-hide to allow for the display of a larger **Map View** for example.

Other common Views are:

- **Job List**
- **Log Window**

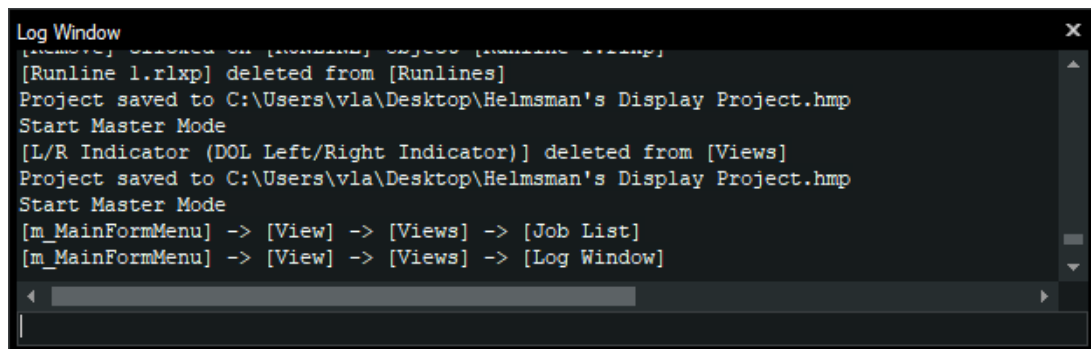


Figure 21 Log Window

- **Undo/Redo History**

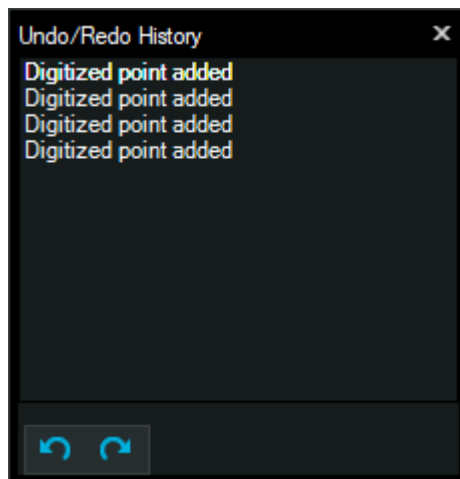


Figure 22 Undo/Redo History

- **Profiles**

4.2 Map Views

The **Map View** is used to display the vessel, objects, lines, runlines, DTMs and point clouds.

By default, **Helmsman's Display** starts with one **Map View**, docked in the centre of the screen. Multiple Map Views can be added using View – New Map View.

Map Views are normally combined with other views like:

- Range/Bearing View
- Data View
- Vehicle Control
- Cross Profiles

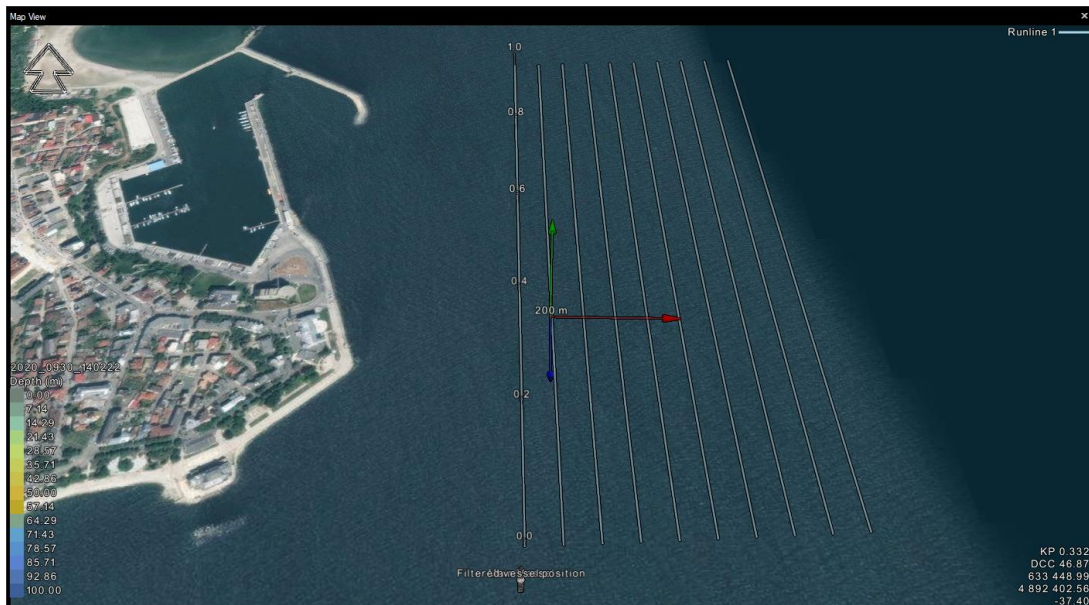


Figure 23 Stand-alone Map View window

The Map View is connected to the View Toolbar.

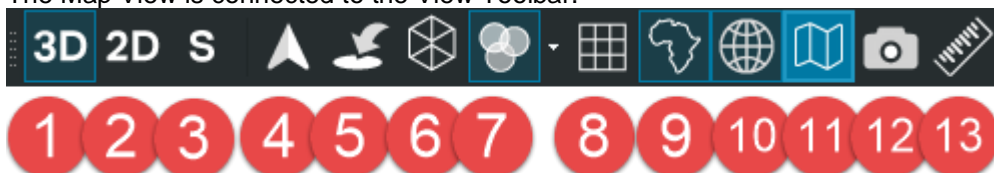


Figure 24 The View Toolbar. Each button correlates to a number. The numbers will be described below

1. **3D View** - Activates a 3D View
2. **2D View** - Activates a 2D View
3. **Side View** - Activates a Side View
4. **Align View North Up** - Activates a 3D View
5. **Go to** – allows the user to move the target to a specific KP value, time or 2D/3D position
6. **Toggle bounding box of selected object** – adds a bounding box to the Map View outlining the survey area
7. **Toggle EDL** – allows the user to change between different light settings based on non-realistic shading
8. **Toggle Surface Grid** – adds a surface grid to the **Map View**
9. **Toggle Shore Lines** – allows the user to toggle shorelines in the **Map View**
10. **Toggle World Grid** – turns on or off the world grid lines
11. **Select Background Map** – allows the user to add a background map from online servers. It requires an internet connection. You can read more about this feature [here](#).
12. **Screenshot** – takes a screenshot of the active **Map View**
13. **Measure** – allows the user to measure distances in the **Map View** between two points or several connected points.

4.3 Graph View

The plotting of values such as graphs can be beneficial for monitoring specific items over time.

The **Graph Views** can also present sensor data and statistical data like DOL of the survey vessel from the runline during survey operations. It uses live data as well as objects.

The user can combine the **Graph View** with [Custom Live Data](#) for a wide range of options.

The **Graph View** can be found under **View > New Graph View**.

By right-clicking anywhere inside the **Graph View**, you can access additional options.

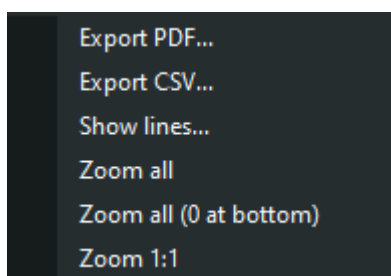


Figure 25 Additional options by right-clicking on the Graph View

4.4 Dashboard View

The **Dashboard View** is a new type of View designed to optimise the **Data View** for smaller screen or easier docking.

The available data is displayed with the current value in the middle and features a time variation graph behind.

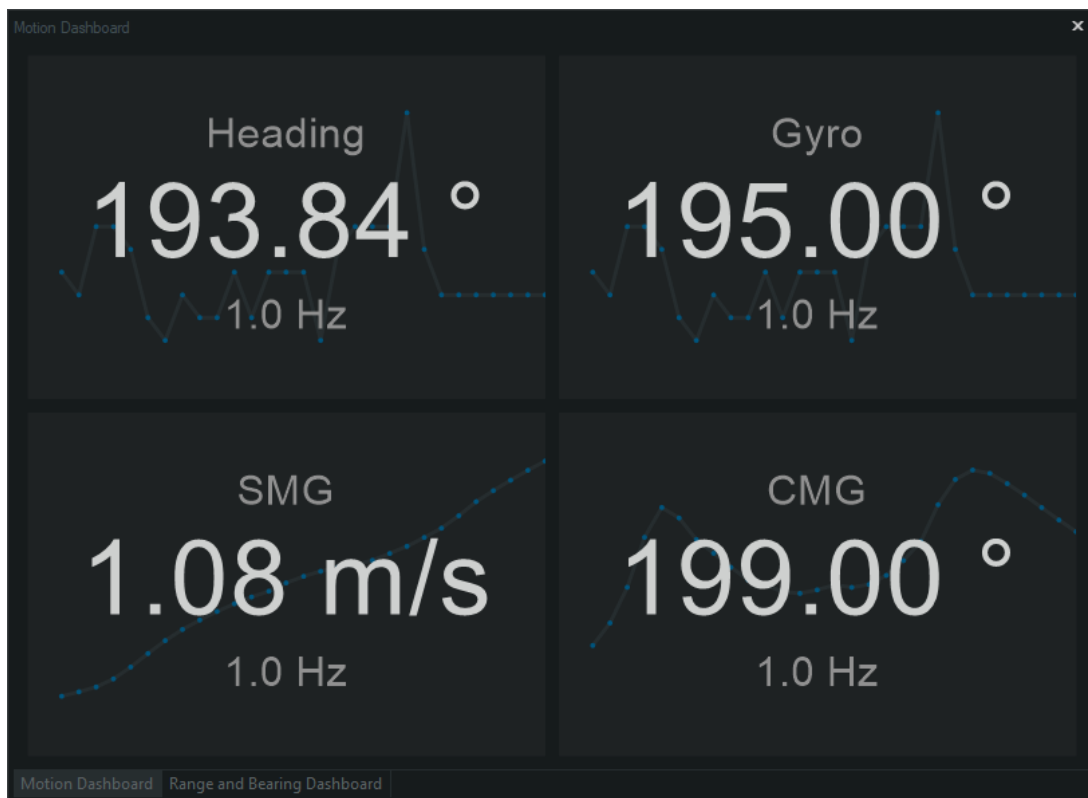


Figure 26 A Dashboard view

Multiple **Dashboard Views** can be added. By default, they start docked one on top of the other, but they can be undocked and moved according to the user's needs.

4.5 Data View

The **Data View** is a simplified form of the Dashboard View.

4.6 Left/right Indicator

The **Left/Right Indicator** can be used to compare the distance or angle from one item to another. The list of available options is similar to that of **Graph View** and **Dashboard**.

The most used example is using it as a live distance off line (DOL) indicator for steering the vessel on the runline.

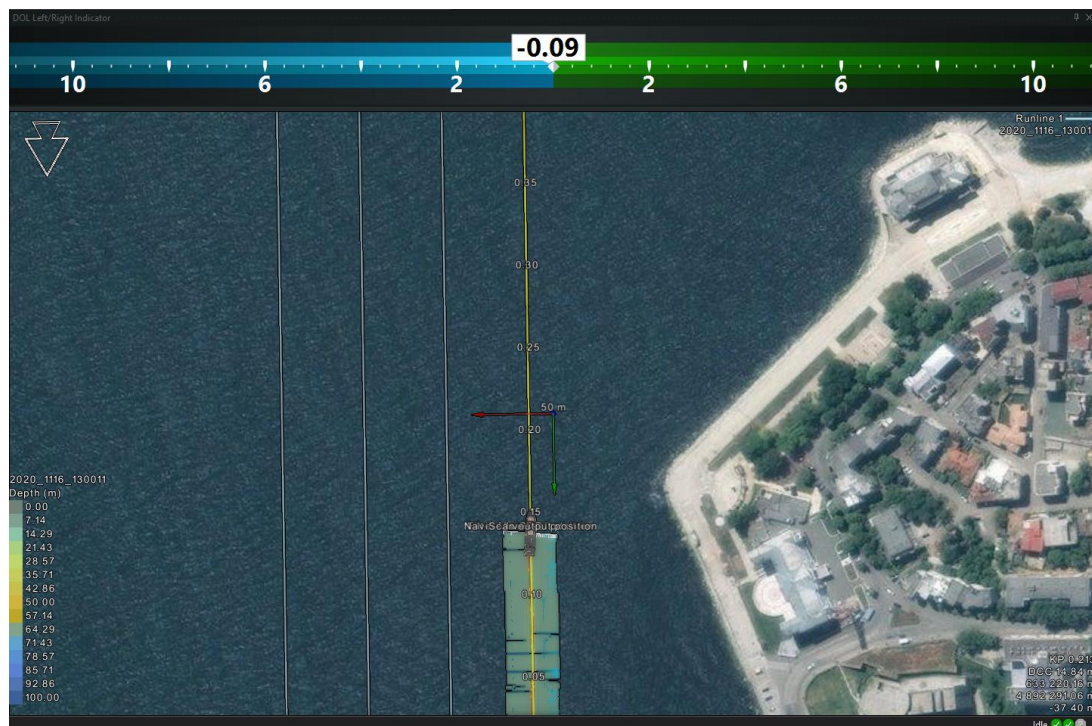


Figure 27 Using a DOL Left/Right Indicator (top) to steer the vessel in order to follow a runline

4.7 Waypoint Profile

The **Waypoint Profile** view is used for plotting the absolute distance and height in the same window and can be found under **Views > New Waypoint Profile**. The user has the option to select the desired two waypoints and the name for the profile.

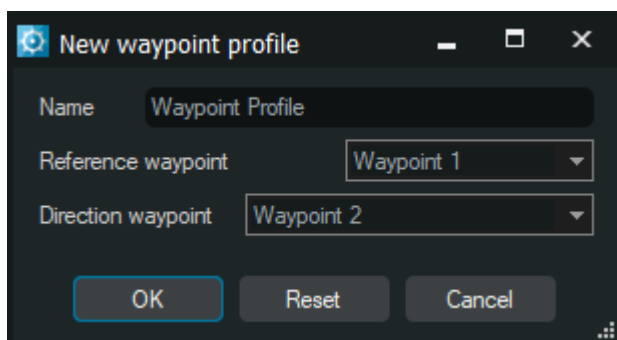


Figure 28 Options when creating a Waypoint Profile View

The Z (depth) value is presented on the y-axis while the distance is presented on the x-axis.

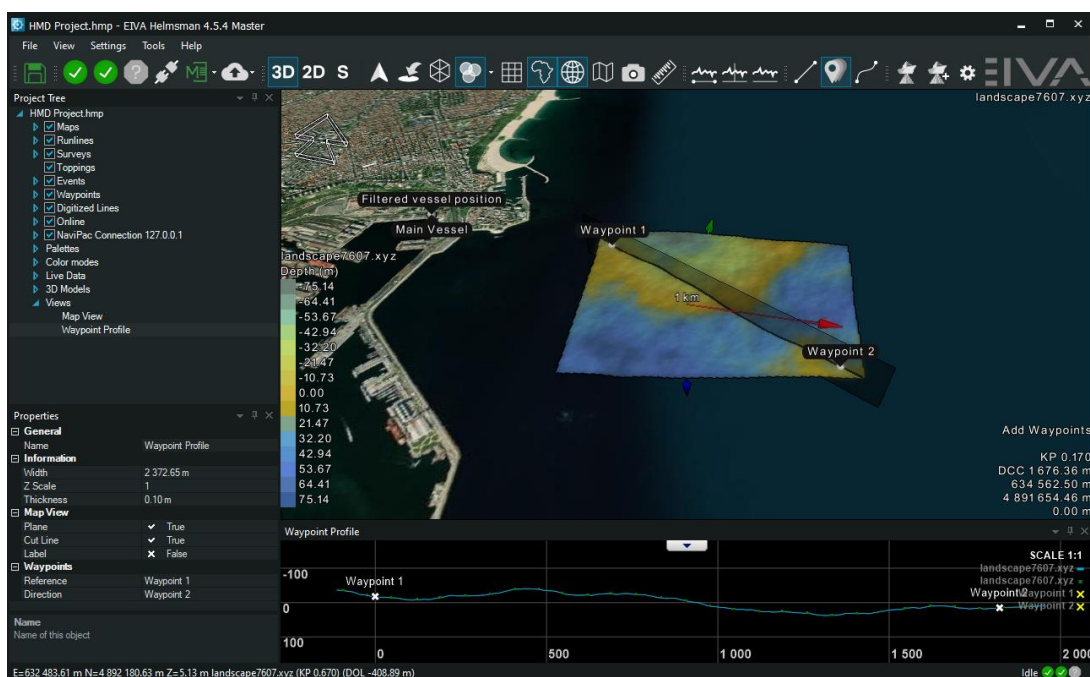


Figure 29 Helmsman's Display with a Waypoint Profile docked below the Map View. By pressing on the drop-down arrow, the user has additional display options

By right-clicking on the Waypoint Profile View, the user has the following options

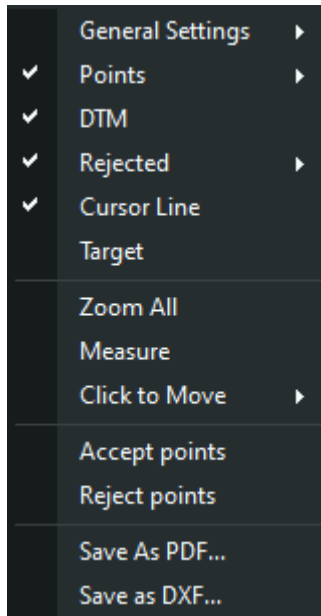


Figure 30 Options available by right-clicking on the Waypoint Profile View

4.8 Range/Bearing View

The **Range/Bearing View** is used to display the distance and heading between two objects (either a vessel, ROV or a waypoint). The distance can be presented in 2D and 3D.

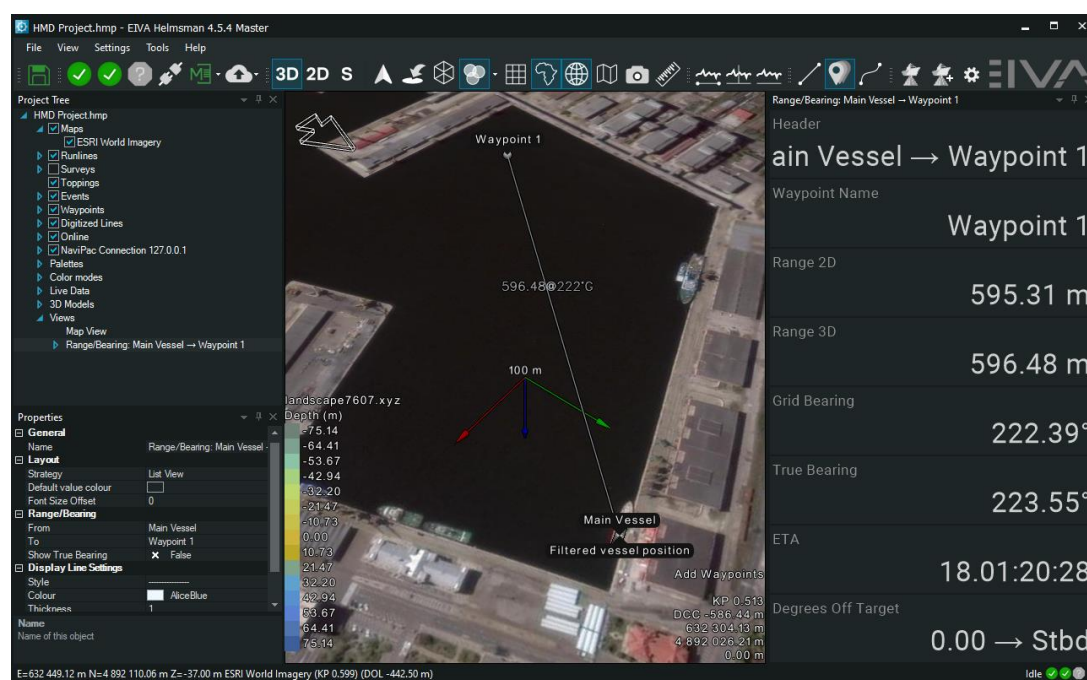


Figure 31 Helmsman's Display with a Range and Bearing View docked under the Map View

The user has options for adding and customising items inside one view or add a supplementary **Range/Bearing View** depending to its needs.

By right-clicking on the **Range/Bearing View**, the user has the following options:

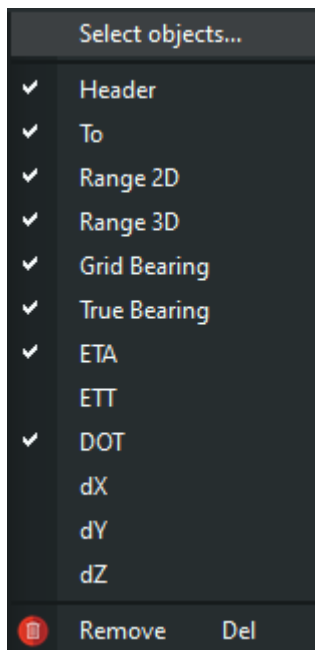


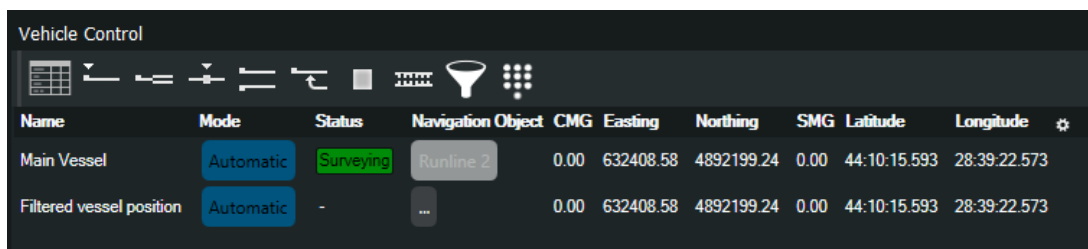
Figure 32 Options available by right-clicking on the Range and Bearing View

4.9 Vehicle Control

The **Vehicle Control** view keeps track of all dynamic objects.

It is a new feature introduced in **Helmsman's Display 4** and basically is an advanced version of the **Runline Control** used in the previous versions of **Helmsman's Display**.

It allows for different objects to be tracked based on different references chosen in the **Navigation Object** column. The Navigation Object cannot be changed when the Status is set to Surveying.



The image shows the "Vehicle Control" interface. At the top, there's a title bar "Vehicle Control" and a toolbar with various icons. Below is a table with columns: Name, Mode, Status, Navigation Object, CMG, Easting, Northing, SMG, Latitude, Longitude, and a gear icon for settings. The table contains two rows: "Main Vessel" and "Filtered vessel position".

Name	Mode	Status	Navigation Object	CMG	Easting	Northing	SMG	Latitude	Longitude	
Main Vessel	Automatic	Surveying	Runline 2	0.00	632408.58	4892199.24	0.00	44:10:15.593	28:39:22.573	
Filtered vessel position	Automatic	-	...	0.00	632408.58	4892199.24	0.00	44:10:15.593	28:39:22.573	

Figure 33 Vehicle Control View with customised extra columns

4.10 Views

There is a list of predefined views that can help in customizing the layout for maximum efficiency.

The **Views** are similar to the ones available in NaviModel.

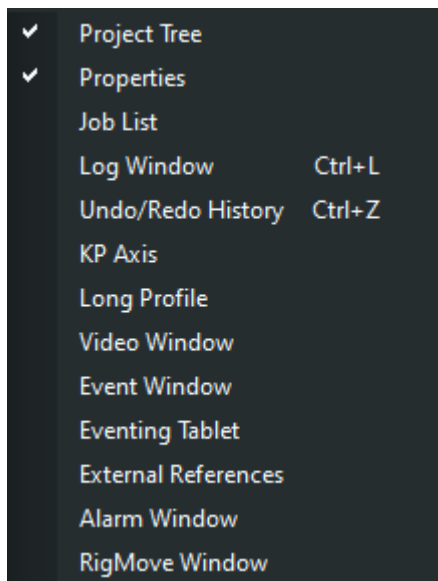


Figure 35 The available Views under View > Views

4.11 Toolbars

Additional **Toolbars** can be added from the **View > Toolbar** menu or by right click on the upper right corner in line with or over the EIVA logo.

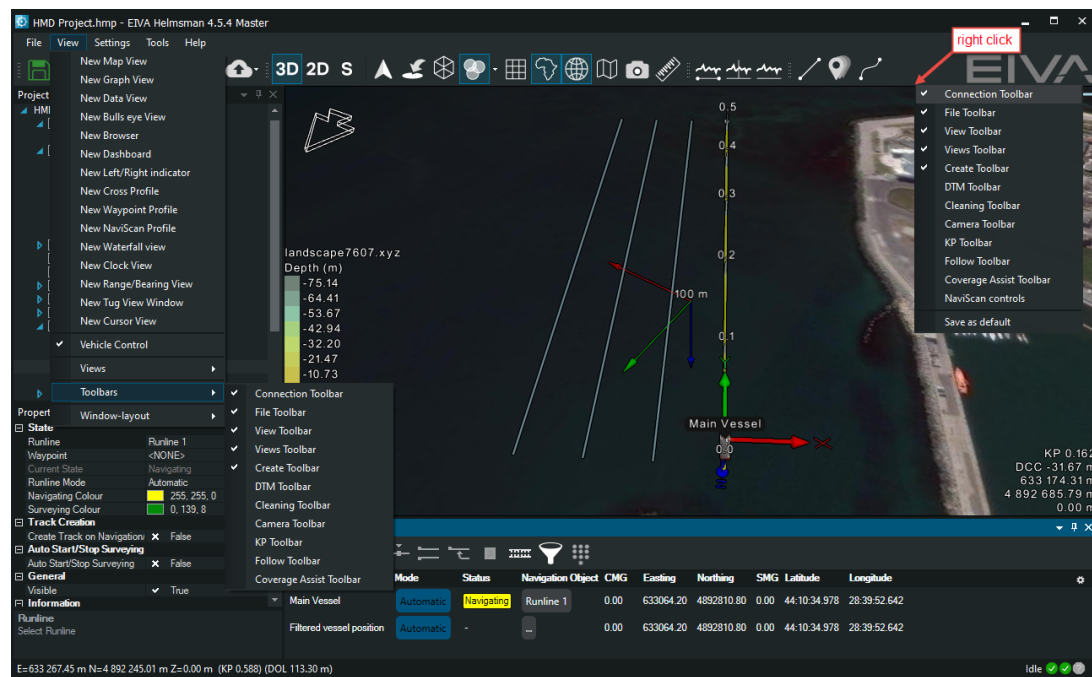


Figure 36 How to turn Toolbars on and off

5 Tools

The **Tools** tab offers the user a set of tools to customize the **Helmsman's Display** setup. A Tool is greyed out if no data is available for that specific tool. Some tools are common to NaviModel.

5.1 Cleaning

The **Helmsman's Display** features histogram-based semi-automatic cleaning functionalities for DTMs. They can be accessed using the **Tools > Cleaning** menu.

The **Histogram** cleaning methods rely on an average plane and the distance points have from that plane. They are most useful for removing spikes caused by far away points.

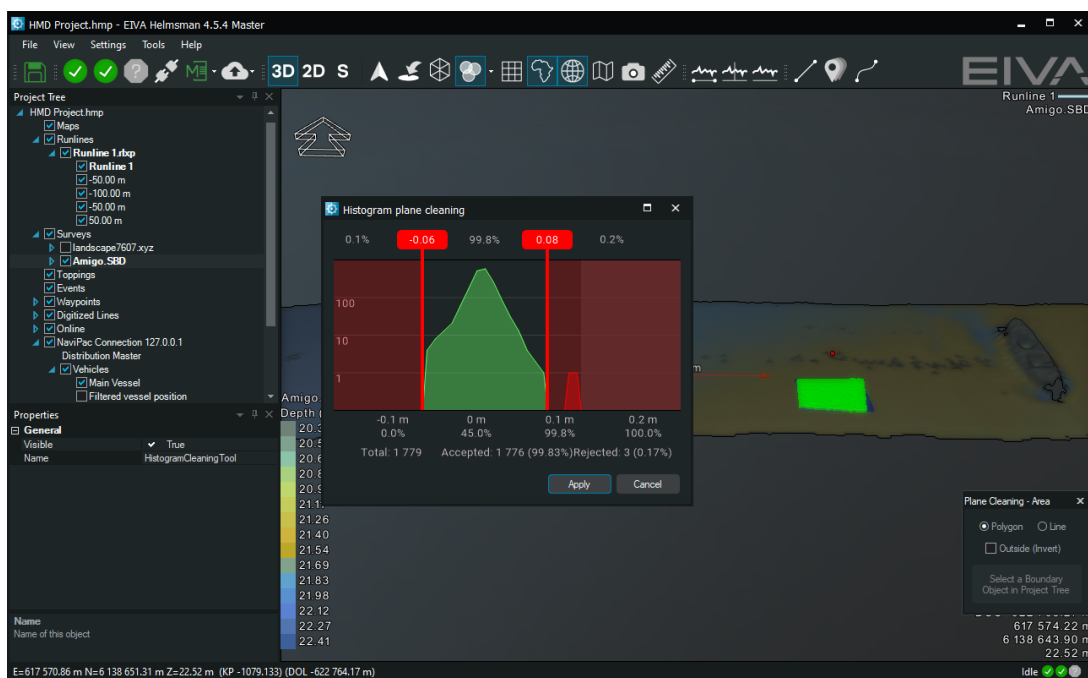


Figure 37 Histogram Plane Cleaning; the points within the red boundaries and showing a gaussian distribution around the main plane are taken into consideration, while the erratic, far-away point is left outside (colored red) and will be cleaned in order to remove the DTM spike

5.2 DTM

The DTM tools can be reached using the **Tools > DTM** menu. Except for the **Create Difference Model...** tool, all other DTM visualisation options are accessible also through the DTM toolbar.

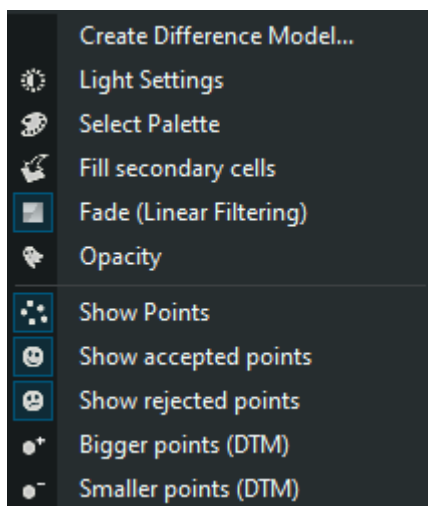


Figure 38 DTM tools available in Helmsman's Display 4

The **Create Difference Model...** option is a useful tool for onsite evaluation of changes between consecutive surveys, such as on a dredging or rock dumping project.

5.3 Eventing

The Eventing tools can be accessed from **Tools > Eventing** and can be used for new or QC-ing online eventing. For further information see the NaviModel manual on Freshdesk.

5.4 Follow

The Follow tool is located under **Tools > Follow**. Additionally, there is a Follow Toolbar with similar buttons and options.

After choosing the object to follow, it basically becomes a collection of tools that allow the user to adjust the Map View to follow an object based on:

- **North up** – keeps the Map View oriented with North upwards
- **Runline up** – Runline will always be pointing towards up in the Map View
- **Gyro up** – uses the vessel heading to orientate the Map

- **CMG up** – uses Course Made Good as up in the Map View

Additionally, the user can set which object should be followed in the Map View, the amount of forward looking, the angle of the follow mode and a zone defining the follow mode.

5.5 Lines

5.5.1 New Digitized Line

Digitized lines are tridimensional lines. In order to create one, the user can use the **Tools > New Digitized Line** command or use the button from the **Create Toolbar** or by pressing Ctrl+D.

After naming it and clicking OK, the cursor gets in the design mode and can draw the lines with left clicks. When all nodes are added, the user can exit the line design mode by double clicking when placing the last node.

The Digitized Lines can be found in the **Project Tree** under **Digitized Lines**. If the user clicks on the digitized line in the **Project Tree**, he can adjust various parameters.

A node can be moved by dragging with the mouse, or by moving the X,Y or Z arrow.



Figure 39 Moving a line node

The start node is displayed with green and the end node with red. The middle nodes are coloured white. By double clicking on a node in the middle of the digitized line, a supplementary node can be created in its vicinity.



Figure 40 How to add a middle line node

If the user wishes to continue the line, he must double click on the end or start node and he will be able to add a new one.



Figure 41 How to add a new start or end node

5.5.2 New Runline

The New Runline tool is located in **Tools > Lines > New Runline**, as well as in the **Create Toolbar**.

After adding the name of the **New Runline**, the user will see an **Arc Radius Window** where he can specify the radius of the arc.

If the arc points are coloured red, the user is not allowed to place the next point in that location because it does not meet the arc setting. A vessel that would have to manoeuvre on this runline, would have to steer more than the arc radius parameters and would not be able to follow the designed runline.

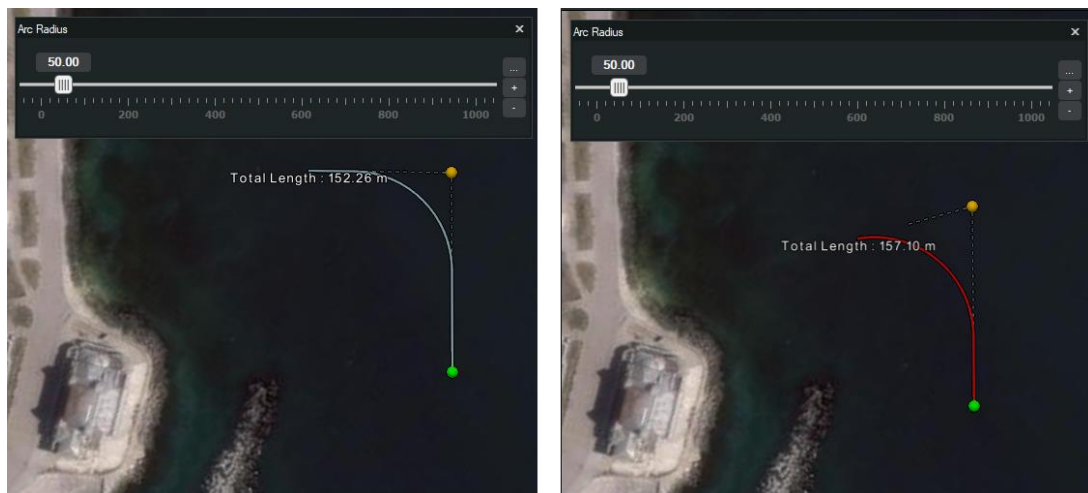


Figure 42 Left: Blue line, the arc radius fits within the curve; right: the bending requirements are not OK

The **Runline** will be placed in the **Project Tree**. If the user clicks on the runline in the **Project Tree**, he can adjust various parameters for the runline.

Runlines can be also added to the project by drag and drop (.rln or .rlx files) and through the **Import** functionality.

By right click-in on a runline, the user has multiple options, among which the possibility to add parallel or perpendicular lines.

5.5.3 New Star Runline

The **New Star Runline** tool is located in **Tools > Lines > New Star Runline**.

It is mostly intended for planning surveys from different directions over a target, such as a wreck survey.

The set of parameters for setting a star runline can be seen in the screen shot below.

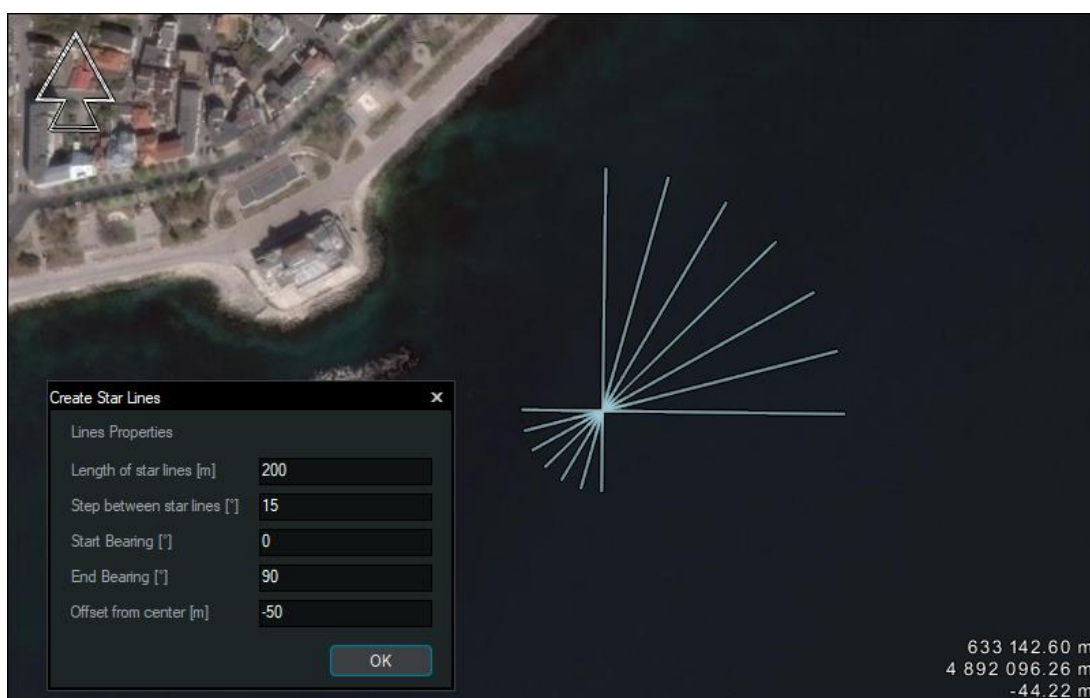


Figure 43 Create Star Runline: window with settings and resulting star runline

5.5.4 New Waypoint

The New Waypoint tool is located under **Tools > Lines > New Waypoint** or by pressing **Ctrl+W**. A waypoint will be created this way at the target location.

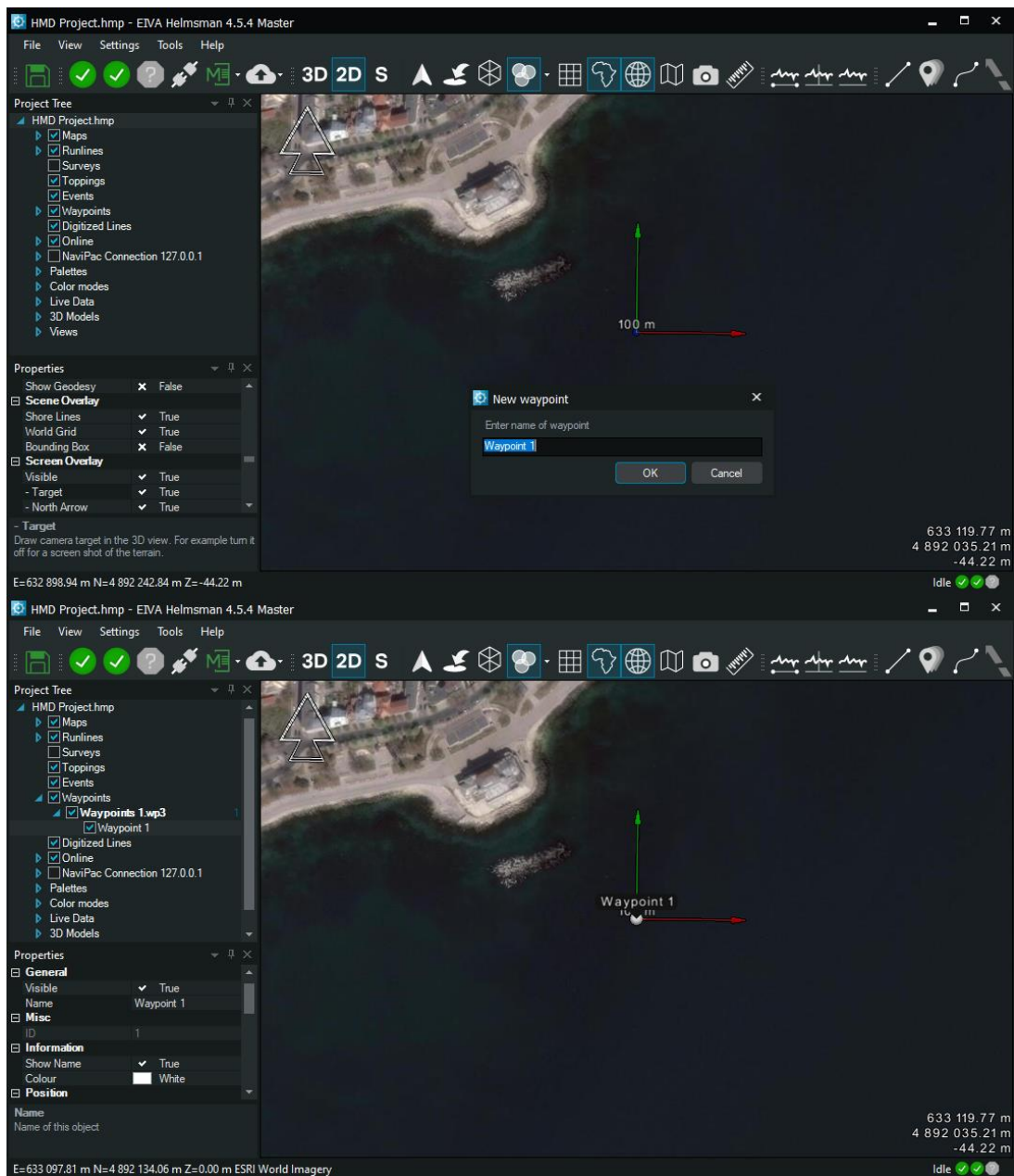


Figure 44 Helmsman's Display. Upper picture: after using the Add Waypoint tool, the user is prompted for a name for the waypoint; down: after naming it, the new waypoint is added at the target location

5.5.5 New Waypoints

The New Waypoint tool is located under **Tools > Lines > New Waypoints** or can be accessed by the Add Waypoints button on the Create Toolbar.

The New Waypoints tool will change the cursor so that the user can set the location of the new Waypoint.

If needed, the X, Y and Z coordinates of the waypoint can be adjusted from the Properties Panel, after selecting the waypoint from the Project Tree.

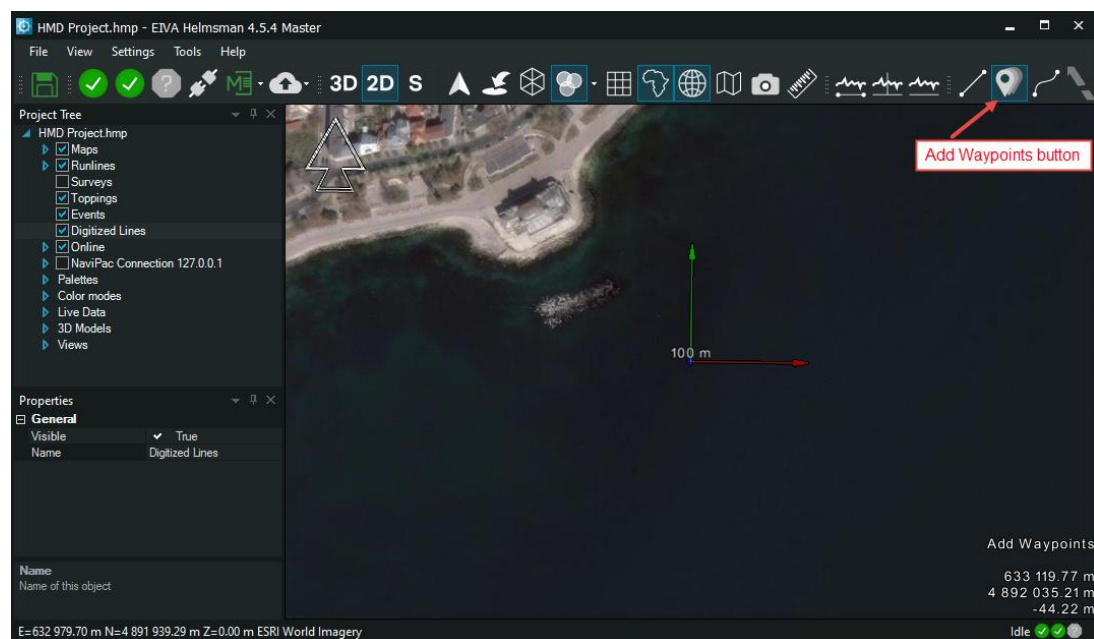


Figure 45 Adding a new Waypoint using the Add Waypoints functionality

5.5.6 Vehicle Control

The **Vehicle Control** tool can be accessed also from **Tools > Lines > Vehicle Control**.

The buttons will allow the user to have the following line related actions:

1. Start Line
2. Invert Line
3. Next Segment
4. Next Parallel
5. Reverse Stepping
6. Stop Runline
7. Left/Right Indicator
8. Data View

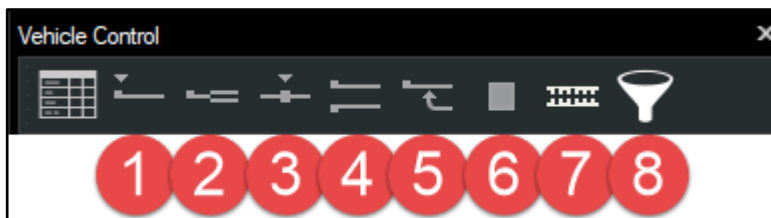


Figure 46 The buttons on the vehicle Control View, numbers according to the above paragraph

5.6 Live Data

The **Helmsman's Display 4** comes with tools that allow the user to customize and adjust existing tools to present data relevant for the survey operation. They can be accessed from the menu **Tools > Live Data** and can be seen in the image below.

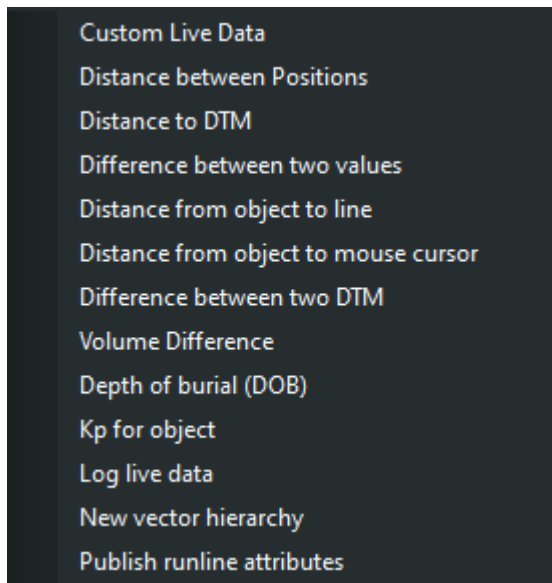


Figure 47 Live Data Menu

The following sub-chapters will detail some of the most useful ones.

5.6.1 Custom Live Data

This tool allows the user to insert mathematical functions to calculate values that are not directly available in Helmsman's Display 4.

For example, this tool allows for the transformation between meters to feet by multiplying with 3.280839895.

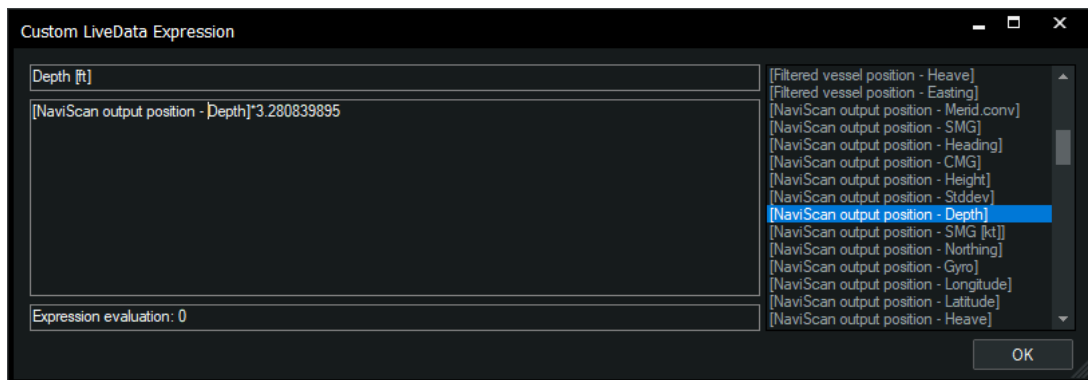
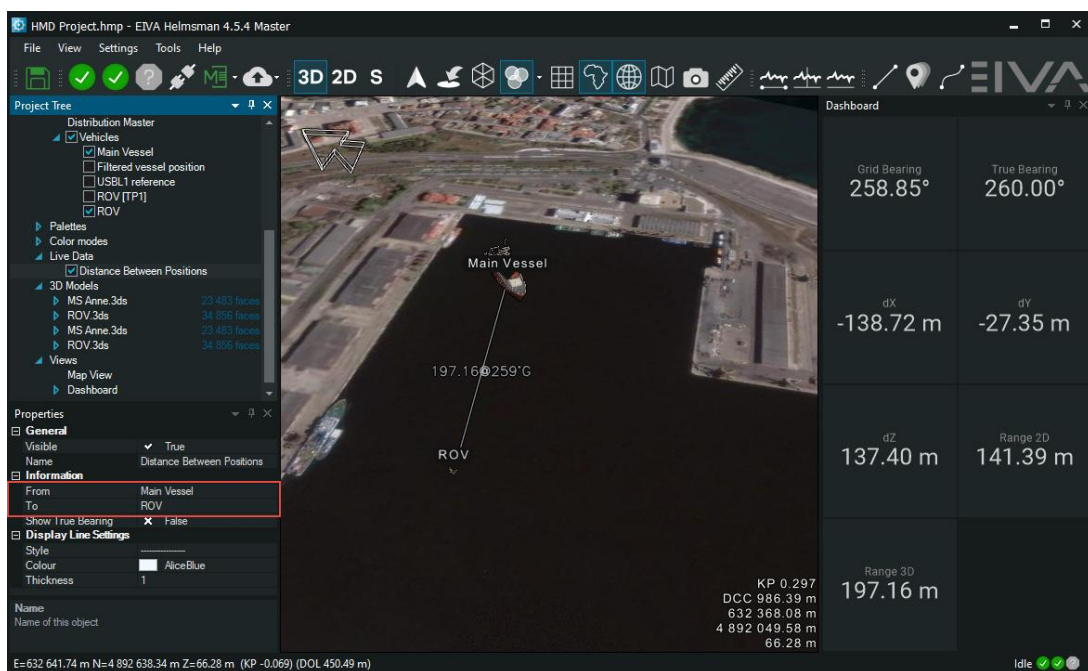


Figure 48 Converting depth in meters to depth in feet using Custom Live Data

5.6.2 Distance between positions

This feature allows the user to set up a Data View or Dashboard with dx, dy, dz, 2D and 3D range and bearing for 2 objects or vehicles.

After pressing on **Tools > Live Data > Distance between positions**, a range and bearing entry is created in the Project Tree under Live Data. The user has the option in the Properties pane to select the two objects.



The user can later display the live data in the way described in chapters [4.4 Dashboard View](#) or [4.5 Data View](#).

5.6.3 Distance to DTM

This feature allows for the calculation of the live distance from one object to a DTM.

The user can click on **Tool > Live Data > Distance to DTM** and choose the desired object and DTM. The newly calculated **Live Data** will appear in the **Project Tree** and will be available for display using [Data View](#) or [Dashboard](#).

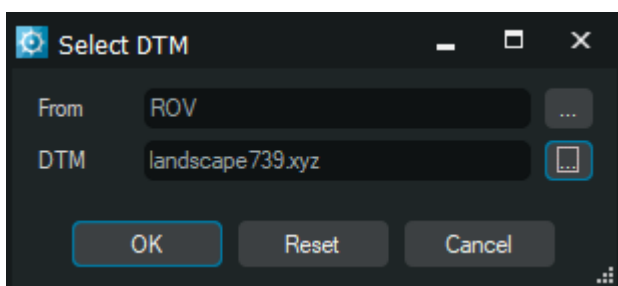


Figure 49 Selecting the two items

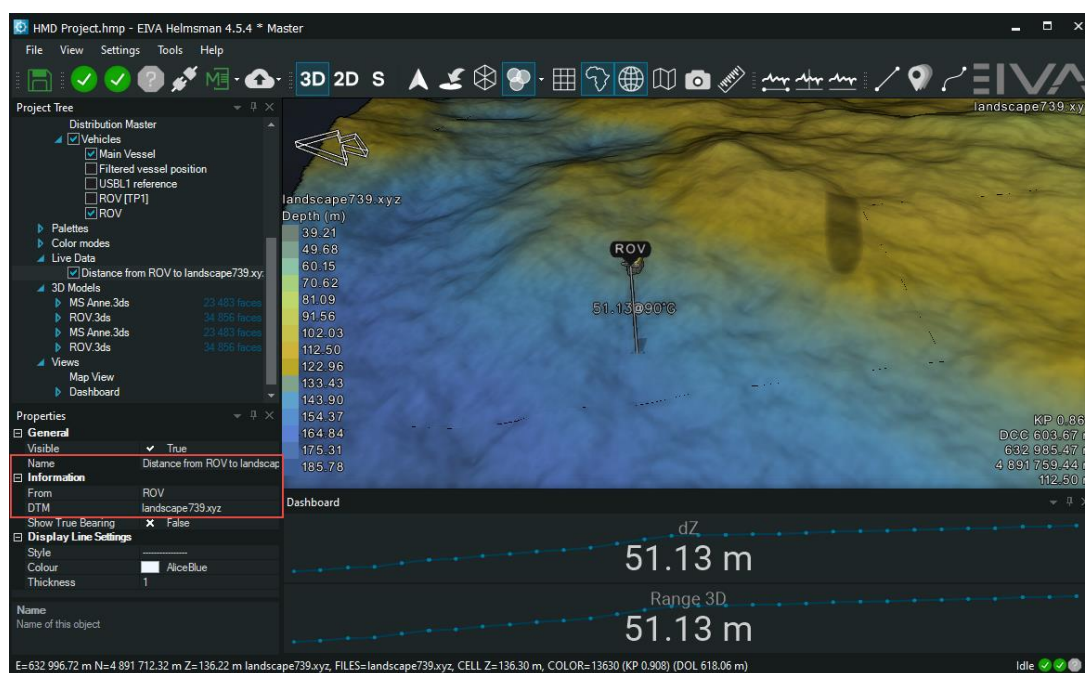


Figure 50 Displaying the resulting Live Data using a Dashboard; the name and followed objects can be changed in the Properties panel (highlighted by the red box)

5.6.4 Difference between two values

The **Difference between two values** allows for displaying live differences between two given values.

The user can choose a pair of two values after clicking on **Tool > Live Data > Difference between two values**. They will appear as one new entry under **Live Data**.

In the example below, there are 3 differences displayed in data View, one for the difference in gyro, one for the difference in easting and one for the difference on northing between the Vessel and ROV.

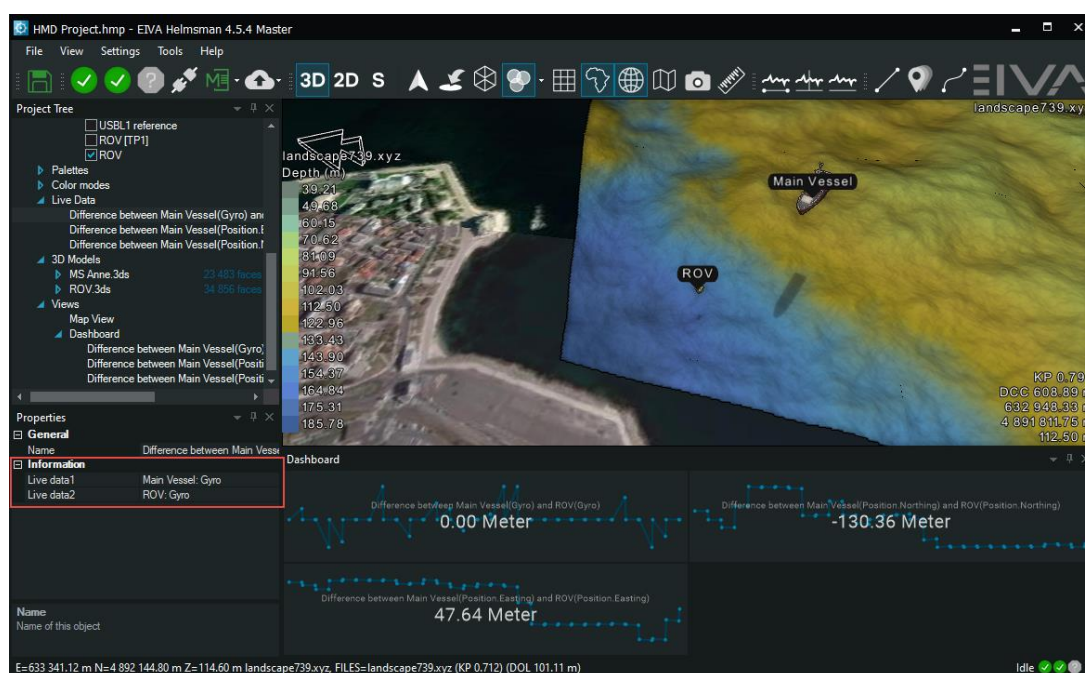


Figure 51 Live Data View of E/N differences between the Vessel and the ROV

5.6.5 Difference between object and line

The **Difference between object** and line allows for displaying live difference values between an object (e.g. vessel/ROV) and a digitized line.

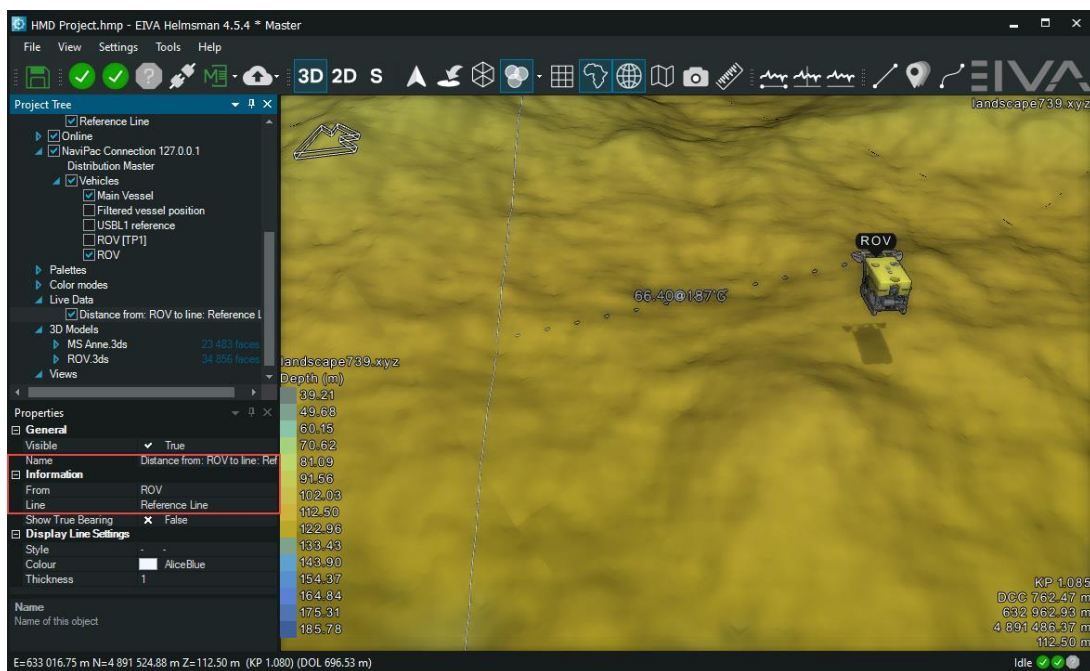


Figure 52 Distance from an ROV object (CRP) to a digitized line

5.6.6 Distance from object to mouse cursor

This option shows the distance between the object's CRP and the position of the mouse cursor. If using a DTM, the position where the mouse is touching the DTM is used.

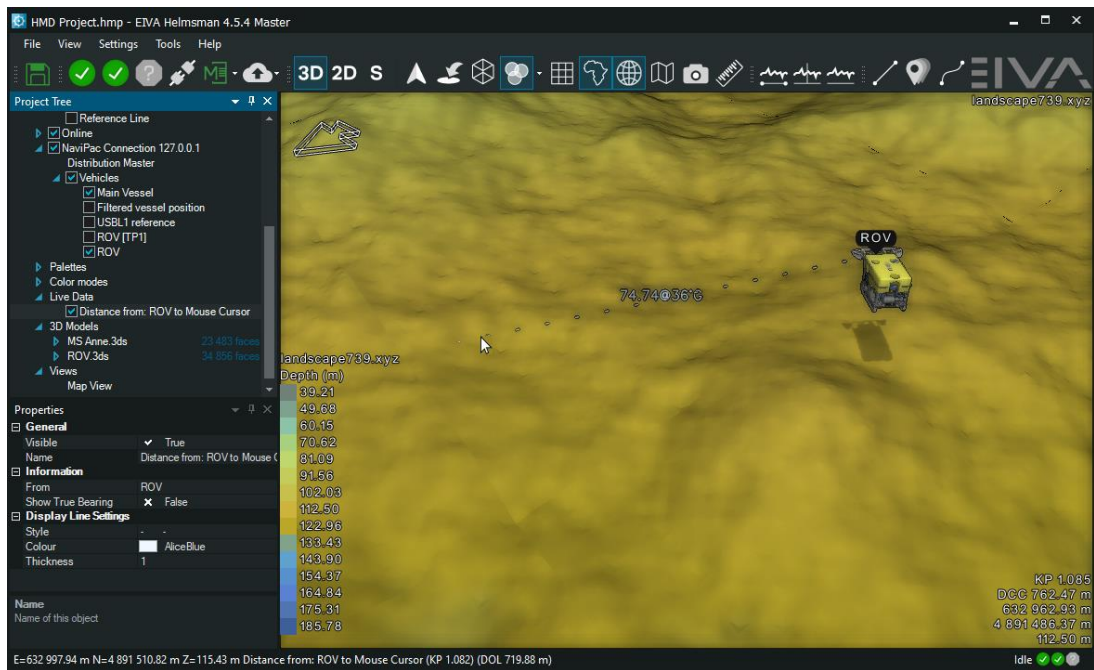


Figure 53 Distance from object's CRP to the mouse cursor on the DTM

5.6.7 Depth of Burial

The **Depth of Burial (DOB)** tool is used to calculate depth of burial at a specific location.

The feature is designed for trenching projects, for instance, buried cable lay operations, where DOB can be used to monitor the depth the cable is being placed at the tip of the saw laying the cable.

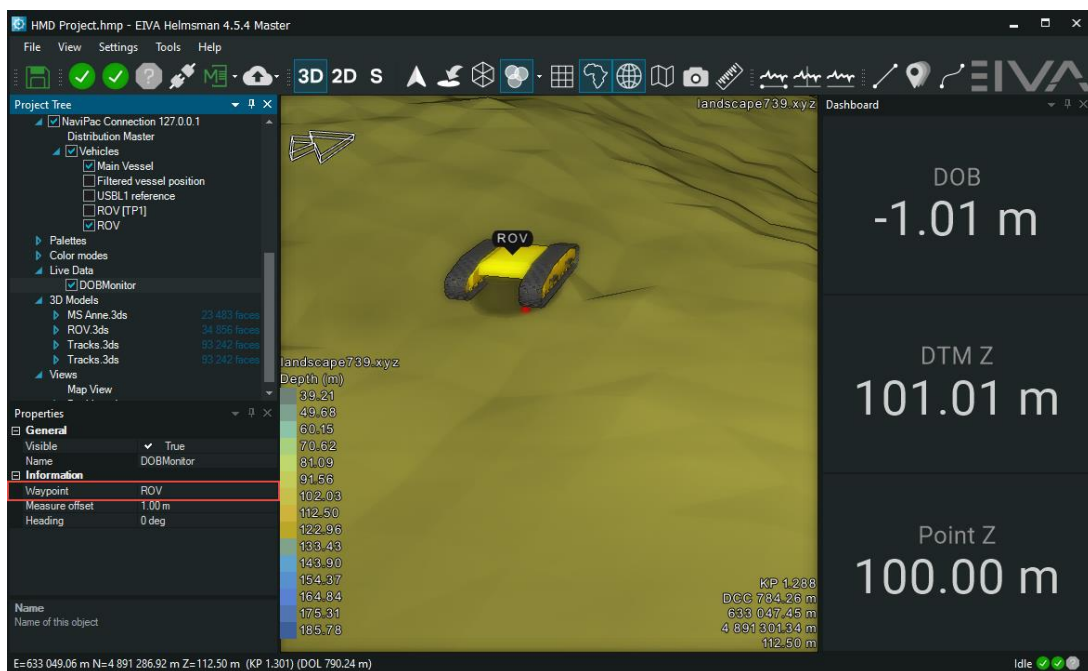


Figure 54 A DOB dashboard showing the saw above the DTM

5.6.8 KP for object

This feature is used to show the live KP value along a runline for an object.

By choosing **Tools > Live Data > Kp for object**, a Kp for object entry will appear under **Live Data**. By clicking on it on the **Project Tree** and from the **Properties Panel**, the user can select the Host, Runline and Name for the Live Data. This can be later displayed as a [Data View](#) or [Dashboard](#).



Figure 55 Kp for object displayed as Data View; the name, host and runline can be selected from the Properties Panel (red box)

5.6.9 Log Live Data

This feature allows the user to log live data as a file on the local PC or to send it through UDP or TCP.

It can be set up by going to **Tools > Live Data > Log Live Data**. This will create a LiveDataLogger entry under Live Data in the **Project Tree**. By right clicking on it, the user has the option to select what data to log (points 1-3 on the image below).

The user also has to set up the Logging parameters (interval, file path or UDP/TCP port, time in first column and resolution).

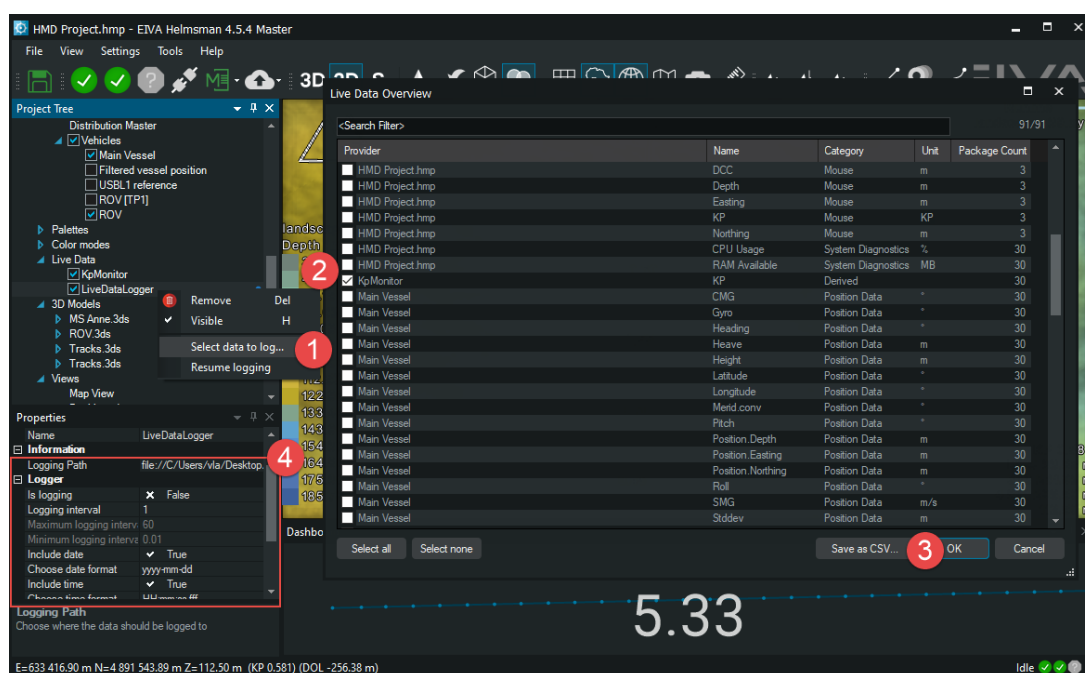


Figure 56 Settings for setting up a Live Data Logging to file

Using the above settings, the resulting file looks like this:

2020.11.18 14.15.41.080,1.136

2020.11.18 14.15.42.084,1.136

2020.11.18 14.15.43.093,1.137

5.7 Live Point Clouds

The **Live Point Clouds** tool is useful to bring live sensor data in as point cloud data. It could be used for e.g. monitoring fluid seepage along a pipeline, or to keep track of the position of a vehicle.

It can be used to display multiple live data at a time.

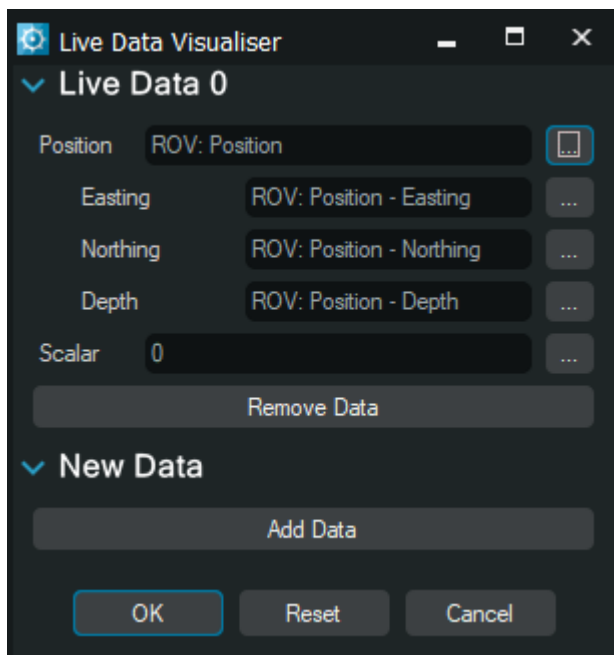


Figure 57 Live Data Visualiser window

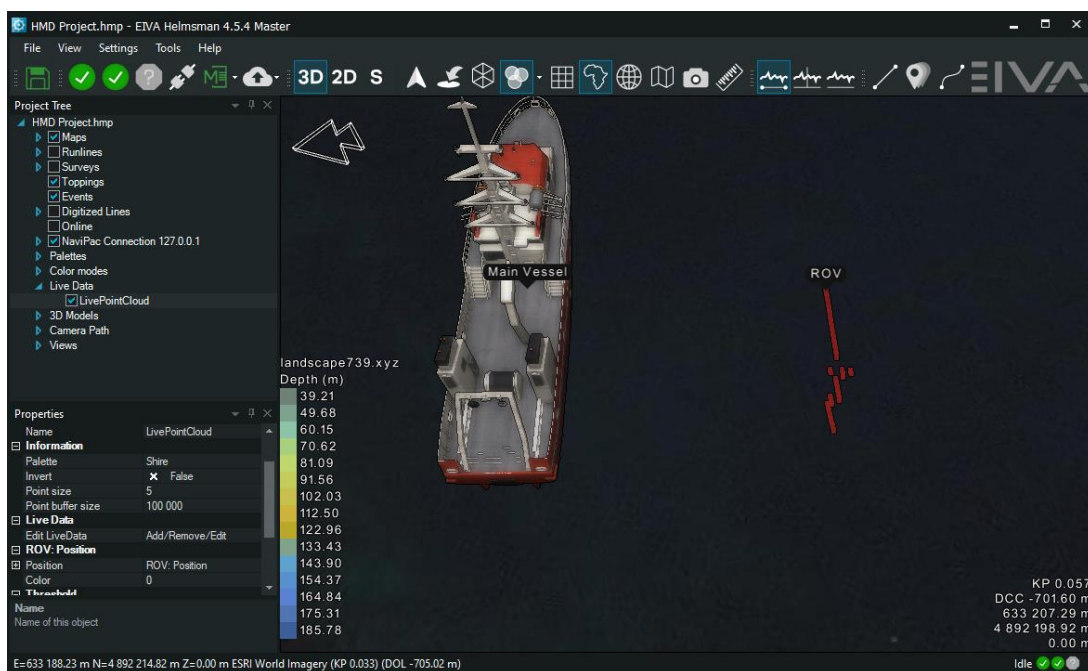


Figure 58 Live Point Cloud for the ROV position

5.8 Maps

This button provides the options for Maps.

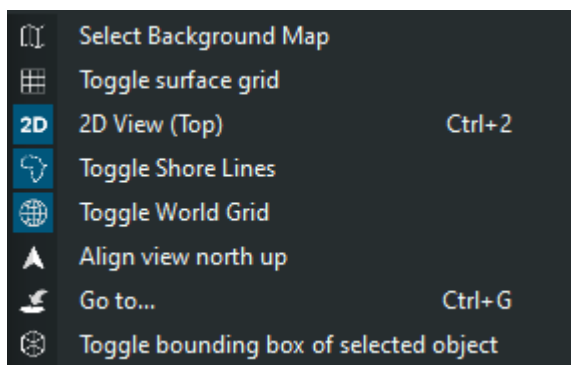


Figure 59 Options for Maps

- **Select Background Map** – will open a window where the user can choose a Web Map Server from where to take map tiles
- **Toggle surface grid** – will add or remove the easting and northing grid on the display
- **2D View** – will take the view as seen from above and make everything a horizontal 2D

- **Toggle Shore Lines** – will add or remove a digitization of the world shore lines
- **Toggle World Grid** - will add or remove parallels and meridians
- **Align view North Up** – will rotate the Map View with North up
- **Go to...** - allows the user to jump at a specified KP, time or position
- **Toggle bounding box of selected object** – add or remove a bounding box around the object which is selected

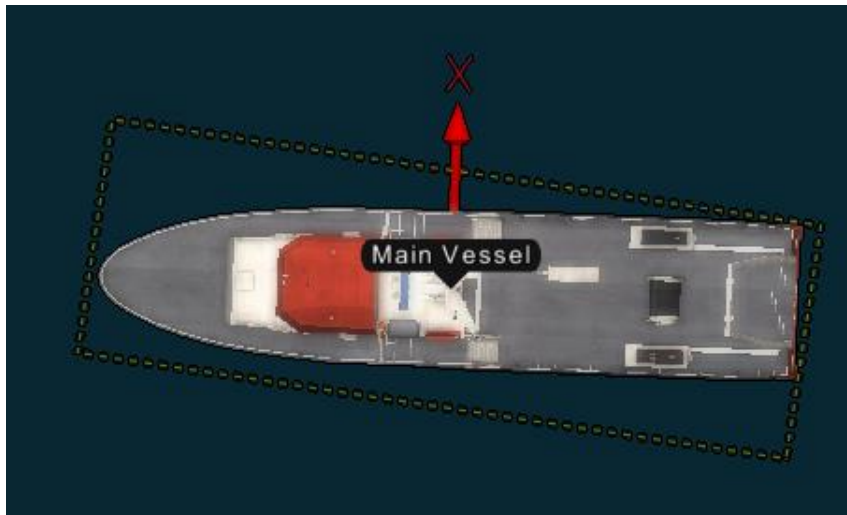


Figure 60 Bounding box around selected object

5.8.1 Adding a user Web Map Server

The user has the option to add custom web map servers from where he can add **Background Maps**.

To do that, the user should right-click on the Maps entry in the **Project Tree** and choose “Add new map”.

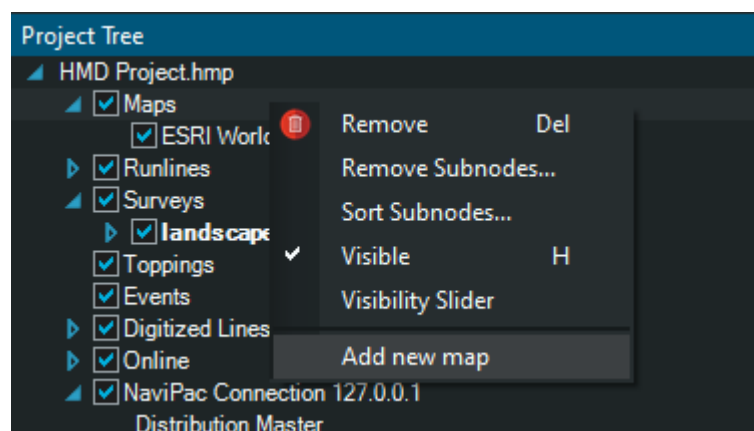


Figure 61 Where to find Add new Map

Fill the name under which you wish to have the new map and the WMS URL. Some additional options are available.

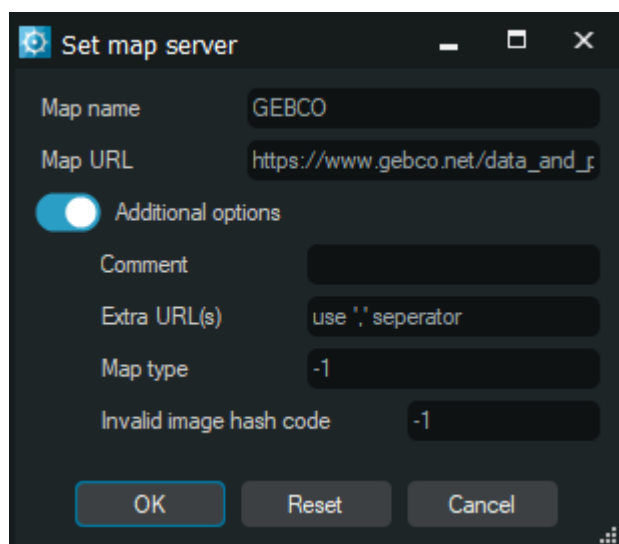


Figure 62 The Set Map Server window

Following this, when selecting Background Maps, the new map should be available.

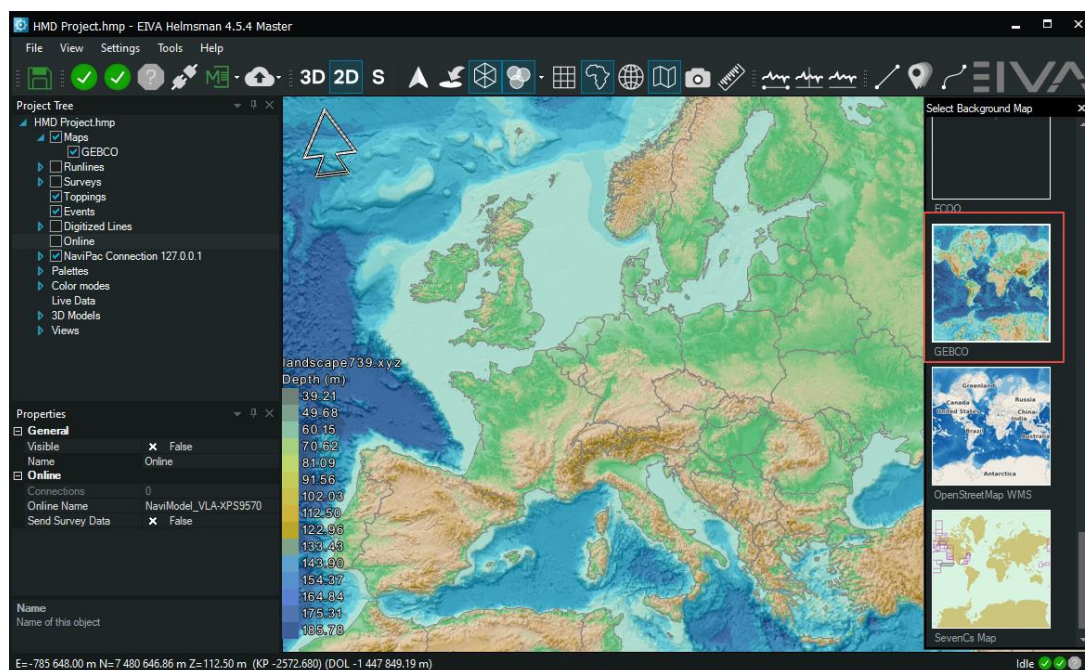
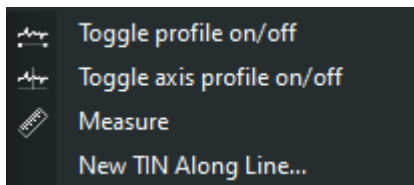


Figure 63 The new WMS can be found in the list of Background Maps

5.9 Measurements

This set of tools provide profile and measurement tools for the information and data in Helmsman's Display.



- **Toggle profile on/off** – will open a Quick Profile
- **Toggle axis profile on/off** – will open an Axis Profile – a set of 2 profiles along the X and Y axis
- **Measure** – will open the Measure tool that can provide distances and angles
- **New TIN Along Line** – will open the window for creating a TIN model along a specified line

5.10 Misc

The **Miscellaneous** category comprises the following:

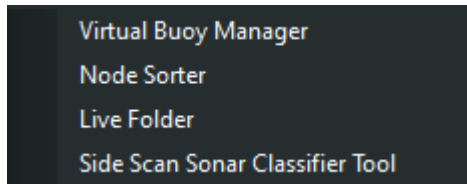


Figure 64 The Misc section of the Tools Menu

- **Virtual Buoy Manager** – adds an entry in the Project Tree for Virtual Buoys
- **Node Sorter** – opens the Node Sorter
- **Live Folder** – opens a window where the user can set up a Live Folder
- **Side Scan Sonar Classifier Tool** – opens the classification tool for SSS data

5.11 Patch Test

The **Patch Test** function is described in a separate manual and is the same tool as in NaviModel:

<https://eiva.freshdesk.com/support/solutions/articles/43000548378-patch-test-calibration-with-navimodel>

5.12 Point Clouds

The **Point Cloud** tools are the same as in NaviModel.

Please refer to NaviModel's help and manuals for a detailed description.

5.13 Video Recording

The **Video Recording** tab provides tools for recording the Helmsman's Display screen.

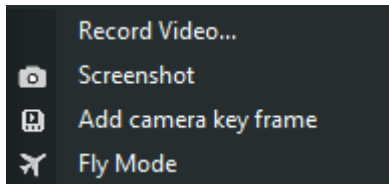


Figure 65 The tools from the Video Recording tab

- **Record Video** – will open a window that will allow for recording of the Helmsman's Display whole window or just the Map View
- **Screenshot** – will take a screenshot of the display
- **Add camera key frame** – will add a keyframe for the camera
- **Fly Mode** – will provide options for the fly mode, such as to follow a runline or digitized line for creating a Fly Video

6 Version descriptions

Version	Date	Author	Description
4.2.3	30/09/20	VLA	Initial draft
4.5.4	20/08/21	VLA	Updated draft to new interface