

HYPACK 2025 Q2 Release Notes

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TABLE OF CONTENTS

The table of contents lists the programs and processes that have received new features, updates, and bug fixes in the HYPACK 2025 Q2 update. Click and jump to the sections for more information.

I.	Table of Contents	1-1
II.	HYPACK Shell	1-2
	<i>A. Hardware</i>	<i>1-2</i>
	1. SURVEY Device Driver Updates	1-2
	2. HYSWEEP Device Driver Updates	1-4
	3. DREDGEPACK Device Driver Updates	1-6
III.	Side Scan Survey	1-6
	1. Targeting and Mosaicking	1-7
IV.	HYSWEEP® Survey	1-7
	<i>A. 64-bit HYSWEEP® EDITOR (MBMAX64)</i>	<i>1-7</i>
	1. Sonar Processing Window Updates	1-11
V.	Final Products	1-13

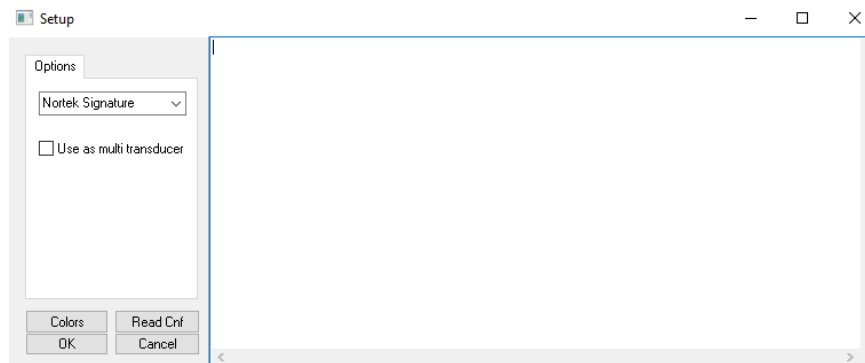
HYPACK SHELL

HARDWARE

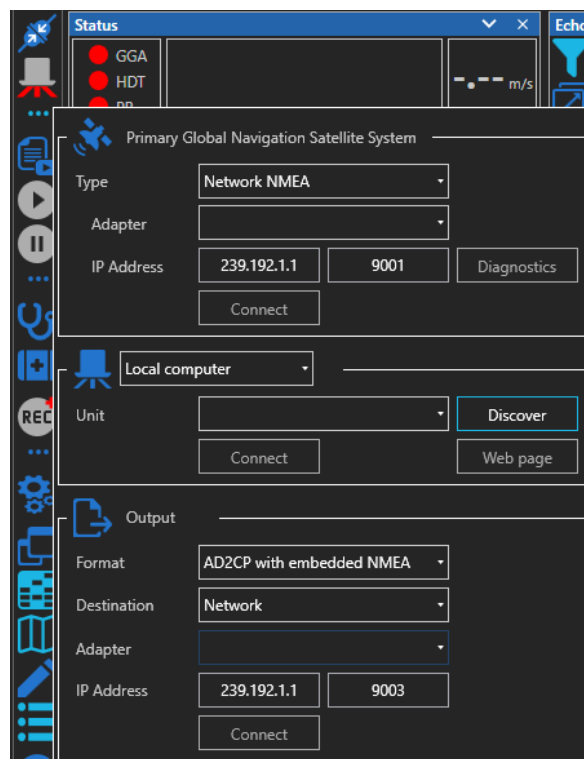
SURVEY DEVICE DRIVER UPDATES

- **ADCP.dll (ADCP Driver):**

The ADCP driver now supports the Nortek Signature and Nortek Nucleus series. Nortek Signature is now a dropdown option in the driver setup window. When selected, the user can choose to enable the Use as multitransducer checkbox. When checked, the driver outputs two values: The average depth value of all four 25 degree slant beams, and the vertical beam depth.



For the Nortek VM Software Setup, in the Output Section, select “AD2CP with embedded NMEA” for Format, and “Network” for Destination.



- The Kongsberg KMALL Setup window has a new option called Log KMALL SV Profile (not Recommended). Checking the box next to this option enables using the SVP logged by the Kongsberg device.

To enable or disable logging the KMALL SVP:

- From HYPACK Shell, click Preparation -> Hardware Setup. The HYPACK Combined Hardware window appears.
- In the HYPACK Combined Hardware window, open the Mobile tab, and under the Device Type section, select HYSWEEP Devices.
- From the Manufacturer/Model list, click Kongsberg KMALL and click [Add -->]. Kongsberg KMALL will appear in the Installed list.
- Double click Kongsberg KMALL in the Installed list. The Kongsberg KMALL Setup window appears. Check or uncheck the Log KMALL SV Profile (not Recommended) checkbox as needed.

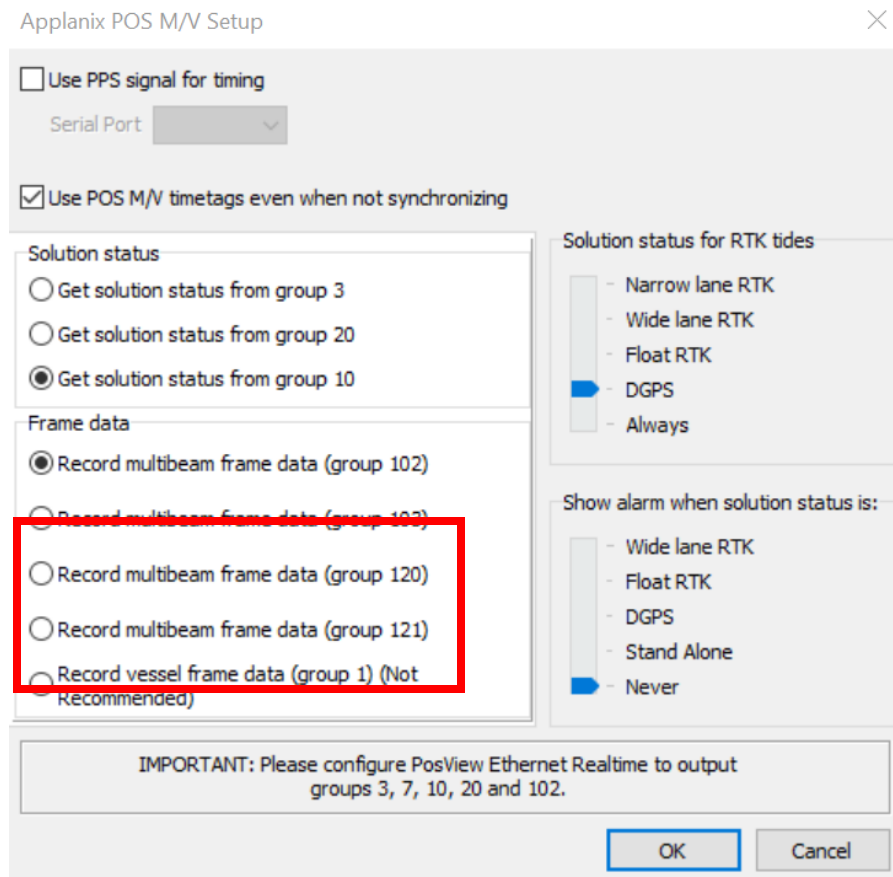
The screenshot shows the 'Kongsberg KMALL Setup' dialog box. It has a title bar with a close button. The 'Connection Mode' section has three radio buttons: 'UDP (Old)', 'UDP Multiport (Recommended)' (which is selected), and 'TCP Multiport (Port 13130)'. Below this are three unchecked checkboxes: 'Reverse Raw Beam Angles', 'Log Datagrams (.kma)', and 'Log Water Column'. The 'Log KMALL SV Profile (not Recommended)' checkbox is highlighted with a red rectangle. Below this are two text input fields: 'Device Name (ex. EM2040P_40)' with the value 'EM2042_101' and 'K-Control/SIS IP Address' with the value '157.237.20.85'. At the bottom are 'OK' and 'Cancel' buttons.

- NMEA.dll - Added new check box to allow parsing of XDR NMEA sentences in the NMEA Input/Output Driver Setup window.** High frequency and low frequency depths are parsed and displayed in the Data Display window of survey. They are also logged in the RAW file as EC2 (dual frequency) depth records. You can select this option by going to Preparation -> Hardware Setup, add nmea.dll, then double click the driver to bring up the setup window.

Note that the default depth values are output in meters, therefore we convert this data to feet when using a foot grid in Geodesy.

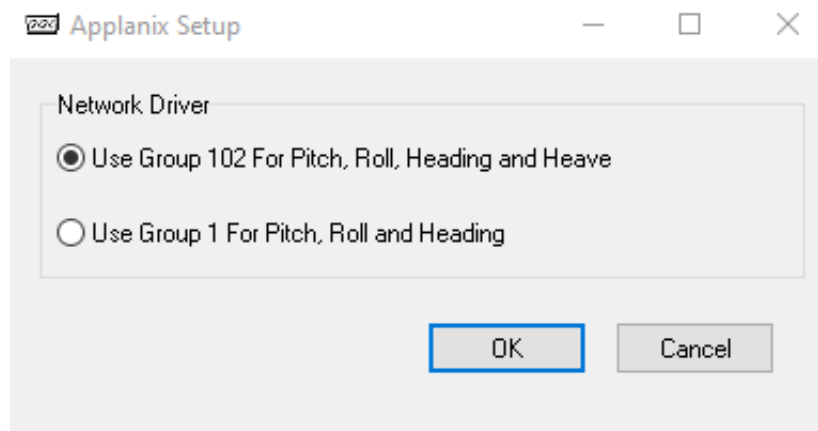
The screenshot shows the 'NMEA Input/Output Driver Setup' dialog box. It has a title bar with a close button. The 'Sentences To Use' section has three columns: 'Depth' with checkboxes for DPT, DBT, SPS, and XDR (which is checked and highlighted with a red rectangle); 'Misc.' with checkboxes for PAT, PSE, ATT, PASHR, *TGT, PTNLR, ATT, TLL, and *LIN; and 'Heading' with checkboxes for VTG, HDT, HDM, and HDG. Below this are two unchecked checkboxes: 'Ignore checksum' and 'Line Az as HDG'. The 'Sentences to Generate' section has a list of checkboxes: GLL, GGA, XYZ, VTG, BWV, BWC, *LIN, RMC, APB, *TGT, and DMG. To the right of this list is a 'GLL Output Decimal Places' section with a dropdown menu set to '4', a text input for 'XTE (Nautical Miles)', a text input for 'XTE (in Survey Units)', a text input for 'XTE Factor' with the value '0.00', and an unchecked checkbox for 'Output to Hundredth Decimal'. At the bottom right are 'Help...', 'OK', and 'Cancel' buttons.

- **Posmv.dll (Applanix POS M/V):** Posmv.dll has received a couple of updates:
 - > **Use GSOF Messages checkbox removed from the Applanix POS M/V Setup window.** GSOF messages are no longer supported or used.
 - > **Three more Record multibeam frame data message options have been added for Group 103, 120, and 121.**



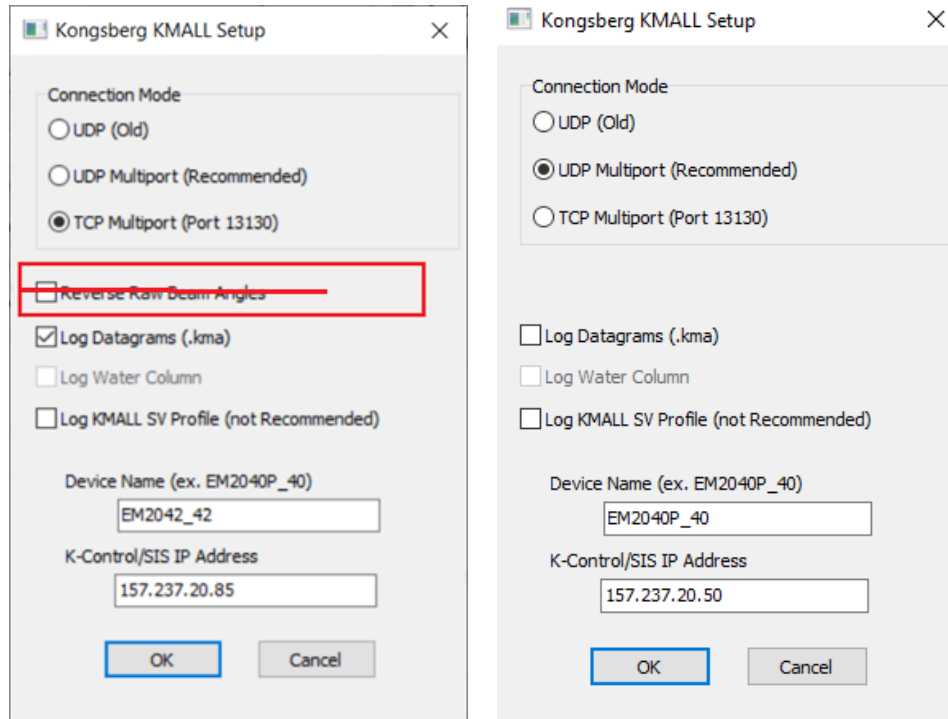
HYSWEEP DEVICE DRIVER UPDATES

- **Applanix POS M/V Network:** All GSOF message options removed from the Applanix Network Driver Setup window. GSOF messages are no longer supported or used.



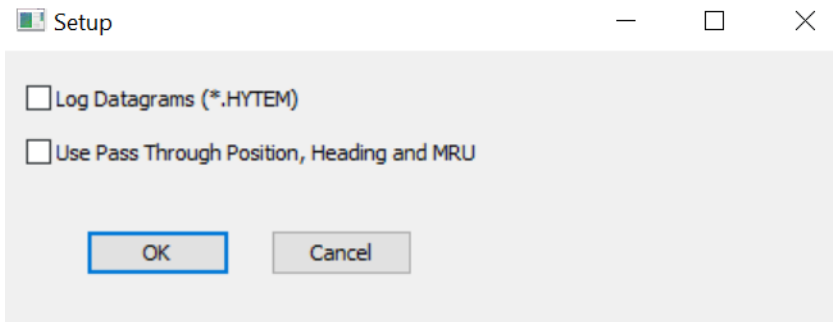
- **Kongsberg KMALL:** Removed the 'Reverse Raw Beam Angles' checkbox from the Kongsberg KMALL Setup window. HYPACK® now automatically handles raw beam angles by using RX and TX orientation from K-Controller installation parameters. Previously, the checkbox in the driver setup window was used to designate the RX and TX angles, however Kongsberg configurations may be RX forward/reversed and TX forward/reversed, and the checkbox only handled two of the cases (forward-forward and reversed-reversed).

The left image shows how the Kongsberg KMALL Setup window looked previously, the right image shows the updated version.



- **New Driver: GeoAcoustics GeoBeam**

GeoAcoustics GeoBeam uses the Hydro-Tech multibeam hardware, so refer to the Hydro-Tech Multibeam section in the HYSWEEP Interfacing manual.



Log Datagrams (*.HYTEM): This box is unchecked by default and usually not required. When checked, the driver logs raw datagrams to a *.HYTEM file to help with debugging. HYTEM is the Hydro-Tech datagram format.

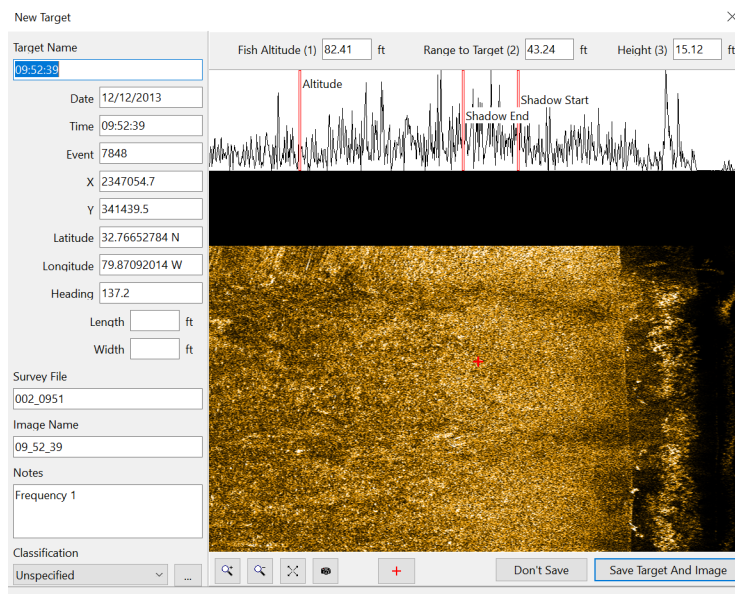
Use Pass Through Position, Heading and MRU: This box is checked by default. When checked, heading and motion datagrams from the embedded IMU are parsed and then logged to an *.HSX file. Position data is passed to the HYPACK® Survey driver Hysweep_Extended.DLL. Hysweep_Extended.DLL is an optional and very basic GPS/INS driver which can be used to replace the native device driver (POS MV.DLL for example).

DREDGEPACK DEVICE DRIVER UPDATES

- **New Driver: sidus.dll (Sidus Rotator Driver)**
 - > Sends commands through either a serial or ethernet connection.
 - > Allow the user to set limits both port and starboard to prevent cable damage, store the settings in the INI file.
 - > Provide a graphical view showing the direction the rotator is pointed and update with every request.
 - > Provide a go home function, to return the Sidus to the resting position.
 - > Provide an emergency stop option to prevent further movement in any direction.
 - > Refer to the manual "MBES for Marine Construction and Dredging - Sidus Rotator Driver" (Sidus Rotator Driver_DRVSU-001 Init.pdf) for additional information.

SIDE SCAN SURVEY

- **The Range and Height sliders in the New Target window have been changed to Shadow Start and Shadow End, respectively.** This update was made to reduce confusion for users when calculating shadow size by matching the terminology used by HYPACK instructors.



Additionally, all three slider colors (Altitude, Shadow Start, and Shadow End) are now red to be visually distinct from the signal amplitude.

To view the New Target window:

1. From the HYPACK Shell, click Side Scan -> Targeting and Mosaicking (Beta). The Side Scan Targeting and Mosaicking Beta window appears.
2. Click File -> Open and select your desired RAW or LOG files. The Catalog window appears.
3. In the Catalog window, select the files you want to open, then click [Select]. To open all files, click [Select All].
4. Once the files are open, click the Scanview tab, and double click the location on the side scan image you would like to create a target. The New Target window appears, which allows you to view target parameters, classify, compare targets, make notes, and save the target and image.

TARGETING AND MOSAICKING

The Side Scan Targeting and Mosaicking (SSTM) Beta program is now the main Targeting and Mosaicking program.

- "Targeting and Mosaicking (Beta)" is renamed "Targeting and Mosaicking"
- "Targeting and Mosaicking" is renamed "Targeting and Mosaicking (Legacy)".

For additional resources on the current version of SSTM, refer to the following articles:

- New Side Scan Targeting and Mosaicking Transitions Out of Beta by Daniel Tobin
- Creating Targets in Side Scan Targeting and Mosaicking by Jocelyn Kane
- [Real-Time Side Scan Mosaic by Daniel Tobin](#)
- [Segmentation in Side Scan Targeting and Mosaicking by Daniel Tobin](#)
- [Backscatter Update for Side Scan Targeting and Mosaicking by Daniel Tobin](#)
- [Side Scan Targeting and Mosaicking Beta Speed Improvements by Daniel Tobin](#)
- [Targeting and Mosaicking Walkthrough by Daniel Tobin](#)

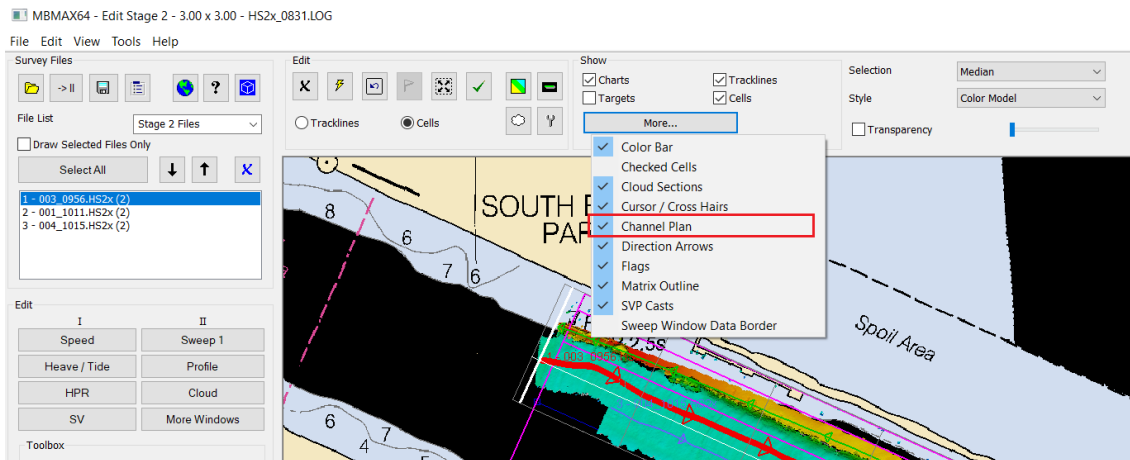
A new Targeting and Mosaicking section will be available in the HYPACK 2026 manual.

HYSWEEP® SURVEY

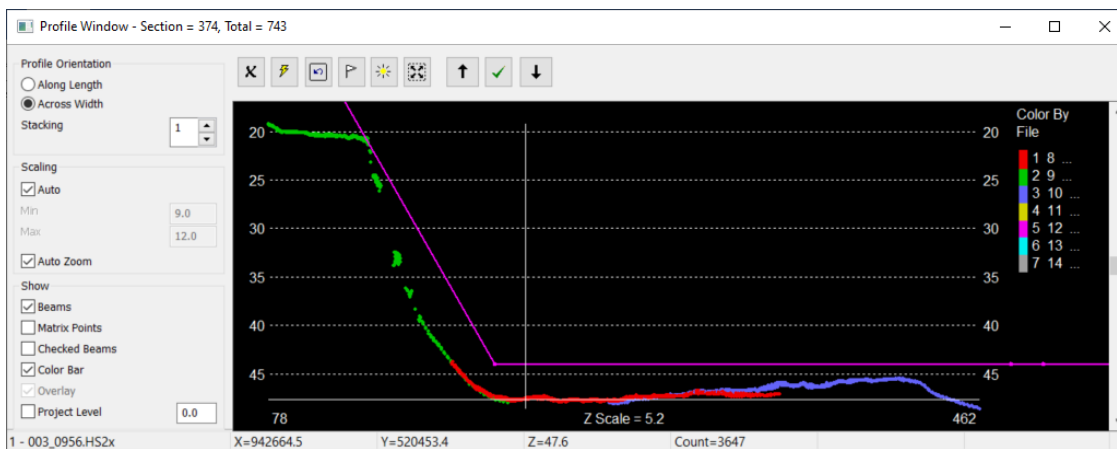
64-BIT HYSWEEP® EDITOR (MBMAX64)

- **Added the storage of geodetic information into HS2X files.** Copies over the information from HSX files if it exists. Otherwise, it includes the project geodesy. If loading an HSX or HS2X file with geodesy information, the report will include that geodesy information. Otherwise it will include the project geodesy.
- **The 'Channel Plan' option under the Show section now only affects whether any enabled channel plan files (*.CHN) in your project are displayed in the main MBMAX64 survey map window.** Note that channel plan files show up in the Profile and AB Cross Section windows regardless whether Channel Plan is enabled/disabled in the Show settings. This change was made because channel plans can completely cover soundings and be distracting in the survey window, but are still useful to display in the

Profile and AB Cross Section windows.



For reference, here is the channel plan overlay in the Profile window.



- **The Save Image to File button has been added to the A-B Cross Section Patch Test window, Cloud window, Cloud Popup window, and the Imagery window.** This button allows users to save the display window to a *.bmp, *.jpg, or *.png file.



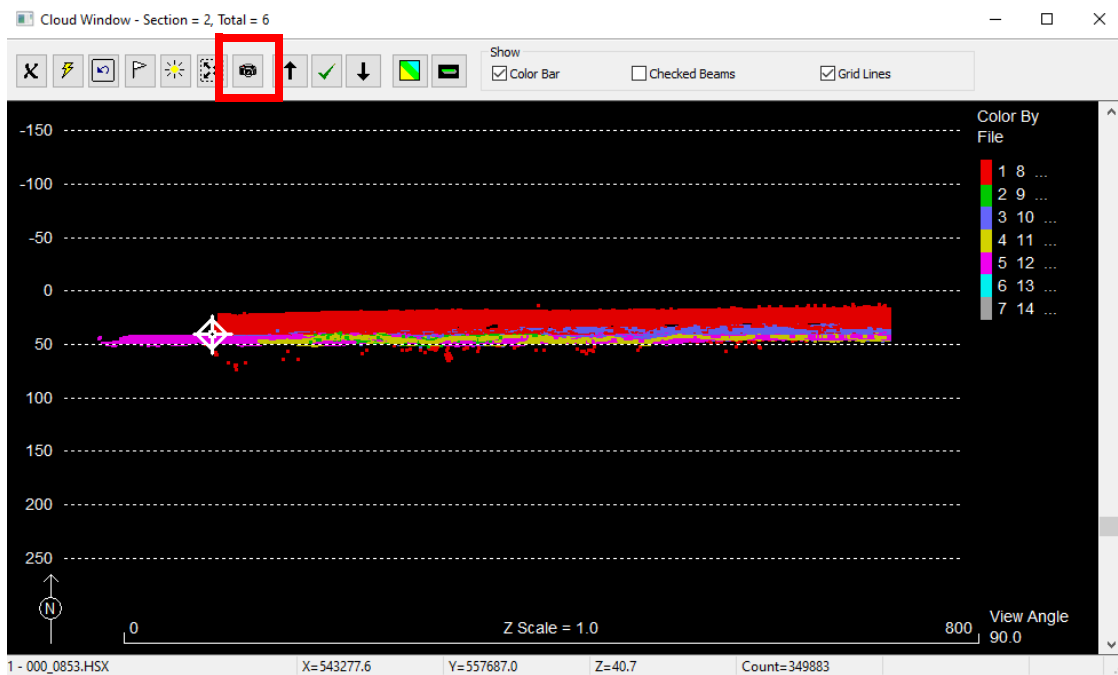
To open these windows, run MBMAX64, load your survey files, then click the Stage 2 (Depth Editing) buttons. All four of these windows are enabled in Stage 2 editing.

- > A-B Cross Section Patch Test is opened with the wrench button in the Edit section at the top of the MBMAX64 window.
- > Cloud is opened with the [Cloud] button in the left Edit section under the Stage II column.
- > Cloud Popup is opened with the cloud button in the Edit section at the top of the MBMAX64 window.
- > Imagery is opened by going to the left Edit section under the Stage II column, then clicking [More Windows] -> Imagery.

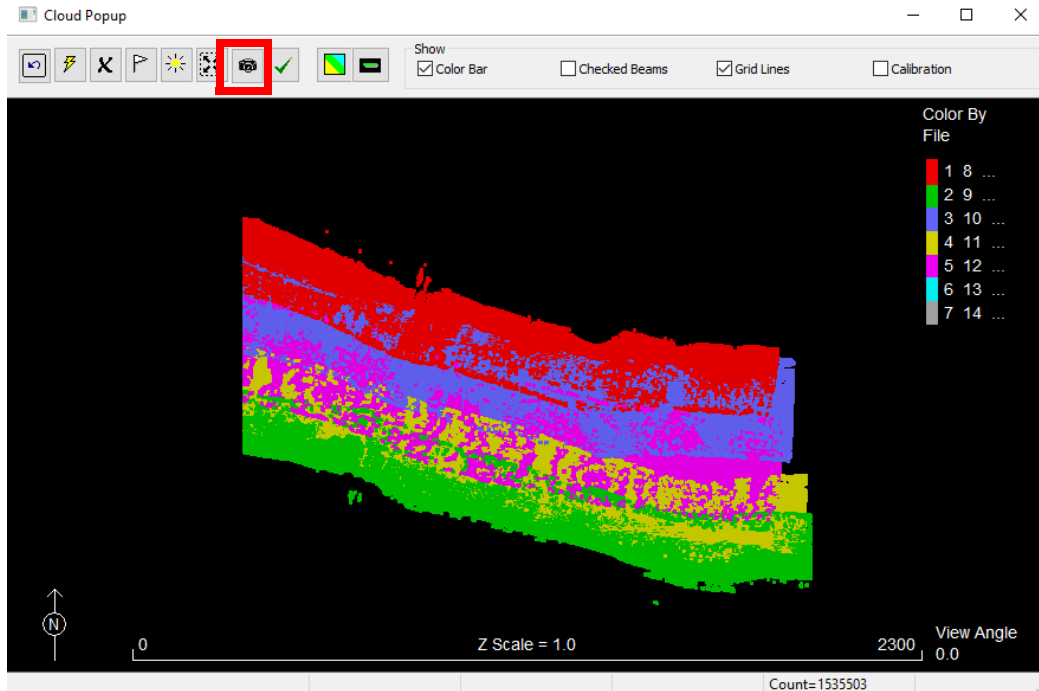
Updated A-B Cross Section Patch Test Window



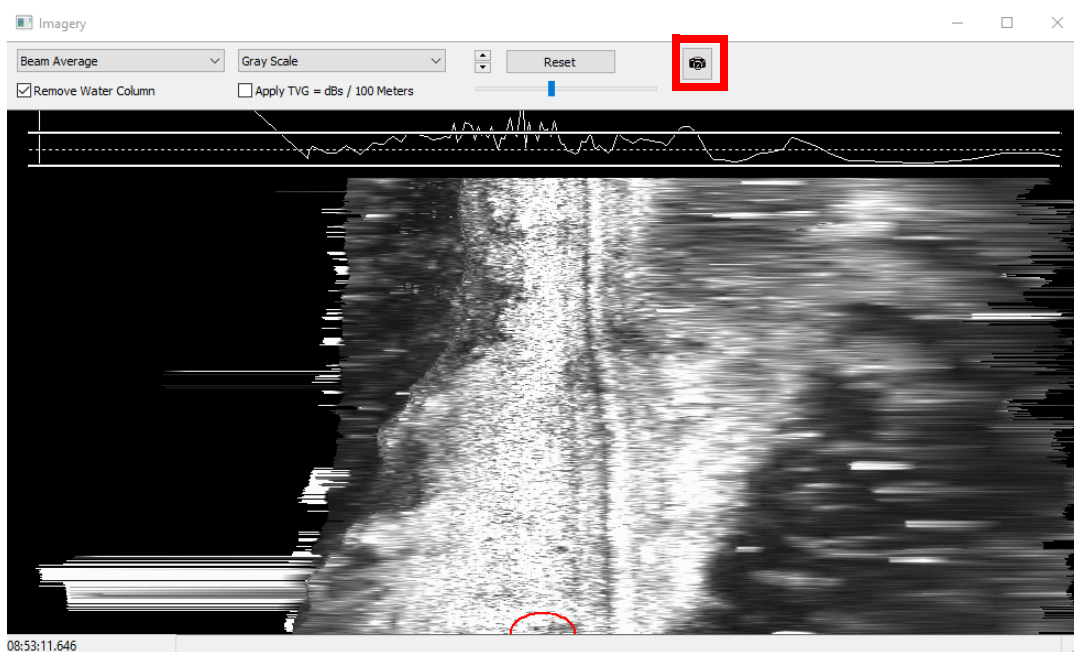
Updated Cloud Window



Updated Cloud Popup Window



Updated Imagery Window



- Added a new **CoordinateUtils** feature that allows a user to copy their cursor coordinates in MBMAX64 to the clipboard or open Google Earth at their cursor coordinates.
 - > Accessed via the Edit dropdown menu in MBMAX64.
 - > Coordinates at the current cursor are converted to DMS format.

- > Only works when in Phase 2.
- > **Launch Coordinates in Google Earth:** This option brings the user to the location of the coordinates. Clicking in the Google Earth search text box in the upper left will add the coordinates to this text box and pressing enter or “search” will display the pin and coordinates on the Google Earth map.
- > Other option is **Copy Coordinates to Clipboard**, which allows users to copy the lat-lon values and paste into a text file.

SONAR PROCESSING WINDOW UPDATES

Two new options are now available in the Sonar Processing Window: “Ignore Quality Codes” and “Extrapolate SVP Using Full Ocean Model”.

- **Added the Ignore Quality Codes checkbox to the Sonar Processing window. Ignore Quality Codes allows users to decline using logged quality codes to determine if soundings are displayed or not in MBMAX64.** While checked, the program ignores the quality codes logged by the sonar, and all logged data is shown. While unchecked, soundings with 0 (reject soundings) as the quality code are not displayed. Once selected files are loaded, Ignore Quality Codes is greyed out.

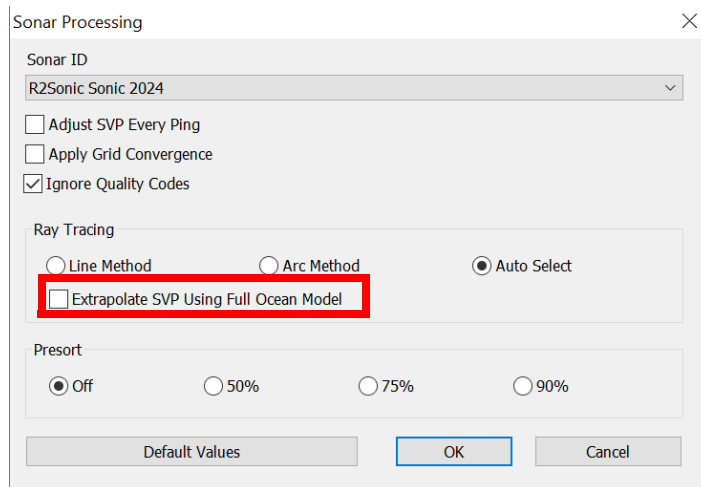
To use this new feature:

1. From the HYPACK Shell, click HYSWEEP -> HYSWEEP Editor. The MBMAX64 window appears.
2. In the MBMAX64 window, click File -> Load Survey, and select your HSX or LOG file and click [Open]. The Read Parameters window appears.
3. In the Read Parameters window, go to the Processing tab and click [Sonar...]. The Sonar Processing window appears.
4. In the Sonar Processing window, select your sonar model from the Sonar ID drop down menu, and check or uncheck Ignore Quality codes. Click [OK].

- **Added the Extrapolate SVP Using Full Ocean Model checkbox to the Sonar Processing window.**

This allows users to choose what SVP values they want to use beyond the range of their SVP sensor's measurements. Previously, HYPACK® used calculated values from its full

ocean model, which is described below.



Sonar Processing

Sonar ID
R2Sonic Sonic 2024

☐ Adjust SVP Every Ping
☐ Apply Grid Convergence
☒ Ignore Quality Codes

Ray Tracing
☐ Line Method ☐ Arc Method ☒ Auto Select
☐ Extrapolate SVP Using Full Ocean Model

Presort
☒ Off ☐ 50% ☐ 75% ☐ 90%

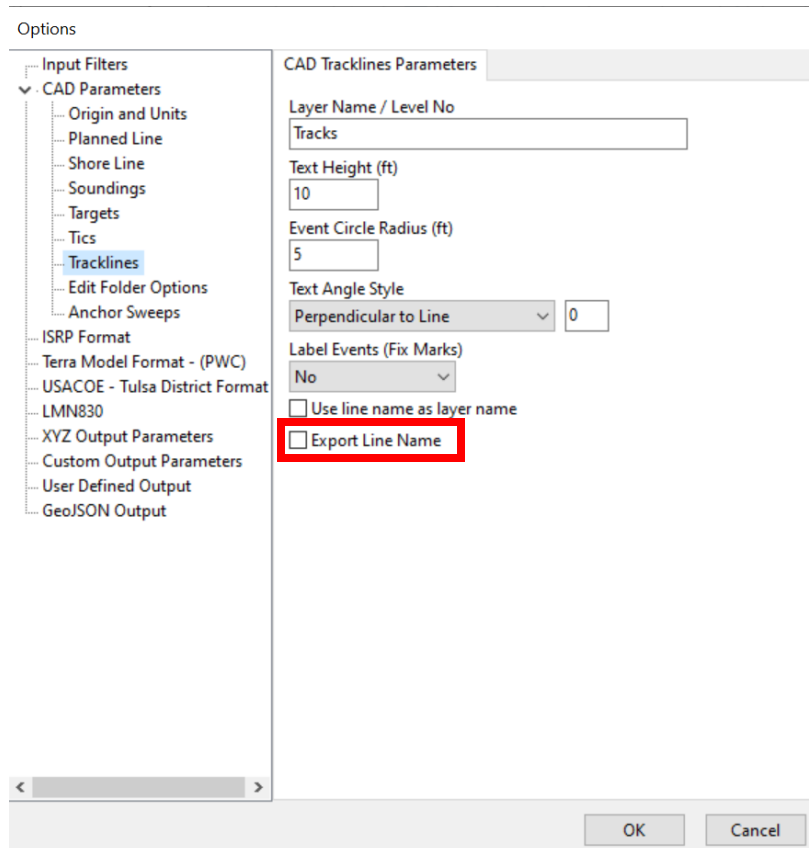
Default Values OK Cancel

To use this option, check the Extrapolate SVP Using Full Ocean Model checkbox to use our ocean SVP model beyond the maximum working depth of your sensor, and uncheck it to extend the value of the last SVP measurement to the bottom. Extrapolate SVP Using Full Ocean Model is unchecked by default, and the last SVP reading is extended to the bottom, which is more appropriate for shallow water surveys. However, note that neither option will change sounding values from shallow water (harbor, river, etc.) surveys, since SVP measurements are used throughout.

Sound velocity at different water depths can be measured in shallow water surveys using a sound velocity profiler. However, maximum working depths for standard SVP sensors commonly range from 300m to 500m, with certain deep sea models that have a cast length a of a few thousand meters. To estimate sound velocity beyond the maximum working depth or reach of a surface cast, HYPACK® uses a full ocean model. Note that HYPACK® has always extended the last SVP reading an additional 25m before using the ocean SVP model. For more information on how calculations are made in the full ocean model for medium and deep water surveys, and the reason for its usage, refer to Estimation of the Ocean Sound Velocity Profile by Mike Kalmbach (<https://www.xylem.com/siteassets/brand/hypack/resources/newsletter/2008/estimation-of-the-ocean-sound-velocity-profile.pdf>).

FINAL PRODUCTS

- In the EXPORT program under the Options window, added the Export Line Name checkbox, which allows users to export line names from edited files (ie: HS2X, ALL) to DXF/DWG charts.



To use this new feature:

- 1) From the HYPACK Shell, click Final Products -> Export.
- 2) In the Export window, click File -> Options.
- 3) In the Options window, click CAD Parameters -> Tracklines to open the CAD Tracklines Parameters tab.
- 4) Check or uncheck the Export Line Name box. Set the size of the text using the Text Height (m) field.

The following image shows an example of DXF file generated by the CONVERT program. The line names are at the end of each line and circled in red.

