

HYPACK 2024 Q1 Release Notes

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The table of contents lists the programs and processes that have received new features, updates, and bug fixes in the HYPACK 2024 Q1 update. Click and jump to the sections you want to read more about.

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HYPACK SHELL

• User-defined buttons or tools can now be added to custom toolbars. The Customize dialog used for toolbar customization now includes the User Tools Category, where any user-defined buttons are listed and can be added to the toolbar. These user-defined buttons are used to launch external executable files.



To create a user-defined button or tool to launch an external program from HYPACK:

- 1. From the HYPACK Shell, click Tools -> Setup to open the Tool Options window.
- 2. In the Tool Options window, click [Add] to open the Tool Properties window.
- 3. In the Tool Properties window, fill out the program's name, select the executable file from your device, and enter any parameters that need to be passed to the executable on initialization. Click [OK] in Tool Properties, then [Close] in the Tool Options.

The new user-defined tool can be accessed from the Tools menu.

To add the user-defined button to a customized toolbar:

- 1. From the HYPACK Shell, right click on the top toolbar -> Customize to open the Customize window.
- 2. In the Commands tab, click User Tools under the Categories list on the left. All userdefined tools will be listed in the Commands list on the right.
- 3. Click the user-defined tool and drag and drop it in the custom toolbar of your choice. The user-defined tool name will appear in the custom toolbar.



 TIN files created in the TIN Model program can now be displayed in the main area map in the HYPACK Shell. They are accessed in the Project Items tab in the Project Files -> Background Files folder.

You can also change how the TIN model drawing style by right clicking on the file -> Style, and clicking Points, Hollow, or Filled.



The following images show examples of the display if Points (left), Hollow (center), or Filled (right) are selected.



• Removed the View Log Window menu item from the File menu in HYPACK Shell. This was an unmaintained window and did not show useful information to the user. The following images show the File menu before (left) and after (right) the removal the View Log Window option.



PREPARATION

BACKGROUND CHARTS

OPENSTREETMAPS

 All projects now automatically contain a Dynamic OpenStreetMaps file within the Background Files folder. When checked, OpenStreetMaps is automatically displayed (sometimes with a slight delay) in the map view of the HYPACK Shell. Zooming in and out with the mouse scroll wheel or zoom functions in HYPACK Shell will pull in additional maps to display. This file is stored on your device at C:\HYPACK 2024\Projects\Project Name\Dynamic OpenStreetMaps.



In addition to the HYPACK Shell, OpenStreetMaps can be enabled and displayed within other HYPACK programs including HYPACK SURVEY, HYPLOT, and editors. The below examples show the OpenStreetMaps chart within MBMAX64 (top) and HYPLOT MAX

(bottom).





• We've added the Explore OpenStreetMaps widget, which allows users to export part of the OpenStreetMaps as a *.tif file for use as a background chart.

To use this new feature, from the HYPACK Shell click Widgets -> Explore OpenStreetMaps to open the Custom Map dialog.



Select the map source (currently OpenStreetMaps is the only one available), enter the location using X/Y or Lat/Long coordinates, then click [Search Location]. You can zoom in and out using the mouse scroll wheel or the slider at the bottom of the window. Click [Export Map], then give your file a name. The file is saved in the project folder by default.



Back in the HYPACK Shell in the Project Items tab, click Options and select Rescan Folders. The new OpenStreetMaps chart should appear in Background Files, where you can enable to display in the map view.



HARDWARE

SURVEY DEVICE DRIVER UPDATES

• Gps.dll: Added the "Ignore ZDA Date" option in the Advanced device settings to overwrite the ZDA string date with the PC/computer date. This option was added to support end of life GPS units that are experiencing GPS week number rollover (WNRO) issues.

Please note that unless specifically instructed by the HYPACK Technical Support Team, leave this option unchecked.

To use this new feature:

- 1. From the HYPACK Shell, click Preparation -> Hardware Setup. The HYPACK Combined Hardware window appears.
- 2. Add the gps.dll driver, then double click on the GPS NMEA-0183 driver to open the Setup window.
- 3. In the Setup window, click [Advanced]. The Advanced options window appears.

4. Check Ignore ZDA Date, then click [OK].

Setup				×
Synchronization		Tide Minimum Status for RTK T	īde 🗖 -	Fixed RTK
GPS Status Codes Invalid 0	Show alarm	Filter RTK tide		Differential Stand-Alone Any status
Stand-Alone 1 Differential 2	Advanced	Time constant	Samples 🗙	
Float RTK 5 RTK 3 Fixed RTK 4 User Modified NMEA	USE AT YOUR OWN RISK! Unless specifically instructed by HYPACK Technical Support leave these items UNCHECKED! Use MSL height only (NOT RECOMMENDED) 0.0			Show alarm
Show debug messa		ОК	Cancel	
Ignore Checksum	ig (OTFGYRO) wation as depth	Used sentences Position	Heading	Misc
Use GPS time when configurations only	not synchronizing (special !!!)		⊡ vτg	
Advanced		M PTNL, GGK	ОК	Cancel

• Cutfill.dll: Added a drop-down box in the cutfill.dll Setup dialog to select the tide source, which users can designate either the global tide from HYPACK[®] SURVEY or a specific mobile as the tide source.



The mobiles listed under the Tide Source dropdown will depend on what is added in the HYPACK Combined Hardware. In this example, you can select from Dredge, Arm, and Spud, which correspond with the mobiles that are added in the following HYPACK

Combined Hardware image.

IVPACK Combined Hardware			-	Х
File Options Help				
Hardware	System All Offsets			
	Synchronize Computer Clock Select Device to Synchronize Clock GPS NMEA-0183 ~ Printer Connection None	HYPACK Survey		

Note that Tide Source interacts with the Individual Tide Per Mobile checkbox in the HYPACK Survey options in the System tab at the Hardware level. Individual Tide per Mobile enables you to use multiple tide devices - up to one for each mobile in your configuration. When this option is checked, any mobile without a tide device assigned to it will inherit the tide of the main vessel.

So, if Individual Tide Per Mobile is checked:

- > If Global is selected in Tide Source, the Cut Fill Monitor window will display the tide from the mobile on which the device is installed.
- > If a mobile is selected and it has a tide device, then the tide reading from that device will be used.

If Individual Tide Per Mobile is unchecked:

 If Global is selected, the Cut Fill Monitor window will display the global tide from Survey.

To use the Tide Source option:

- Add your mobile, give it a name in the Mobile Name field, and click File -> Save. This adds the name of the mobile to the Tide Source drop down in the CutFill driver Setup window.
- 2. Add the tide device(s) to each mobile that has one.
- 3. Add cutfill.dll to the appropriate mobile.
- 4. Double click on the Cut Fill Monitor driver to open the Setup dialog, then pick your Tide source and click [OK].

• Subbot.dll: Added support for the GeoAcoustics GeoPulse Compact sub-bottom sonar. To use this device in HYPACK, in the HYPACK Combined Hardware add subbot.dll (Sub-bottom Driver) to your vessel, then in the Setup window, select GeoAcoustics GeoPulse from the Devices list as shown on the left. Then, go to the Survey Device tab, then configure the Connection Type as shown on the right.

📟 HYPACK Combined Hardware		- 🗆 X
File Options Help		
Hardware Boat HYPACK File Simulation Sub-Bottom Driver	Mobile Survey Device Offsets Vessel Shape All Offsets	
	Device Type	
	Survey Devices OHYSWEEP Devices OSide Scan Devices Starboard	1.00
	Forward	
	Mobile Name Boat	Connection Type Network ~
	Available	
	Description Version HYPACK File Sir	Network Parameters
	Sub-Bottom Driver 23.3.1.0	ver
	Subsea Telemetry 15.0.0.6	Protocol ICP V Role Client V
		Host 10.0.0.44
	Setup X	Dat and
	Choose a Device	Port 35700
	GeaAcoustics GeoPulse	
	Edge Tech 3000 Series Add>	
	Falmouth HMS-6XX	
	GeoAcoustics GeoPulse < Kemove	
	Knudsen Pinger & Chirp Older Benthos SBP sustems	
	sub	
	Clear	
	Cicur	
	All Devices 🗸	
	View Name Sub-Bottom Dri	/er
	Driver C:\HYPACK 202	l\devices\Subbot.dll

For additional information, refer to <u>GeoAcoustics GeoPulse Compact Support Added to</u> <u>HYPACK by Daniel Tobin</u>.

• Aistide.dll: Driver now reads VDM and VDO messages.

DREDGEPACK[®]Device Driver Updates

• Mobileconnect.dll: The Mobile Connect window has been updated with color and transparency selections for the outline and fill of the mobile connect arm. Users can also specify the start and end width of the connection.

T HYPACK Mobile Connect-NUL:	×
Outline Width 2 Pixels	Fill Solid Fill
Color Black V	Color 🗌 White 🗸
Transparency	Transparency
Start Width	End Width
✓ 4.0 ▲	▼ 2.0 ∧

The Mobile Connect driver was developed to connect the trunnion (origin point) on a dredge to the cutter head in the DREDGEPACK[®] map display to illustrate the physical connection and changing length of the ladder as it moves.

To use these new features:

- 1. In HYPACK Hardware, add the mobileconnect.dll to the dredge mobile.
- In the HYPACK Shell, Open Survey -> DREDGEPACK. The HYPACK Mobile Connect window appears.
- 3. For the outline of the arm, you can adjust the width (0 to 10 pixels wide), color (custom or preset), and transparency.
- 4. Check the Solid Fill box to apply a fill to the inside of the arm. You can adjust the color (custom or preset) and transparency of the fill.
- 5. At the bottom of the window, adjust the width of the start (trunnion/origin point) and end (cutter head) of the mobile connect arm by typing in a number or using the up and down arrows.

The following image is an example that shows the settings in the Mobile Connect window and the corresponding dredge arm.



• Excavator.dll: Added the Smooth Channel Option, which when enabled calculates and draws straight line segments instead of a step-like line for the channel's slope. To use this new feature, in the HYPACK Hardware add excavator.dll. Open the device driver setup window, then click on the Profile/Shapes tab and check the Smooth Channel

box.

eneral Settings	Bucket Geometry Profile / Shapes Quick A	ttachment Op	ional Settings		
rack Bucket		Colors			
Grid		Mark1	Dredge Above Channel		
Minimal Depth	0.00 Profile Width 150.00	Mark2	Dredge in Overdepth		
Maximal Depth	30.00 Boat Position 20.00	Pontoon	Dredge Below Ovd.		
Control Lines		Channel	Survey		
Horiz. Mark 1	0.00 Overdredge 0.00	Bucket	Excavator		
Horiz. Mark 2	0.00 Pontoon Protection 0.00	Volume	Volume Alarm		
Smooth Channel Select the Shapes for each element					
Smooth Chan Select the Sha	nnel pes for each element				
Smooth Char Select the Sha Body	nnel pes for each element C:\HYPACK 2024\Boat Shapes\Shapes for t	he ExcavatorSN	Driver\body.shp		
Smooth Char Select the Sha Body Boom	nnel pes for each element C:\HYPACK 2024\Boat Shapes\Shapes for t C:\HYPACK 2024\Boat Shapes\Shapes for t	he ExcavatorSN he ExcavatorSN	Driver\body.shp Driver\boom.shp		
Smooth Char Select the Sha Body Boom Stick	nel pes for each element C:\HYPACK 2024\Boat Shapes\Shapes for t C:\HYPACK 2024\Boat Shapes\Shapes for t C:\HYPACK 2024\Boat Shapes\Shapes for t	he ExcavatorSM he ExcavatorSM he ExcavatorSM	Driver\body.shp Driver\boom.shp Driver\stick.shp		
Smooth Char Select the Sha Body Boom Stick Bucket	nnel pes for each element C:\HYPACK 2024\Boat Shapes\Shapes for t C:\HYPACK 2024\Boat Shapes\Shapes for t C:\HYPACK 2024\Boat Shapes\Shapes for t C:\HYPACK 2024\Boat Shapes\Shapes for t	he ExcavatorSN he ExcavatorSN he ExcavatorSN he ExcavatorSN	Driver\body.shp Driver\boom.shp Driver\stick.shp Driver\bucket.shp		
Smooth Char Select the Sha Body Boom Stick Bucket Stick2	nel pes for each element C:\HYPACK 2024\Boat Shapes\Shapes for t C:\HYPACK 2024\Boat Shapes\Shapes for t C:\HYPACK 2024\Boat Shapes\Shapes for t C:\HYPACK 2024\Boat Shapes\Shapes for t	he ExcavatorSh he ExcavatorSh he ExcavatorSh he ExcavatorSh he ExcavatorSh	Driver\body.shp Driver\boom.shp Driver\stick.shp Driver\bucket.shp Driver\stick.shp		

The example below shows the Excavator interface with the Smooth Channel option unchecked (left) and checked (right).



SURVEY

• Users can now convert *.mxb to *.mtx files directly in HYPACK[®] SURVEY and DREDGEPACK[®]. *.mxb files are backup binary versions of the matrix files created at user-defined time intervals while surveying. These *.mxb files can be used to restore your project *.mtx file to the state it was at the time the file was generated, which ensures security against data loss.

To use this new feature, in HYPACK[®] SURVEY or DREDGEPACK[®], click on the Matrix tab in the toolbar and click Convert .mxb -> .mtx, and the Open dialog appears.



In the Open dialog, click on the *.mxb file and click [Open]. In the Save As window, give your *.mtx file a name, then click [Save]. A new matrix file will be loaded and drawn on the map, and you can continue with your surveying.

For additional information, refer to <u>Converting MXB Files to MTX in DREDGEPACK[®] by</u> <u>Jocelyn Kane</u>.

REAL TIME CLOUD

• Users can now modify target size and style in the Real Time Cloud program.

To use this new feature, first launch HYPACK[®] SURVEY, then click Options -> Shared Memory -> HYPACK Real Time Cloud. In the Real Time Cloud window, click View -> Settings to open the Settings dialog. In the Targets drop down menu, select from the following options: None, Point, Circle, Cylinder, MBMAX64, and Flag. You can also adjust the size of the targets from the Size field.

Settings	× Settings	\times
General Boats	General Boats	
Display Background Charts Capture Multibeam Points Max Points to Display Capture Topo Points 3000000 Capture Matrix Background Color Hidle Ner Points Background Color Show Legend Configure Charts	Display Background Charts Capture Topo Points 3000000 Capture Multibeam Points 3000000 Capture Matrix Background Color Hide Near Points Background Color Show Legend Configure Charts	
Channel File Color Color	Channel File Finable Color	
Clip Points Below C Clip Points Above Transparent Solid	Clip Points Below C Clip Points Above Transparent Solid	
Water Level Targets Faable Solid Transparent Solid Point Point S57 Code MSM/XX64 None Point Point Point S57 Code MSM/XX64	Water Level Transportent Solid Size 2.50 Size 2.50 Buckets None Buckets	
OK Cancel Apply	OK Cancel Apply	

As a reminder, here are how the target styles appear. From left to right, top to bottom, the target styles used are Point, Flag, Circle, Cylinder, and MBMAX64.



POST-PROCESSING

64-віт HYSWEEP[®] EDITOR (MBMAX64)

• KMALL and ALL files now calculate RTK tides when loaded into MBMAX64 if an RTK method is selected in the RTK Tide Method section of the Geodetic Parameters dialog in the HYPACK Shell. If "Not Using RTK Tide" is selected, no ellipsoidally-referenced tides are calculated.

FINAL PRODUCTS

ENC EDITOR

• Removed the Geodesy option from the Environment drop down menu since this executable is no longer linked in the ENC Editor. Instead, set the geodesy from the HYPACK Shell by clicking Preparation -> Geodetic Parameters.

Previous (left) and current (right) versions of the Environment drop down menu



UTILITIES

GEODETIC LIST CONVERSION

- In the Geodetic List Conversion Program, three depth inversion options have been added to the Other drop down menu:
 - Invert and Meters to Feet Invert depths and convert units from meters to feet (ex: m to -ft).
 - Invert and Feet to Meters Invert depths and convert units from feet to meters (ex: ft to -m).
 - > Invert Depth Invert depths only (ex: d to -d).

To use these options, from the HYPACK Shell click Utilities -> Geodesy -> Geodetic List Conversion to open the Geodetic List Conversion dialog.

In the following example, Invert Feet to Meters is selected, and the depth value from the input file (50.40 ft) is inverted and converted to meters (-15.36 m) in the output file.

∎+≣ Geodetic List Co	nversion		- 🗆 X		
Project Group	Local	Project Group	Local		
Input Project	Halifax 💌	Output Project	Halifax		
Input File Type	XYZ 💌	Output File Type	WGS Lat, Long, Z		
Input File Name	: 2024\Projects\Halifax\Sort\hal.xyz	Output File Name	ojects\Halifax\Sort\hal_LatLonZ.xyz		
		Degrees Format	ddd mm ss.ssss		
Ellipsoid	WGS-84	Ellipsoid	WGS-84		
Projection	ct as Output Project	Projection	Transverse Mercator		
Decimal Precision fo	or Lat\Long 6 or Z\\Ellipsoid 2	Other Degree Decoration	Invert and Feet to Meters No Conversion on Depths Convert Metric Depths to Feet		
Decimal Precision for Z\Ellipsoid 2 Degree Decoration No Conversion on Depths Convert Metric Depths to Feet Y Easting (x) Input: 454929.54 4943738.44 50.40 Y Northing (Y) Output: 4438 44.129884 -6334 6.082211 Depth/Eventon Elspoid Height Invert and Feet to Meters Invert and Feet to Meters Latitude Latitude Invert Depth Invert Depth					
Add Ignore	Field Test Line	Run Exit	Help		