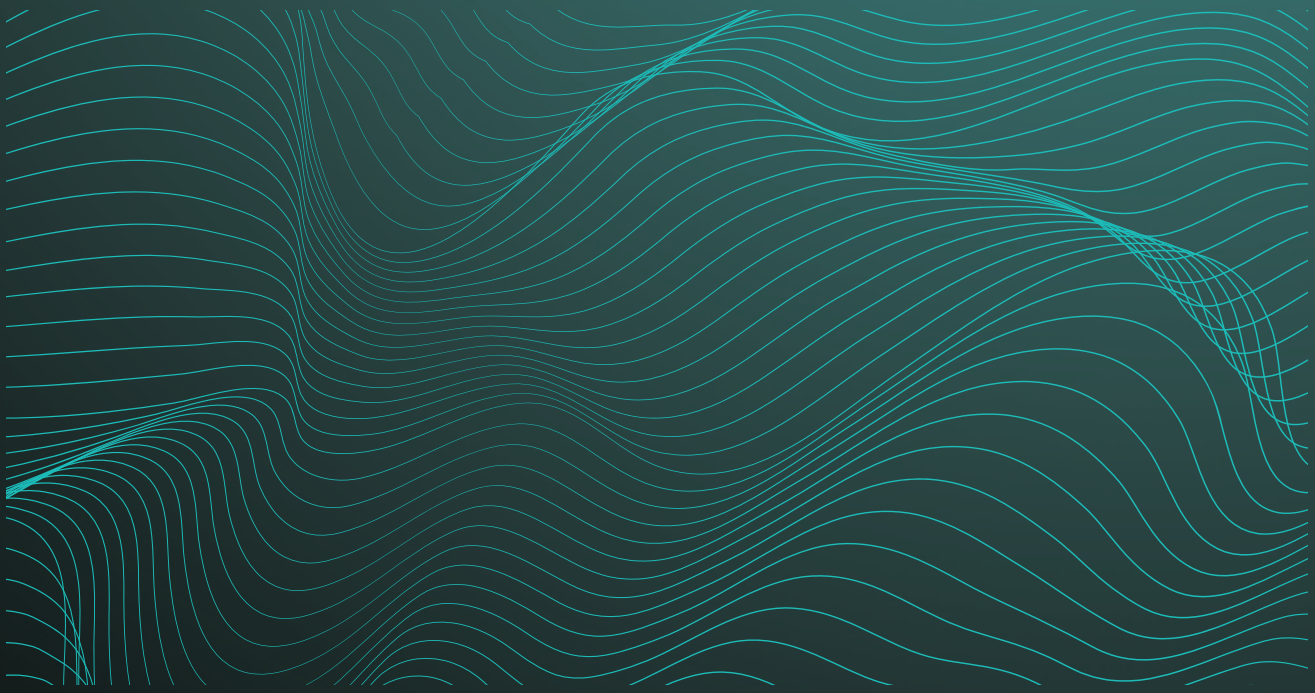
WASSP CDX OPERATORS MANUAL 4.0



wassp® MULTIBEAM

SEE IT ALL

WASSP CDX OPERATORS MANUAL

WASSP CDX is control, visualisation, data management and data processing application for use with the WASSP DRX 'Black Box' multibeam transceiver.

This manual provides the basic information to operate WASSP CDX.

DOCUMENT REVISION HISTORY

REVISION DATE	REASON FOR CHANGE	VERSION
March 2016	Compilation	1.0
April 2016	Update Tides	1.1
April 2016	Typos Corrected	1.2
July 2016	Updates for V2	2.0
September 2016	Addition of 6.0 Tools and Utilities	3.0
November 2016	Update Appendix PC Specs	3.1
January 2017	Feature Updates for CDX V3	3.2
April 2019	CDX V4 Updates	4.0

RELATED DOCUMENTS

» WASSP CDX Operators Manual – For the latest version of this manual go to wassp.com

» WASSP DRX Installation Manual – For the latest version of this manual go to wassp.com

» WASSP DRX Utilities Operators Manual – Manual describing utility applications shipped with WASSP DRX.

Further documentation, FAQs, updated specifications and WASSP CDX Operators manual can be found at wassp.com

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If you need information about WASSP products, visit wassp.com.

On the website you will also find a list of WASSP dealers and distributors.

CDX OPERATORS MANUAL

Warnings, Cautions, and Notes

Warnings, cautions, and notes are indicated by the following icons throughout this manual:

CAUTION indicates that if the instruction is not heeded, the action may result in equipment damage or software corruption.

NOTE indicates a TIP or additional information that could be helpful while performing a procedure.

GLOSSARY

Term	Description
CSM	Content Sensitive Menu.
DHCP	Dynamic Host Configuration Protocol, for automatically providing IP addresses.
DRX	'Black Box' smart transceiver that interfaces to devices and sensors to make up the WASSP sounder system.
GbE	Gigabit Ethernet.
IMU	Inertial Motion Unit/Motion Sensor, typically for roll, pitch and heave.
LAN	Local Area Network.
Pan	Refers to horizontal and vertical scrolling of the Display panel.
RTK GPS	Real Time Kinematic GPS, used for high quality positioning.
Zoom	Refers to changing the scale of the Display panel.

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1 SYSTEM CONFIGURATION

1.1. SYSTEM OVERVIEW

Details on WASSP system configuration can be seen in the DRX Installation Manual, with a typical configuration shown below.

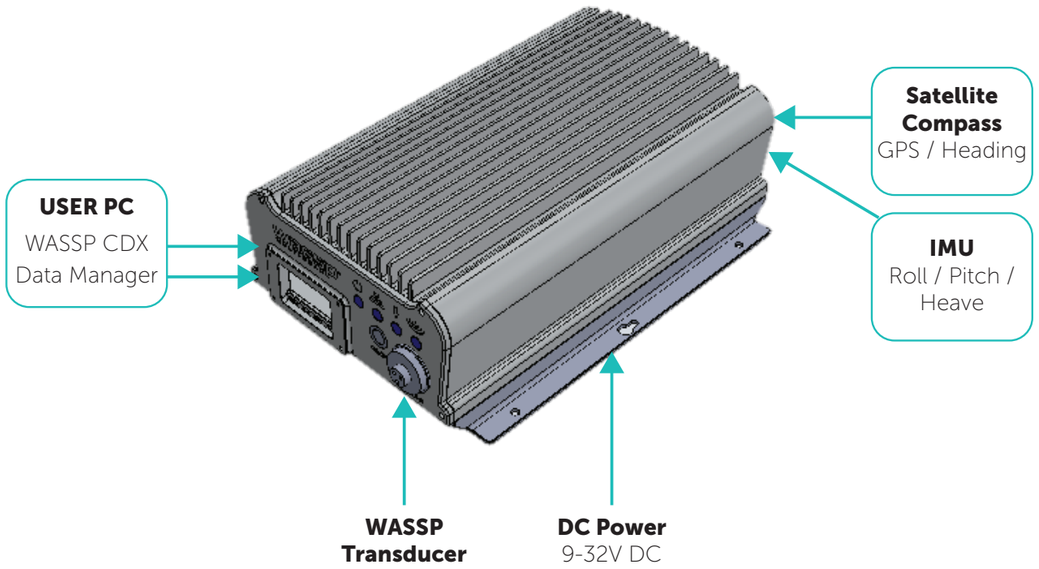


Figure 1. DRX Recommended System

WASSP CDX is connected to DRX over gigabit Ethernet. The Ethernet link is used for all communication between WASSP CDX running on PC or other devices and the DRX. This link is used for control of the DRX and for the DRX to supply data for visualisation, management and post processing to WASSP CDX.

DRX also serves DRX SETUP WEBPAGES for DRX configuration. This is described in the DRX Installation manual.

The Ethernet connection can be connected either directly using crossover cable or auto crossover (DRX supports auto MDI/MDI-X) OR via a network switch if supporting multiple clients or running the DRX on vessel LAN (local area network).

If there is a DHCP server on the LAN the DRX will be assigned an appropriate IP address by the DHCP server. If there is no DHCP server, the DRX will fall through to Zero-configuration assignment in block 169.254.0.0/16. Any connected device will need to be assigned an appropriate IP address on the same subnet as the DRX, either via DHCP server, Zero-configuration or fixed IP.

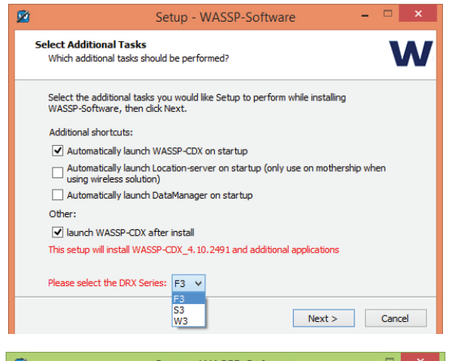
The Data Manager application bundled with the WASSP CDX Install Package is used for recording DRX data, exporting to various formats and data playback to supported applications including WASSP CDX.

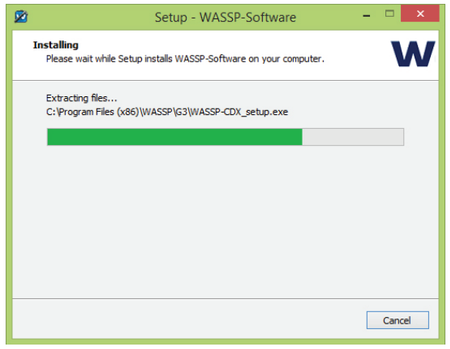
1.2. INSTALLATION

WASSP CDX can be installed on any device that meets the minimum spec described in *"Appendix A - PC" on page 74.*

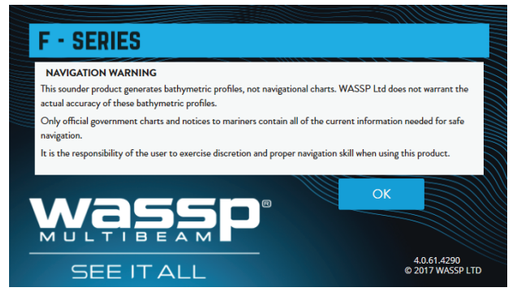
1. From WINDOWS START run WASSP CDX SETUP.

» Tick your required shortcuts.
» Select your DRX Series.
» Select NEXT.



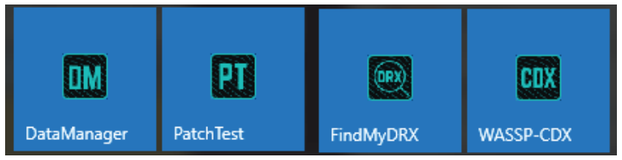


» Select OK.



2. You may now run the WASSP CDX Application.

WASSP CDX installer will also install various utilities including:



- Data Manager; For data record, export and playback.
- Patch Test; For automated Patch Test to calculate roll offset.
- Find My DRX; For identifying DRXs on the network.

1.2.1. Upgrade to CDX V4

Upgrading from CDX V3 or below to CDX V4 or above requires a full Mapping Database update. This is a one off operation and will involve updating available mapping databases to be compatible with CDX V4 and above.

CDX will automatically detect mapping databases requiring updating:

- on CDX installation or upgrade
- on CDX start-up

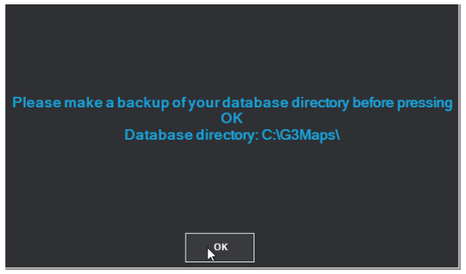
If the mapping database is not updated the mapping data will not be available in CDX.

Prior to installing or upgrading CDX, mapping databases should always be backed up. Backup can be done by closing down CDX and copying databases to a backup location or by using an appropriate backup utility.

When CDX detects a database requiring updating, the following sequence will happen:

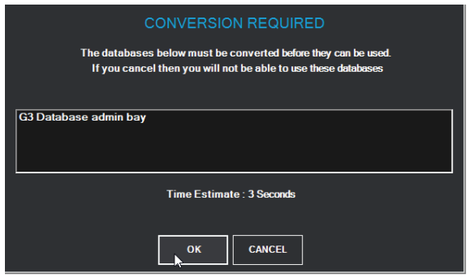
CDX will prompt for databases in the current active location to be backed up.

- Once all databases are backed up select OK to continue with the update process.



CDX will list any databases that need updating and will give a time estimate to do the update.

- Selecting CANCEL will cancel out of the database update.
- Select OK to continue with the update process.

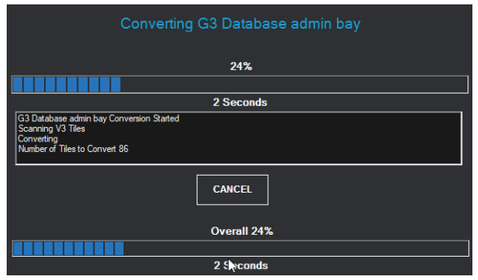


If a database does not need to be updated it can be archived by removing it to a separate location so that it does not appear in the list. This database will no longer be available to CDX.

An archived database can be restored to the database location at a later stage. It will then be detected by CDX as requiring update on the next CDX start-up.

During the database update process progress will be shown for each database and for overall progress.

Database update time will depend on database size and PC specification, but will also be impacted by any other applications or processes running during the update. A large database can take many hours to update.



The database update process can be cancelled at any time by using CANCEL. If CANCEL is used, databases that have completed update will be available in CDX but databases that have not been completed will not be available until they are updated.

If any databases are not updated, CDX will prompt for update on the next start-up.

If no databases are updated, CDX will create a new default V4+ database which will be used for mapping.

NOTE: Databases' update time will depend on the size of the database to be updated and the PC specification, but will also be impacted by any other applications or processes running during the update.

If it is not feasible to run a database update and that database is required for operations, CDX will need to be reverted to a version prior to V4.

2 APPLICATION OVERVIEW

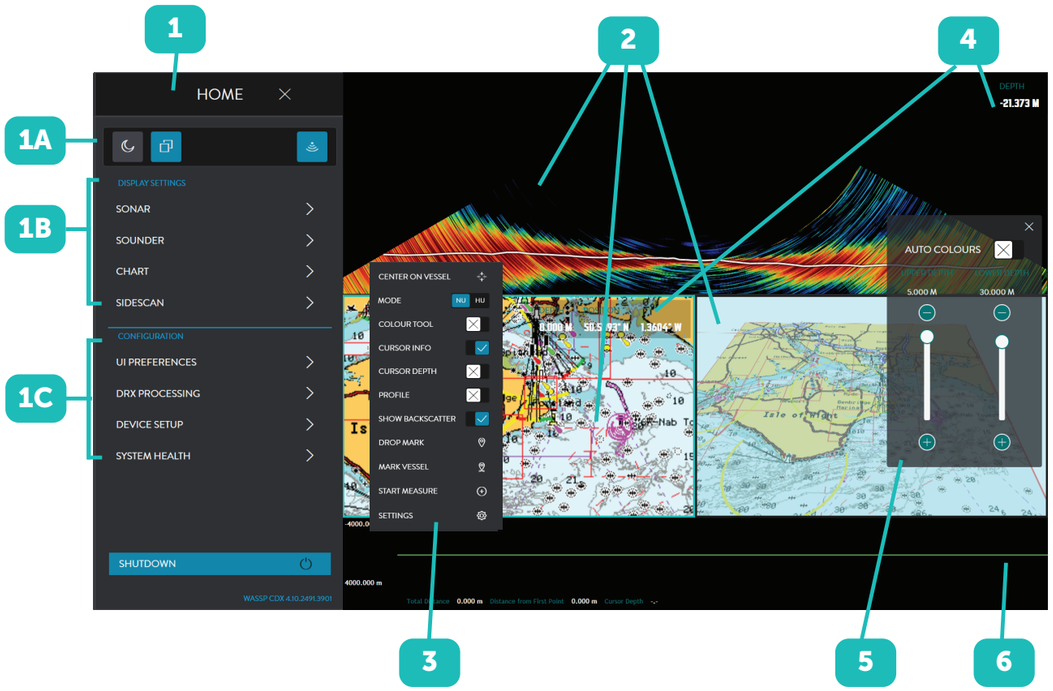


Figure 2. Application Overview

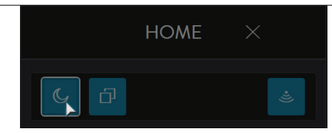
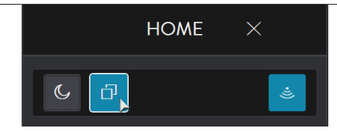
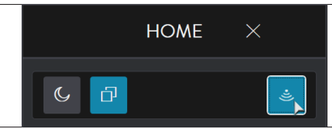
1	HOME BAR	Provides configuration options for the Display Panels, Layout, Tools, System Setup and User Preferences. The HOME bar is accessed through the HOME button. 1A: Quick Access Bar: *See "2.1. Quick Access Bar" on page 11.* 1B: Display Panel Setup: *See "3.5. Layout" on page 36.* 1C: Configuration of CDX (UI PREFERENCES), DRX (DRX PROCESSING) system setup (DEVICE SETUP) and SYSTEM HEALTH. *See "3 System Set Up" on page 12.*
2	DISPLAY PANELS	Display panels are associated with specific data types for visualisation and control. Typical examples are Charting for bathymetric display and Sonar for multibeam swath data. Display panels available will depend on data available to CDX. Display panels are configured in LAYOUTS, 1A.
3	CONTEXT SENSITIVE MENU (CSM)	Set up and configuration of the specific Display Panels accessed through right-click on any panel.
4	INFORMATION DISPLAY	Optional Display Panel information overlay enabled from CSMs. Information Display Panels can be selected and dragged to any position within the Display Panel.
5	CONTROL TOOLS	Optional Display Panel control overlay enabled from CSMs.
6	TOOL BARS	Optional general data display tools enabled from CSMs.

NOTE: CDX will expose functionality that is available to the user. All functionality described in the manual may not be available depending on DRX model and feature licensing.

Disabled controls indicate that the data may be enabled through upgrade or feature licensing.

2.1. QUICK ACCESS BAR

The QUICK ACCESS BAR is used to access top level options.

DAY / NIGHT button. Used for display brightness configured in layout, 1A. *See "3.3.9. Night Mode" on page 32* for full control.	
LAYOUTS button *see "3.5. Layout" on page 36* for Display Panel selection.	
TRANSMIT button. DRX control to transmit. Ping rate will be determined by selected range.	

3 SYSTEM SET UP

3.1. DEVICE SETUP

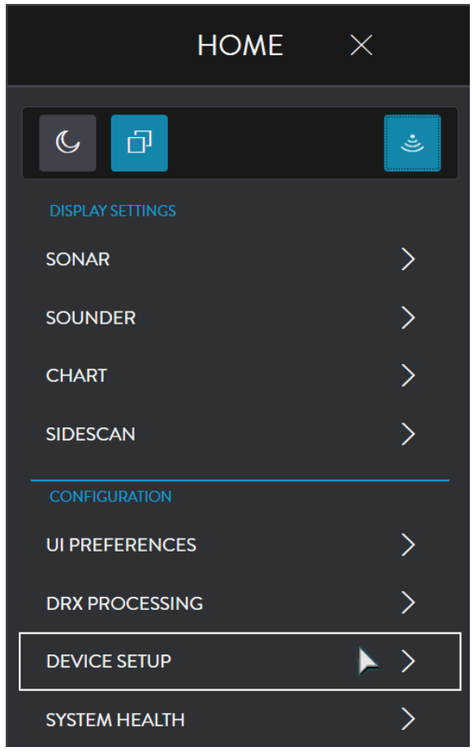
For full details on network configuration see DRX Installation Manual.

After installing the WASSP CDX on your PC, start the DRX and run WASSP CDX.

WASSP CDX will automatically select the DRX as long as the network has been correctly configured.

DEVICE SETUP allows further setup configuration including:

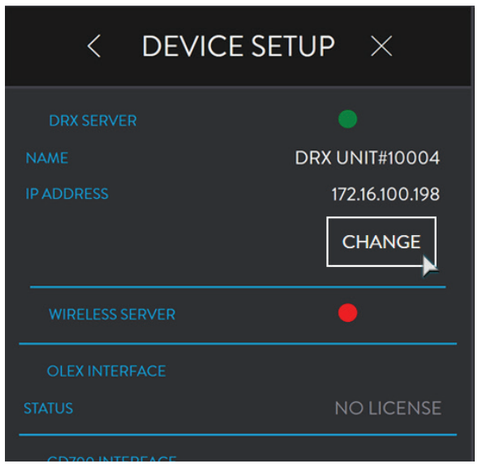
- » DRX selection.
- » Wireless configuration.
- » Interfacing CDX to 3rd Party Applications.



3.1.1. DRX Server

The DRX SERVER section displays the current (or previous) DRX connection.

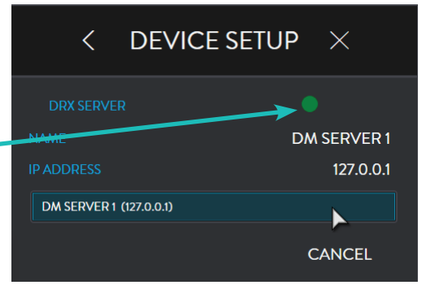
Press CHANGE and a drop-down list of available connections will be displayed.



Select your desired connection.

The connection indicator will display the following depending on the current status of the connection:

- » GREEN: Connected.
- » AMBER: Connection is being changed.
- » RED: No connection.



NOTE: Other WASSP data servers such as Data Manager can also be selected as a DRX Server.

For information on recording and playing back data files see *"6 Data Manager" on page 71.*

3.1.2. Wireless Set Up

WASSP CDX can be configured to be used in a wireless configuration for remote mapping being transmitted from the WIRELESS SERVER (typically the tender) to the WIRELESS CLIENT (typically the mother ship). The mapping data from the WIRELESS SERVER will be transmitted to the WIRELESS CLIENT real-time as well as off-line when the WIRELESS SERVER goes out of wireless range for a period of time.

To enable wireless configuration the WIRELESS SERVER DRX requires a Wireless License installed and the WIRELESS CLIENT needs to run CDX and DATAMANAGER on the same PC with a WASSP USB dongle with Wireless license installed.

NOTE: To enable Wireless either a Wireless License on the WASSP USB Dongle or a Wireless license on the DRX where DataManager is connected is required.

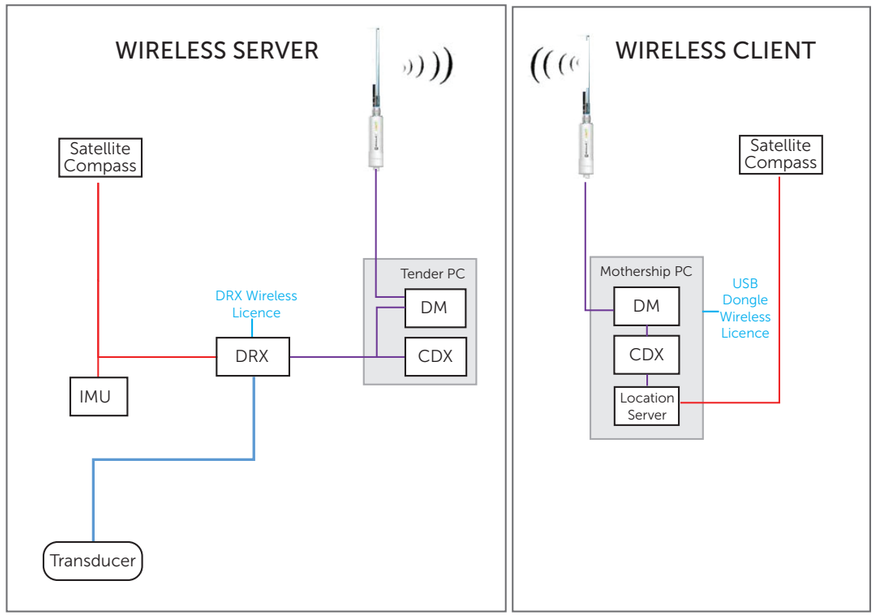
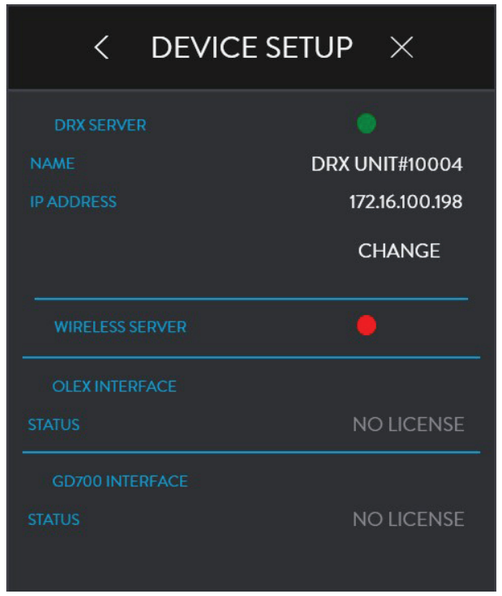


Figure 3. Typical Wireless Setup

With a Wireless License WIRELESS SERVER will be available under DEVICE SETUP. Setting up for wireless connectivity consists of:

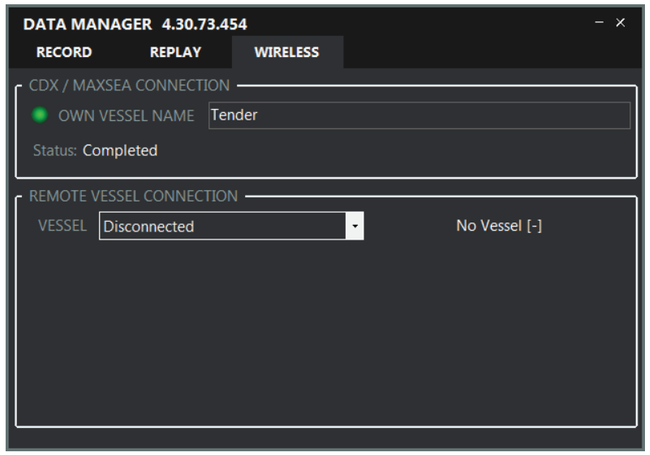
- Setting up the WIRELESS SERVER, see *"3.1.2.1. Setting up the Wireless Server (Tender)" on page 14.*
- Setting up the WIRELESS CLIENT, see *"3.1.2.2. Setting up the Wireless Client (Mother ship)" on page 15.*
- Configuring the WIRELESS CLIENT for receiving own vessel navigation data see *"3.1.1.2. Configuring the Primary Vessel" on page 15.*

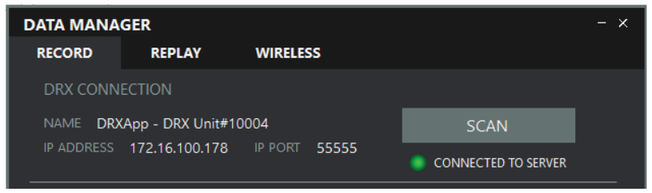


3.1.2.1. Setting up the Wireless Server (Tender)

Run DATAMANAGER on the WIRELESS SERVER and it will automatically connect to the DRX. The WIRELESS tab will be available if the Wireless license is installed.

1. Enter the nominated name of the WIRELESS SERVER under VESSEL NAME. This will be used to identify the vessel for all wireless operations and will be the name used to identify the vessel by WIRELESS CLIENT vessels The name selected here is 'Tender'.
2. WIRELESS VESSEL is typically not used for the WIRELESS SERVER.
3. SCAN and connect to the DRX using the RECORD Tab, see *"6 Data Manager" on page 71.*



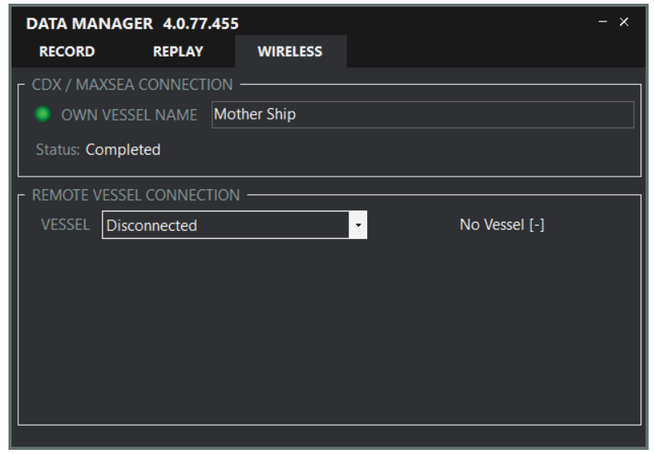


NOTE: WIRELESS does not require pressing the RECORD button, however the DRX should be connected on the RECORD TAB.

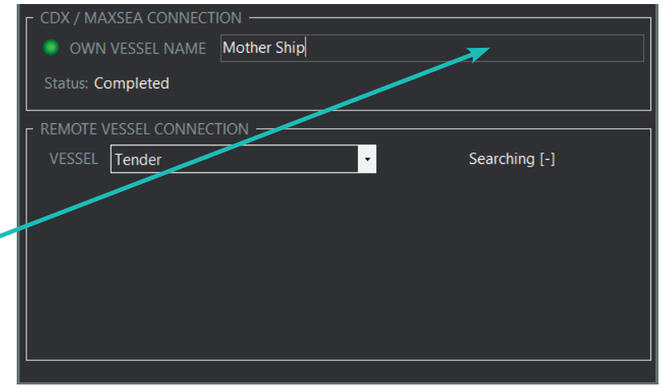
3.1.2.2. Setting up the Wireless Client (Mother ship)

Run DATAMANAGER on the WIRELESS CLIENT. The WIRELESS tab will be available if the Wireless license is installed.

1. Enter the nominated name of the WIRELESS CLIENT vessel under VESSEL NAME. This will be used to identify the vessel for wireless operation. The vessel name selected here is 'Mother Ship'.



2. Select the name of the WIRELESS SERVER from the drop-down list under WIRELESS VESSEL. In this case 'Tender' is selected as the active server.
All available WIRELESS SERVERS on the network will be visible and available for selection.



WIRELESS VESSEL STATUS will show as:

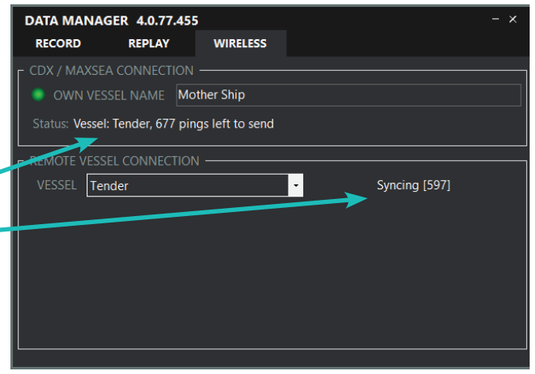
- NO VESSEL; No vessel available for connection.
- SEARCHING; Searching for vessel.
- SYNCING; Vessels synchronising connection.
- CONNECTED; Connection established.
- READY TO CONNECT; Connection available but not connected.
- OUT OF RANGE; Connection was established but subsequently lost.

NOTE: The number in brackets is the number of packets received from the wireless vessel.

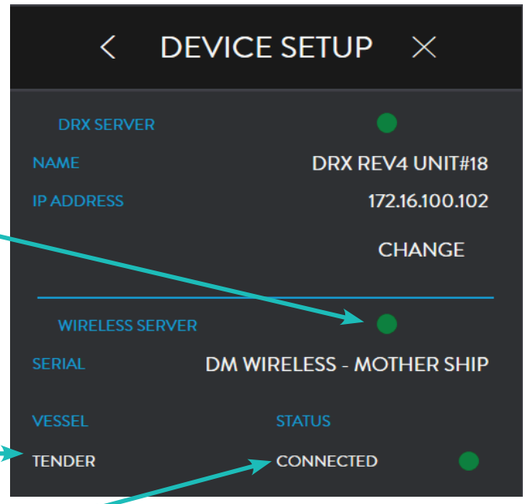
NOTE: While SYNCING after being OUT OF RANGE, WIRELESS will indicate pings. For example:

677 pings left to send to the user interface e.g. CDX or TimeZero

597 pings to be received from the wireless vessel



3. Run CDX. CDX will automatically connect to the local DataManager with wireless enabled.
4. Select DEVICE SETUP.
5. The DataManager connection will be indicated by the WIRELESS SERVER icon and will show the DataManager name as selected under *"3.1.2.2. Setting up the Wireless Client (Mother ship)" on page 15.*
6. All available WIRELESS SERVERS and their current status will be shown under VESSEL. The CONNECTED WIRELESS SERVER will map to CDX.



WIRELESS VESSEL STATUS will show as:

- » SEARCHING; Vessel is configured and connection is establishing.
- » CONNECTED; Vessel is in range.
- » OUT OF RANGE; Vessel is Out Of Range and data cannot by synced at that moment.

To set up WASSP CDX on the Wireless Client to display own vessel position and heading configure the PORT and BAUD RATE under the WIRELESS SERVER section.

Own vessel position and heading data will require connection from a supported sensor and sentence, see *"Appendix B - NMEA supported sentances" on page 75.*

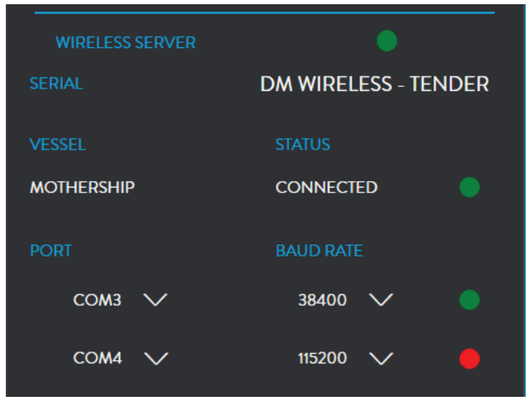
See "Figure 3. Typical Wireless Setup" on page 13 for configuration setup.

Connection will typically be using a serial connection either directly or using a serial to USB adapter connected to the CDX PC.

Once the connection between the sensor and PC is established configure the port(s) under the WIRELESS SERVER section.

CDX supports 2 ports for own vessel data.

CDX will automatically connect to the position and heading data from the serial ports and display Own Vessel Position.

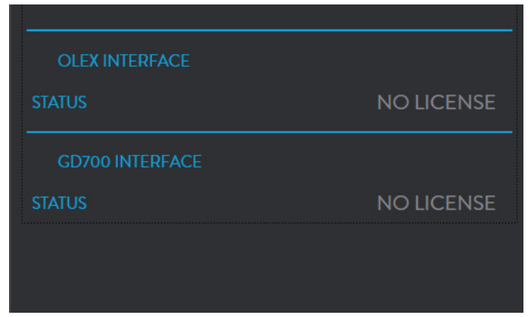


3.1.3. Client Interfaces

Client Interfaces show available 3rd party interfaces and licence status. In order to enable OLEX INTERFACE or GD700 INTERFACE a licence is required.

When enabled CDX will act as a data server and transmit all required data for the 3rd party application.

For details on configuring the 3rd party application refer to the WASSP Knowledge Base.

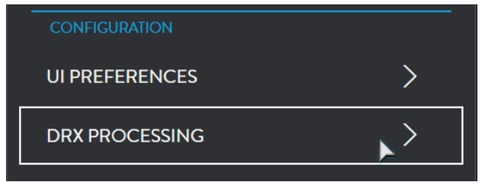


3.2. DRX PROCESSING CONFIGURATION

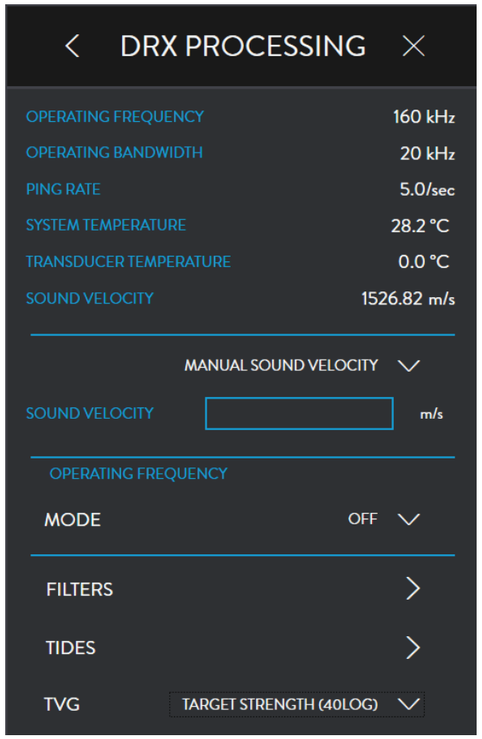
3.2.1. DRX Information

The DRX PROCESSING menu is used for monitoring DRX status and configuring DRX specific processing and control options.

From the HOME bar, under CONFIGURATION select DRX PROCESSING.



DRX information displays general status information. This information is specific to the DRX or data server that CDX is connected to.



3.2.2. Sound Velocity

Sound velocity input is required to compensate for range inaccuracies caused by sound speed variations. These changes can occur both seasonally and with geographical areas especially in coastal areas where sound velocity will be impacted by both temperature and water salinity differences.

Sound velocity in water is affected by both temperature and salinity and can either be measured directly or derived from temperature and salinity. This value should be adjusted regularly, depending on the operating environment, as it will have a direct impact on mapping accuracy.

The sound velocity control allows for both direct and derived values. Sound velocity compensation can be calculated using appropriate sound velocity, sound velocity profile or temperature and salinity sensors. The more accurate the sound velocity the more accurate the mapping.

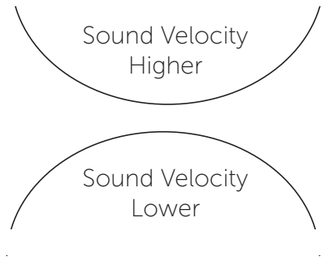
The visual effect of incorrect sound velocity is that a flat seafloor will either curve up or curve down. This representation will indicate soundings that are too shallow or too deep with the affect being accentuated toward the edges of the swath.

Sound velocity measurements can be manually reckoned using the sonar display, *see "4.1. Sonar" on page 37* or the profile tool, accessed through the Chart CSM, *see "4.3.2. 2D Chart CSM" on page 60.* To do this:

» Known flat sea floor should be run over.

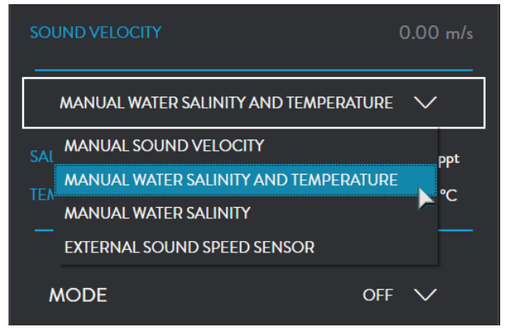
» If the sea floor appears to be curving upwards at the edges (smile), the sound velocity value used is higher than the real sound velocity profile.

» If the sea floor appears to be curving downwards at the edges (frown), the sound velocity value is lower than the real sound velocity profile.

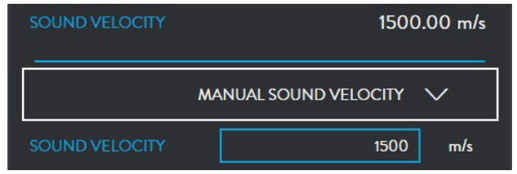


NOTE: Seafloor can be seen on the SONAR SEAFLOOR line (see "4.1.1.3. Display" on page 40) or the BATHYMETRY Profile tool (see "5.2. Profile Tool" on page 69).

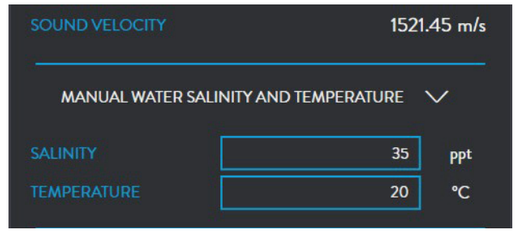
Click on the drop down menu and select the option you wish to tune: MANUAL SOUND VELOCITY; MANUAL WATER SALINITY AND TEMPERATURE; MANUAL WATER SALINITY or EXTERNAL SOUND SPEED SENSOR.



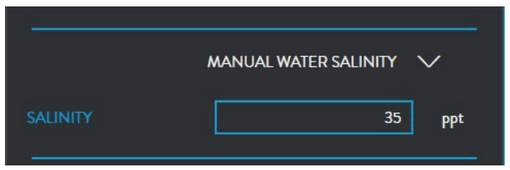
MANUAL SOUND VELOCITY; used if sound velocity is known.



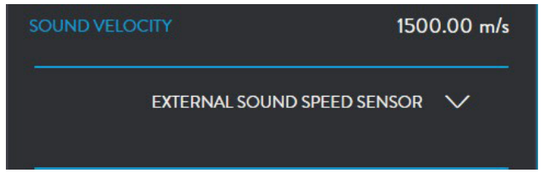
MANUAL WATER SALINITY AND TEMPERATURE; if temperature and salinity are known, these will be used to derive sound velocity in DRX.



MANUAL WATER SALINITY; can be used if DRX has a temperature input and the manual salinity will be used to derive sound velocity.



EXTERNAL SOUND SPEED SENSOR; used if an external sound speed sensor is connected directly to the DRX. Refer to DRX installation manual for configuring sensors connected to the DRX.



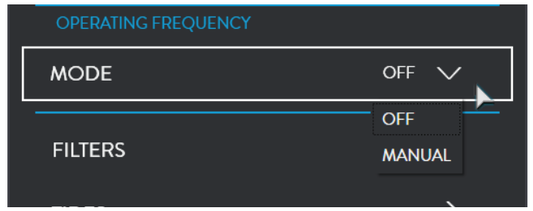
NOTE: The default value for the salinity of sea water is 35ppt. This value should not be changed unless the actual salinity of the surrounding water is known. If in fresh water, the value should be set to 1.

NOTE: Temperature input into DRX may be direct from transducers with temperature sensors built in or from external temperature sensor.

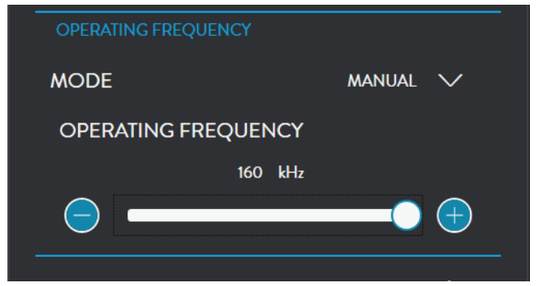
3.2.3. Operating Frequency

OPERATING FREQUENCY is used for managing interfering acoustic equipment.

Choose between OFF or MANUAL.



MANUAL mode allows basic control of operating center frequency and can be used to manually adjust frequency to avoid acoustic equipment operating in the same frequency band as DRX.

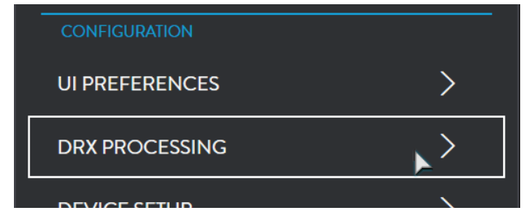


3.2.4. Filter Setup

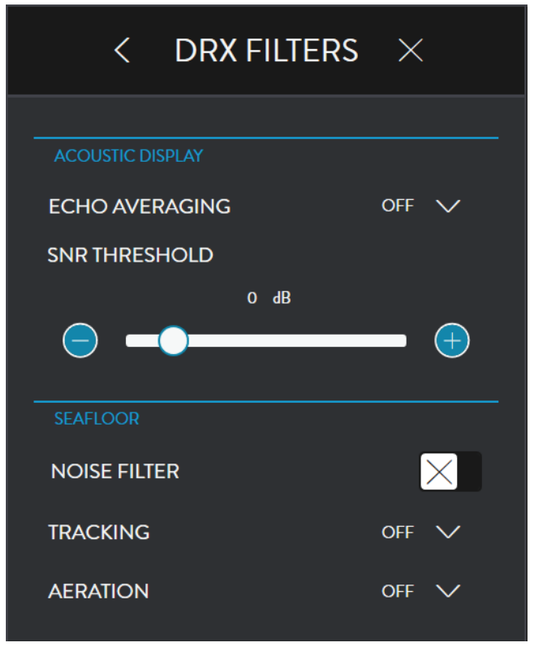
DRX FILTERS allow adjustment of signal processing filters to optimise the data and display when operating in an environment with noise, clutter and other interference impacting the data quality.

These filters are split into ACOUSTIC DISPLAY for filters impacting sonar and sounder displays and SEAFLOOR for filters impacting Bathymetry on charting displays.

1. From the HOME bar, under CONFIGURATION select DRX PROCESSING.



2. Select FILTERS.



3. ACOUSTIC DISPLAY: ECHO AVERAGING

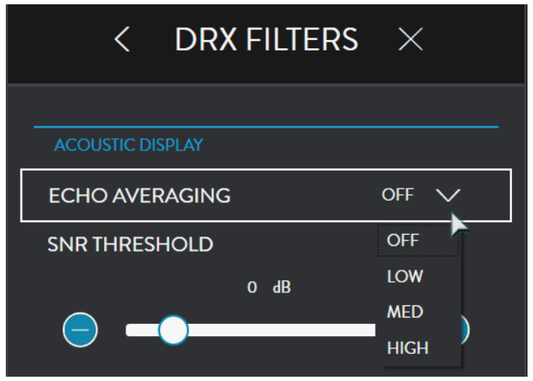
Applies to Sonar and Sounder data.

Purpose;

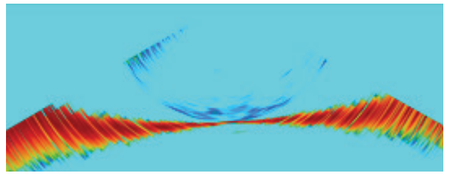
Reduction of clutter and false targets. Rejects small targets or fast changing data accentuating slow moving targets.

Disadvantage;

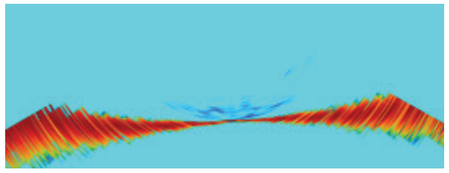
» Small targets will be lost.
» Display is out of calibration for target strength.



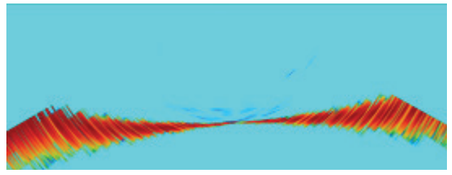
Example; OFF



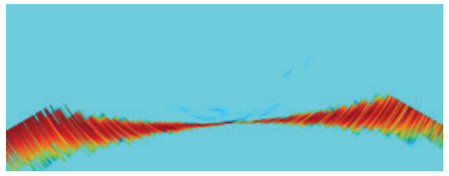
Example; LOW



Example; MEDIUM



Example; HIGH



4. ACOUSTIC DISPLAY: SNR THRESHOLD

Applies to Sonar and Sounder data. SNR THRESHOLD is a threshold control to remove return signals below a specified level.

Purpose;

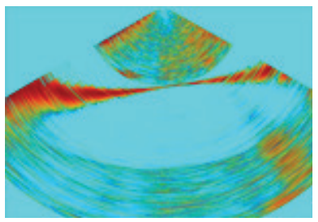
To clean the display of speckle by removing data below the specified threshold level. Allows stronger targets to be more easily identified.

Disadvantages;

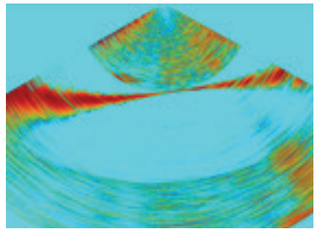
» Removes targets dependent on threshold set.

» Threshold is relative to noise level so targets may be lost with increased depth.

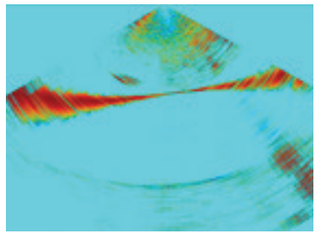
Example; -6dB



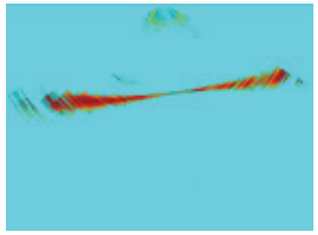
Example; +6dB



Example; +16dB



Example; +30dB



5. SEAFLOOR: NOISE FILTER

Applies to Bathymetry charting data.

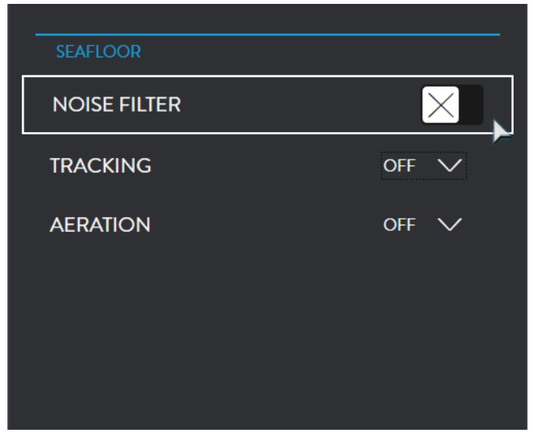
Purpose;

To remove single ping tracking errors through averaging.

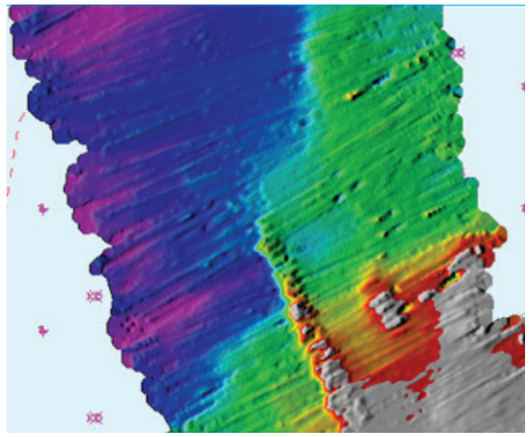
Disadvantages;

» Small objects on a changeable seafloor may be missed.

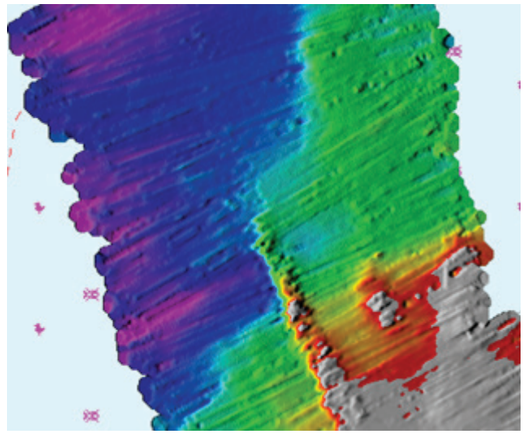
» Objects during high mapping speeds may be missed.



Example; OFF



Example; ON



6. SEAFLOOR: TRACKING

Applies to Bathymetry charting data.

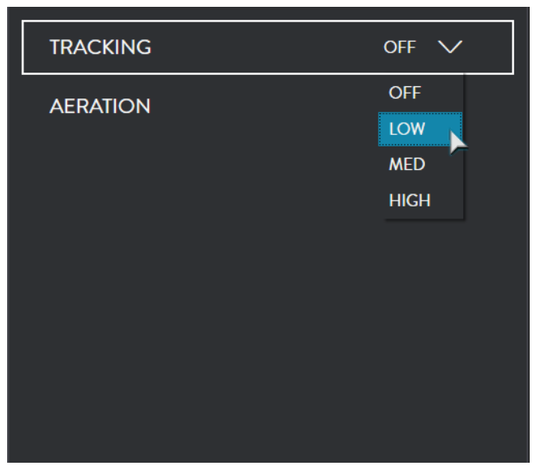
Purpose;

To prevent seafloor tracking artifacts such as fish schools and interfering sources such as sounders.

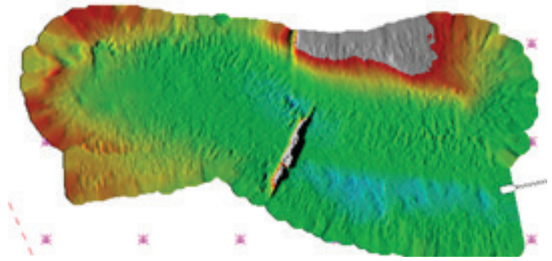
Disadvantages;

» A very changeable seafloor may not be tracked effectively

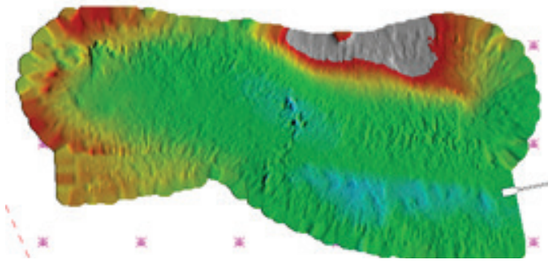
» Tracking while traveling at higher speeds may be compromised



Example; OFF



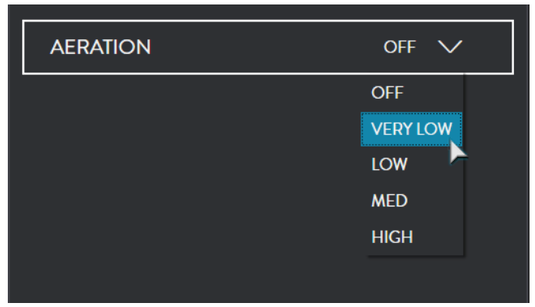
Example; HIGH



7. SEAFLOOR: AERATION

Applies to Bathymetry charting data.

Aeration will occur due to air bubbles across the transducer face. This will occur due to poor transducer installation, but also due to sea conditions, vessel speed, vessel traveling astern etc. This can affect the entire swath or smaller areas.



Purpose;

To prevent aeration and other anomalies causing discontinuity in return signal strength from introducing poor seafloor tracking.

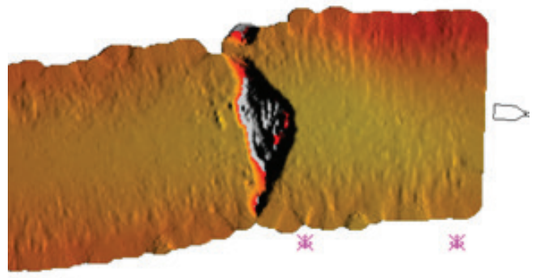
Disadvantages;

» Good seafloor data may not be tracked.

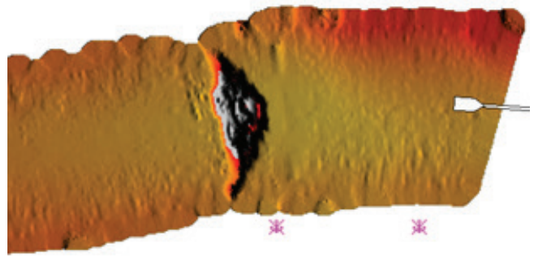
» Seafloor line on the Sonar display will be interrupted when aeration is detected.

» Bathymetry will have gaps or be smoothed when aeration is identified.

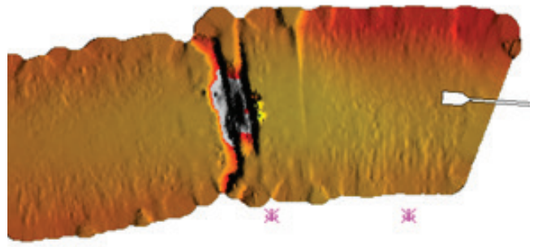
Example; OFF



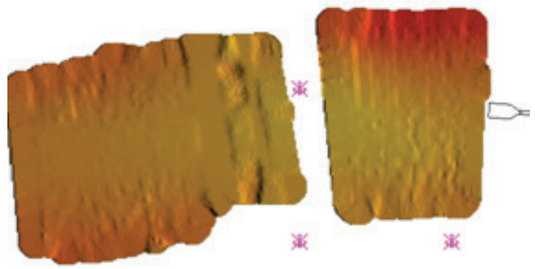
Example; LOW



Example; MEDIUM



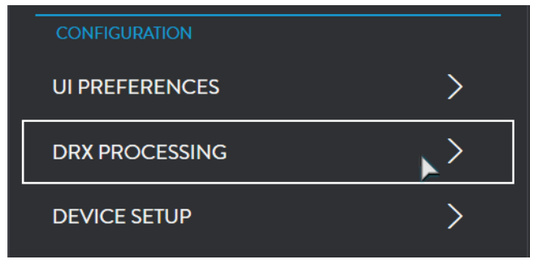
Example; HIGH



3.2.5. Tides

Tidal height offset can be configured to be applied as a depth correction in the DRX. This will depend on the tide option set in the TIDES menu.

1. From the HOME bar, under CONFIGURATION select DRX PROCESSING.

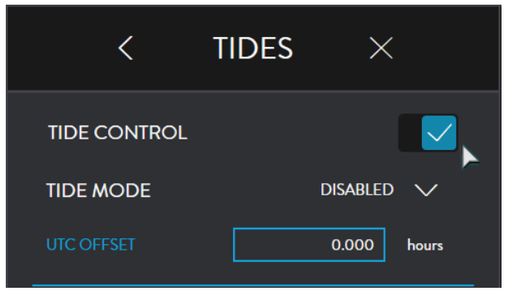


2. Select TIDES.

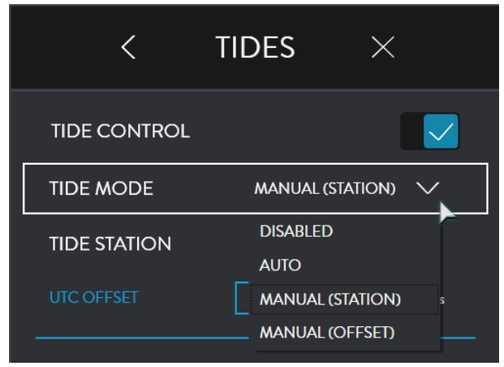
NOTE: TIDE MODE AUTO and MANUAL (STATION) require appropriate cartography containing tidal station information. Use a Navionics SD card to use these modes.

When TIDE CONTROL is disabled DRX tidal data is not updated by CDX. On initially setting TIDE CONTROL to OFF the DRX tide value will be set to zero.

When TIDE CONTROL is enabled CDX will set the DRX tidal level as per the options below.



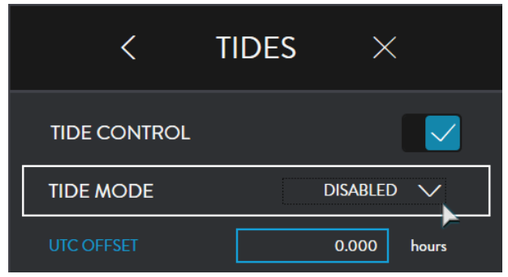
TIDE MODE will provide you with the following options: DISABLED, AUTO, MANUAL (STATION) or MANUAL (OFFSET).



UTC OFFSET is used to correct UTC time to local time. The Offset should include any daylight savings.

3.2.5.3. Tide Mode Disabled

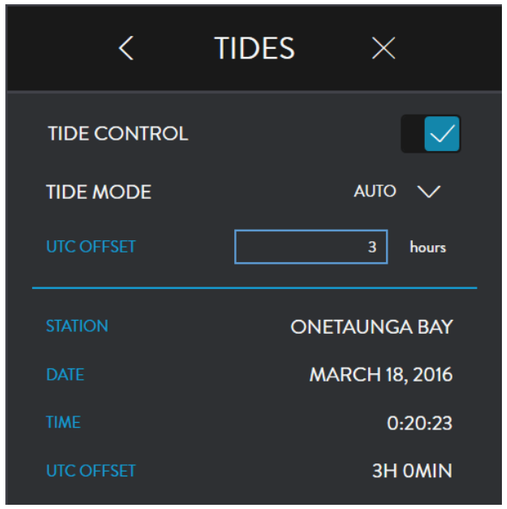
No tidal offset will be applied as a correction to seafloor data in the DRX.



3.2.5.4. Tide Mode Auto

Tidal offset will be selected based on local tide station using time and position data. The value will be applied to the DRX periodically.

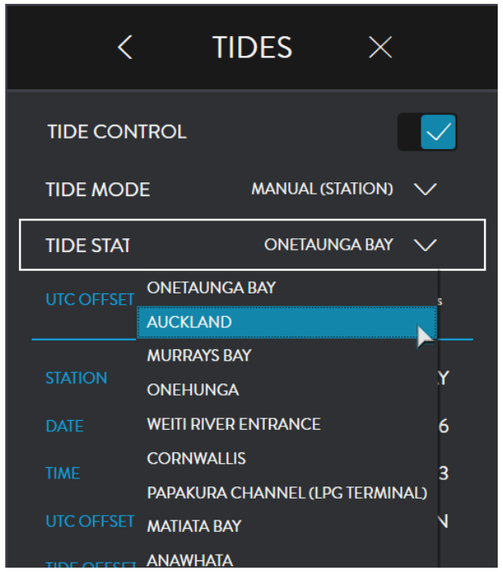
UTC OFFSET should entered to apply correct local time for the tide station.



3.2.5.5. Tide Mode Manual (Station)

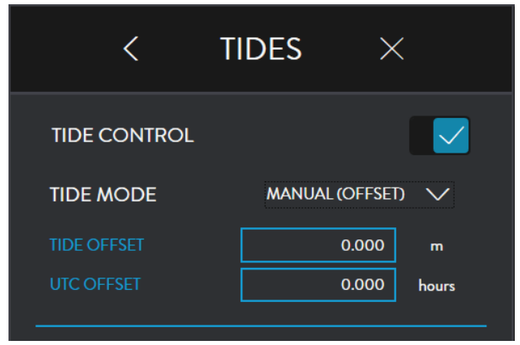
Tidal offset will be applied based on a manually selected tide station. The value will be applied to the DRX periodically.

UTC OFFSET should entered to apply correct local time for the tide station.



3.2.5.6. Tide Mode Manual (Offset)

The manually set tidal offset will be applied to the DRX.



NOTE: TIDE VALUE will give the tide value currently being applied to the DRX.

NOTE: If UTC OFFSET for local time is incorrect, this will result in incorrect tidal height being calculated.

3.2.6. TVG Options

40 (TARGET STRENGTH 40LOG) keeps the reported strength the same as single targets with the same size in all depths.

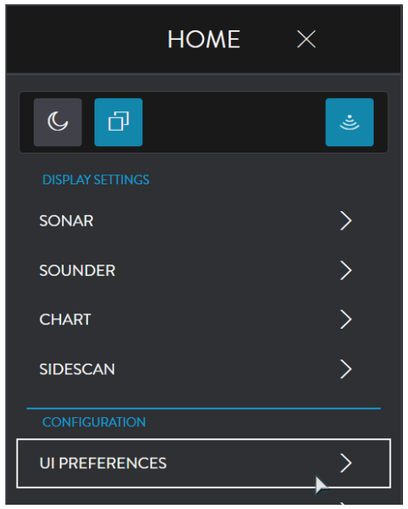
V20 (VOLUMETRIC STRENGTH 20LOG) keeps the reported strength the same as multiple targets in a beam with the same total volume in all depths.

NOTE: 20 Volumetric strength is generally used to compare schools of fish in different depths (> 100m) where target strength can be used in shallow water when looking at individual fish.

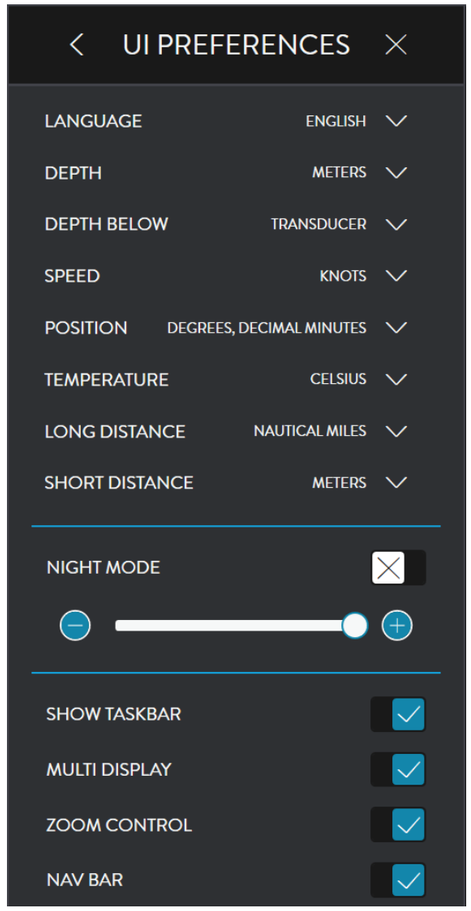
3.3. UI PREFERENCES

This provides WASSP CDX user preference options.

From the HOME bar, under CONFIGURATION select UI PREFERENCES.



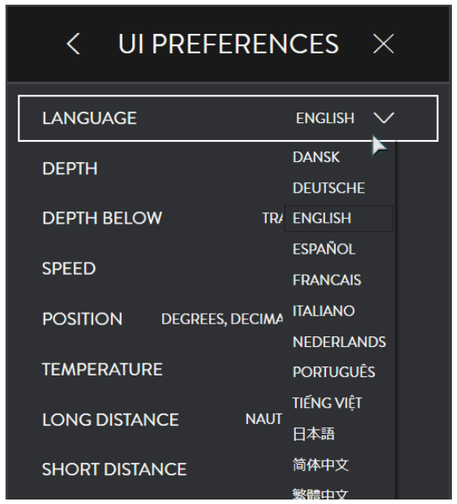
This provides the following unit preference options (opposite):



3.3.1. Languages

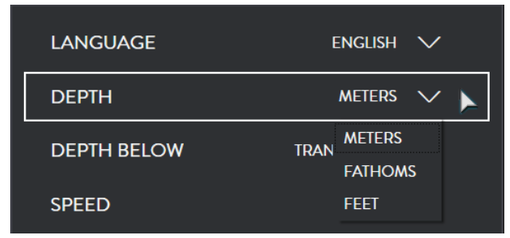
This provides language options.

Select the language you require from the drop down menu. The following notification will appear and the language will be applied when you restart CDX.



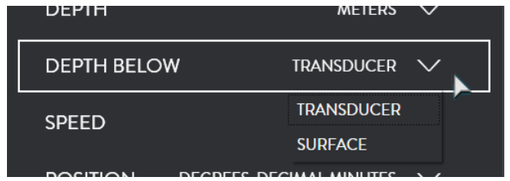
3.3.2. Depth

This will provide depth options in METERS, FATHOMS or FEET.



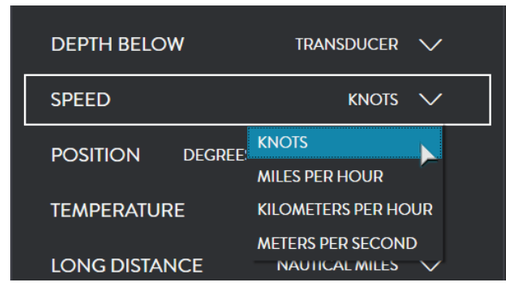
3.3.3. Depth Below

This will provide options to measure the depth below the TRANSDUCER or the water SURFACE.



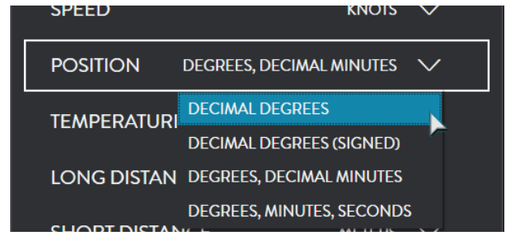
3.3.4. Speed

This will provide speed options in KNOTS, MILES PER HOUR, KILOMETERS PER HOUR or METERS PER SECOND.



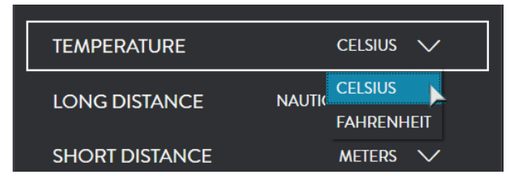
3.3.5. Position

This will provide position options in DECIMAL DEGREES; DECIMAL DEGREES (SIGNED); DEGREES, DECIMAL MINUTES or DEGREES, MINUTES, SECONDS.



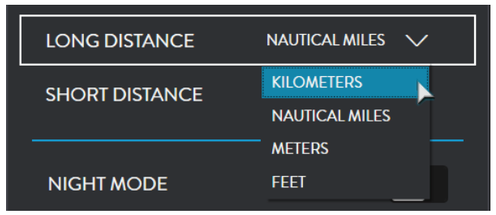
3.3.6. Temperature

This will provide temperature options in CELSIUS or FAHRENHEIT.



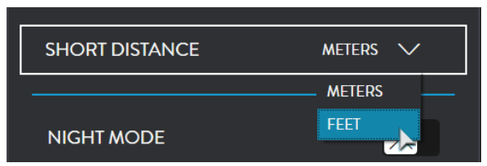
3.3.7. Long Distance

This will provide distant options in NAUTICAL MILES, KILOMETERS, METERS or FEET.



3.3.8. Short Distance

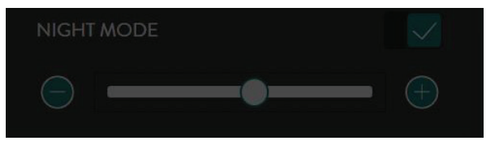
This will provide distant options in METERS or FEET.



3.3.9. Night Mode

Tick the check box to enable NIGHT MODE.

Use the slider control to adjust brightness level.



NOTE: Switching Night Mode on and off is available from the HOME MENU QUICK ACCESS BAR.

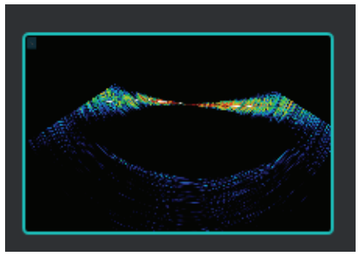
3.3.10. Show Taskbar

Tick the check box to SHOW TASK BAR. This will enable Windows Taskbar when CDX is running.

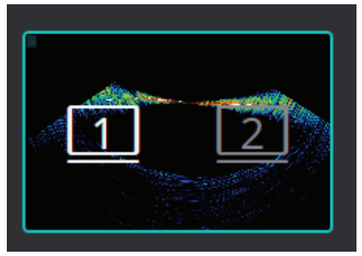
3.3.11. Multi Display

Enable this check box when using dual displays.

Below is an example of the Layout Option when Multidisplay is not enabled (see *"3.5. Layout" on page 36*).



Below is an example of the Layout Option when Multidisplay is enabled (see *"3.5. Layout" on page 36*).



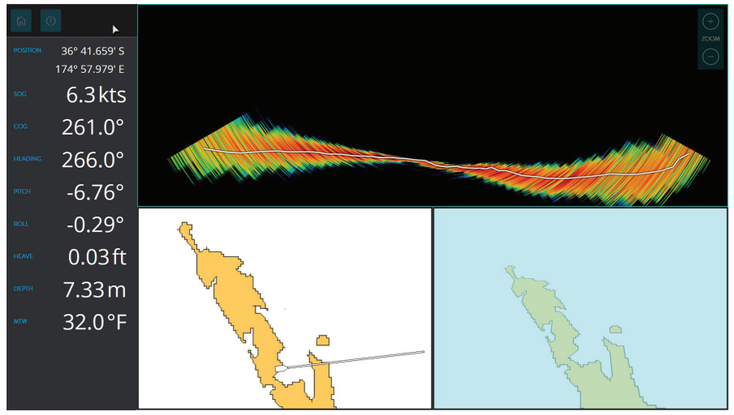
3.3.12. Zoom Control

Tick the check box to enable the display ZOOM control. The zoom control tool will appear dimmed at the top right of the active panel. Hover over the tool to zoom in and out of the active panel.

NOTE: The active Display Panel is the panel that is currently selected. To switch active panel, click in the panel.

3.3.13. Nav Bar

The Nav Bar, when active, will appear docked to the side of the display. The Nav Bar shows general vessel information.



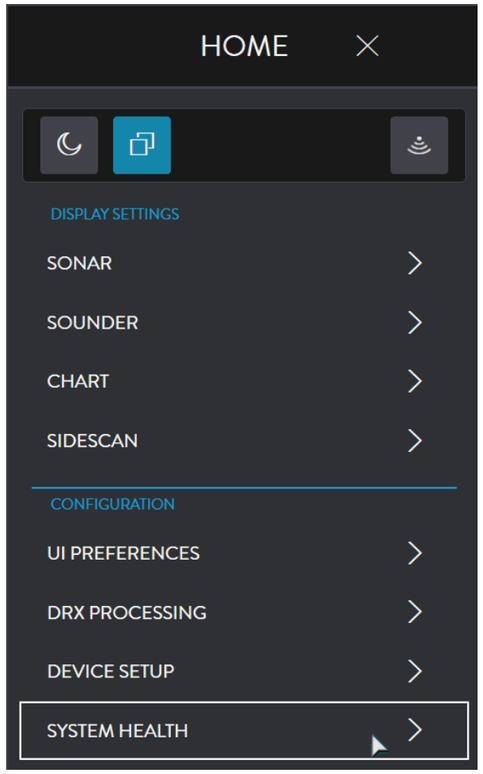
NOTE: Close the HOME Menu to see Nav Bar.

CDX OPERATORS MANUAL

3.4. SYSTEM HEALTH

The SYSTEM HEALTH menu provides a customised listbox of notifications, warnings and errors.

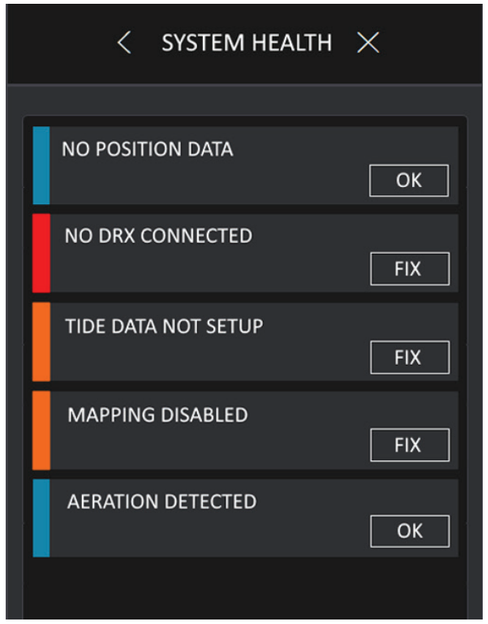
From the HOME bar, under CONFIGURATION select SYSTEM HEALTH.



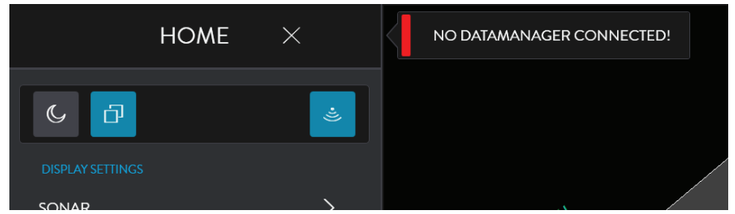
Notifications will be classified as one of three types:

- INFORMATION - these are colour coded blue. *See "3.4.1. System Health Information" on page 35.*
- WARNING – these are colour coded orange. *See "3.4.2. System Health Warning" on page 35.*
- CRITICAL SYSTEM ERROR – these are colour coded red. *See "3.4.2. System Health Warning" on page 35.*

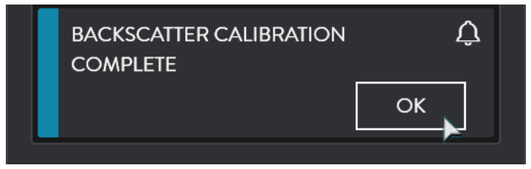
Persistent notifications auto-clear when no longer valid. Non-persistent notifications can be cleared with an 'OK' button.



On screen alerts show a 5 second pop-up preview of any new notifications in the top left screen by the HOME BAR (example below).



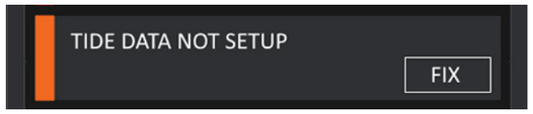
3.4.1. System Health Information



INFORMATION – System Information and Status Updates.

Persistent notifications auto-clear when no longer valid. Non-persistent notifications can be cleared with the OK button.

3.4.2. System Health Warning

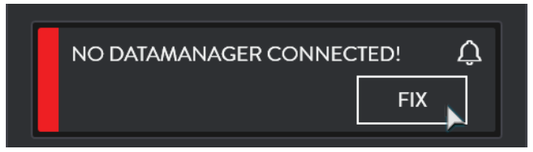


WARNING – Non-critical System Errors. These affect the reliability of the system, but do not directly affect its operation.

Click FIX to take you to the appropriate menu to find out more and/or fix the error.

Once fixed, the error automatically clears in the menu.

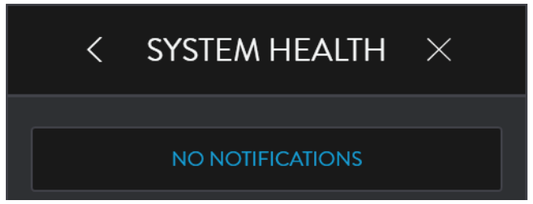
3.4.3. System Health Error



ERROR – Critical System Errors. These directly affect system reliability and operation.

Click FIX to take you to the appropriate menu to find out more and/or fix the error.

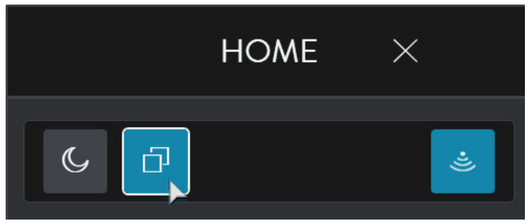
Once fixed, the error automatically clears in the menu.



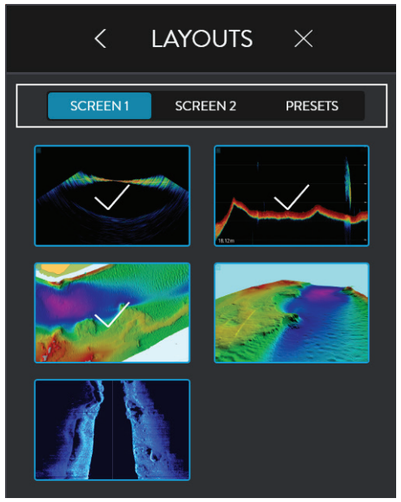
3.5. LAYOUT

Panel layout can be configured using the LAYOUT section of the HOME bar.

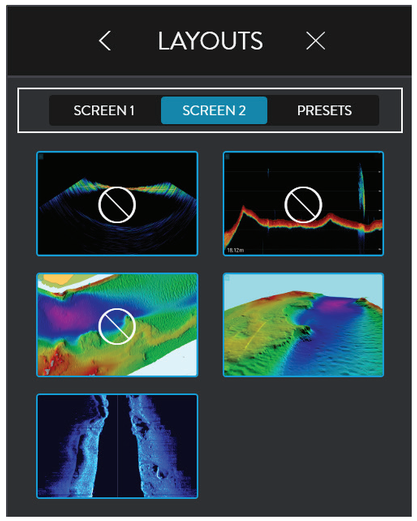
From the HOME bar, select LAYOUTS.



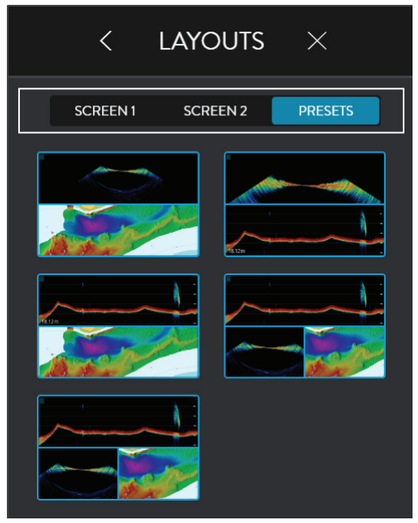
SCREEN 1 Allows layout selection options for a single display configuration. Layout selection will depend on the features enabled.



SCREEN2 Allows layout selection options for a dual display configuration. Layout selection will depend on the features enabled.



PRESETS allows preconfigured layouts available to be selected.



4 DISPLAY PANEL SETTINGS

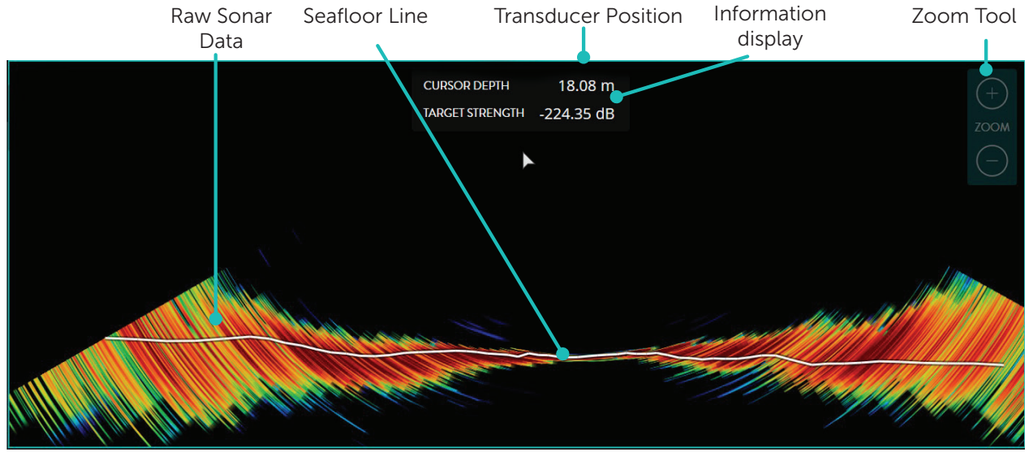
Display Panels are configured through the CSMs and/or DISPLAY SETTINGS configuration controls.

Typically the CSMs cover the most commonly accessed items but will also allow direct access to the HOME bar through the DISPLAY SETTINGS option on the CSM.

NOTE: All Display Panel configuration options are accessible through the CSM and the CSM SETTINGS option.

4.1. SONAR

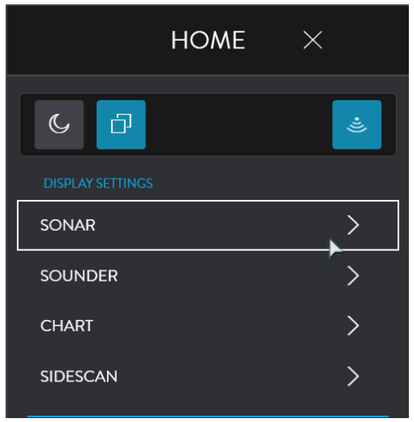
The Sonar Display Panel shows the water column and seafloor profile below the transducer.



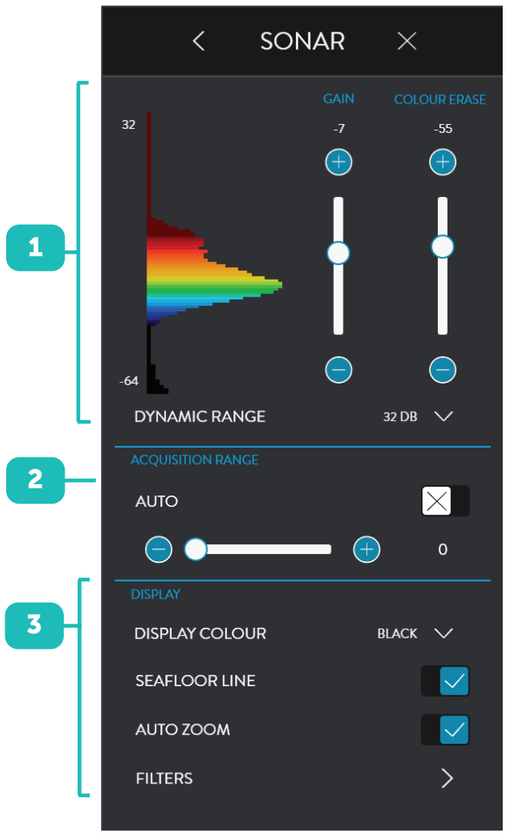
INFORMATION DISPLAY	Supplies following information at the cursor: » Depth. » Target Strength.
ZOOM & PAN CONTROL	The sonar panel can be zoomed in and out. AUTO ZOOM allows the display to be auto zoomed to optimum depth to show the seafloor and water column. AUTO ZOOM can be enabled from the CSM. *See "4.1.1.3. Display" on page 40.* Manual zoom of displayed depth and range can be controlled using the mouse wheel or ZOOM tool. *See "3.3.12. Zoom Control" on page 33* and select the + and – controls as required. NOTE: Touch control for ZOOM is available. The Sonar panel can be panned in depth and Port/Starboard. To pan left-click the cursor and drag.

4.1.1. Sonar Configuration Options

From the HOME bar, under DISPLAY SETTINGS select SONAR when there is a Sonar Display Panel.



This provides the following options (opposite):



1	GAIN	GAIN, COLOUR ERASE, DYNAMIC RANGE and DISPLAY COLOUR are used to optimise the sonar display to the user preference. *See "4.1.1.1. Gain" on page 39.*
2	ACQUISITION RANGE	DRX control for setting ping / transmit range for the system. *See "4.1.1.2. Acquisition Range" on page 40.*
3	DISPLAY	Controls for display settings. *See "4.1.1.3. Display" on page 40.* DISPLAY COLOUR allows colour palette selection. SEAFLOOR LINE allows seafloor line to be overlaid on the sonar data. AUTO ZOOM allows the display to be auto zoomed to fit the Display Panel or user controlled display zoom. FILTERS allows adjustment of signal processing filters to optimise the data and display when operating in an environment with noise, clutter and other interference impacting the data quality. *See "3.2.4. Filter Setup" on page 20.*

4.1.1.1. Gain

GAIN, COLOUR ERASE, DYNAMIC RANGE and DISPLAY COLOUR are used to optimise the sonar display to the user preference. This is done by selecting the dynamic range to display, the colour scale used across the displayed dynamic range, the gain level to view within the available dynamic range and the colour erase to suppress colours.

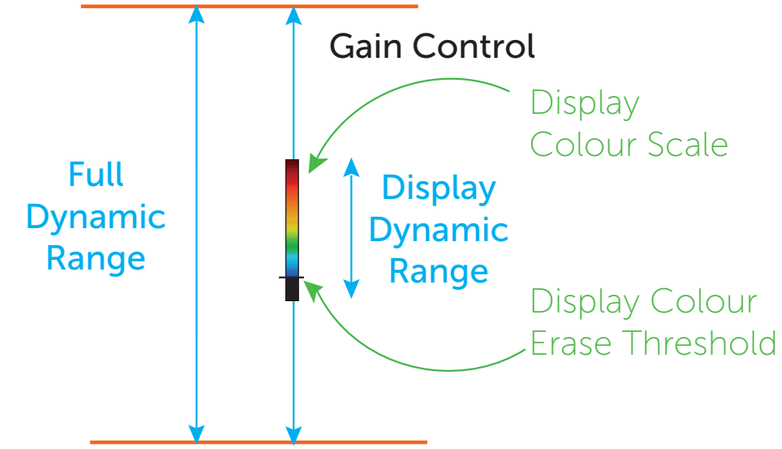


Figure 4. Sonar Gain and Dynamic Range Control & Colour Erase

Gain

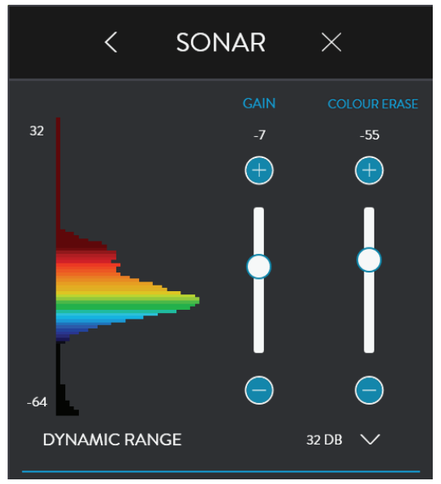
The gain level can be adjusted using the slider bar.

The histogram display alongside this slider indicates the spread of target strength returns.

Colour Erase

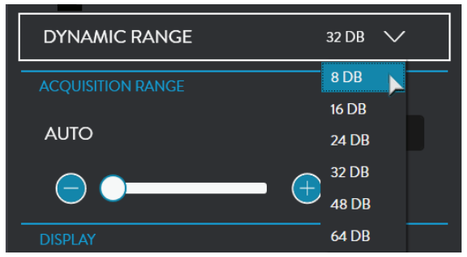
Low level noise and clutter from sediments, system noise etc can appear on the screen as dots. These can be suppressed using the Colour Erase control.

Colour Erase control will blank out any returns below the specified return strength on the slider. Suppressed returns will appear as black on the histogram and will not be displayed in the panel.



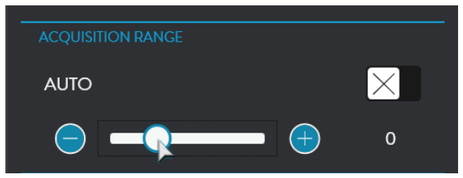
Dynamic Range

The display dynamic range can be adjusted by selecting from the available options.



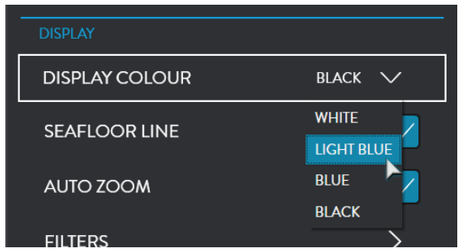
4.1.1.2. Acquisition Range

DRX control for setting ping / transmit range. Range can be adjusted manually using the scroll bar or automatically by selecting AUTO RANGE. AUTO RANGE will determine optimum range based on seafloor depth.



4.1.1.3. Display

DISPLAY COLOUR will provide the option to use various colour scales for the display.



SEAFLOOR LINE displays the seafloor line when enabled.

AUTO ZOOM allows the display to be auto zoomed to optimum depth to show the seafloor and water column.

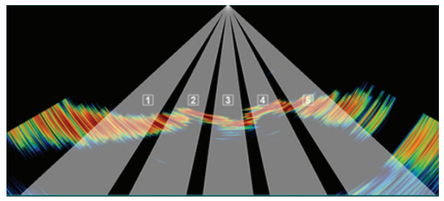
FILTERS allows adjustment of signal processing filters to optimise the data and display when operating in an environment with noise, clutter and other interference impacting the data quality.

See "3.2.4. Filter Setup" on page 20.

4.1.2. Sonar CSM

Accessed by right-clicking in the Sonar Display Panel.

SEAFLOOR LINE	Allows seafloor line to be overlaid on the sonar data.
AUTO ZOOM	Allows the display to be auto zoomed to fit the Display Panel or user controlled display zoom.
CURSOR INFO	Displays the Information display as an overlay on the Display Panel.
SHOW BEAMS	Shows the Sounder beams overlaid on the Sonar panel. *See "4.2.1.3. Beam Setup" on page 46.*

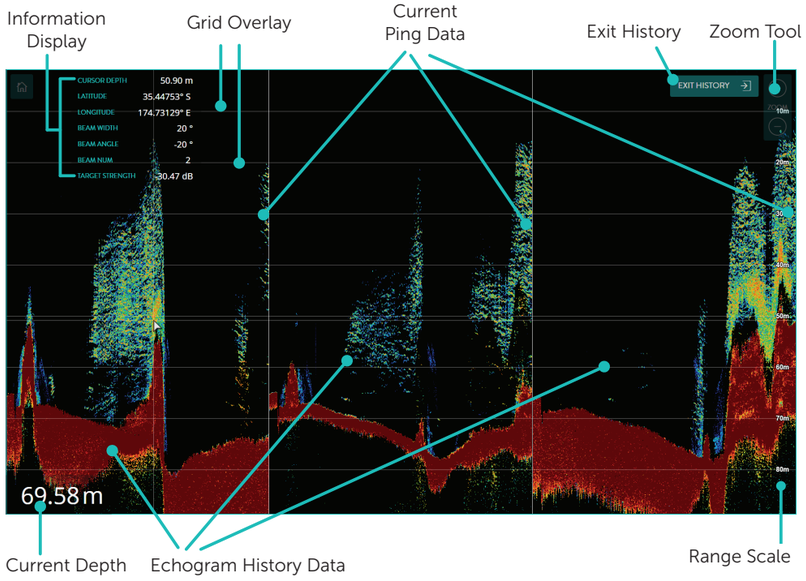


SETTINGS	This option will display the SONAR Menu. *See "4.1. Sonar" on page 37.*

4.2. SOUNDER

The Sounder Display Panel shows the traditional sounder echogram display for each of the active beams selected.

The display may show single beam, triple beam or quint beam modes in the Display Panel. Below shows the typical triple beam display.



INFORMATION DISPLAY

Supplies following information at the cursor:

- Position and depth.
- Beam details.
- Target Strength.

ZOOM & PAN CONTROL

The sounder panel can be zoomed in and out.

AUTO ZOOM allows the display to be auto zoomed to optimum depth to show the seafloor and water column. AUTO ZOOM can be enabled from the CSM. *See "4.2.1.2. Display" on page 45.*

Manual zoom of displayed depth and range can be controlled using the mouse wheel or ZOOM tool. *See "3.3.12. Zoom Control" on page 33* and select the + and – controls as required.

NOTE: Touch control for zoom is available.

The Sounder panel can be panned to view history:

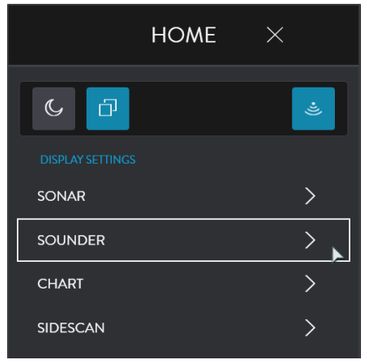
- Left-click cursor and drag to see history in pan mode.
- On pan the EXIT HISTORY control will appear.
- To exit pan mode click on EXIT HISTORY.

The Sounder panel can be panned in depth. To pan in depth, left-click cursor and drag.

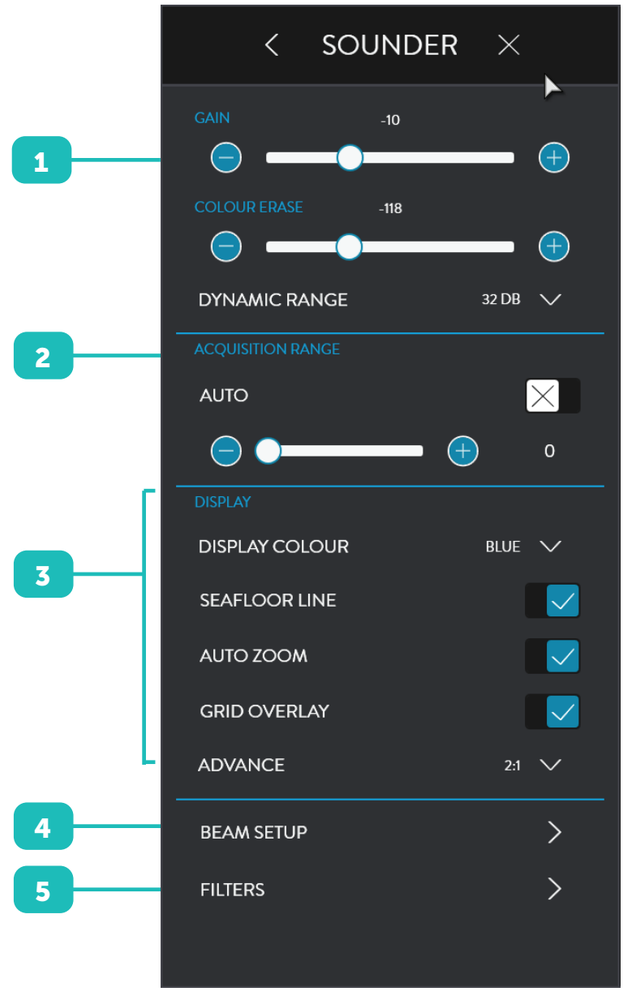
CDX OPERATORS MANUAL

4.2.1. Sounder Configuration Options

From the HOME bar, select SOUNDER when there is a Sounder Display Panel.



This provides the following options (shown opposite):



1	GAIN	GAIN and DYNAMIC RANGE and DISPLAY COLOUR are used to optimise the Sounder display to the user preference. *See "4.2.1.1. Gain" on page 44.*
2	ACQUISITION RANGE	DRX control for setting ping / transmit range for the system. *See "4.1.1.2. Acquisition Range" on page 40.*

3	DISPLAY	Controls for display settings. *See "4.2.1.2. Display" on page 45.* DISPLAY COLOUR allows colour palette selection. ECHO STRETCH enlarges sounder marks. SEAFLOOR LINE allows seafloor line to be overlaid on the sonar data. AUTO ZOOM allows the display to be auto zoomed to fit the Display Panel or user controlled display zoom. GRID OVERLAY overlays a grid on the Echogram display. ADVANCE option allows for advancing the Echogram scroll at the required rate.
4	BEAM SETUP	Allows independent configuration of each sounder beam. *See "4.2.1.3. Beam Setup" on page 46.*
5	FILTERS	Allows adjustment of signal processing filters to optimise the data and display when operating in an environment with noise, clutter and other interference impacting the data quality. *See "3.2.4. Filter Setup" on page 20.*

4.2.1.1. Gain

GAIN, COLOUR ERASE, DYNAMIC RANGE and DISPLAY COLOUR are used to optimise the sounder display to the user preference. This is done by selecting the dynamic range to display, the colour scale used across the displayed dynamic range, the gain level to view within the available dynamic range and the colour erase to suppress colours.

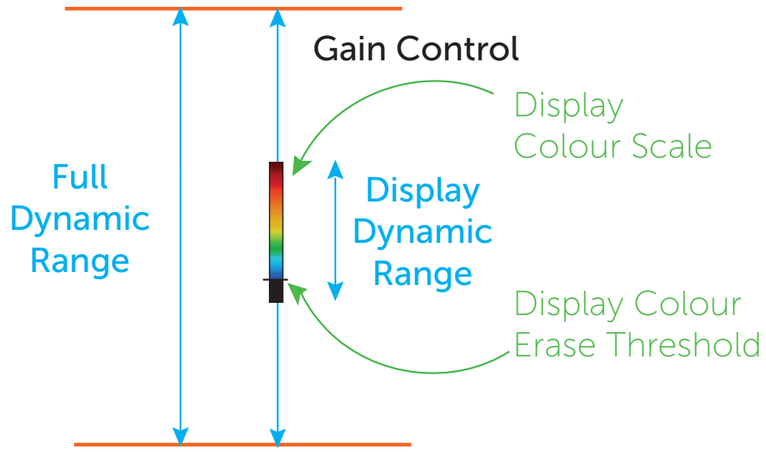
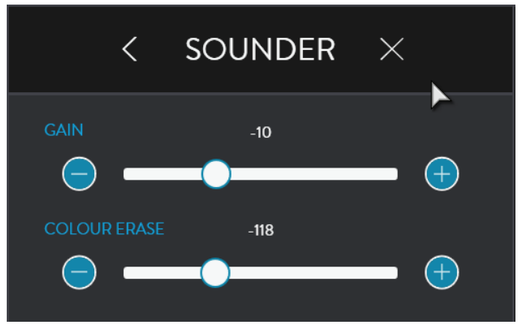


Figure 5. Sounder Gain and Dynamic Range Control & Colour Erase

Gain

The gain level can be adjusted using the slider bar.

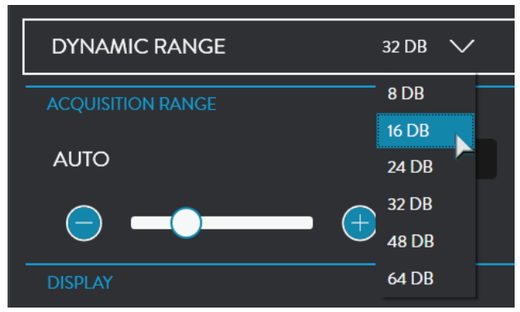


Colour Erase

Colour Erase control will blank out any returns below the specified return strength on the slider. Suppressed returns will not be displayed in the panel.

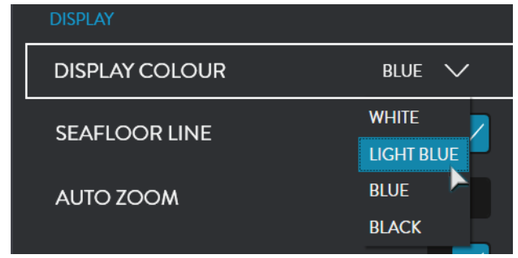
Dynamic Range

The display dynamic range can be adjusted by selecting from the available options.

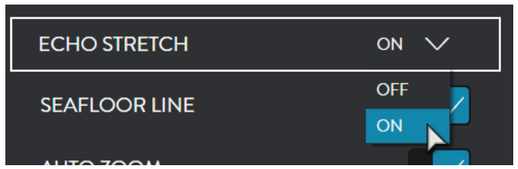


4.2.1.2. Display

DISPLAY COLOUR will provide the option to use various colour scales for the display.



ECHO STRETCH enlarges sounder marks.

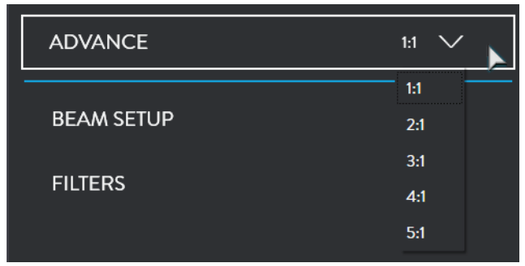


SEAFLOOR LINE displays the seafloor line when enabled.

AUTO ZOOM allows the display to be auto zoomed to optimum depth to show the seafloor and water column.

GRID OVERLAY overlays a grid on the Echogram display.

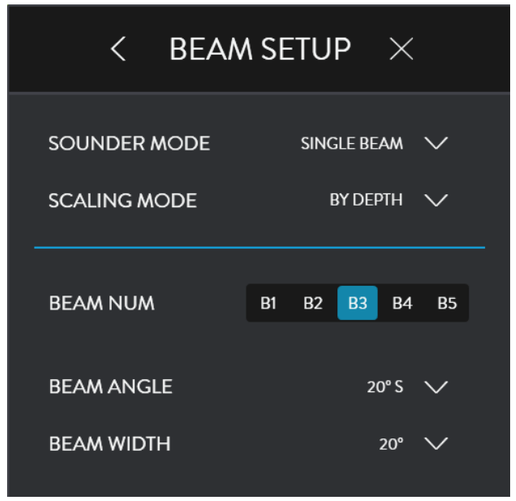
ADVANCE option allows for advancing the Echogram scroll at the required rate.



4.2.1.3. Beam Setup

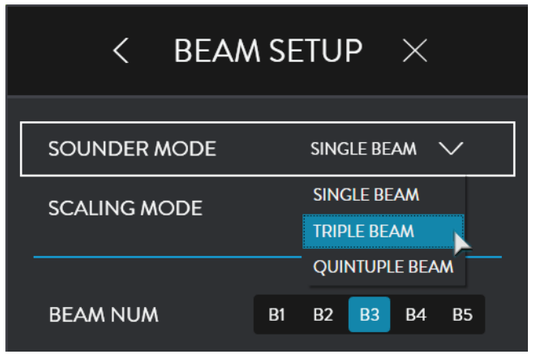
BEAM SETUP allows independent configuration of each sounder beam.

The sounder beams are equivalent to a set of independent single beam sounders which can be used at any angle across the multibeam swath. This can be depicted on the sonar view.



The BEAM SETUP is used to display 1, SINGLE BEAM, 3, TRIPLE BEAM, or 5 QUINT BEAM, beams in the Sounder Display Panel.

- » SINGLE BEAM will just display beam B3.
- » TRIPLE BEAM will display beams B2, B3 and B4.
- » QUINTUPLE BEAM will display beams B1, B2, B3, B4 and B5.



Individual beam configuration is carried out through the beam selection. Each beam can be configured independently if default operations need to be changed.

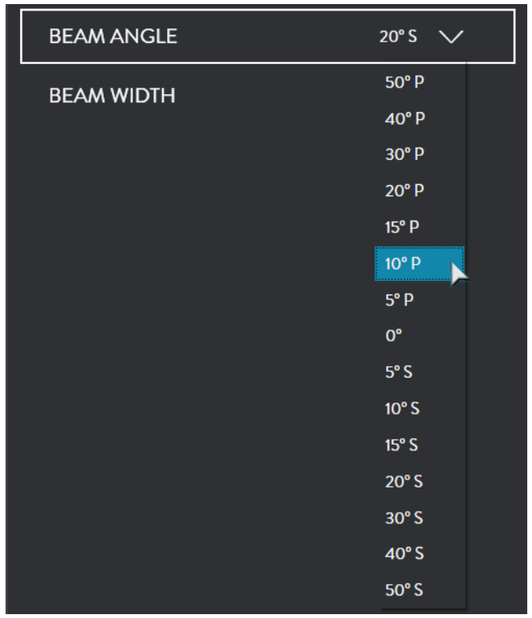
SCALING MODE The sounder beams' scale can either be set to range scale or depth scale.

If depth scale is selected the data will adjusted to compensate for the beam angle to represent depth below transducer.

1. Select the beam to configure from the BEAM NUM options.

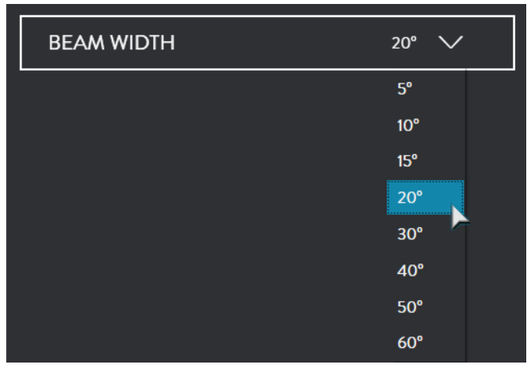
The option to the right shows BEAM 3 selected (Beam 3 is typically the Nadir beam).

2. For the selected beam set the angle off of Nadir from the BEAM ANGLE options.



NOTE: 0° is Nadir, P is angle Port side of Nadir, S is Starboard side of Nadir.

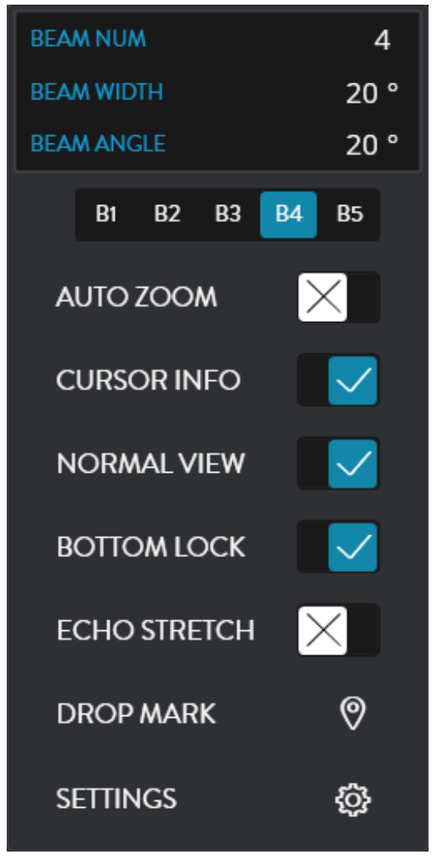
3. For the selected beam set the width from the BEAM WIDTH options.



NOTE: BEAM WIDTH and BEAM ANGLE off Nadir will determine seafloor coverage of the beam.

4.2.2. Sounder CSM

Accessed by right-clicking in the Sounder Display Panel.



BEAM NUM	Allows selection of an individual beam. Control is available when SOUNDER MODE is SINGLE BEAM and allows any beam to be selected for display.
AUTO ZOOM	Allows the display to be auto zoomed to fit the Display Panel or user controlled display zoom.
CURSOR INFO	Displays the Information display as an overlay on the Display Panel.

NORMAL VIEW is the traditional sounder presentation.

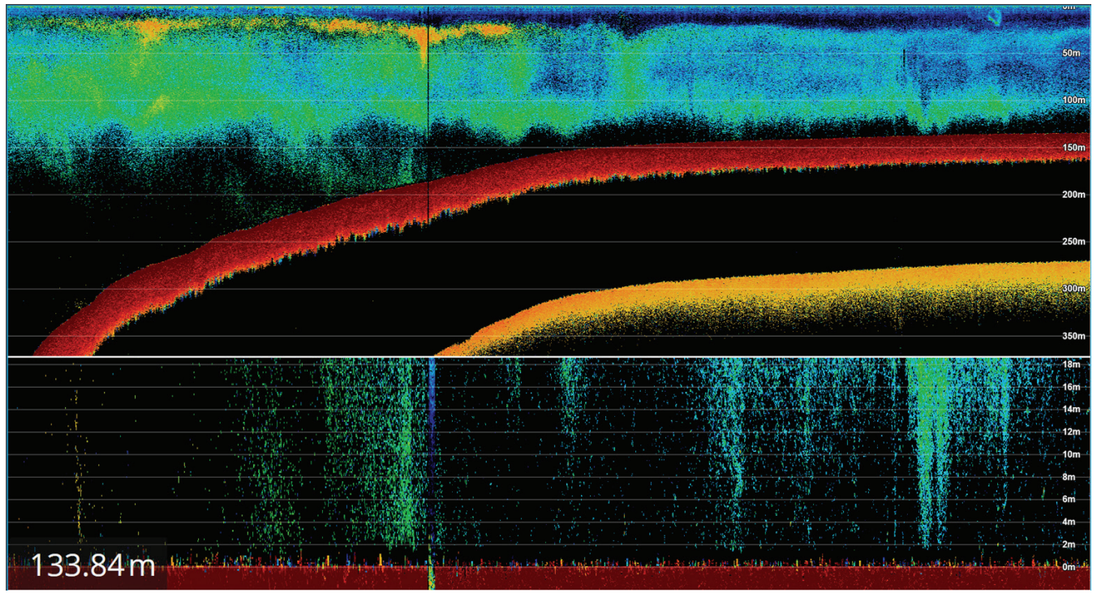
BOTTOM LOCK mode displays the bottom as a straight line, no matter how the bottom contour may change.

Fish and other water column targets are relative to this flat bottom line.

NORMAL VIEW & BOTTOM LOCK

There are 3 options to view:

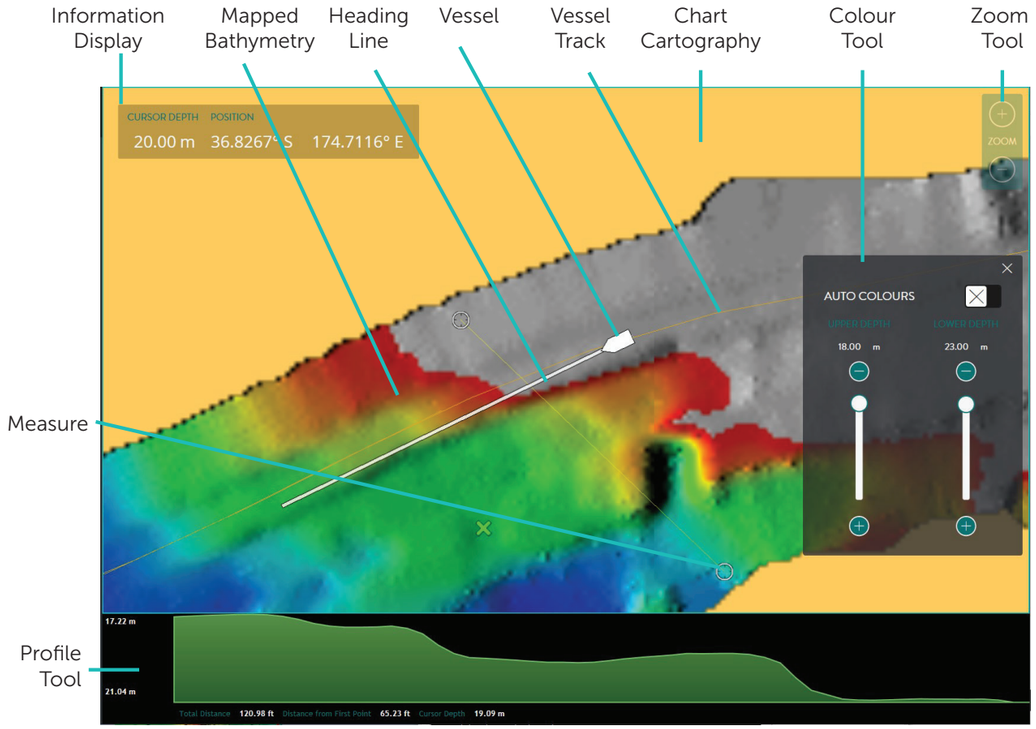
- NORMAL VIEW enabled and BOTTOM LOCK disabled will show the NORMAL view.
- BOTTOM LOCK enabled and NORMAL VIEW disabled will show the BOTTOM LOCK.
- BOTTOM LOCK and NORMAL VIEW enabled will show both views (as below).



ECHO STRETCH	Enlarges sounder marks.
DROPMARK	Places a mark at the cursor position. To modify or delete this mark, right-click on the symbol and a sub menu will appear. Click on Edit to modify the name or colour. *See "5.1. Marks" on page 68.*
SETTINGS	This option will display the SOUNDER Menu. *See "4.2. Sounder" on page 42.*

4.3. CHART

The Chart display overlays Bathymetry data and optionally backscatter data, Real Time on chart cartography layers.



INFORMATION DISPLAY

Supplies following information at the cursor:

» Depth.

» Position.

ZOOM & PAN CONTROL

The Chart panel can be ranged in and out.

Manual zoom of range can be controlled using the mouse wheel or ZOOM tool, *see "3.3.12. Zoom Control" on page 33*. Select the + and – controls as required.

NOTE: Touch control for ZOOM is available.

The 2D Chart panel can be panned to display different geographical areas. To pan the chart, left-click cursor and drag.

NOTE: To re-center on the vessel use the CSM.

The 3D Chart panel can be orientated; left-click the cursor and drag.

4.3.1. Charting Cartography

Charting cartography supported currently includes:

» Navionics Gold/Navionics+.

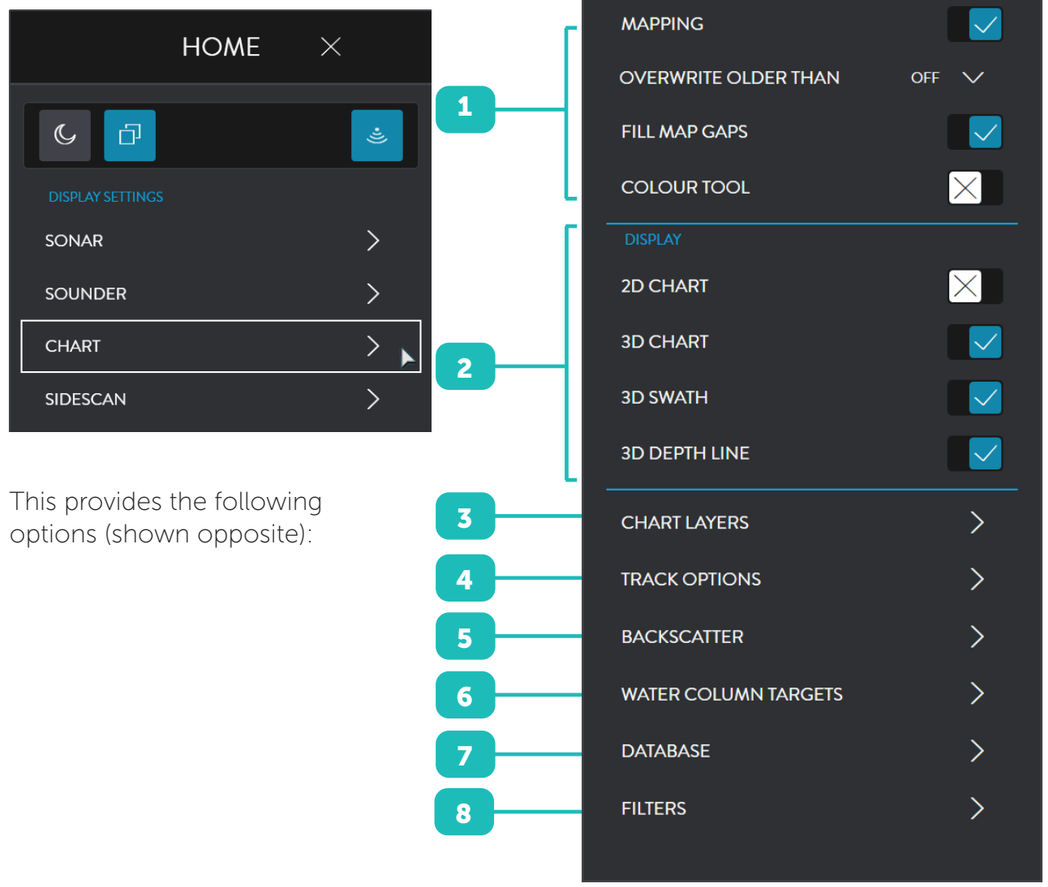
» Navionics Platinum.

Navionics charting on SD card will be automatically detected and loaded into WASSP CDX.

NOTE: Navionics charting needs to be registered over the internet on first use. Registration will be automatically carried out by WASSP CDX and will require an internet connection. Once registered no internet connection is required.

Chart Configuration Options

From the HOME bar, select CHART when there is a 2D or 3D Display Panel.



This provides the following options (shown opposite):

1	CHART	Controls for mapping options » MAPPING: To enable or disable Bathymetry being saved to the database and displayed on the chart » OVERWRITE OLDER THAN: Enables options for bathymetry overwrite based on time delay » FILL MAP GAPS: Fills gaps in bathymetry between detection points » COLOUR TOOL: Used to select Bathymetry colour display. *See "4.3.1.3. Colour Tool" on page 53.*
2	DISPLAY	Display options on the chart » 2D CHART: Enable/disable display of the chart cartography » 3D CHART: Enable/disable display of the chart cartography » 3D SWATH: Enable/disable the vessel swath display » 3D DEPTH LINE: Enable/disable the vessel depth line display
3	CHART LAYERS	Used to enable or disable specific chart layers. *See "4.3.1.4. Chart Layers" on page 54.*
4	TRACK OPTIONS	Used to set up vessel track on the 2D Chart. *See "4.3.1.5. Track Options" on page 54.*
5	BACK SCATTER	Used to access the Backscatter setup and configuration options for overlay on the chart. *See "4.3.1.6. Backscatter" on page 55.*
6	WATER COLUMN TARGETS	Used to access the Water Column Targets setup and configuration options for overlay on the chart. *See "4.3.1.7. Water Column Targets" on page 57.*
7	DATABASE	Used to set up the Mapping Database. *See "4.3.4. Database" on page 62.*
8	FILTERS	Allows adjustment of signal processing filters to optimise the data and display when operating in an environment with noise, clutter and other interference impacting the data quality. *See "3.2.4. Filter Setup" on page 20.*

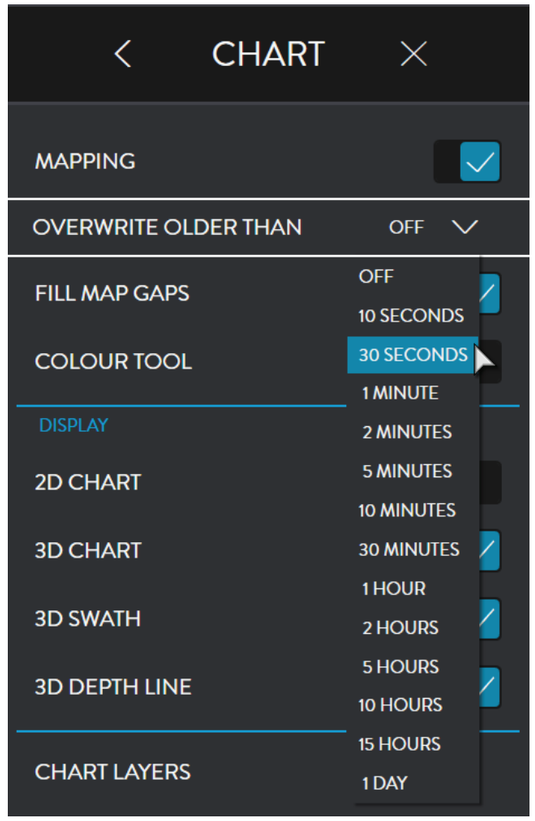
NOTE: Options that are disabled are only available with appropriate feature licensing.

4.3.1.1. Overwrite Older Than

Wassp CDX merges data together using old and new data to create the most accurate reading.

With OVERWRITE OLDER THAN enabled, old data will be overwritten. The default is OFF.

The drop-down menu provides options of the time delay before bathymetry overwrite is enable. For instance; If '1 Minute' is selected any bathymetry older than 1 minute will be overwritten as new bathymetry data is created.



4.3.1.2. Fill Map Gaps

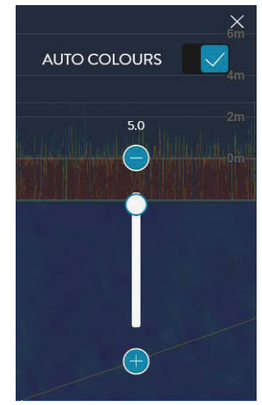
FILL MAP GAPS will interpolate between bathymetry data where there are areas of missing bathymetry.

4.3.1.3. Colour Tool

The COLOUR TOOL allows colour range to be set on the Bathymetry.

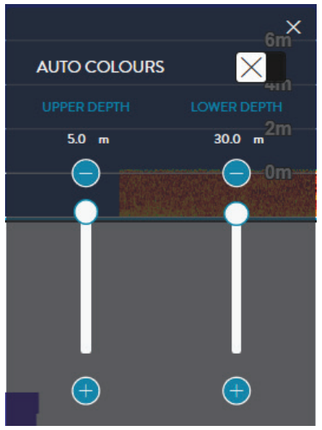
With AUTO COLOURS enabled the colour range will be assigned automatically, centered around the current depth at the vessel.

The colour range around depth at vessel can be adjusted using the slider. This will other condense or extend the colour range for a specific depth range.



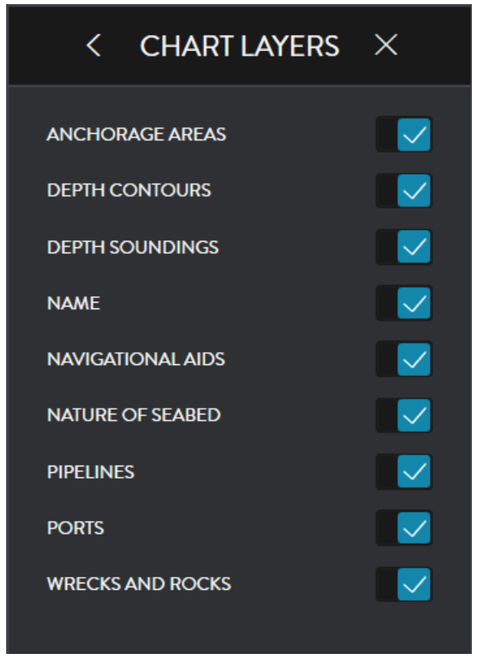
With AUTO COLOURS disabled the colour range will be controlled by the user.

The colour range can be condensed or extended using the slider bars to apply between two user specified depths.



4.3.1.4. Chart Layers

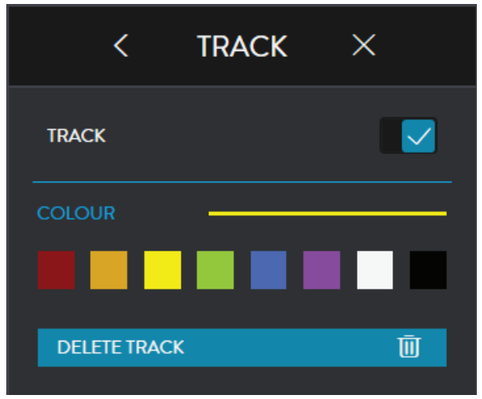
By selecting CHART LAYERS, specific charting cartography layers can be enabled or disabled.



4.3.1.5. Track Options

By selecting TRACK OPTIONS, the following options are available:

- TRACK enables or disables display of the track on the 2D Chart display.
- COLOUR allows track colour selection.
- DELETE TRACK will permanently delete the track.



4.3.1.6. Backscatter

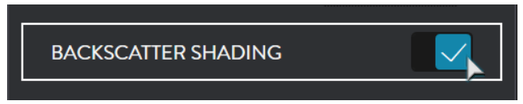
Backscatter overlay displays seafloor surface reflectivity as the seafloor target strength compensated for reflection angle due to slope, beam angle, and other losses.

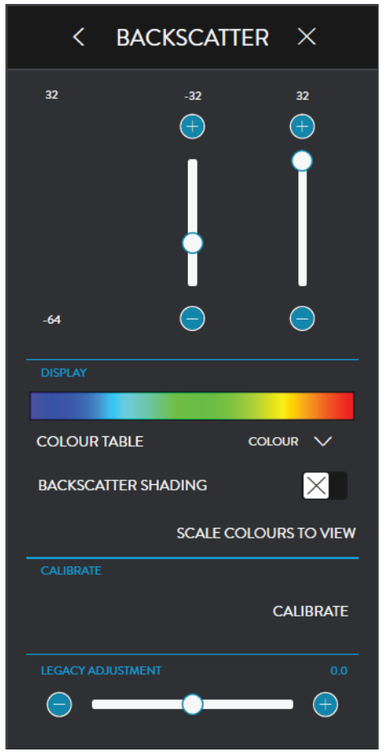
The backscatter calibration routine needs to be run in order to compensate for system characteristics.

BACKSCATTER SHADING shows the backscatter overlay on the chart.

Backscatter will show instead of Bathymetry when enabled.

Backscatter overlay displays seafloor reflectivity, represented by colour change.



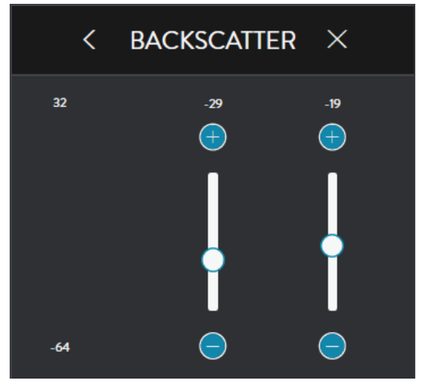


NOTE: Backscatter CALIBRATE process should be run prior to using the Backscatter overlay.

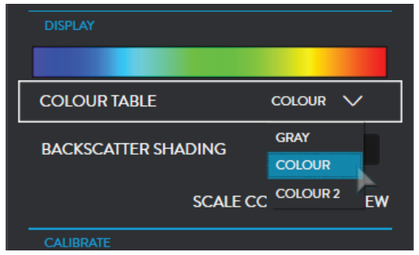
The backscatter control allows setting the backscatter colour range.

To change the colour range drag the minimum and maximum indicators on the slider controls.

The histogram alongside the colour range controls indicates the actual spread of backscatter intensity currently displayed in the panel.



The backscatter display can either be shown as greyscale or colour scale using the COLOUR TABLE selection.



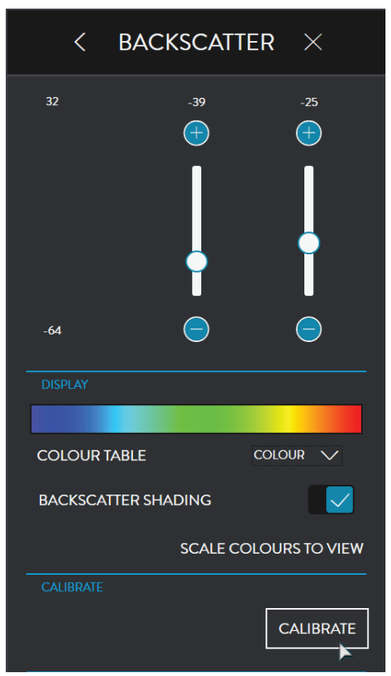
The display range can be automatically adjusted to be optimal for the data by using the SCALE COLOURS TO VIEW button. This selects the colour range to fit the intensity histogram.

CALIBRATE: Backscatter calibration is run to compensate for system characteristics that may cause artefacts on the backscatter display. Specifically this compensates for the transducer beam pattern variance from the nominal. Calibration requires:

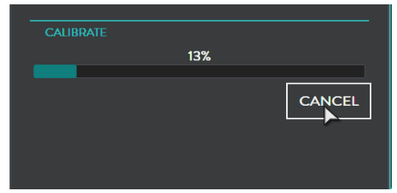
» 10 – 50m depth
» Flat seafloor with consistent seafloor type
» Calm conditions
» At least 200m straight run

To run the Backscatter calibration:

1. Enable BACKSCATTER SHADING.
2. Line up for the calibration run and begin the calibration run.
3. Hit the CALIBRATION button:
   - A line across the swath will indicate Calibration routine has started.
   - The Backscatter data will adjust dynamically during the calibration run.
   - A 2nd line across the swath will indicate when the calibration data collection has completed.
4. Once completed the Backscatter will be adjusted to compensated levels.

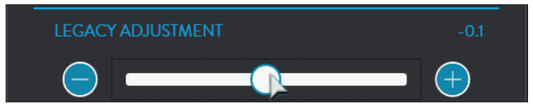


5. Pressing cancel at any point during the calibration run will stop the data collection process and disregard the data.



NOTE: Calibration status will be displayed during the calibration process.

LEGACY ADJUSTMENT: Backscatter on imported Navigator will have a different level to DRX generated backscatter due to calibration. Legacy adjustment allows offset imported Navigator layers to better match DRX data.

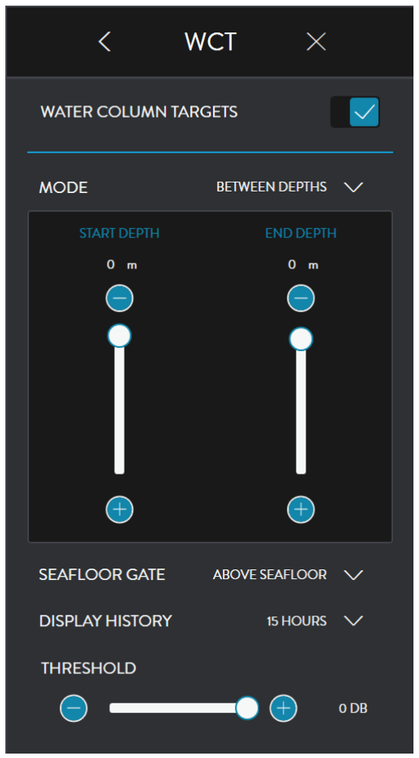


4.3.1.7. Water Column Targets

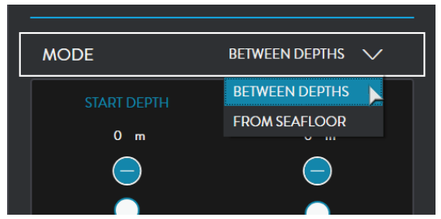
When enabled, target detections in the water column will be displayed on the 2D and 3D Chart panels.

The water column detections are coloured and sized depending on the intensity of the return signal. Typical water column targets that will be depicted and overlaid on the chart display are individual fish targets and fish schools. However, they will also include artefacts and, depending on the threshold level set, may also include sediment and turbulence.

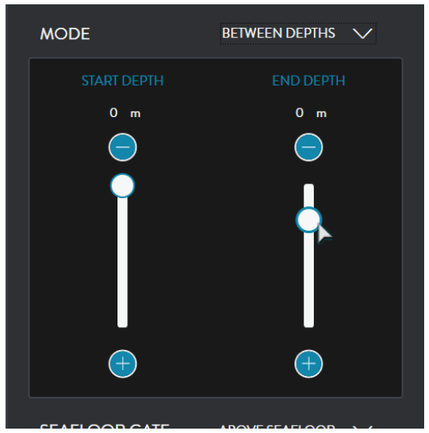
The water column targets are stored and can be retrieved for viewing historical data.



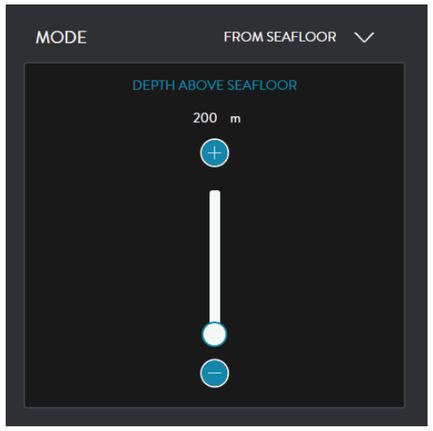
MODE toggles between BETWEEN DEPTHS and FROM SEAFLOOR. The area of interest can either be defined in the water column below the surface, BETWEEN DEPTHS, or as a zone above the seafloor, FROM SEAFLOOR.



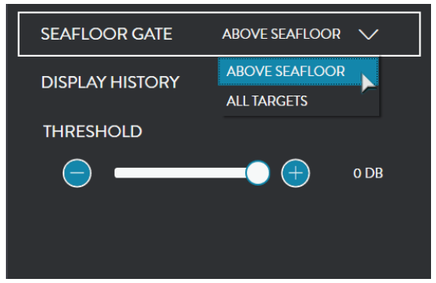
When BETWEEN DEPTHS is selected, define the START DEPTH and END DEPTH by dragging the indicators on the slider controls. Detections outside the selected zone will be ignored.



When FROM SEAFLOOR is selected, define DEPTH ABOVE SEA LEVEL by dragging the indicator on the slider control. Detections above the selected distance above the seafloor will be ignored.

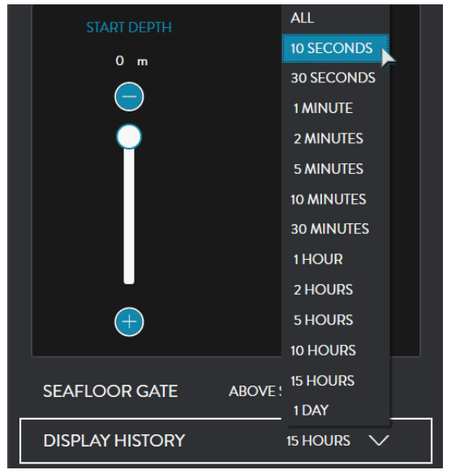


SEAFLOOR GATE toggles between ABOVE SEAFLOOR and ALL TARGETS. The area of interest can be limited to being above the seafloor or using ALL TARGETS for the full ping / transmit range. This is specifically useful when working in water where seafloor depth is beyond the ping / transmit range.



DISPLAY HISTORY can be selected to a specified time or to ALL.

The specified time will determine how much historical water column detections data will be displayed on the Chart panels.

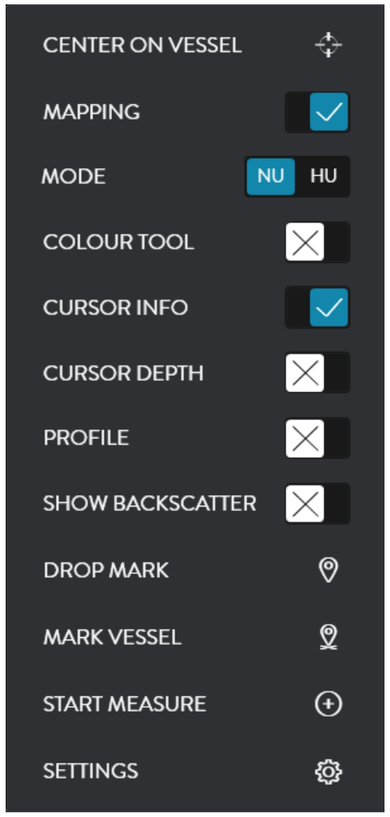


THRESHOLD slider control allows selection of the target strength level above which the return signal will be deemed as a water column target and displayed as such.

NOTE: Water column targets will only be available for display on the Chart panels if they are within the selected zone and above the selected threshold level at the time of acquisition.

4.3.2. 2D Chart CSM

To access the 2D CSM, right-click on the Display Panel:

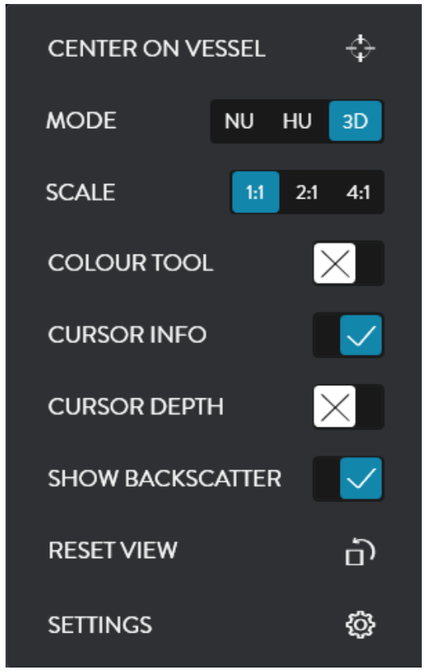


CENTER ON VESSEL	Centers the chart on the vessel position. This mode will be disabled if the chart is panned.
MAPPING	Disables and enables MAPPING.
MODE	Toggles between NU (North Up) and HU (Head Up) chart display.
COLOUR TOOL	Displays the COLOUR TOOL. *See "4.3.1.3. Colour Tool" on page 53.*
CURSOR INFO	Displays the Information display as an overlay on the Display Panel.
CURSOR DEPTH	Displays the Depth display as an overlay on the Display Panel.
PROFILE	Enables the Profile tool. *See "5.2. Profile Tool" on page 69.*
SHOW BACKSCATTER	Displays Backscatter. *See "4.3.1.6. Backscatter" on page 55.*

DROP MARK	Places a mark at the cursor position. To modify or delete this mark, right-click on the symbol and a sub menu will appear. *See "5.1. Marks" on page 68.*
MARK VESSEL	Places a mark at the vessel position.
START MEASURE	Starts / Stops the Measure on the PROFILE tool. *See "5.2. Profile Tool" on page 69.*
SETTINGS	This option will display the CHART Menu. *See "4.3.1. Chart Configuration Options" on page 46.*

4.3.3. 3D Chart CSM

To access the 3D CSM, right-click on the Display Panel:



CENTER ON VESSEL	Centers the chart on the vessel position.
MODE	Toggles between NU (North Up), HU (Head Up) and FREE ROTATE which allows user orientation of Vessel and chart; left-click the cursor and drag.
SCALE	Scale options allow the vertical scale of the 3D display to be changed whilst horizontal scale remains the same. This will accentuate seafloor features.
COLOUR TOOL	Displays the COLOUR TOOL. *See "4.3.1.3. Colour Tool" on page 53.*

CURSOR INFO	Displays the Information display as an overlay on the Display Panel.
CURSOR DEPTH	Displays the Depth display as an overlay on the Display Panel.
SHOW BACKSCATTER	Displays Backscatter. *See "4.3.1.6. Backscatter" on page 55.*
RESET VIEW	This will reset view to its native resolution.
SETTINGS	This option will display the CHART Menu. *See "4.3. Chart" on page 50*.

NOTE: 3D Chart control is bound to the 2D control which means that display control on 2D will impact the 3D display.

NOTE: Cursor info only displays depth at the cursor on mapped Bathymetry.

4.3.4. Database

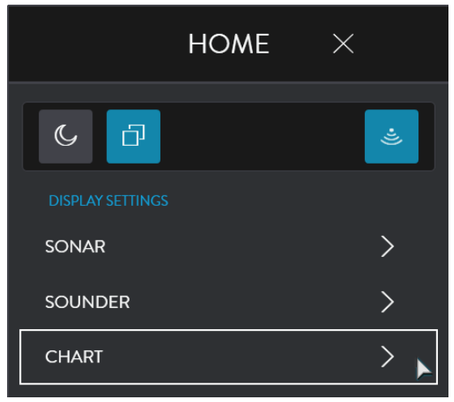
The Mapping Database is used for all WASSP CDX data storage.

The DATABASE is used to set up the Mapping Database. Bathymetric data from the DRX will be saved to the database you select.

The DATABASE section can also be used for importing data such as Navigator data from previous versions of WASSP.

To access the DATABASE menu pages**:**

1. From the HOME bar, under DISPLAY SETTINGS, select CHART.

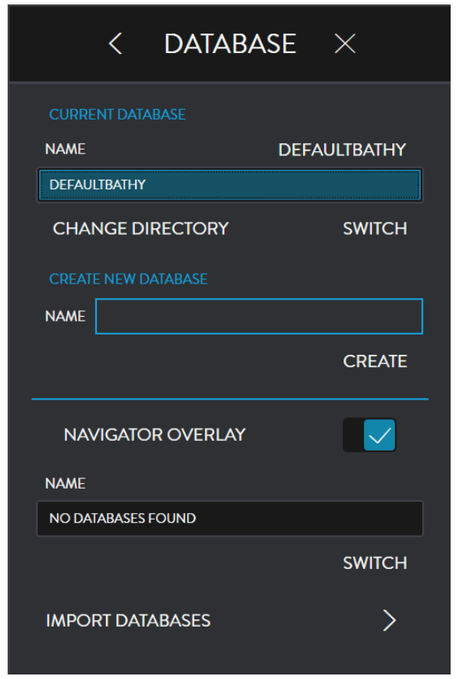


2. Select DATABASE.

Database management menu options will be available.

All database management is carried out on the selected database location.

The selected database location is used for database creation, database selection and Navigator database import location.



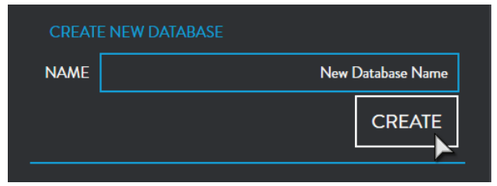
3. The selected database location can be changed.

Selecting CHANGE DIRECTORY will bring up a BROWSE FOR FOLDER window with the currently selected location highlighted.

Selecting and saving a different location will update the selected database location.

4.3.4.1. To Create a New Database

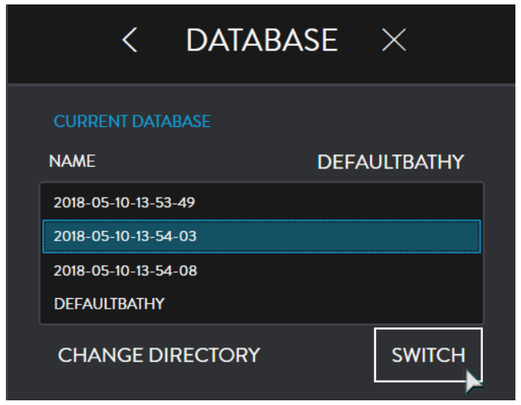
1. Under CREATE NEW DATABASE type in a name for the database.
2. Click CREATE. The created database will appear in the database list. *See "4.3.4.2. To Select a Database" on page 64.*



4.3.4.2. To Select a Database

Bathymetric data will be recorded to the currently selected database.

1. Select a database from the list of available databases in the list box. Click SWITCH.
2. The current database used in the Chart panels will appear under CURRENT DATABASE.



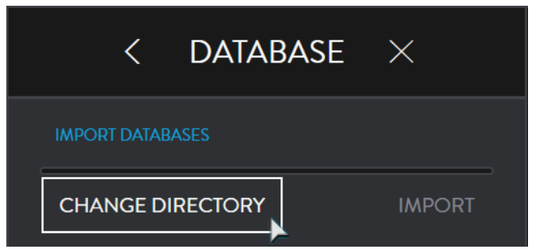
NOTE: Only databases under the select Path will be shown in the database selection list. CHANGE DIRECTORY to view databases stored in other locations.

4.3.4.3. Navigator Overlay

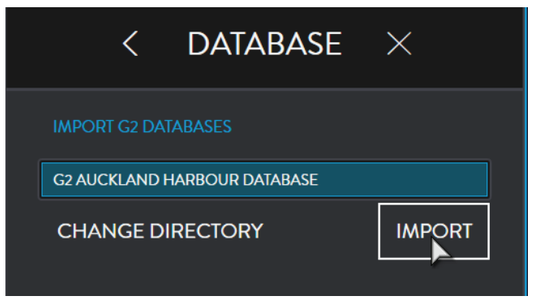
Navigator data from previous versions of WASSP can be imported and viewed as an overlay on the Chart Panels.

The Navigator database can be imported by selecting IMPORT DATABASES.

1. Select CHANGE DIRECTORY. This will bring up a BROWSE FOR FOLDER. Select the location of the original Navigator databases to be imported.

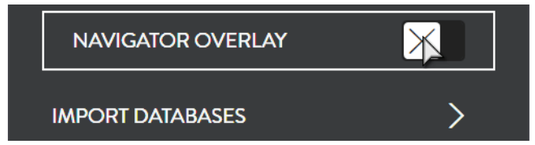


2. Select the Navigator database to be imported.
3. Select IMPORT.

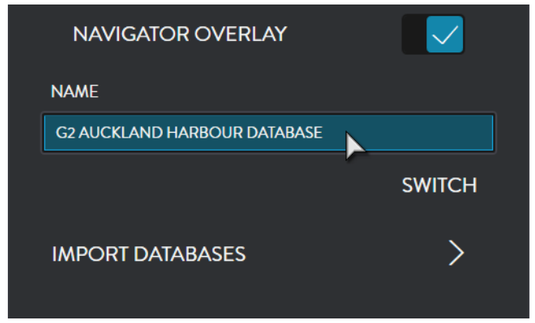


Once imported, the Navigator databases can be viewed as an overlay on the chart panel.

1. Select the NAVIGATOR OVERLAY,

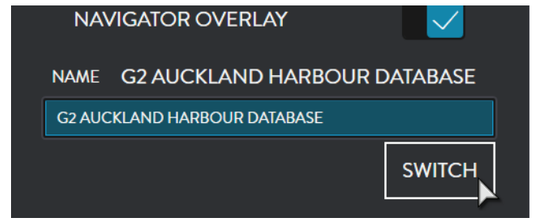


2. The imported databases will appear in the selection list for NAVIGATOR OVERLAY. Select the imported Navigator database to overlay.



3. Select SWITCH.

   The Navigator database will now be overlaid on the Chart Panels.

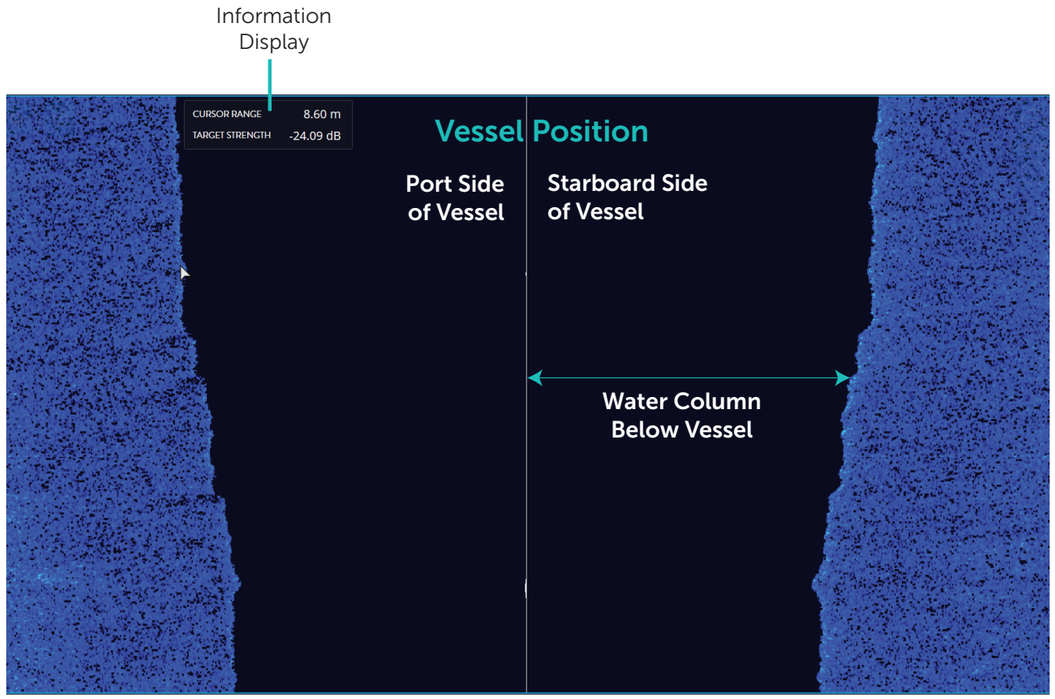


NOTE: If the Selected database location, see “4.3.4. Database” on page 62, is changed the imported navigator databases will not appear in the selection list.

4.4. SIDESCAN

SIDESCAN is displayed similarly to traditional sidescan with the seabed drawn on either side of the vessel position with a scrolling history displayed behind the vessel position.

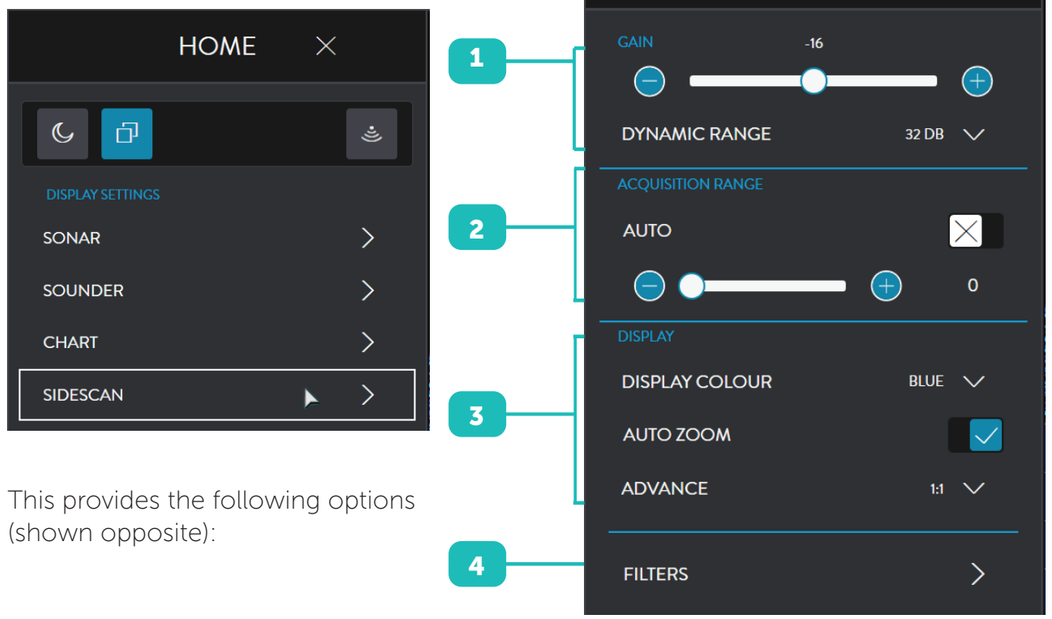
SIDESCAN is not georeferenced so is depicted as a flat seafloor but as can be seen in the image, seafloor artefacts and other changes or objects are clearly defined through the shadowing effect of these objects.



INFORMATION DISPLAY	Supplies following information at the cursor: » Cursor Range » Target Strength

4.4.1. Sidescan Configuration Options

From the HOME bar, select SIDESCAN.



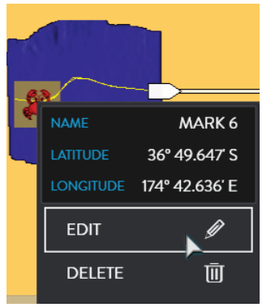
This provides the following options (shown opposite):

1	GAIN	GAIN and DYNAMIC RANGE are used to optimise the Sounder display to the user preference. *See "4.2.1.1. Gain" on page 44.*
2	ACQUISITION RANGE	DRX control for setting ping / transmit range for the system. *See "4.1.1.2. Acquisition Range" on page 40.*
3	DISPLAY	Controls for display settings. *See "4.2.1.2. Display" on page 45.* DISPLAY COLOUR allows colour palette selection. AUTO ZOOM allows the display to be auto zoomed to fit the Display Panel or user controlled display zoom. ADVANCE option allows for advancing the Echogram scroll at the required rate.
4	FILTERS	Allows adjustment of signal processing filters to optimise the data and display when operating in an environment with noise, clutter and other interference impacting the data quality. *See "3.2.4. Filter Setup" on page 20.*

5 TOOLS

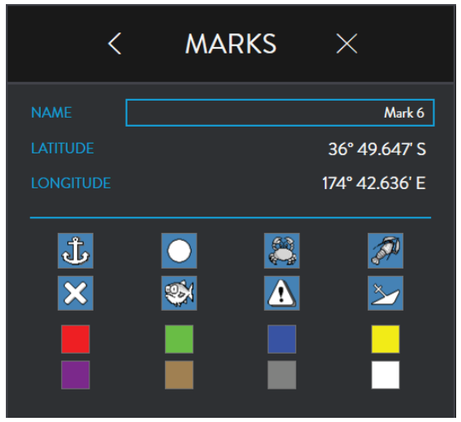
5.1. MARKS

The MARKS setting can be accessed from CSMs in Charting and Sounder Display Panels and by right-clicking on a MARK and selecting EDIT.



The MARK setting can be used to:

» Select MARK ICON.
» Select MARK COLOUR.
» Edit MARK NAME.

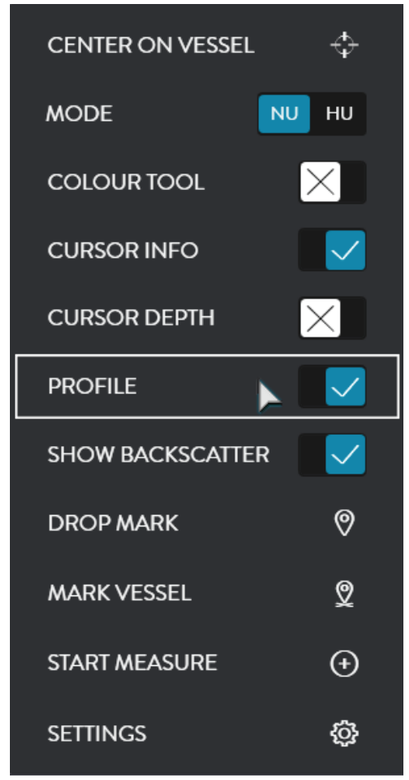


There are colour options for each mark. To change colour, click on the colour box you require e.g. yellow:

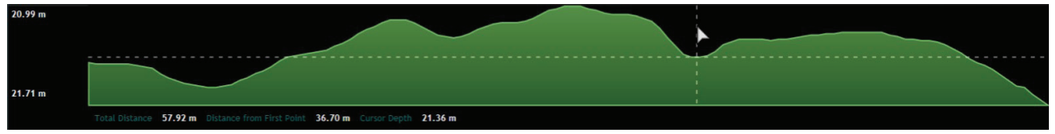
5.2. PROFILE TOOL

The profile tool can be used to measure the distance between two points and to give a profile of the seafloor between those two points.

To enable or disable display of the profile tool click on PROFILE option in the appropriate CSM.

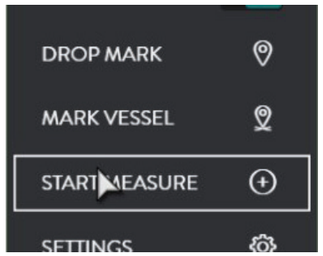


PROFILE TOOL will be displayed. Mousing over the Profile Tool will display depth and distances.

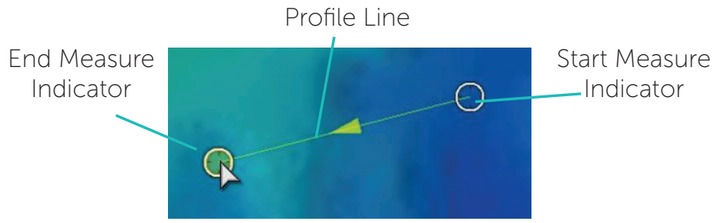


To select the measure area that will be profiled:

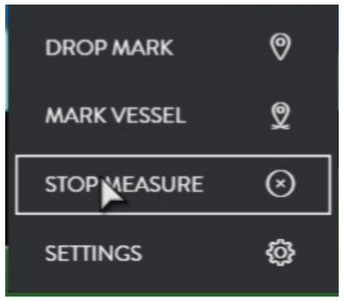
1. Select START MEASURE from the CSM.



2. Drag the START MEASURE Indicator to required start position and left-click to lock Start position.



3. Drag the END MEASURE Indicator to required finish position and left-click to lock End position.
4. The measure and profile will be dynamically updated on the profile tool.
5. The START MEASURE INDICATOR and END MEASURE Indicator can be selected by hovering over, left-click and drag to a new position for profiling.
6. To remove the Measure tool from the Panel select STOP MEASURE on the CSM.



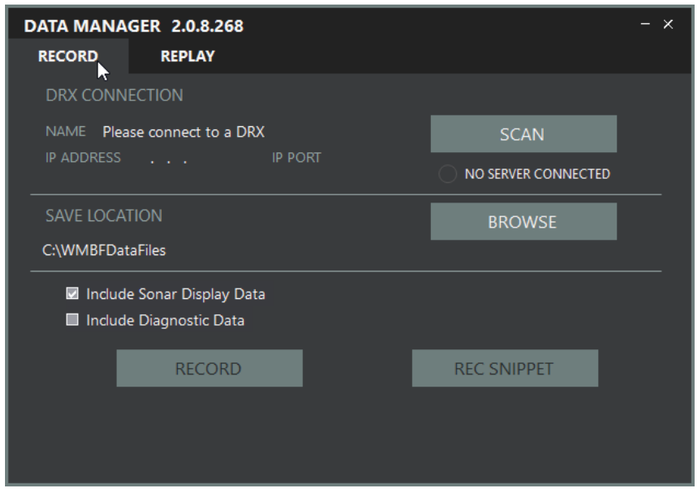
6 DATA MANAGER

DATA MANAGER is used for recording and replaying data from the DRX. DATA MANAGER can also be used for exporting recorded data into different file formats for offline processing.

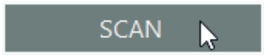
DATA MANAGER is installed with CDX but is launched as an independent application.

6.1. DATA MANAGER RECORD

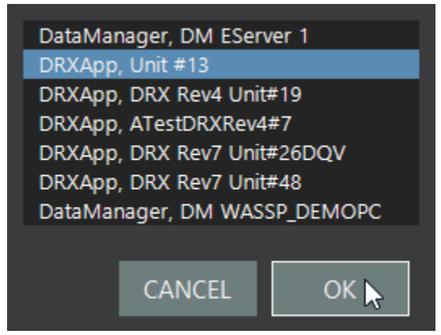
1. Click on the RECORD tab.



2. Connect to the DRX that you want to Record data from.
3. Click on the SCAN button to view DRXs on the network.



4. Select the DRX and click OK.



5. Select the location that you want to store your files to by clicking on BROWSE under SAVE LOCATION.

6. Click on RECORD to start recording and STOP to stop recording.

7. When recording there are some options:

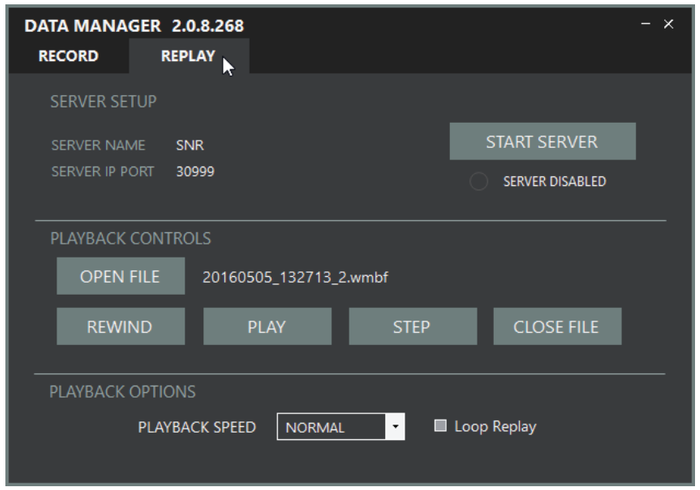
» 'Include Sonar Display Data' will record Sonar data as well as bathymetric data. This will result in medium size files.

» 'Include Diagnostics Data' will record the full raw data useful for technician analysis. However, it will result in very large files.

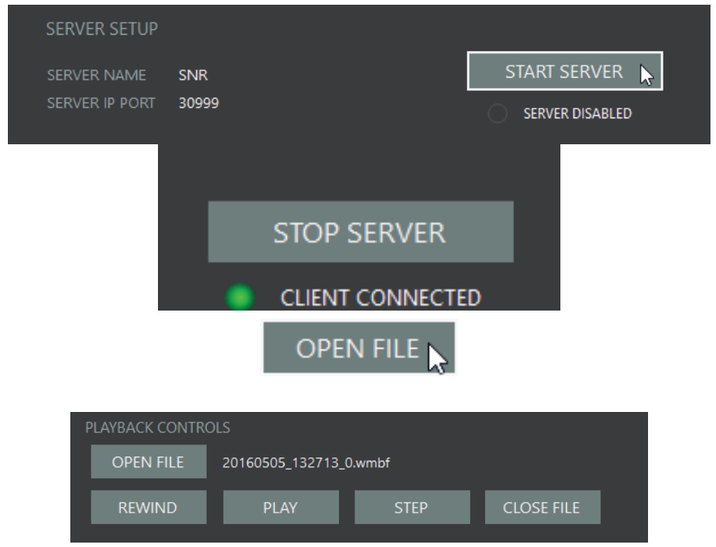
» REC SNIPPET will record enough full raw data for a short period of time. This data is useful for technician analysis of issues without recording overly large files.

6.2. DATA MANAGER REPLAY

1. Click on the REPLAY tab.



2. Click on START SERVER. This allows Data Manager to be available to client applications such as CDX.
3. Once a client application is successfully connected the connection icon will display green.
4. A playback file can be selected using the OPEN FILE button.
5. PLAYBACK CONTROLS can then be used to control the playback.



NOTE: In Replay mode Data Manager appears as a DRX to client applications and can be selected in DEVICE SETUP in CDX. See "3.1. Device Setup" on page 12.

7 APPENDIX

APPENDIX A - PC

PC SPEC

		MINIMUM	RECOMMENDED
OS		Windows 7, 8.1, 10	Windows 10
CPU	*Base Frequency*	2GHz	2GHz
	Cores/Threads	2/4	4/4
Memory		4GB*	8GB
Graphics		DirectX 11	DirectX 11
Screen Resolution		1024x768	FHD - 1920x1080
HDD/SDD**		500GB SSD	2TB SSD
Network	*Ethernet*	GbE	GbE
	*Wi-Fi****	802.11ac	802.11ac

* Running OS and CDX only and graphics card has its own memory

** If data storage limits are approached there will be a user warning and mapping will be disabled until disk space is freed up.

*** Optional depending on setup if wifi is required.

Example of WASSP supported PCs:

» Low end PCs
- Intel NUC5i3RYK

» Tablets
- ToughPad FZ-GI
- Microsoft Surface Pro 4

» Ruggedised PCs
- ADLINK MXE-5400

APPENDIX B - NMEA SUPPORTED SENTANCES

Own vessel position and heading data:	NMEA
Position	GGL, RMC, GGA
Heading	HDT
Speed and Course	RMC, VTG

CDX OPERATORS MANUAL

Doc: CDX Operators Manual
Version: 4.0 April 2019
wassp.com

ENL Group

wassp® MULTIBEAM

SEE IT ALL