

Revision History

Date	Revision Description (Reason/What)	Updated by
8/23/2019	Updates for Kongsberg Startup and POS Logging	S. Swart
7/08/2020	Minor Updates (Update/ Include EM2040, remove RESON material except in HYPACK setup)	S. Wall
03/30/2022	Update SIS screenshots. Update HYPACK from RESON to Kongsberg Updated POSM/V from USB logging to Ethernet logging Updated Pos M/V to reflect that only the STBD POS unit is used (left in the IP address for PORT just in case) Kongsberg Start up switch the order to Primary then Secondary Added the Sound Speed Manager Section Added the Acquisition Station Overview Added screenshots to Appendix of SSM and SIS Added Data Management section	T.Krabiel
4/6/2022	Added AutoLine Notes, Multibeam Processing via Charlene	A. Finn, S. Robinson
5/12/2022	Updated Survey System Start up sections to current workflow as of May 2022	C. Stewart, J. Hsiao
7/4/2022	Updated HYPACK project set up section and Sound Speed Manager metadata section	LTJG Carly Robbins
9/25/2022	Added section in SonarPro setup about how the Cable Out is configured. Updated the image for the MVP Configuration to reflect the new COM ports that are in use	Matt Wilson
3/15/2023	Updated Sound Speed Manager settings screens to reflect change in connection IP to SIS1 which is no longer on the ships network. Updated SonarPro section with Cable Out format change. Many other updates!!	C. Stewart
5/19/2023	Minor updates regarding midnight UTC data transfer procedure.	J. Marshall
6/19/2023	Significant updates to SIS, MVP and Hypack sections.	C. Stewart
7/14/2023	Minor updates – Hypack, MVP and Charlene	C. Steward Fernando Ortiz

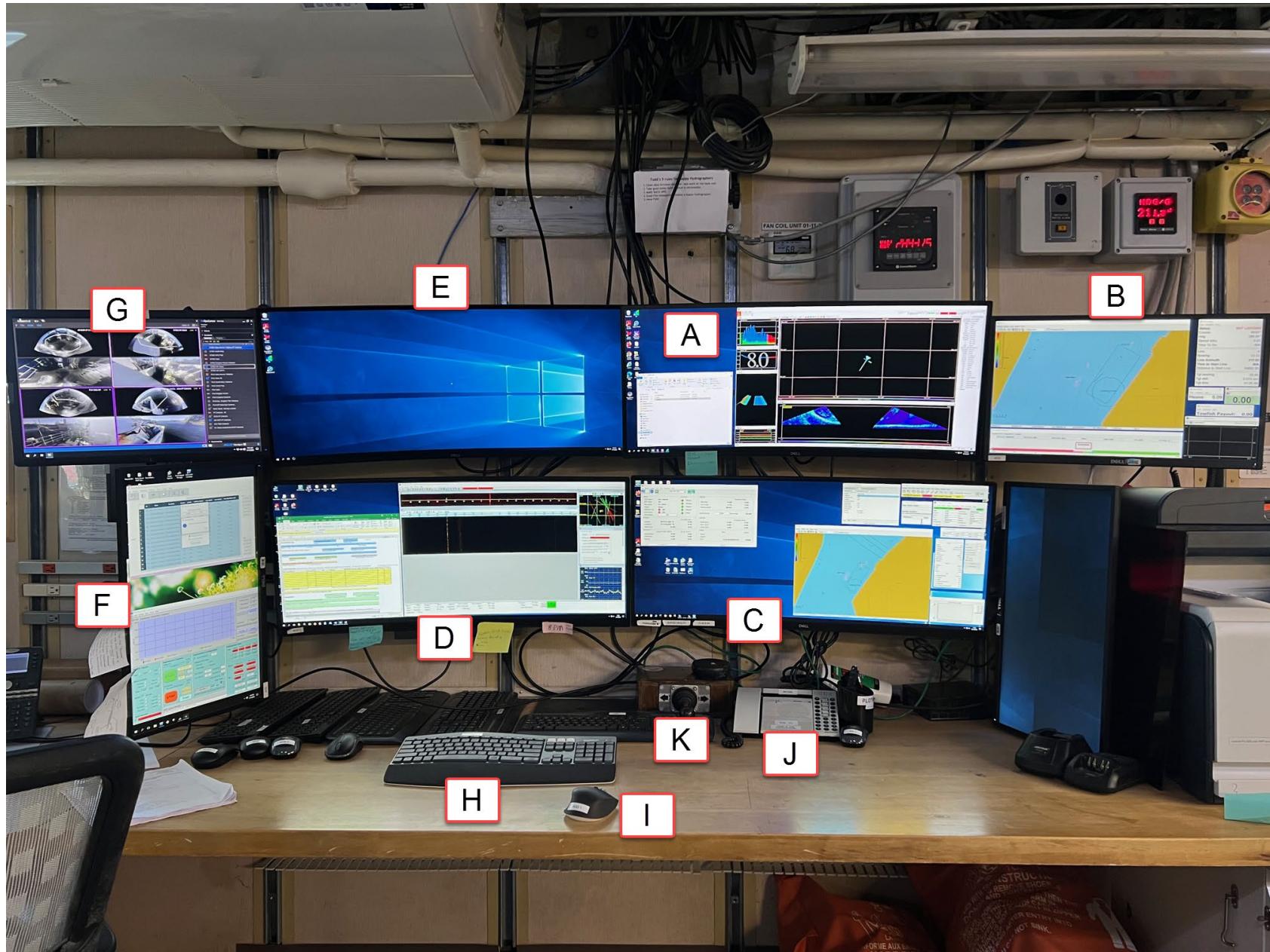
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1. OVERVIEW

The purpose of this document is to ensure the consistent repetitive startup of critical survey equipment. Following all steps ensures uniformity between our data products.



Acquisition Station overview (See image above)

- A. SIS #1 Primary: Main SIS EM2040 MBES Acquisition Computer.
- B. ACQ #1 Hypack repeater screen to the Bridge:
Typical windows on this repeater screen are a Hypack Windows: Map Window, Information Screen, Left/Right Indicator, and two data displays, one with the SSS Towfish Payout, the other (labeled Heave) is the MVP Fish Depth. Hysweep Windows: Profile Window (Shows MBES profile fan) and Nadir Depth value.
- C. ACQ #1 (Hypack and MV POSView)
Main ACQ1 screen. This is where MV POSView and various other HYPACK / Hysweep windows live.
***NOTE* SIS #1, ACQ #1 (repeater and Main), ACQ2, SIS2, and the MVP Computers are all connected via SYNERGY which allows the ACQ #1 mouse and keyboard to work on all of the screens. You can navigate through the screens. It is a bit tough to get from ACQ #1 to SIS #1 screen.**
- D. ACQ #2 Klein 5000 SSS acquisition computer. Also used for the Acquisition Log.
- E. SIS #2 Secondary: Secondary SIS machine typically not used.
- F. MVP Computer. Runs the Rolls Royce MVP Controller and Sound Speed Manager.
- G. Pelco Computer. Runs the Pelco OpsCenter Software to display various camera feeds around the ship. **NOTE:** When doing SSS operations, have one of the cameras focused on the SSS AFrame / Sheave, and another on the SSS Tow winch.
- H. Acq1 Keyboard: Keyboard used for all screens (except the Pelco video screen). ***NOTE*** Will only work on the screen that the ACQ #1 mouse has clicked on and is active in.
If you wish to copy and paste from SIS #1 to ACQ #1 you need to click on the SIS #1 screen and then CTL-C (Copy) or CTL-V (paste) will work
- I. ACQ #1 Mouse/ Universal Mouse: Works on all screens (except the Pelco video screen).
 - To call bridge, lift handle and Dial 101, or for speakerphone just Dial 101.
 - If bridge calls, either pick up phone or for speakerphone press M.
- J. SSS Winch Controller Pay In and Out: SSS lever to pay in and out when survey has control of the winch.

Starting everything up will occur following order:

- 1) Acquisition #1
- 2) Acquisition #2
- 3) SIS #1
- 4) POS M/V Primary (STBD)
- 5) SIS Primary (Master) TPU, wait 1-2 seconds, then SIS Secondary (Slave)

The following steps guide you through the startup process. Start up the ACQ #1, ACQ #2 and SIS #1 computers if they are not already running.

2. Secure Interference Sources

This is needed before collecting MBES data to stop sources of acoustic interference.

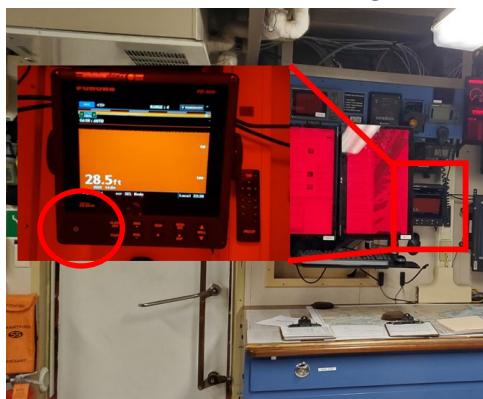
- a. Secure Speed Log by opening breaker #2 and #3 on 120V panel SCLP4 in the Machine Shop, space 1-28-3.



- b. Not currently required to perform this task. Ask the FOO if it's necessary to secure the Acoustic Doppler Speed Log by toggling the power off on the face of the TPU in rack #5.



- c. Secure fathometer on the bridge



3. POS-MV STARTUP

- a. Turn on power to STBD POS M/V.

NOTE: We only log on the Starboard POS; Port POS is only an emergency backup.

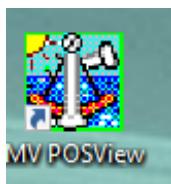
NOTE: The STBD POSM/V is connected to Acquisition PC #1 and communicates through the MV POSView Software.



- b. As of 2022 the FH logs to **Ethernet only**. Files are logged to the ACQ1 PC on the local E:\GNSS_data\OPR-XXX-FH-YY\HXXXXXX\YYYY-DDD\ Folders. If you need to log to the USB port, ensure the following is done
 - i. USB Drive is clear (erased)
 - ii. Connect USB Drive to STBD POS M/V TPU (seen below)

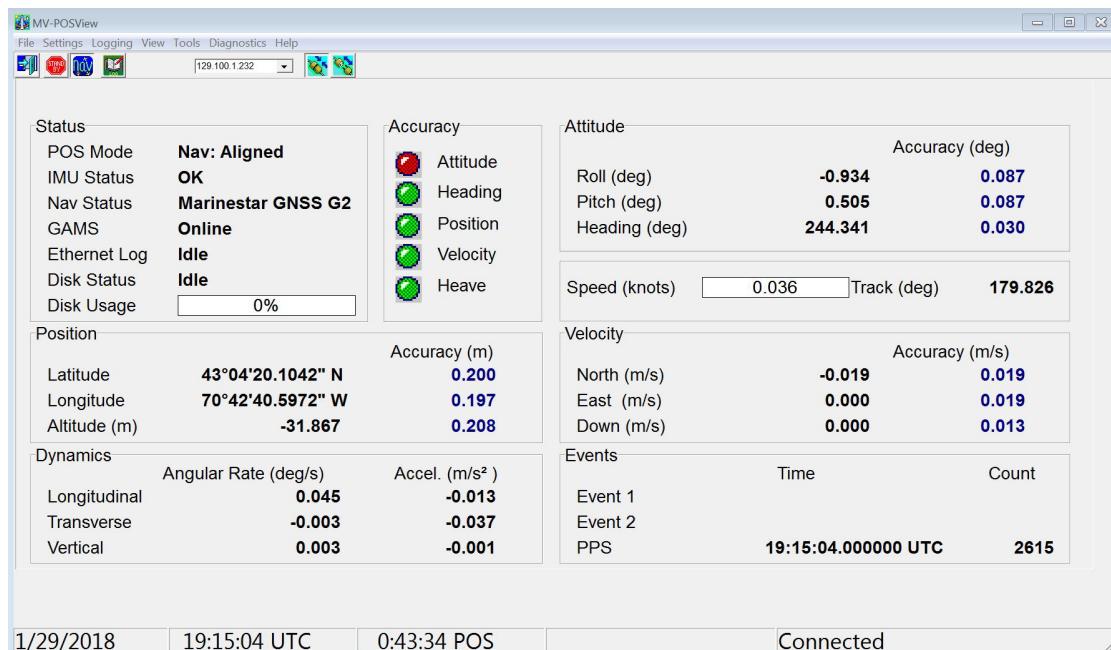


- c. ACQ1 Login Username: survey.acq.fh Password: Ferdinand XX* X=number (Ask FOO)
d. Open MV-POSView on Acq# 1.



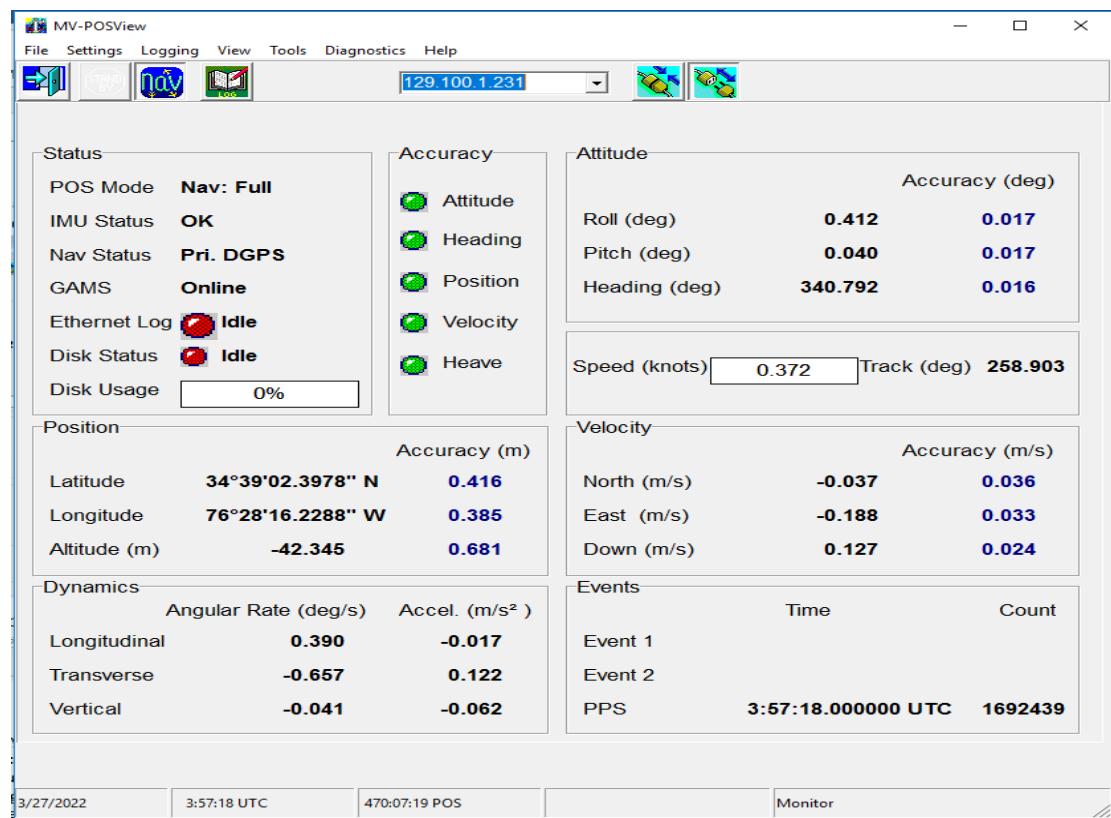
e. Ensure the proper IP address is entered into MV POSView for the STBD POS.

i. PORT POS **129.100.1.232 (ONLY FOR INFORMATION / BACKUP, STBD POS IS PRIMARY)**



1/29/2018 | 19:15:04 UTC | 0:43:34 POS | Connected

ii. STBD POS **129.100.1.231 This is the primary POS for survey.**



3/27/2022 | 3:57:18 UTC | 470:07:19 POS | Monitor

f. Connect to POSMV by clicking on the connect button

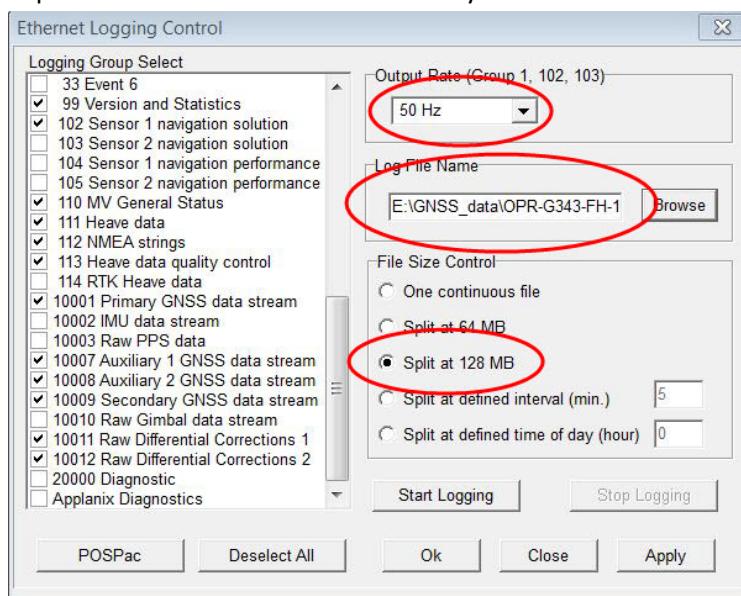


THIS IS ONLY NEEDED IF CHANGING SETTINGS ON THE POS. SURVEY CONNECT DOES NOT NEED TO BE ACTIVE TO LOG DATA.

If Ethernet Logging...

- a. Select **Logging -> Ethernet Logging**. Ensure the following logging groups are selected:
 1. Navigation Solution
 2. Performance Metrics
 3. Primary GPS data
 4. IMU Data
 5. Event 1
 9. GAMS Solution
 10. General Status and Fault Detector
 99. Version and Statistics
 102. Sensor 1 Navigation Solution
 110. MV General Status
 111. Heave Data
 112. NMEA Strings
 113. Heave Data Quality Control
 1001. Primary GPS data stream
 1007. Auxiliary 1 GPS data stream
 1008. Auxiliary 2 GPS data stream
 1009. Secondary GPS data stream
 1011. Raw differential corrections 1
 1012. Raw differential corrections 2
- b. Set with an output rate of **50Hz**
- c. Set the file path for both the Port and STBD POS to log to the following location:
E:\GNSS_Data\OPR-XXXX-FH-YY\H#####\YYYY-DDD. File naming convention is
“YYYY_DDD_S250” **NOTE: PUT IN JUST THE FILENAME, NO EXTENSION.** The software will
append the .000, .001 etc. as it records files.
- d. File Size Control to “**Split at 128 MB**”

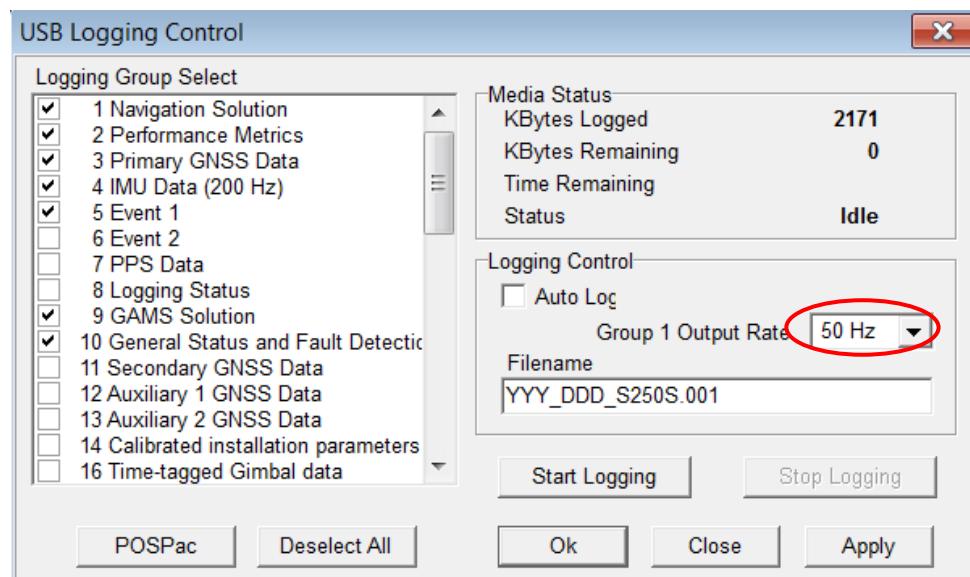
- e. Start logging data on STBD POS. Ensure data is logging by monitoring the file size in an explorer window. Refresh as necessary and ensure the file size is increasing.



- f. Press Start Logging and minimize the logging window.

If Logging to USB (RARE)...

- g. If logging to USB all the above settings still apply.
h. To connect to USB Select **Logging -> USB logging**



BEFORE ACQUIRING ANY SONAR DATA!!!

- *After at least 5 minutes of continuous logging* of POS MV data, commence with MBES data acquisition.

AFTER YOU HAVE FINISHED LOGGING!

- Continue logging POS MV data for an additional 5 minutes *after* MBES data acquisition is complete, click Stop Logging in the Ethernet and or USB Logging Control windows. At this point the POS files are ready for application in the post-processing of true heave and/or SBET creation.
- If any problems are experienced in the startup of the POS MV's that you suspect may be of a systems integration nature, consult the *NOAA Ship Ferdinand R. Hassler Systems Integration SOP* for troubleshooting or call the FOO.

LOGGING INTERRUPTION OR ERROR:

- If there is any interruption in logging due to POS crash, start everything up as you normally would.
- Name the POS files "YYYY_DDD_S250_A" continue down the alphabet if more crashes occur
- **Wait 5 minutes after pressing "logging" before collecting any MBES sonar data.**
- Contact the FOO and log the crash.

4. Kongsberg STARTUP

- Turn on the Kongsberg Primary PU and SIS #1 first. Wait a second for the Primary PU to show information on the front panel display, then turn on the Kongsberg Secondary PU. (SIS #2 will not be used but can be powered on).

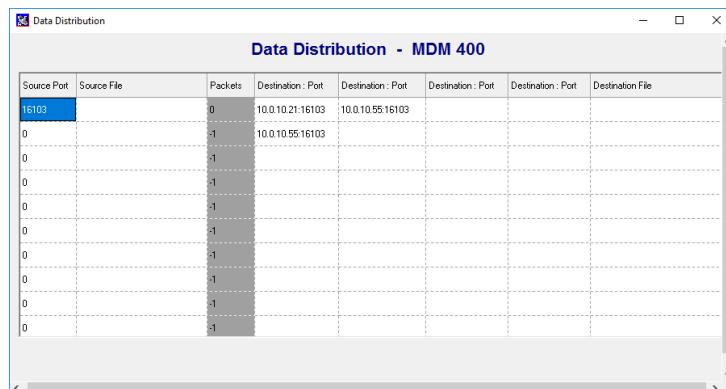
***NOTE* Primary = Master, Secondary = Slave**

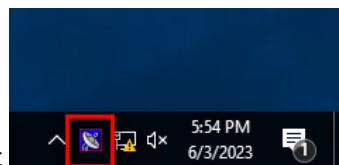


- It will take quite a long time but wait until both the Primary PU and Secondary PU displays read “READY”.



- When the SIS1 computer is booted up, the Data Distribution program should run automatically as it is in the Windows Startup folder. The program window will show up as seen below.

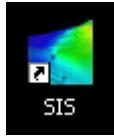




If you minimize it, it will show up in the taskbar at the bottom right from where you can open the window by right clicking if so desired. The window shows which port the datagrams from SIS are going to what port on other machines in the network.

The datagram distribution window should not be altered at all.

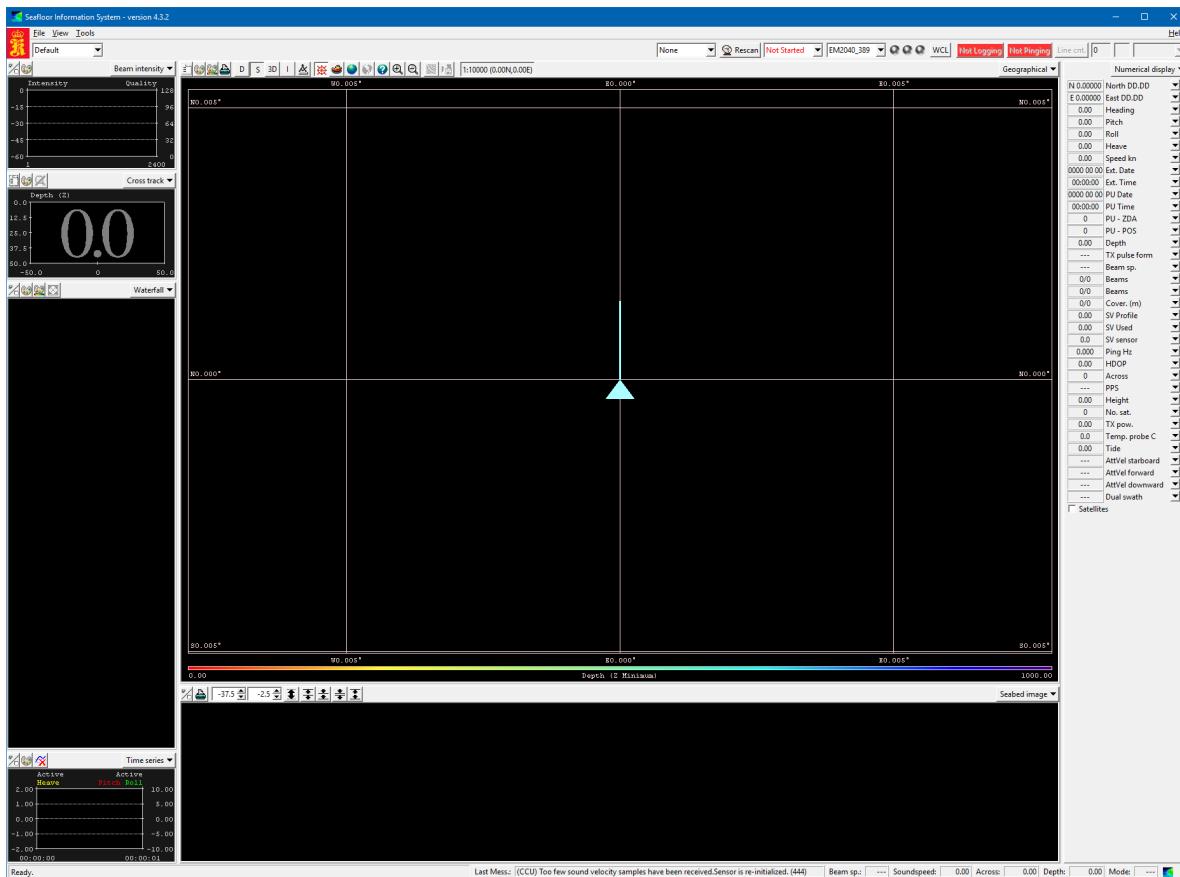
- d. Next, start up the Seafloor Information System program (SIS) and run a BIST before pinging. See



page 14 for walk-through.

e. Main Display

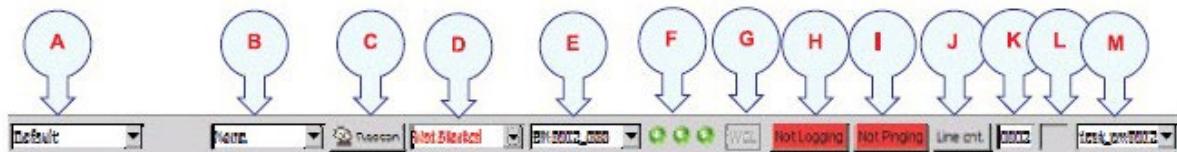
- i. On the desktop of the Kongsberg computer select the SIS icon. This brings you to the main display as shown below.



NOTE If SIS crashes it may require to reboot the computer, or it more probably will require a hard reset of the topside Primary and Secondary PU's and a SIS shutdown prior to that.

Inform the FOO and CO of the crashes!!

Top Toolbar



A: Settings: You can select different display settings from this combo box. Select “Default” unless told otherwise by the FOO. New defaults may be saved by going to **File -> Save Settings**.

B: Active survey: Select the active survey. You can only calibrate the active survey.

C: Rescan: Scan for available echo sounders on the network. If for some reason contact with the echo sounder is lost, first try the Rescan button as it may not be necessary to shut down and restart SIS.

D: Echo sounders - This combo box displays all the echo sounders SIS has detected on the network at start-up time or when doing a rescan. Select the echo sounder you want to start from this list.

E: Current echo sounder: This combo box displays which echo sounder is currently being operated. Select your sonar.

F: Status lamps: These lamps apply to the current echo sounder.

- Lamp 1: PU/HWS status (Processing Unit/Transceiver Unit)
- Lamp 2: BSP status (Beamforming and Signal Processing)
- Lamp 3: SH status (Sonar Head)

While logging, the lamps will be continuously updated.

Green = OK.

Orange = Warning

Red = Error

Grey = Connected hardware not in use

G: WCL: This button shows logging status, ensure you select this button to be able to log WCD. The Hassler will NOT always log water column data, as this is a very data intensive process (BIG Files). Only log water column data when explicitly instructed by the CST/FOO/Senior personnel.

H: Logging: Press this button to start and stop logging. Start logging to write data to disk. The color of the button is **green** while logging and **red** when logging is off. The text in the button reflects the current status.

Note: If pinging is Off when logging is turned On, pinging will automatically be turned On.

If logging is On and pinging is turned Off, logging will automatically be turned Off.

I: Pinging: Press this button to start and stop pinging. Start pinging to activate the echo sounder. The color of the button is **green** while pinging and **red** when pinging is off. Sometimes it is good practice to disable pinging during long transits while data is not being collected.

The text in the button reflects the current status.

NOTE: Always make sure that you are logging in both SIS AND Hypack. If logging is disabled in SIS you are NOT collecting any data.

J: Line cnt: used to create a new line while logging continuously. The line count is incremented by one when button is pressed. This is useful for breaking up long lines.

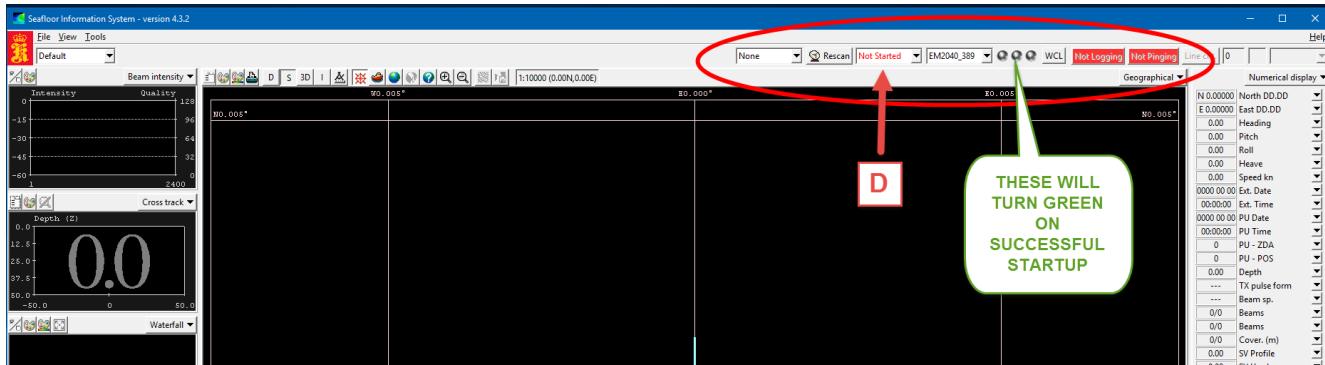
K: Line counter: The text field displays the line count for the currently selected survey. The line count is cyclic between 1 and 9999. It is possible to enter a line number manually. If logging is Off, the line count is for the next line started. If logging is On, the count is for the current line.

L: Remaining time: This field shows the remaining time to log in the current line, i.e. the time before a new line is started. The time unit is in minutes. (When 1 minute is displayed this indicates less than 1 minute logging remaining.)

M: Current survey: This combo box displays the current survey name. SIS will log data to whichever survey is selected.

System Startup

On the toolbar you should see three drop downs at the top center, with a button that says **Rescan**. The characters should say **Not Started** and **EM2040_389**. If these are present, then the PU and the HWS (SIS1 Comp.) have connected successfully. If these fields are blank select the **Rescan** button. It may take a few rescans depending on when you started the PU. If this does not work, cycle the power to the HWS.

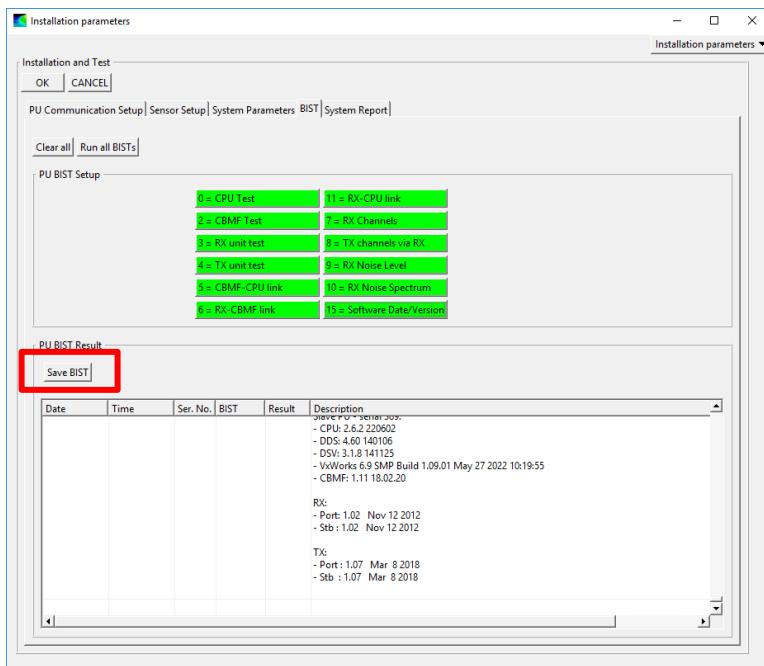


If the connection was successful between the HWS and PU, select the EM2040_389 from the drop down menu labeled "D" (see diagram previous page). A Warning will pop up, hit OK. The system will now connect and if successful, the three status lights to the right should turn green.

If the surface SV probe is ON before SIS is started then you may see a Warning "**Too Few Sound Velocity samples have been received**". To resolve this just cycle the power on the surface sound velocity probe interface box all the way back on the aft wall past the computer racks.

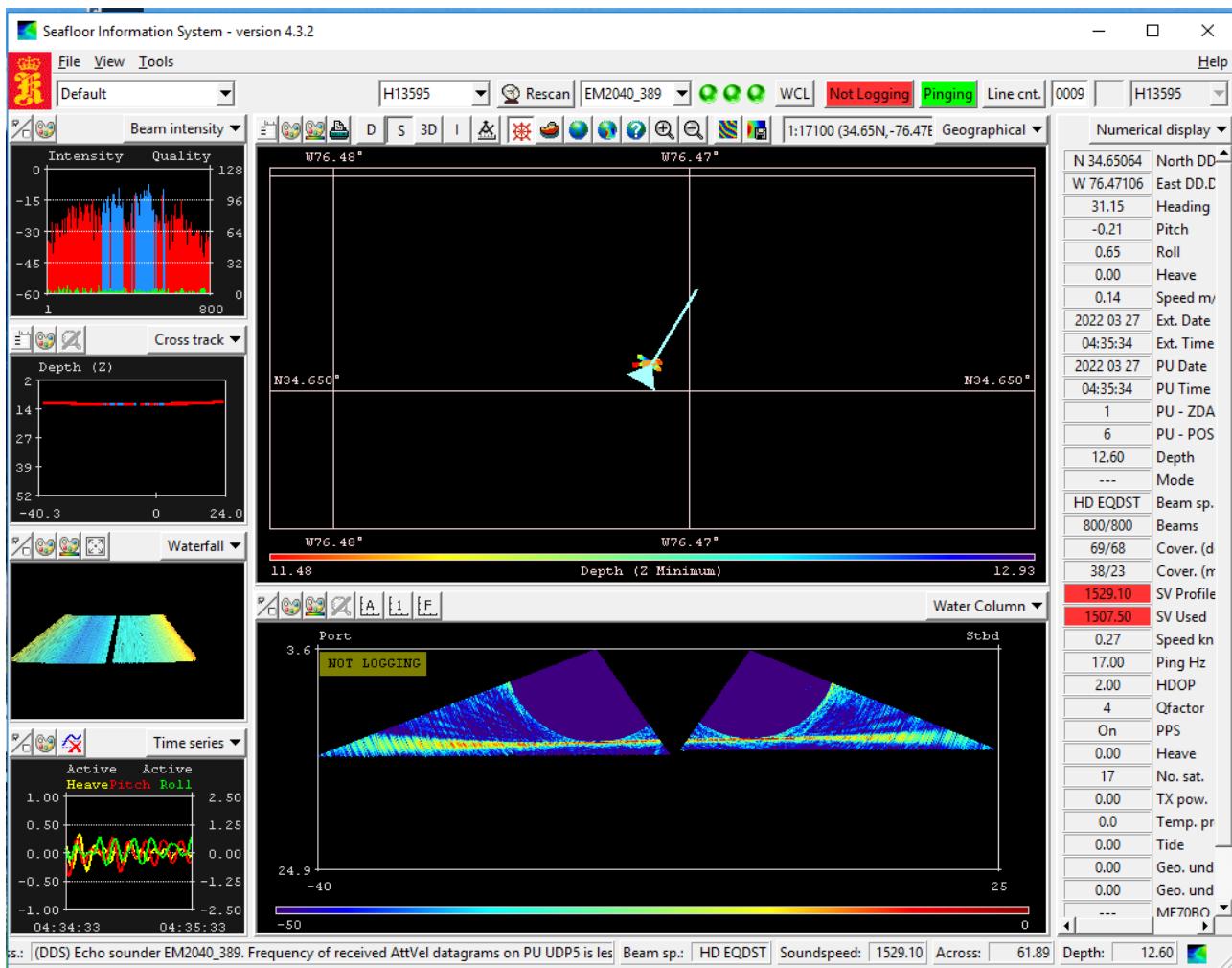
Running a BIST

Ideally, a BIST (Built-in Self Test) should be run every day before acquisition, an appropriate time would be during the UTC Midnight switchover. **THE SYSTEM MUST BE STARTED AND TURN OFF PINGING BEFORE TRYING TO RUN A BIST.** To run a BIST, go to View > Tear off > Installation parameters > select the **BIST** tab and click **Each test starting with 0**. The results will output in the spreadsheet and each bar under PU BIST Setup will turn green if it was a good test, or red if it was a bad test.



When the BIST test is complete, save the BIST test result by clicking the “Save BIST” button. The default directory to save to is good (D:\BISTS\), just name the test with the current date or YYYY_DDD_BIST.

The pinging and logging options should be available to the right of the status lights. Click on **Not Pinging** to activate the sonar. Data should begin streaming into the display. To initiate logging, click **Not Logging**.



This is generally what the main Seafloor Information Systems (SIS) display should look like. SIS gives the user the freedom to make multiple windows (tear offs, found under the “View” menu) configured the way the user would like. The major tear offs that should be viewed during use include the geographical, waterfall, cross track, beam intensity, water column, and numerical display.

Geographical Tear off: Shows a picture of the ship and where the sonar has been pinging. Background data can be imported but only in specific formats including S-57 and geo-tiffs. Raster charts cannot be loaded at this time.

Waterfall Tear off: a waterfall style display of bathymetry data collected.

Cross track tear off: a cross track display of current swath depth.

Beam intensity tear off: a graphical representation beam showing intensity and phase or amplitude detection method.

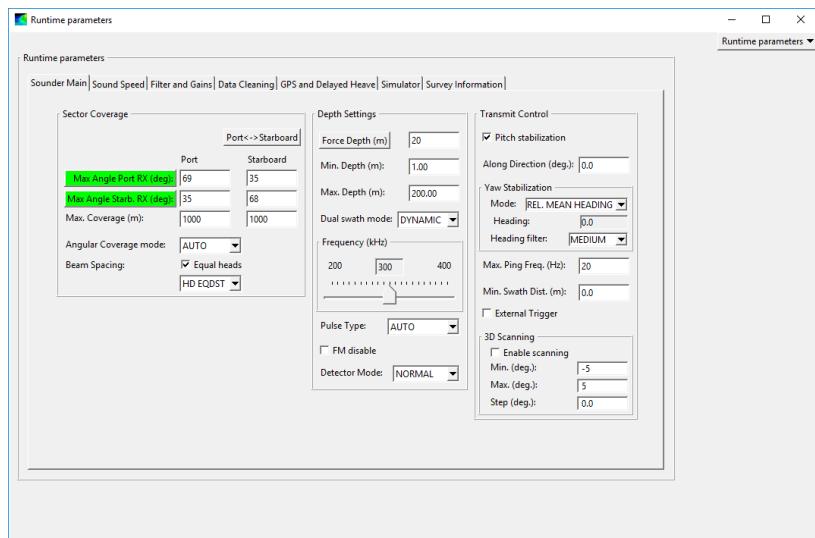
Water column tear off: displays what the sonar is detecting in the water column between the transducer and the sea floor. Also displays the sea floor.

Seabed image tear off: a waterfall style display of backscatter data collected by the sonar. This is optional and would be in the same place as water column.

Numerical display tear off: displays real time metrics from the variety of sensors integrated into SIS.

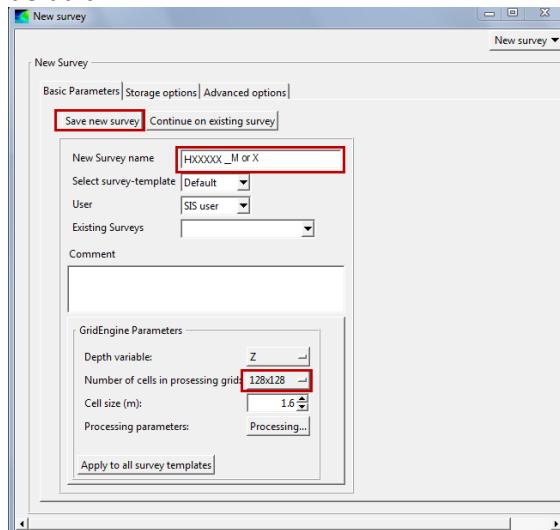
Runtime Parameter Settings Tear Off

Usually, these will be set at the beginning of the project and left that way. There will be no need to change the beam angles, min/max depth, or ping rate.

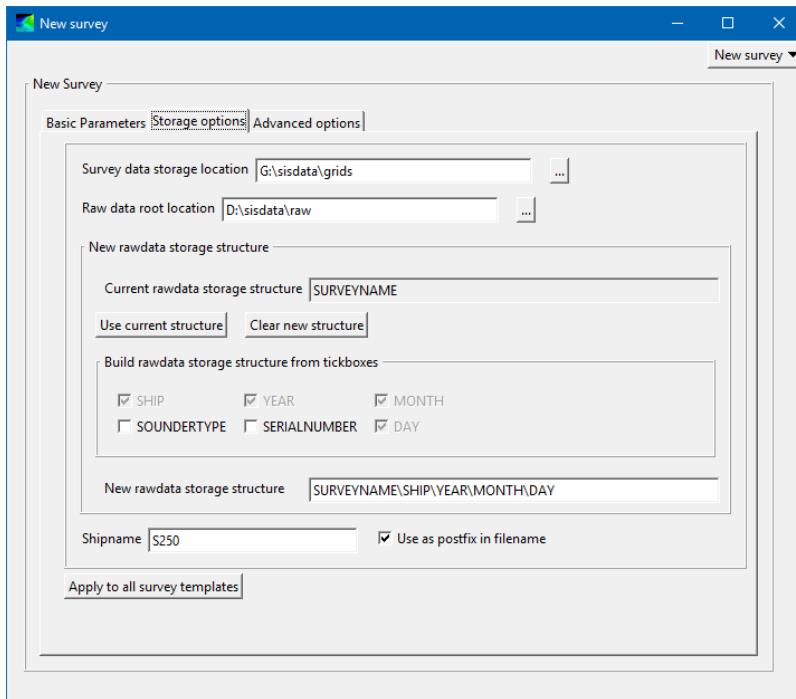


Creating a New Survey

Each sheet will need its own survey so that SIS knows where to log the .all files. In the **New Survey** tear-off sheet under **Basic Parameters**, enter your sheet number followed by either a **_X** or **_M** (X for cross-lines, M for main-scheme). Change the Number of cells in processing grid to **128x128**. Leave the other settings as default.



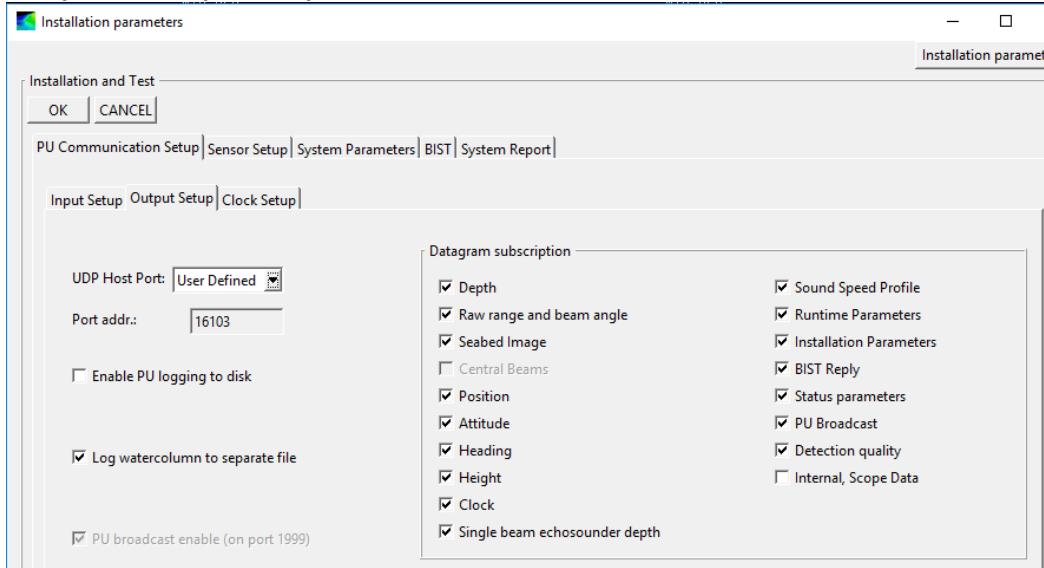
Next, under **Storage Options**, check the boxes next to **SHIP**, **YEAR**, **MONTH**, and **DAY**. Next to Shipname enter **S250**. Return to **Basic Parameters** and select **Save New Survey**.



IMPORTANT: When you create a new survey you will need to start pinging and log one line or else the project won't work in the future. Delete the line after you set up the project.

To remove a survey completely go to **File -> Remove Survey from Database**. Then drill down into the **RawData** and **GridData** drives to clear it from any remaining folders.

The following settings are configured to ensure correct HYPACK integration, and can be viewed in the **Installation Parameters Tear Off (View>Tear Off>Installation Parameters)** under the **PU Communication Setup Tab > Output Setup Tab > “UDP Host Port: User Defined” item:**



Transferring files

SIS logs files on the Kongsberg computer on the **RawData (D:)** under **sisdata**. The SIS Master computer no longer has direct access to **RAW (Q:)**, so the .ALL files will need to be copied from the SIS1 computer to a dedicated (and labeled) external 5TB HDD, and then plugged into a networked computer (ACQ1, ACQ2, PROC1-4) so the files can be transferred to the **RAW (Q:) \YYYY\DATA_TRANSFER** folders for processing. Please see the [Data Management and Charlene Processing](#) (there is a link to this document on the PROC1 desktop) document for detailed information.

Shutting Down SIS and the EM2040 PU's

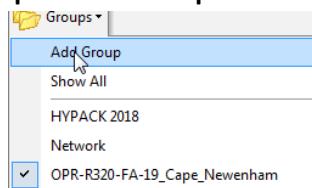
Ensure “**Not Logging**” and “**Not Pinging**” are **RED** (inactive). In SIS either press File > Quit, or you can close SIS with the X in the upper right corner. Once SIS is closed, it is ok to power down the EM2040 Primary and Secondary Processing Units in the electronics rack.

5. HYPACK SETUP (No updates in March 2023)

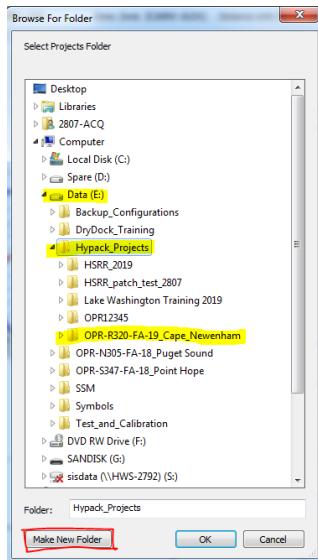
Hypack projects are held within Groups. We make a separate Group for each project, each year's HSRR activities and for any trainings or one off acquisition days. Each Group will have its own set of Geodetic Parameters that will automatically populate for any new project created within it. (This is why we need to create different groups.)

We save the Groups to the Data (D:).

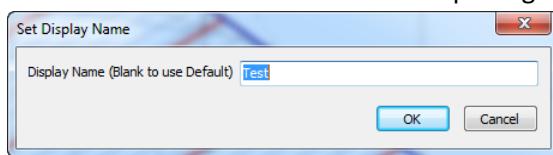
- Open the latest HYPACK 20XX on Acq1 (Contact the FOO for what Hypack is the latest). The program will default to the last project that was open. To open a different project, Select the Project Manager tab and double-click on the Project you'd like to access.
- If you need to create a new group because you are starting a new project, Open **Hypack**. Select **Groups -> Add Group**.



- Browse to the Data drive and once you have clicked on **Hypack_Projects** select **Make New Folder**. Name it something that makes sense like **OPR-XXX-FH-YY_Location** or **Location_Training_YYYY**.

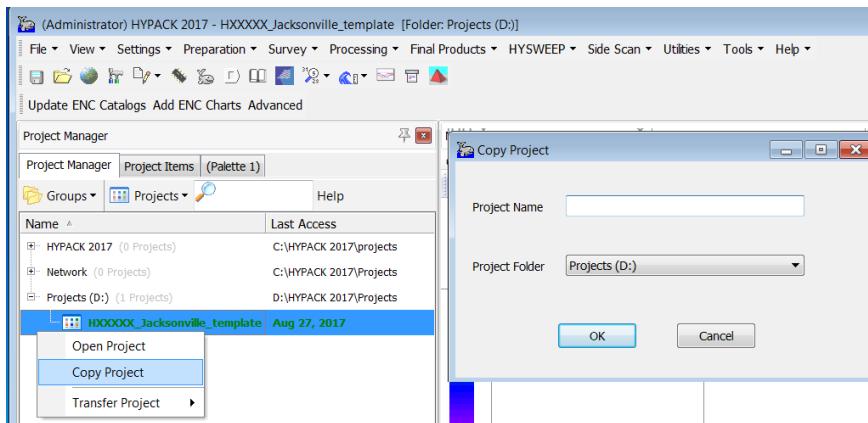


- You will also need to set the display name; this can be anything but you might as well make it the same name as the folder to keep things simple.



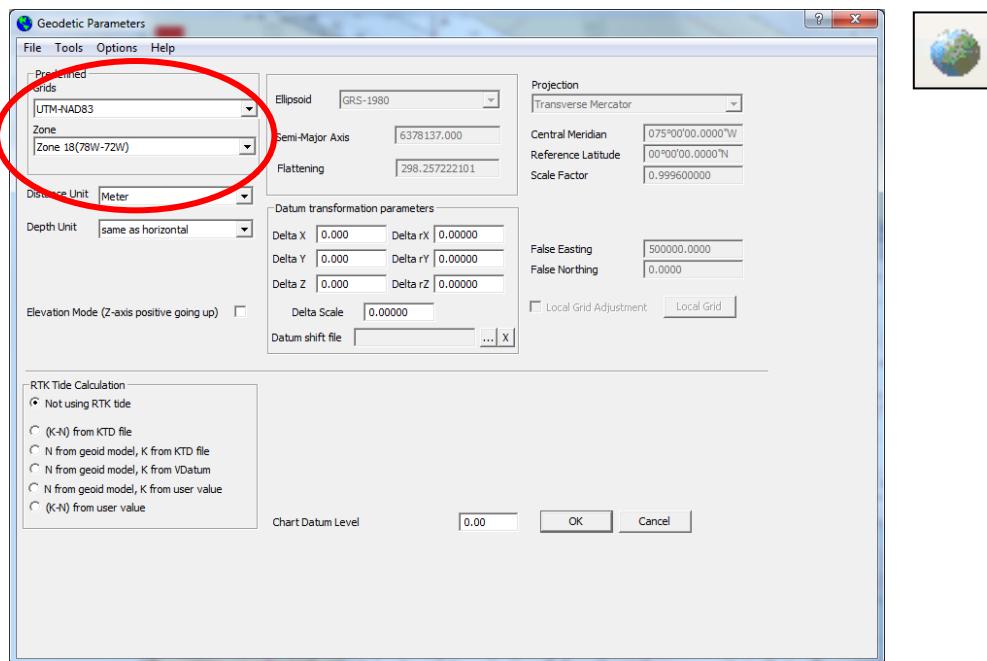
- Now you are ready to create a Project within your new Group.

- f. Once you are in the correct group and the group is properly set to the Hypack Project Folder, you can make a new project. Click on **File -> New Project**. Change your project name to the name of your sheet (HXXXXX), and save it to the OPR number.

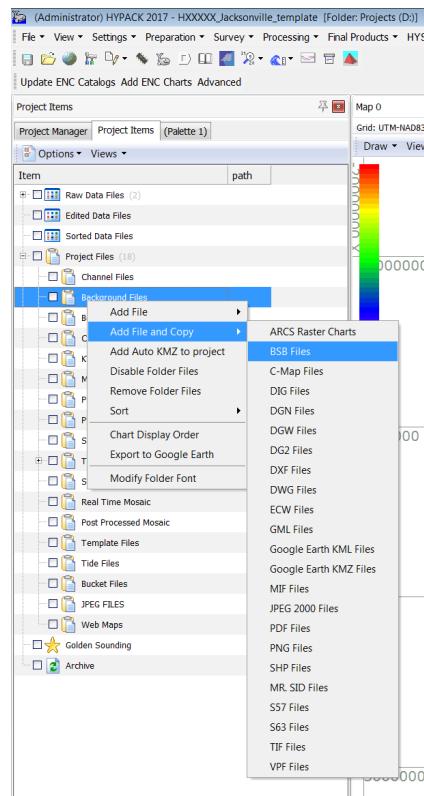


When this is finished, you will see this in the Project Manager tab.

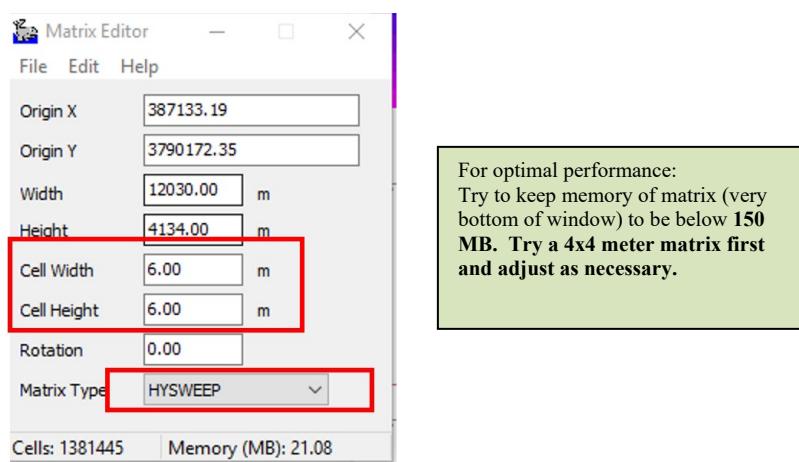
- g. Check Geodesy to ensure correct datum and projection. **Preparation -> Geodetic Parameters** or select the Geodesy Icon. Refer to *Appendix II* for UTM zones if needed.



- h. Add project files as necessary. Most common files to add to a project are charts (.000) (ENC's ONLY PLEASE), geo-referenced images (.tif), planned line files (.lnw) and target files (.tgt). Utilize the **Add File and Copy** option to ensure the file is added to the project directory. Many files will already be present if the project template is used in creating new projects.



- i. Ensure matrix file is active for swath coverage display (create a new file if necessary).
Preparation -> Editors -> Matrix Editor. Set the Cell Width and Height at a resolution suitable for survey goals (**usually 4m**) and select the **Matrix Type = Hysweep**. Matrix files that are smaller than **150 MB** are more stable.



Consult **grid resolution tables** posted on forward end of charting table in Plot for guidance on HYSWEEP cell width and height.

- j. **IF REQUIRED**, ensure HYSWEEP Hardware settings are configured appropriately. **If something is not working or if there are questions, talk to the FOO.**
- k. To look at setup PREPERATION -> HARDWARE SET UP or click the microchip button

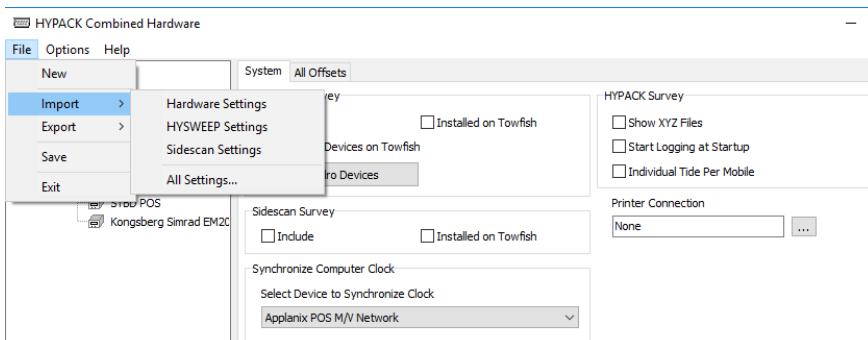


- i. HYPACK Combined Hardware
- ii. File → Import → All Settings, and select the .ini file with the most recent date located in the folder: D:\Configuration\Hypack Hardware 2023

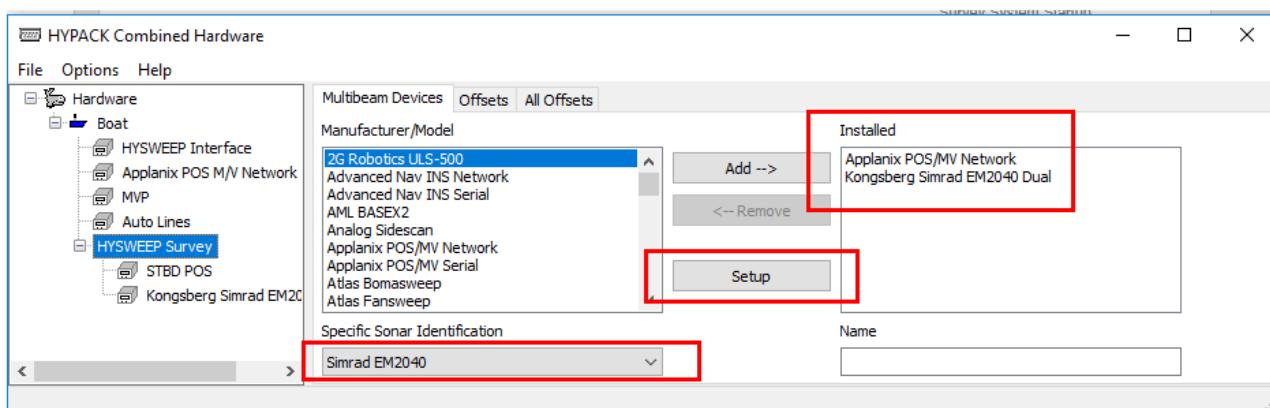
SAVE YOURSELF TIME BY IMPORTING THESE SETTINGS

file ->import->All Settings
These files are located on the ACQ1 Desktop:
C:\Users\survey.acq.fh\Desktop\Hypack-Hysweep_YYYY_Config_Files

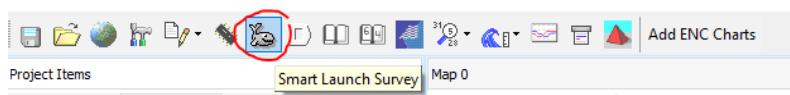
Use Hardware Settings .ZIP file with the most recent date / configuration type



- iii. Select the desired sonar to be used under HYSWEEP Survey
- iv. There are tabs for Setup, Connect, etc. Again, THESE SHOULD NOT BE MODIFIED UNLESS THERE IS AN ISSUE AND THE FOO HAS BEEN CONTACTED.



- v. Close out of hardware settings and save if you made changes.
- vi. Select **Survey → HYPACK Survey and HYSWEEP Survey** to enter survey mode or click the whale



6. Hypack Auto Line Setup

Auto Lines is a tool in HYSWEEP survey that will drop dots based on an algorithm to calculate your next line/path (blue dots represent your future swath and red dots represent where your ship will be on that automatically generated line).

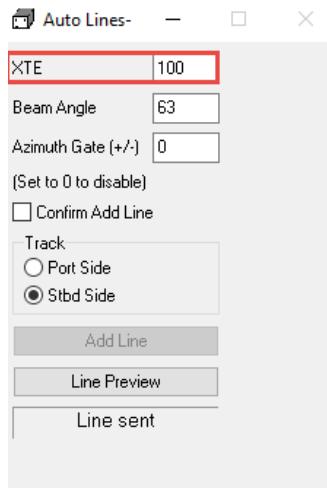
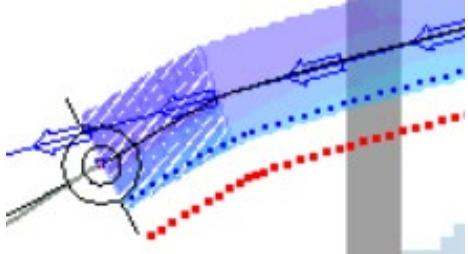


Image 1: High Line Approximation Error (XTE).

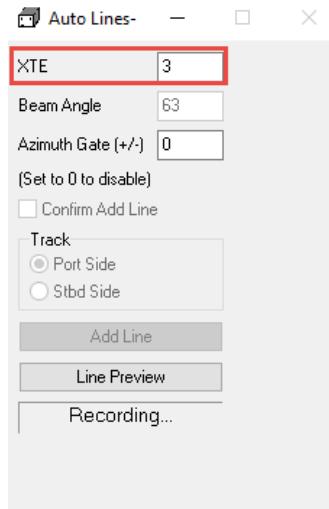


Image 2: Low Line Approximation Error (XTE).

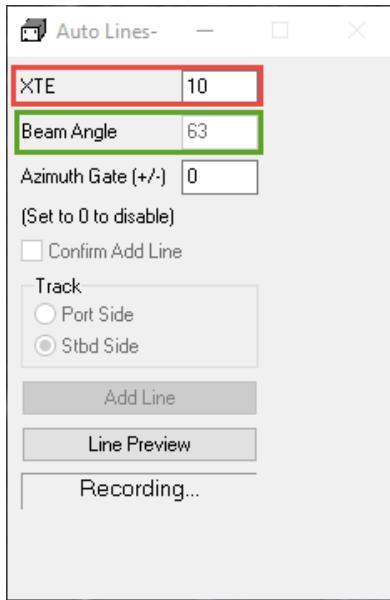
In order for Auto Lines to create a detailed track, better for varying bathymetry, causing your swath to vary too, you need to have a lower value in the Line Approximation Error section (in Hypack2020 this is confusingly the XTE section).



Image 3: Example of high Line Approximation Error (XTE). There is only one waypoint to represent the bend in the line. This would result in too much overlap if using this line when surveying. (Garbage)

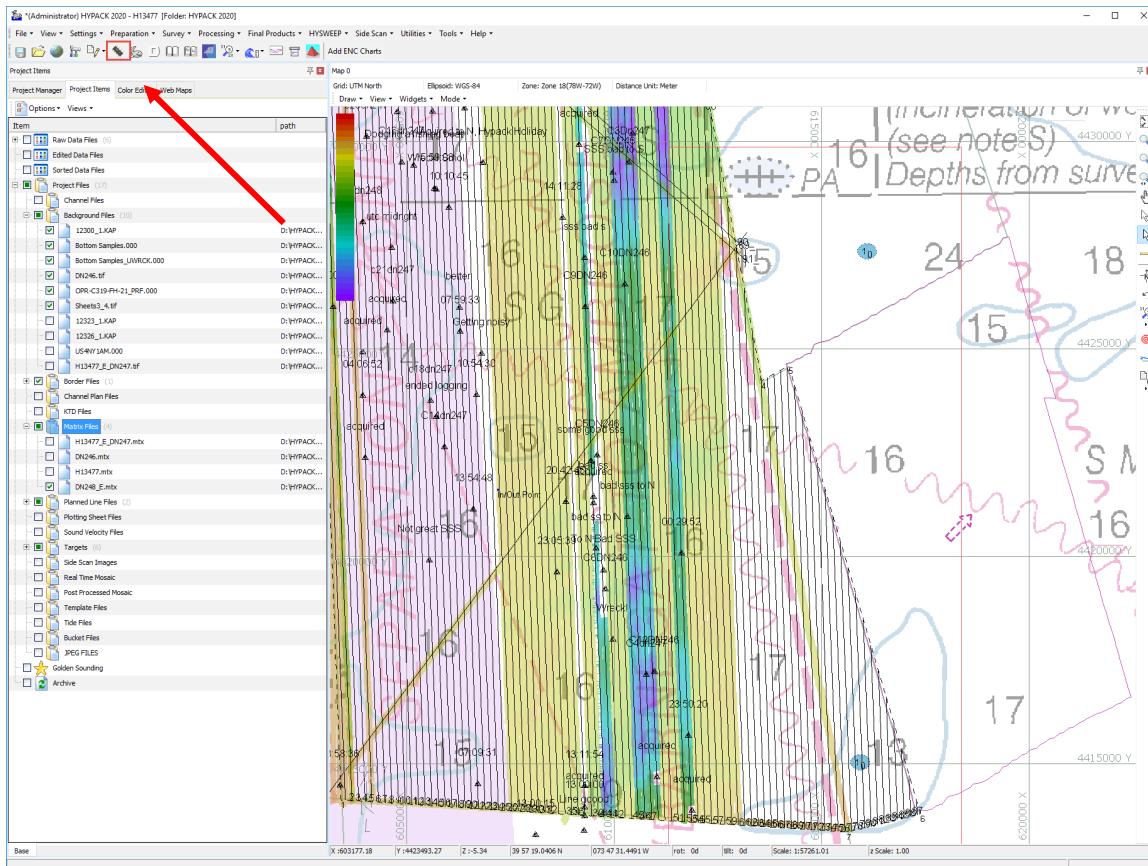
Image 4: Example of low Line Approximation Error (XTE). There are numerous waypoints to represent the bend in the line. This would result in just enough overlap if using the line when surveying.

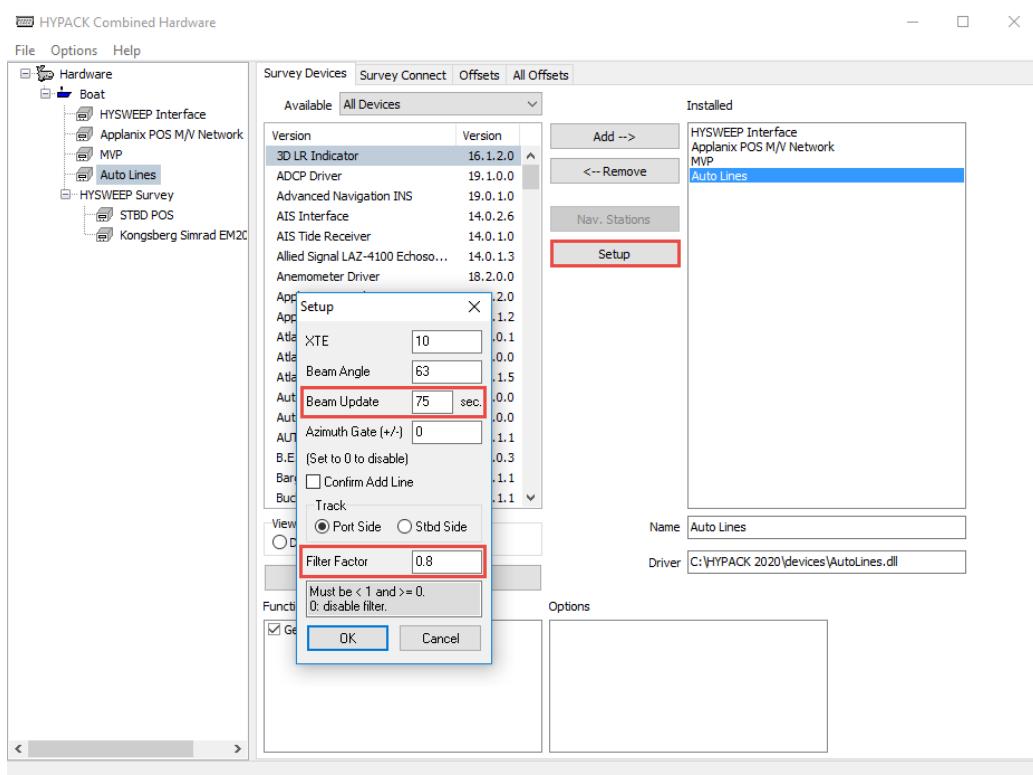
After some testing with the XTE, we found a sweet spot with the following settings:



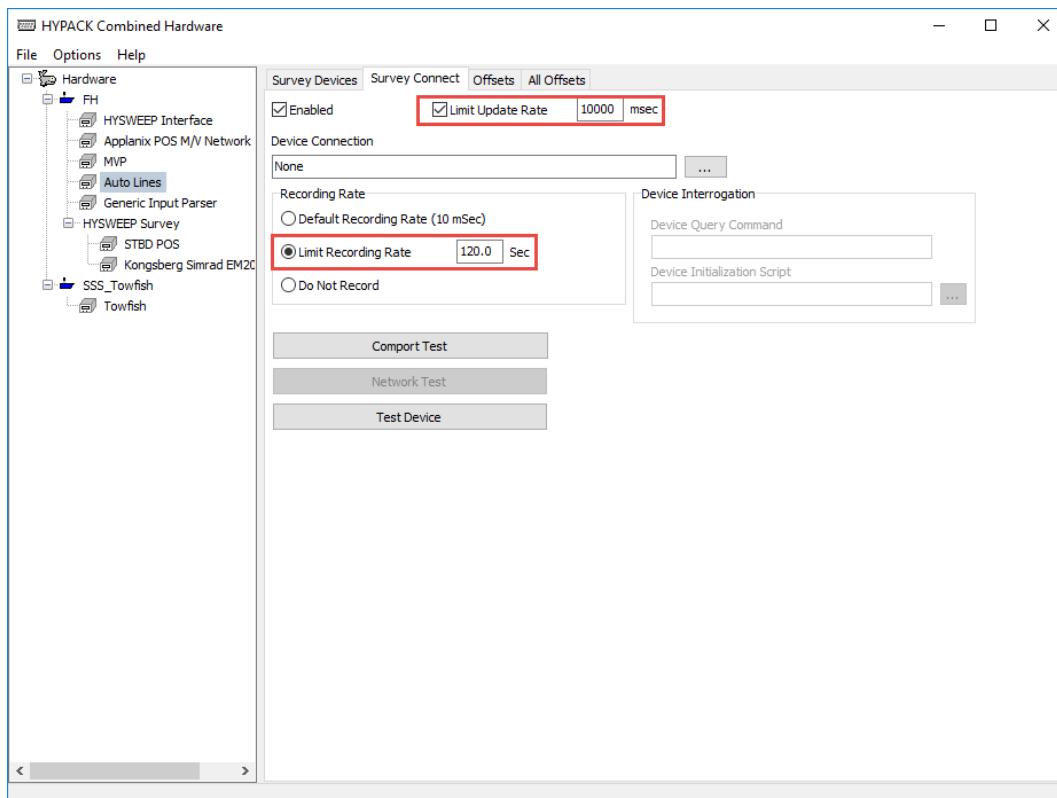
*Image 5: Image from Auto Lines when running HYSWEEP. Adjust beam angle to get the swath overlap you need (**generally an angle of 63-70 seems to work**). A lower XTE value will produce more waypoints than higher values. You can manually adjust Track based on your next line direction, but Auto Lines will also alternate automatically. Only change these settings after you ended logging in Hypack.*

To get to hardware settings, you need to have HYSWEEP closed and they can be found under Hardware Setup in HYPACK. Auto Line can crash HYPACK, so play with beam update and other settings if having difficulties.





You can also change the settings in Survey Connect tab to help keep line file from getting too large and cause Hypack to crash.

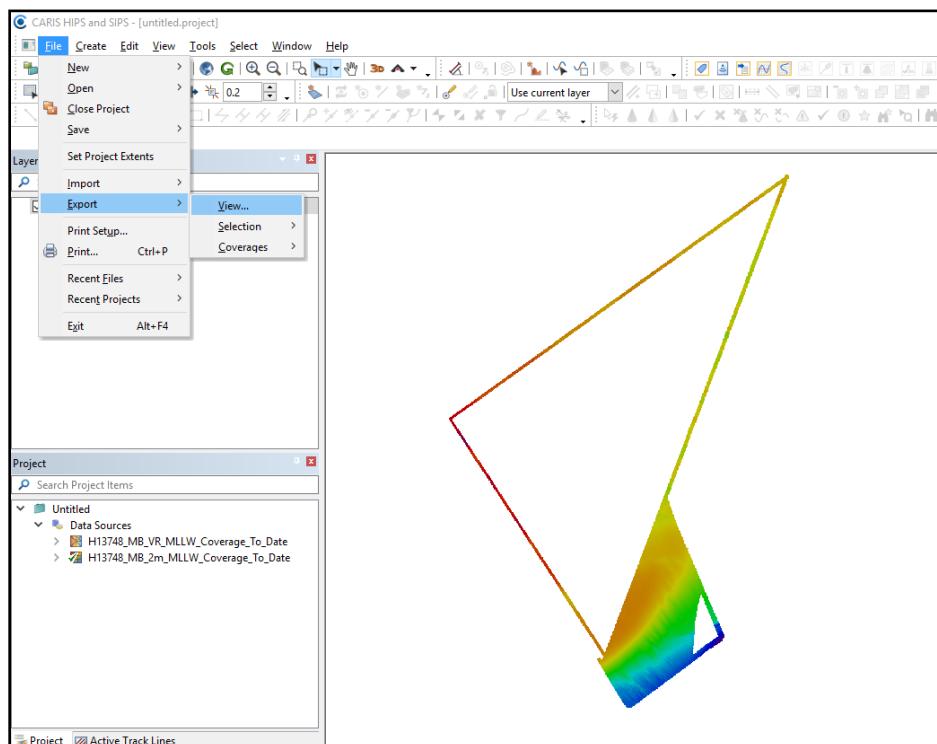


7. Creating and Importing a .TIF from Caris into Hypack

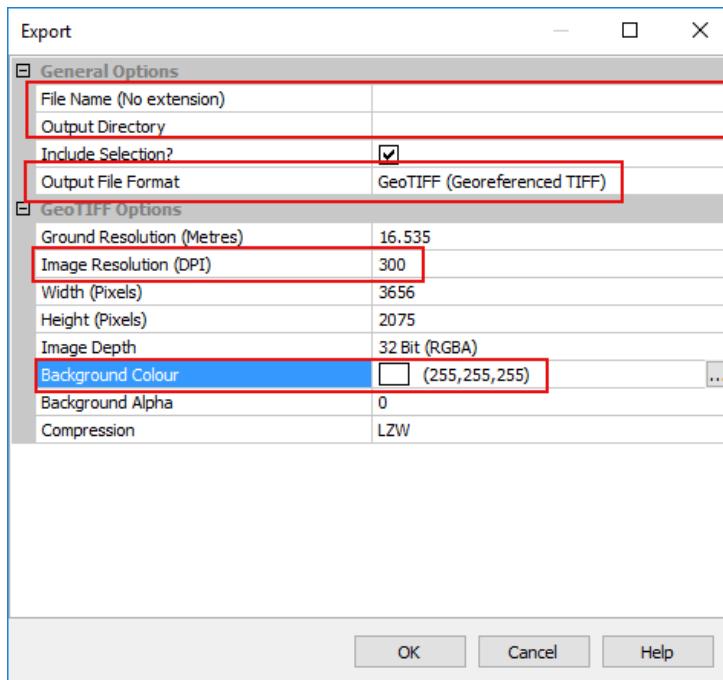
- Purpose
 - To provide guidance on the creation of geotiffs for import into Hypack and used to show previous coverage for planning and acquisition
- Background
 - These image files will be exported from CARIS HIPS & SIPS nightly by the data processors. They are critical for showing what's been covered and how much is left to be filled in. However, Hypack will only accept and display georeferenced raster images that are generated with the geotiff extension having only one 'f', i.e. 'tif'. There are multiple ways to generate GeoTIFFs in CARIS, but this is the primary method that will ensure the exported file will open in Hypack.

a) Work Instructions

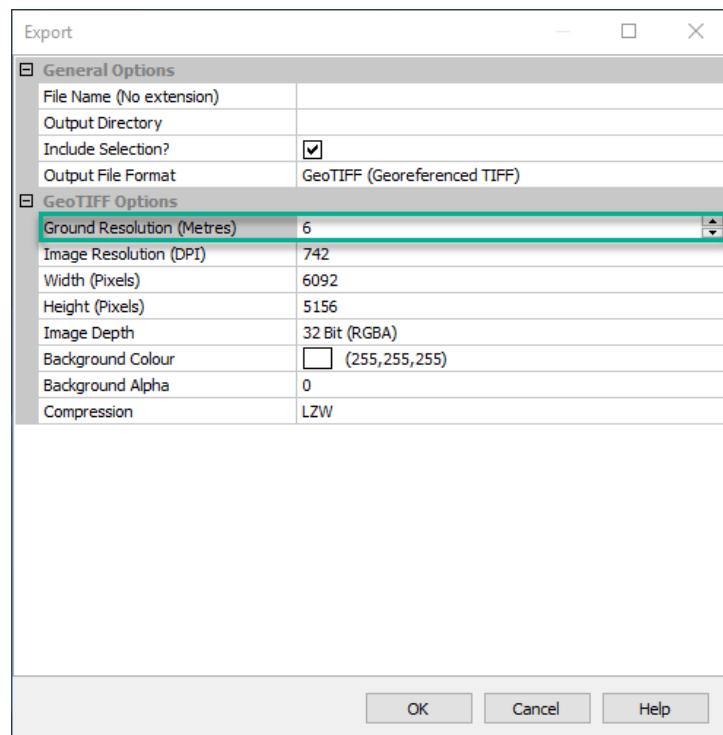
1. Open the surface coverage to be exported in CARIS HIPS or BDB.
2. Make sure the background is white.
3. Turn off all other layers. If other layers are still open, they will be exported along with the surface
4. Highlight the surface to be exported.
5. Select File > Export > View



6. Populate the Export dialogue as shown below. Leave all other fields as the default settings.
Recommend to save daily coverages to the following output directory:
P:\Survey_Storage\00_PROJECTS\202X\OPR-XXX-FH-XX\Surveys\HXXXXXX\04_TIFF

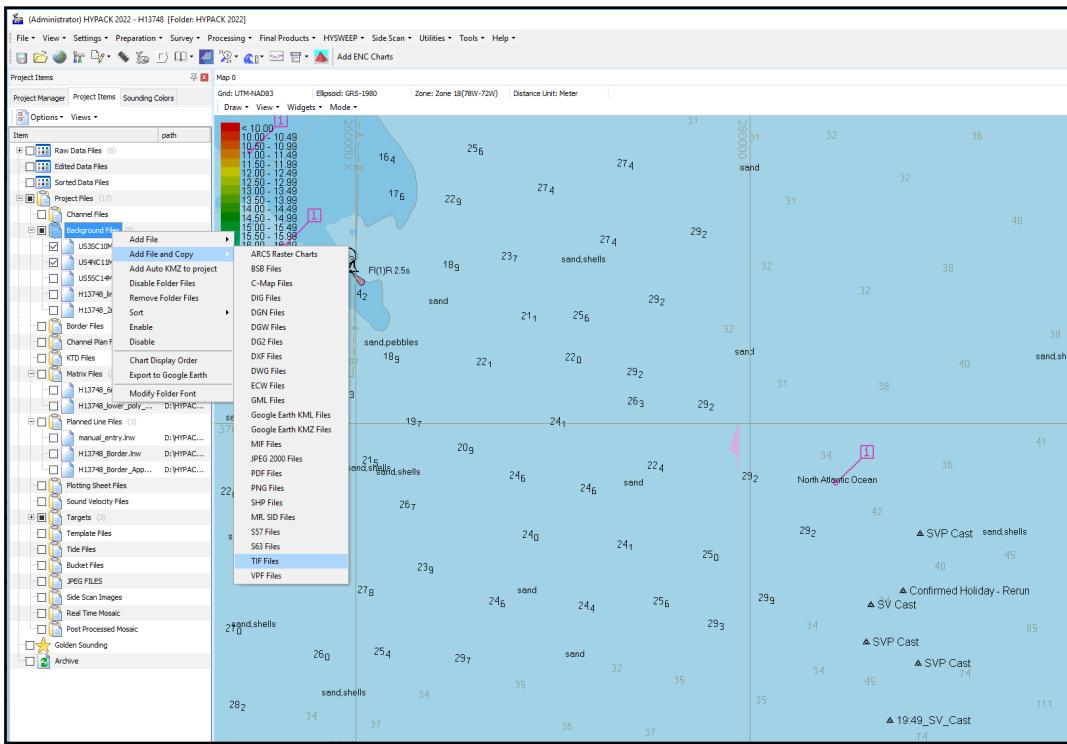


If you would like a higher resolution TIF output than what 300 DPI provides you can alternatively populate the “Ground Resolution (Meters) field with the desired output resolution as shown below. This will change the Image Resolution (DPI) automatically.

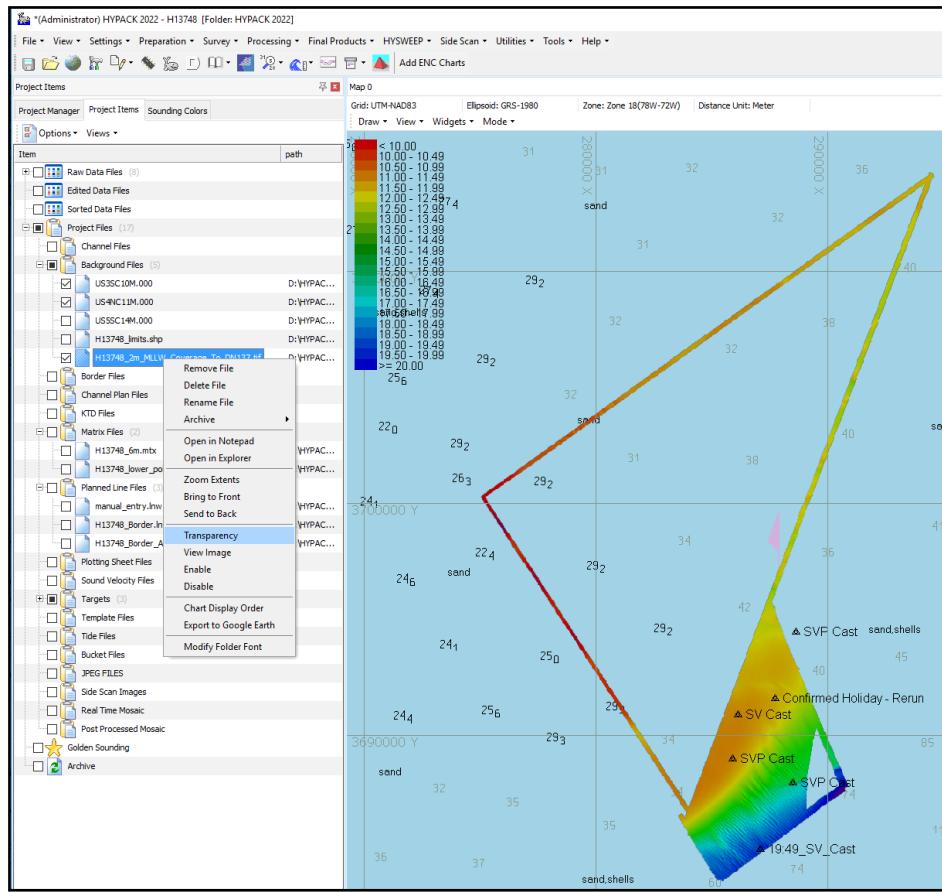


- Once the export is complete, open the existing Hypack project on ACQ1. In the primary Hypack User Interface, right click on Background Files in the Project Items List tab on the left. Select Background File > Save and Copy > TIF files. Navigate to the location of the GeoTIFF and save it to

the existing Hypack project folder at D:HYPACK 2022\HXXXXX. If you fail to save the file to the appropriate Hypack project folder, then it will still be sourced from the original network location and may fail to open in the future.



8. Right click on the TIF file name under Background Files and change the transparency. An opaqueness of around 100 is a good starting point, but may need to be modified accordingly.



- In order to see the coverage TIF in HYSWEEP, the image must be checked on. If you are still unable to see it in HYSWEEP, check the Layer Manager to determine visibility.

8. MVP Setup

- Start the **ODIM MVP Controller** program
- Go to **Edit->System Configuration** and verify settings, filenames, and Directory.
 - Deployment Configuration->Depth Off Bottom(m) = 5m to 10 m on a flat bottom
 - Data Logging->Root Filename should be HXXXXX_DNXXX
 - Reset the (Index) to 0001. ***This can be done once per sheet or just at the beginning of the entire project.***
 - Data Logging -> Data Directory should be (C:\MVPDATA\RAW\OPR-A###-FH-YY\HXXXXX\DN-XXX\). ***MVP raw data file logging is directly to the MVP computer and the raw files are then transferred to the appropriate folders on the transfer drive during the nightly transfer.***
 - Ensure 'eng' and 'S12' are checked and that Data Filtering - Bin Size is 0.001m and Profile Depth Limit 100.0m.



MVP CONFIGURATION

File

WINCH Interface	MVP 200 (model)	NAV Interface	NMEA Configuration
Serial Port OFF - 1 115200 N 8 1	Baud Rate 5 4800 Par DBits SBits OFF - 5 4800 N 8 1	Timeout (s) 5.0 5.0 5.0 5.0 5.0 5.0	ID Field SGPGGA SSDBS 3 SGPVTG 5 SINZDA Header/Footer 1: \$GPGLL 3: \$GPVTG 2: \$SSDBS 4: \$INZDA
Depth (m) Cable (m) Profiling Overshoot 2.0 2.0 Spd /Set(%) Recover Slow Down 4.0 -1.0 50	IP Address Port Udp Local 127.0.0.1 5600 OFF - Remote 127.0.0.1 0		
<input type="checkbox"/> Pump On Between Casts	<input checked="" type="checkbox"/> Use NMEA Checksum		
FISH Interface 1 SSFFF (defaults)	MULTIBEAM Interface Xdepth (m) -1.0 <input checked="" type="checkbox"/> (Auto Send)		
Serial Port OFF - 4 19200 Main Probe Par DBits SBits N 8 1	Port Baud Rate 1 9600 Par DBits SBits OFF - 1 9600 N 8 1		
Probe ID Type 1: M AML uCTD 2: None 3: None	Instrument Offsets (0-5V) P C/SV T S/N 0 0.00 0.000 0.000 8815 0 0.00 0.000 0.000 0000 0 0.00 0.000 0.000 0000		
MAX Depth 600 (m)	IP Address Port Timeout (s) Local 10.48.8.86 5600 3600 5.0 Remote 10.48.8.86 2006 100		
Default LAT 45.000 (dd.ddd)	Sound Speed Profile (SSP) File Format 's12' Source Probe 1 Max Pts 1000		
Wakeup String	<input type="checkbox"/> Remote LOPC		
Deployment Configuration 1 MVP @ 8kts	Data Logging Post Generate <input type="checkbox"/> (Log Upcast)		
Winch Control Mode Profiling FreeWheel Recovery Constant RPM (RWIN)	Root Filename H13600_216 0370 (Idx) <input checked="" type="checkbox"/> (AUTO) Data Directory c:\MVPDATA\RAW\OPR-F364-FH-22\H13599\2022-268		
Depth Off Bottom (m) 5.0	Data Files <input type="checkbox"/> (BIN filtering) <input checked="" type="checkbox"/> 'm1-3' <input checked="" type="checkbox"/> 'eng'		
Max. Depth (m) 25.0 Min. Speed (kt) 1.0	Bin Size (m) 0.001 Profile Depth Limit (m) 150.0		
Max. Cable Out (m) 350 Max. Speed (kt) 12.0	SV Files <input type="checkbox"/> (Auto Xtend) <input type="checkbox"/> (BIN filtering) <input checked="" type="checkbox"/> 'asc' (D SV) <input checked="" type="checkbox"/> 'cald' (D SV T) <input type="checkbox"/> 'em1' (D SV T)		
DOCK Cable Out (m) 30 Profile Rate (m/s) 0.05	<input type="checkbox"/> S10 (D.SV...) <input checked="" type="checkbox"/> S12 (D.SV.T.S.) <input checked="" type="checkbox"/> 'asvp' (D SV) <input type="checkbox"/> S52 (P.,T.C.) <input type="checkbox"/> 'scott' (Msg43)		
Alarm Delay (s) 1.0 Recover Delay (s) 1.0			
Auto Deploy Interval (min) 30 <input checked="" type="checkbox"/> (Confirmation)	Display Settings <input checked="" type="checkbox"/> (Auto View Files) Strip Chart Scaling Min. Max. Depth (m) 0 70 SV (m/s) 1400 1700 Tension (kg) 0 1000 Time (Min.) 15.0 <input type="checkbox"/> Remote Monitor/Output Winch 127.0.0.1 3601 (port) Fish 127.0.0.1 3602 (port) Nav 127.0.0.1 3603 (port) Sys Msg 127.0.0.1 3604 (port)		

- vi. Ensure the main display show an appropriate fish depth of ~2m when transiting at survey speed, that the cable out is roughly 17m, and no error messages are present in WINCH Status and MVP System.



- vii. The length of cable on the drum is 660m from the factory. There is a messenger at the 600m mark for safety. AS A SAFETY FACTOR we say the cable drum has 500m of “usable” cable on it for casts. This is a safe margin and also allows for any cable retermination cuts etc. up at the fish end of the cable. **In the window above under Deployment Configuration, NEVER set the MAX Cable (m) to greater than 450m for safety purposes.**

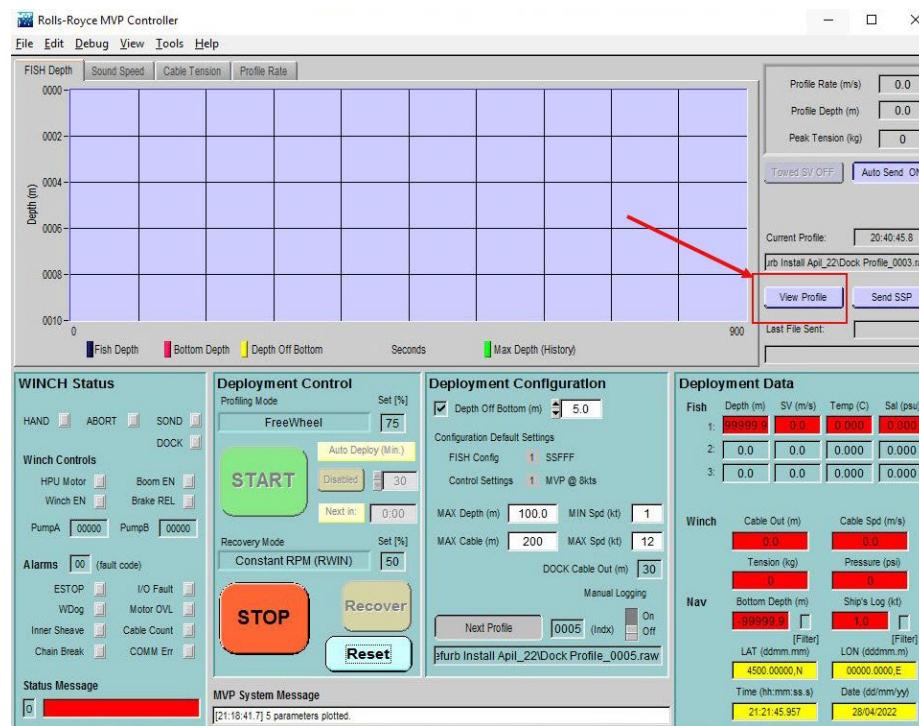
IMPORTANT – Changing the Profile sample density:

The “EPS” Value by default any time the MVP Controller software is shut down and restarted is 0.1 which significantly reduces the cast sample density. **Each time the MVP Controller software is started** the following steps should be undertaken to increase the density of the MVP cast export data (.m1, .S12, .calc etc., files that go into Sound Speed Manager and transmitted to SIS). The .RAW files are not down sampled and are not a supported format in SSM MVP Import.

Changing EPS Value in ODIM MVP Controller

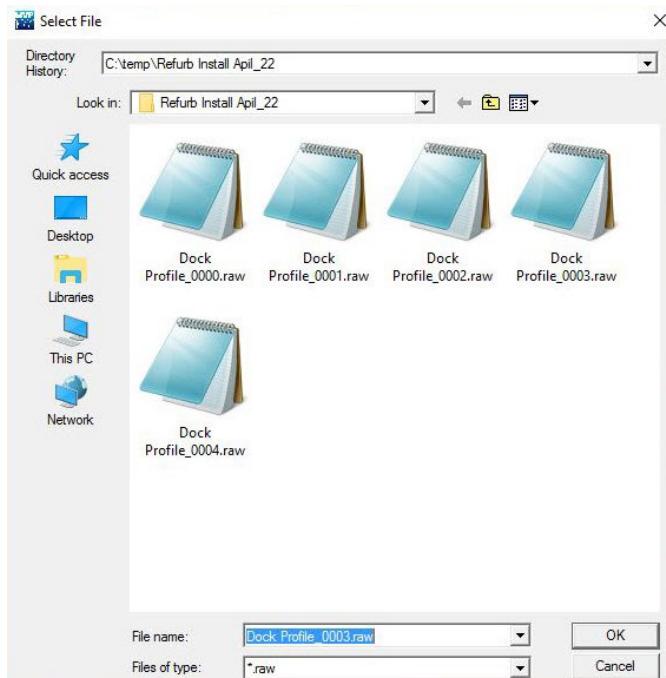
This document outlines how to change the EPS value in ODIM MVP Controller. Changing this value will allow for a greater density when taking casts. This will have to be changed each time the program is opened, but will save as long as the program is not closed or crashed.

Step 1:



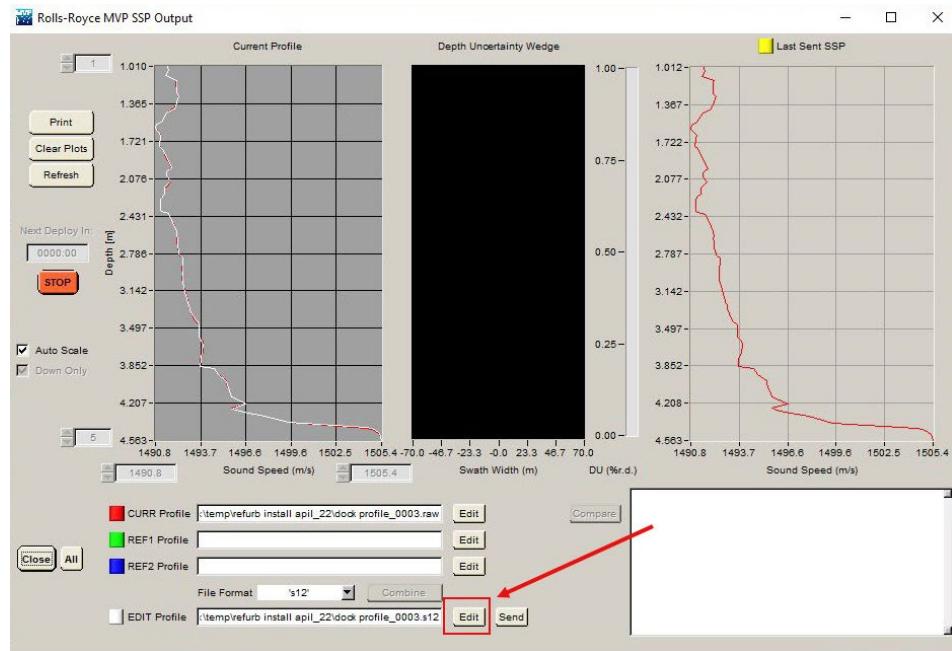
Right click View Profile button

Step 2:



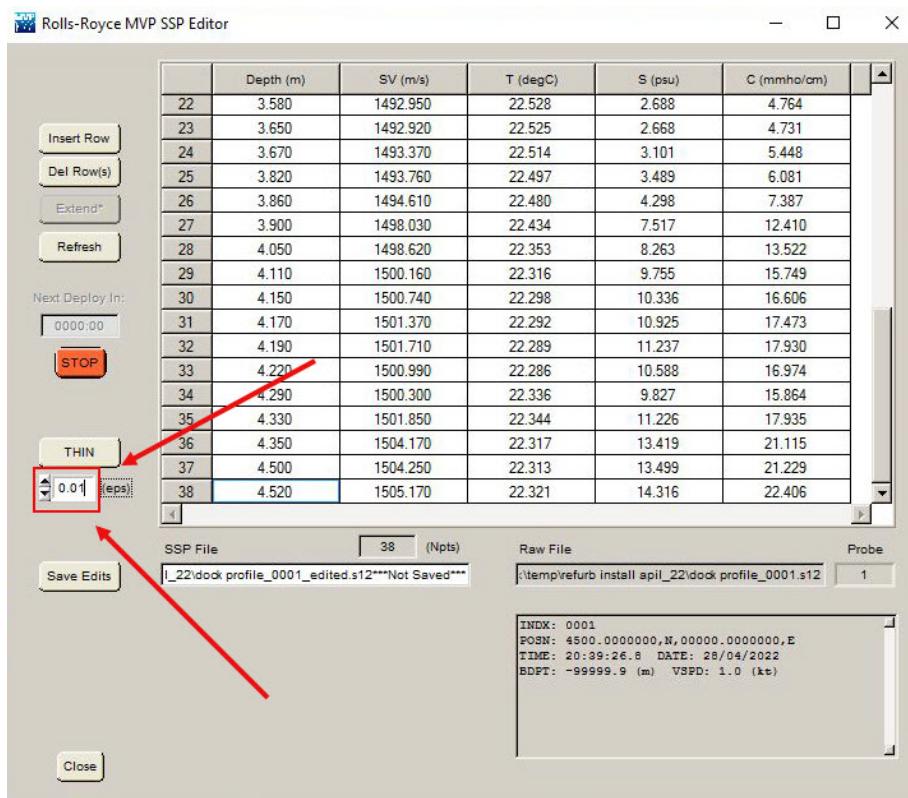
Select any one of these files

Step 3:



Select the Edit button

Step 4:

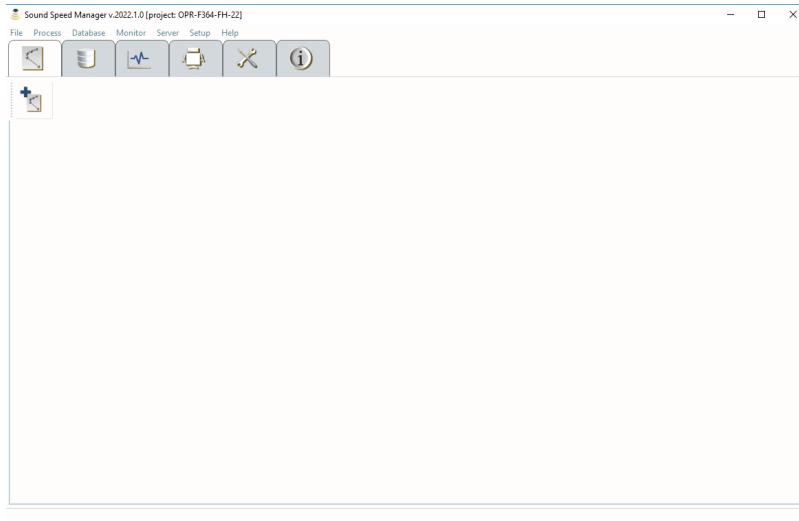


Change the value from 0.1 to 0.01

9. Sound Speed Manager Startup / Setup



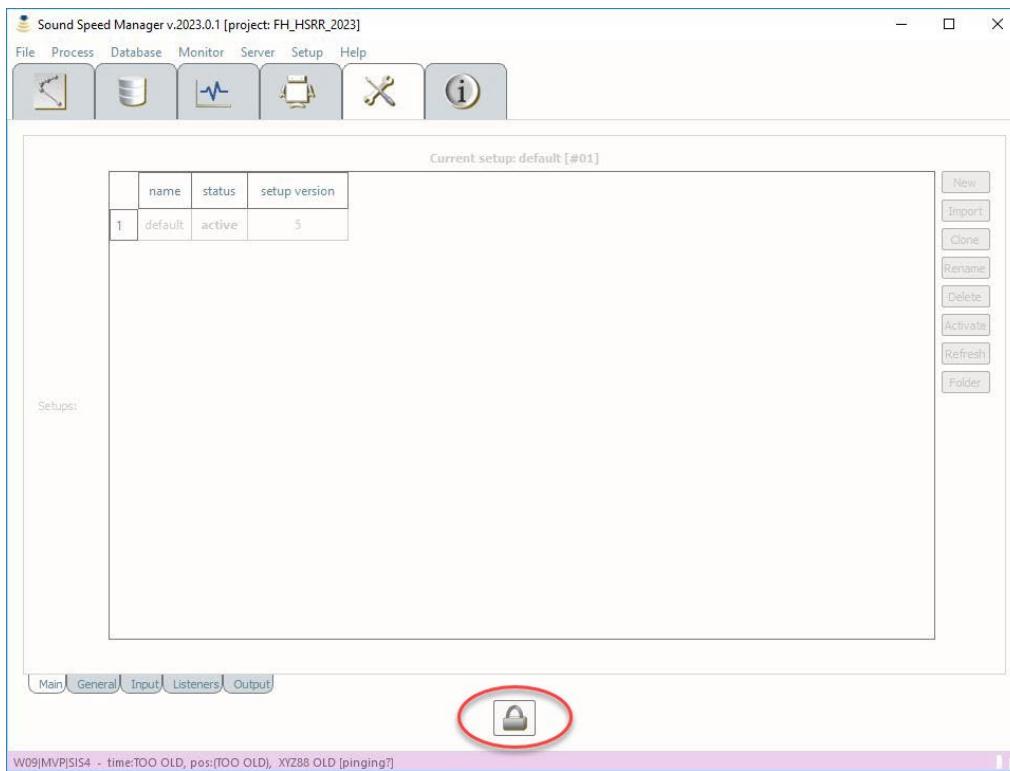
- A. On **MVP PC** open Sound Speed Manager. If Sound Speed Manager  is unviable or uninstalled it can be accessed through Pydro22.
- B. When Sound Speed Manager is opened it will be blank as seen below



- C. First ensure the settings are all correct (check against screen shots found in Appendix II (Page 52) of this Boat Book. The only thing that should be different is the Project Number and Sheet Number.
- D. To get to settings click the Wrench and Screw driver tool. You will need to UNLOCK the settings if you wish to change anything

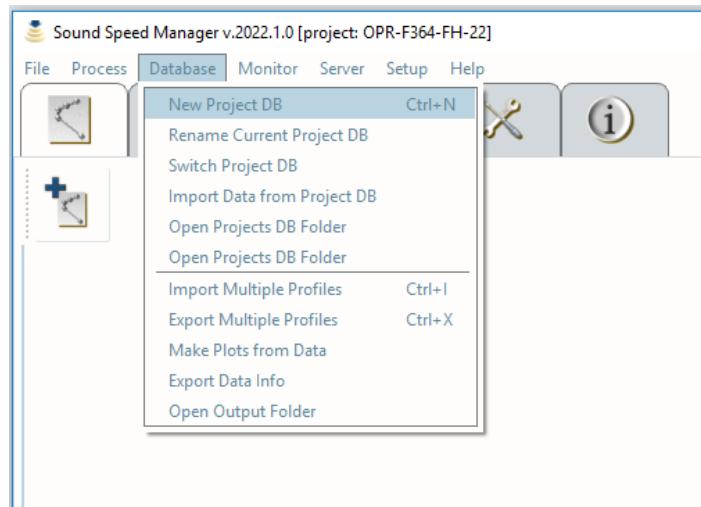


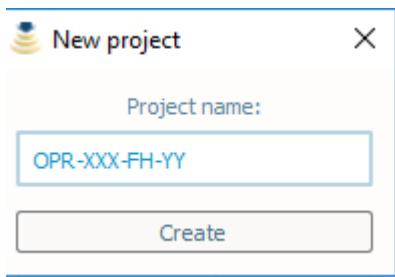
- E. If you wish to UNLOCK the settings click the Lock Button at the bottom of the screen and say yes to the prompt. DO NOT CHANGE ANYTHING WITHOUT CONSULTING THE FOO FIRST!



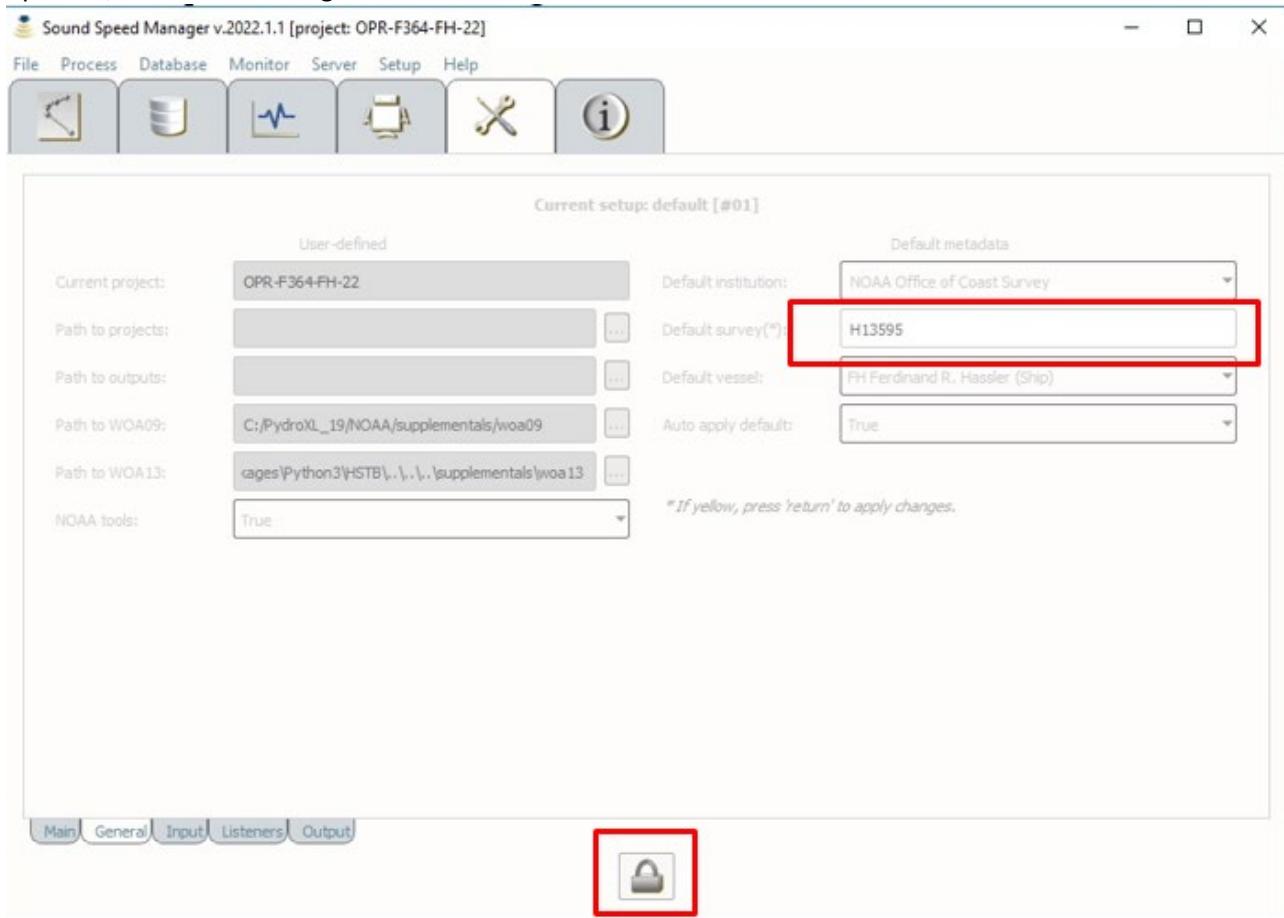
START A NEW PROJECT IN SOUND SPEED MANAGER

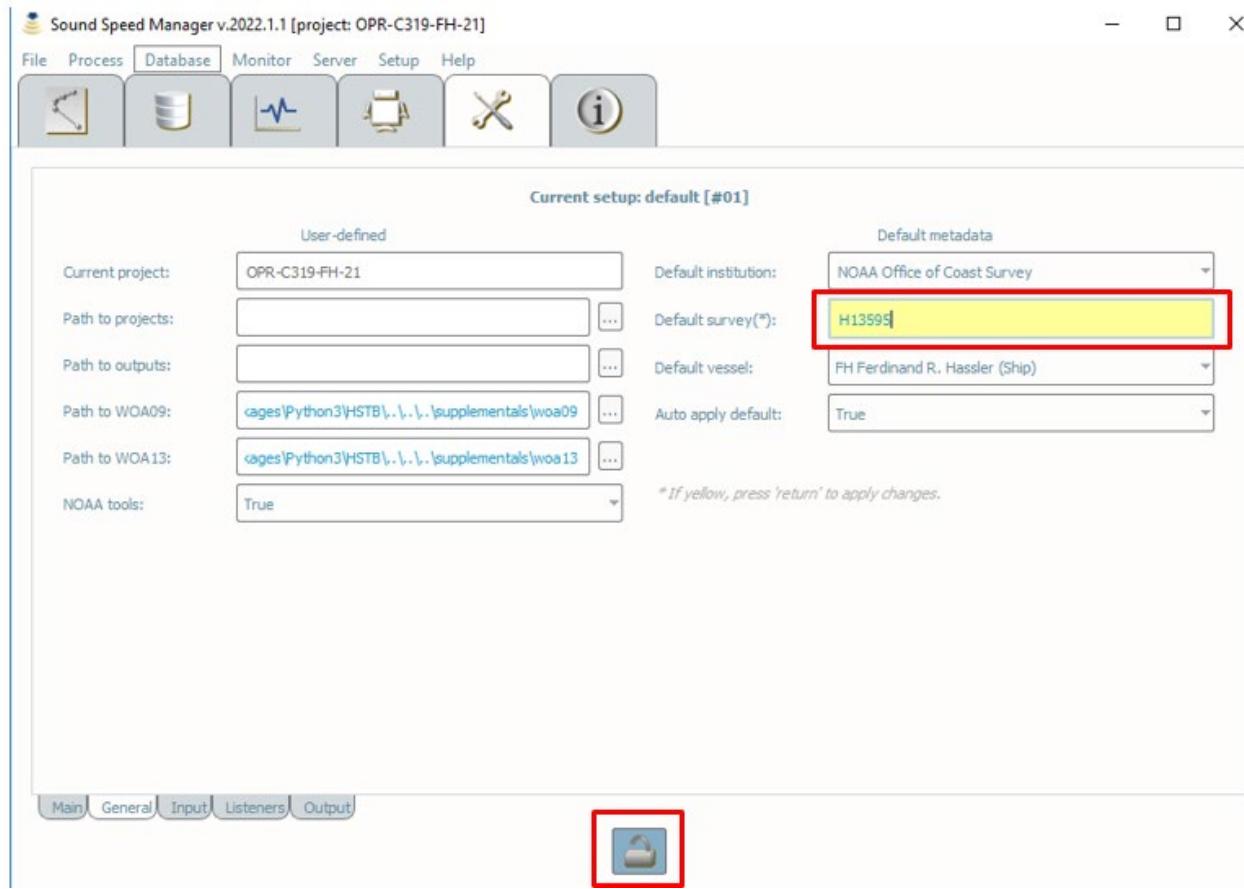
- Before the start of each new project you will need to make a new project in sound speed manager
- Database -> New Project DB (Ctl-N)
- Name the Project: OPR-XXX-FH-YY





Verify the default metadata for the Sound Speed Manager project. The default survey will remain as the last survey unless you update it. Verify that the default survey is the name of the sheet. If it needs to be updated, unlock the settings.

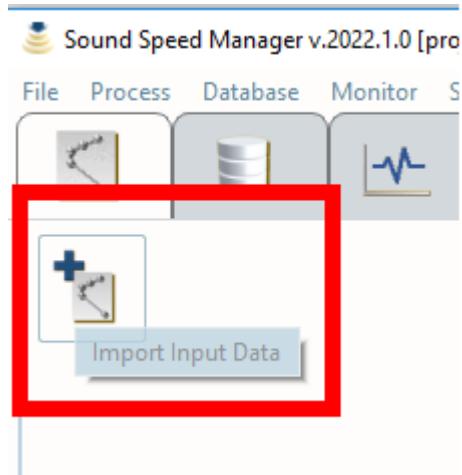




After updating, the box will turn yellow. Hit enter to have the box return to white and for the settings to save. Click on the lock to re-lock the settings.

Import Sound Speed Cast:

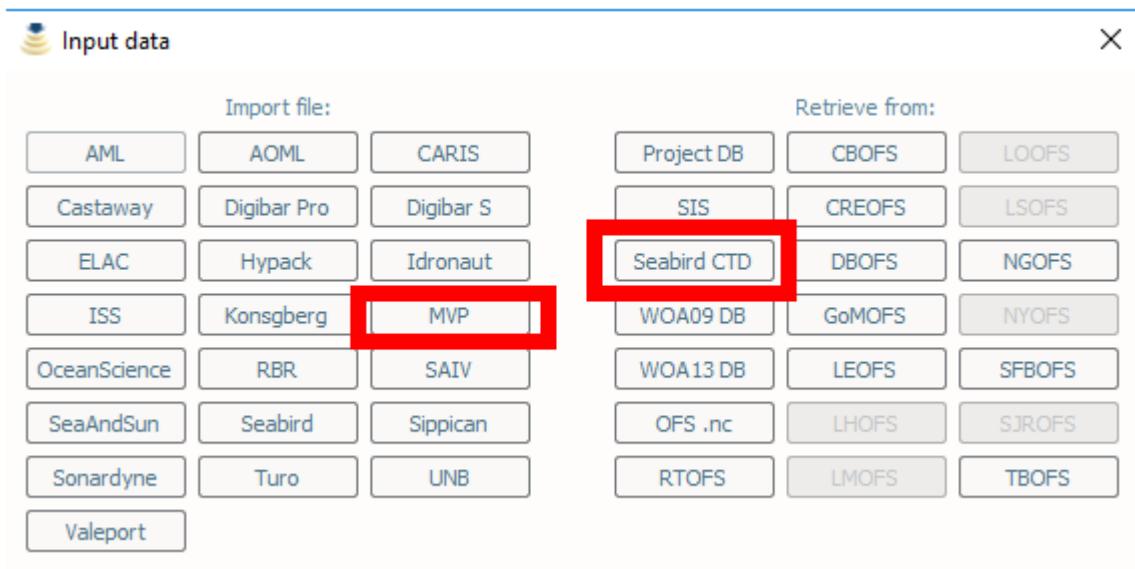
- Click the Import Input Data button in the upper left hand corner



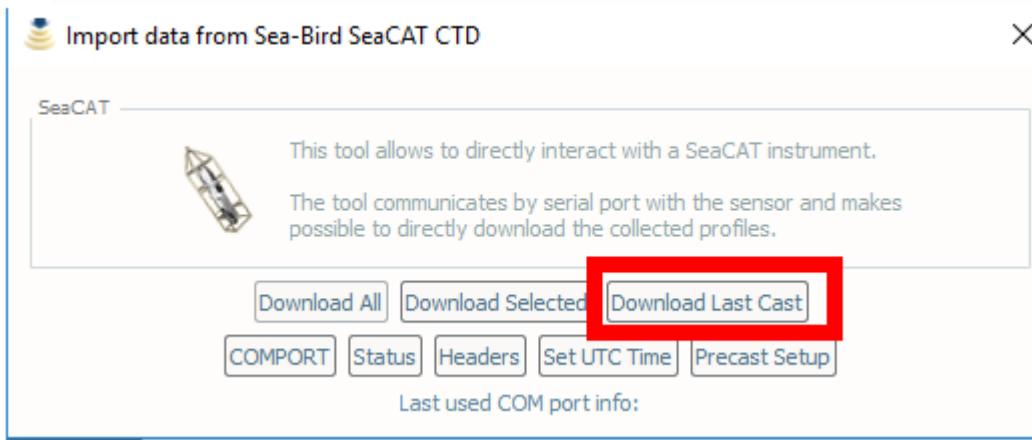
- FH primarily uses the MVP for sound speed casts. Sometimes if the MVP is not working one of the Seabird CTD's will be used instead. After taking a cast with a CTD, **it should be plugged into the MVP computer** to download the cast with SSM, this way the cast will be in the same SSM database

as the MVP casts. THE SEABIRD CTD DATA CABLE IS PLUGGED INTO **COM6**, THE USB TO SERIAL CABLE IN THE BACK OF THE MVP COMPUTER

- When taking a cast from the MVP the data is saved to a folder location (See MVP Section 7 above).
- To import an MVP cast you select “MVP” under “Import File:” on the Input Data window and follow the steps.
- For an MVP cast when importing the data we usually use the **.m1 file** but the other MVP raw data formats (.s12, .raw etc.) will work.



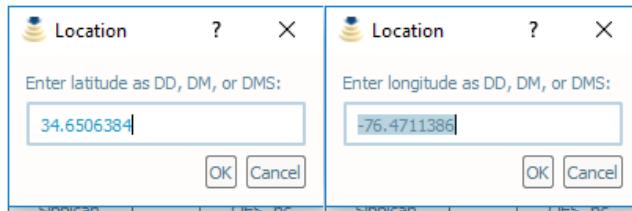
- When downloading a new cast from a seabird CTD select Seabird CTD under “Retrieve from”
- Select Download Last Cast



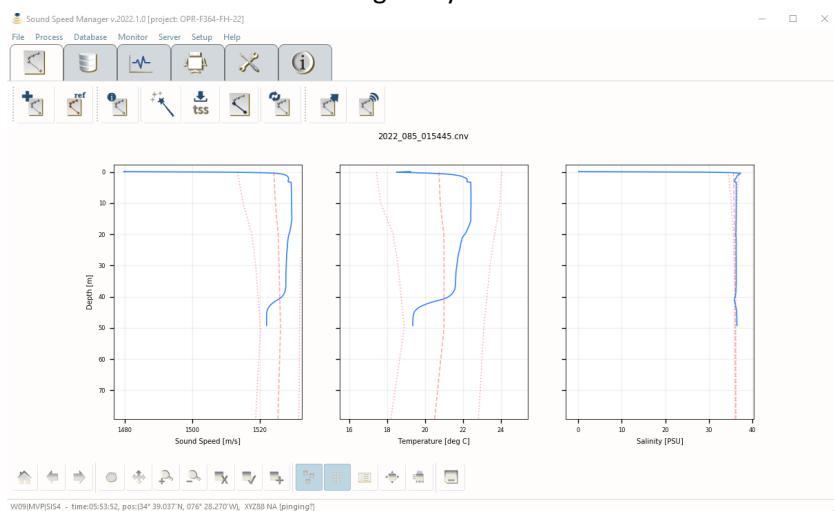
- Enter the LAT and LONG for the cast
- *NOTE*** Sound speed will auto fill this in but uses the current position of the FH when the cast is downloaded, not when the cast was actually taken. Be sure to check with the HYPACK target was dropped that this is the correct LAT LONG. Ensure the proper formatting:

29/06/47.2072N, 88/43/41.5582W

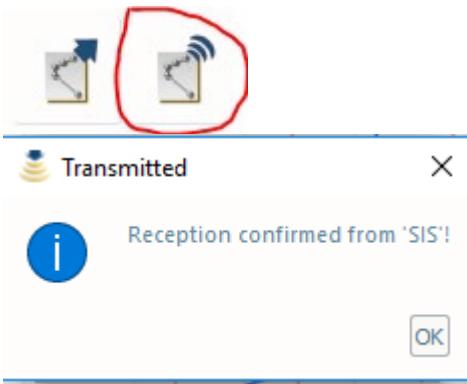
Or you can put in the Lat / Long in Decimal Degrees (Longitude NEGATIVE) as seen in the image below (LAT (+/-)DD.dddddd, LONG (+/-)DDD.ddddddd) :



- The cast will finish downloading and your screen will look like below



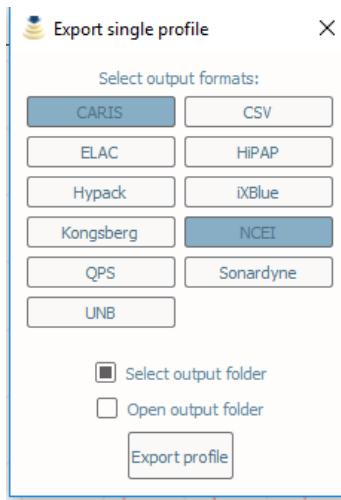
- To transmit the cast to SIS select the “Transmit” button in the right hand corner of the cast
- Once the cast has transmitted and been received by SIS. SSM will let you know with a prompt. Check SIS to make sure the cast is good. If the SV profile is RED or YELLOW you will need to take a new cast. If the SV profile is not colored the cast was good



- To export the cast click the “Export Single Profile” button next to the transmit cast button



- Save the cast to CARIS and NCEI. You may have to save to others if a project or equipment requires it. Work with the FOO if this is the case



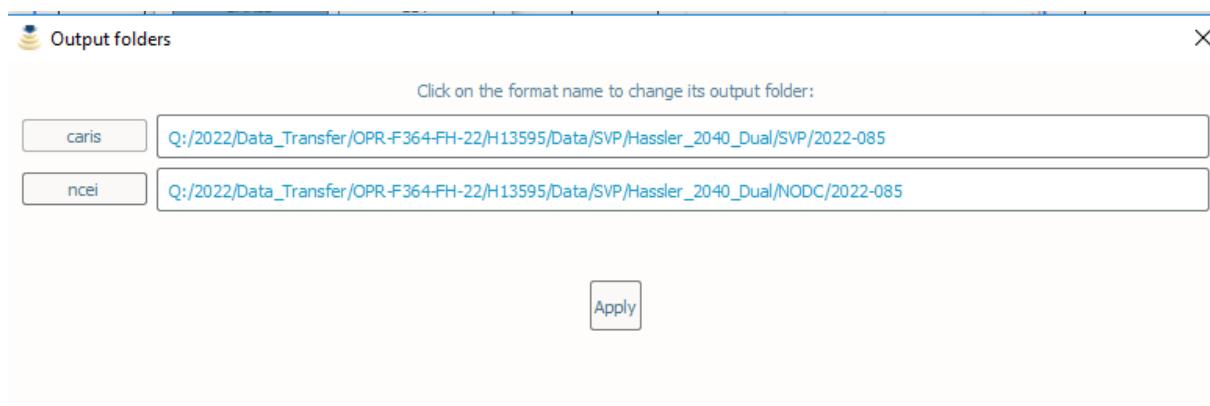
- The cast will go to a folder under the project. It will look like the following:

The Caris (.SVP) file goes here:

Q:/20YY/Data_Transfer/OPR-XXXX-FH-YY/HXXXXX/Data/SVP/Hassler_2040_Dual/SVP/YYYY-DDD

The NCEI (.NC) file goes here:

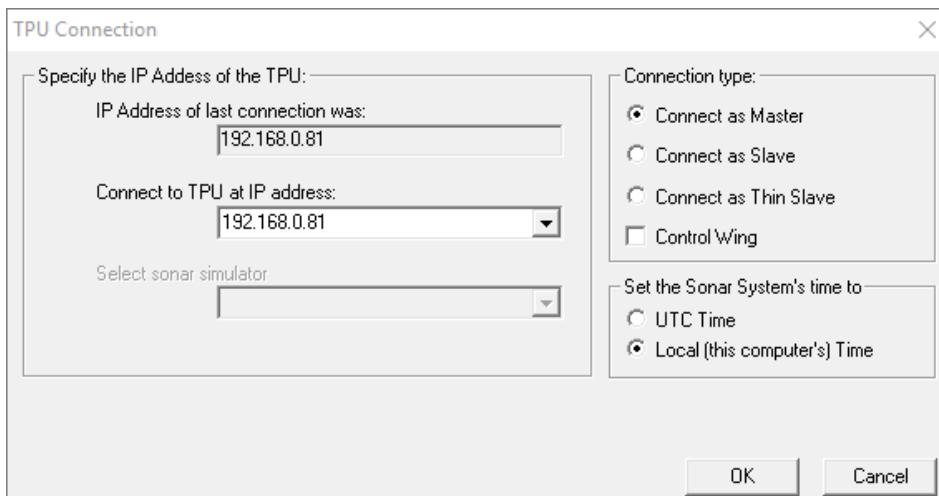
Q:/20YY/Data_Transfer/OPR-XXXX-FH-YY/HXXXXX/Data/SVP/Hassler_2040_Dual/SVP/YYYY-DDD



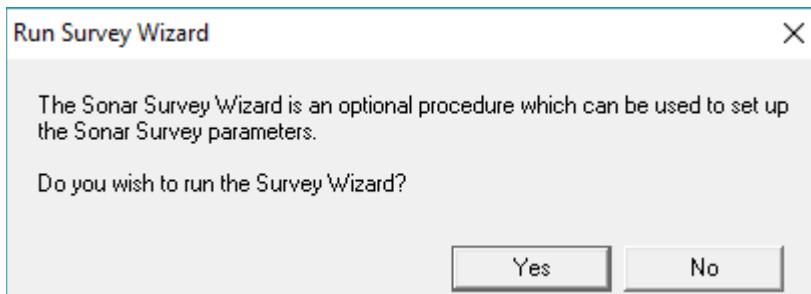


10. SonarPro Setup

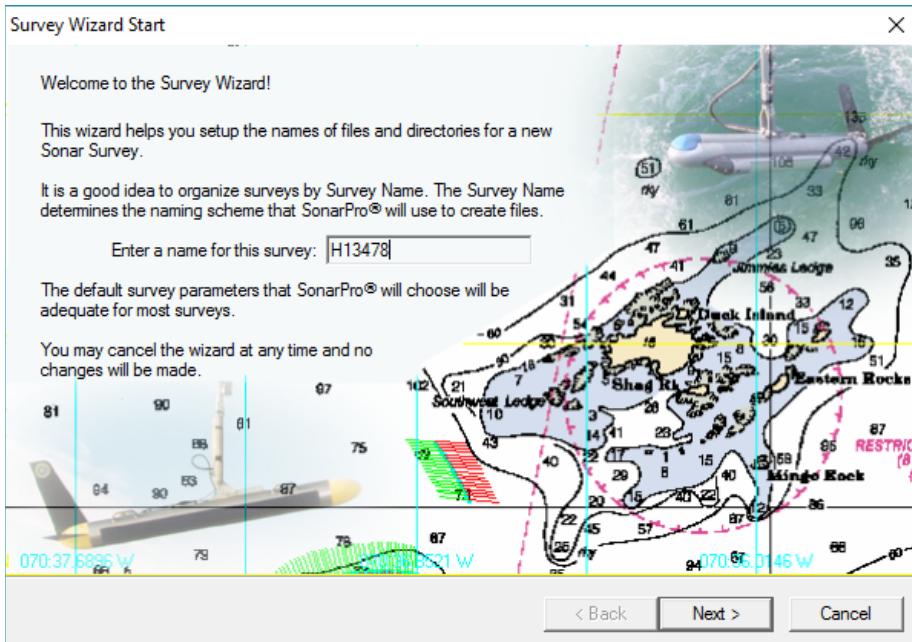
- a. Turn on Side Scan Sonar (picture of SSS box on rack)
- b. Open **SonarPro 14.1 program**
- c. To connect to the SSS once it is on and in the water got to Source -> Towfish. TPU Connection window will open and hit “OK.” If it doesn’t connect, wait a minute or two after turning on the sonar.



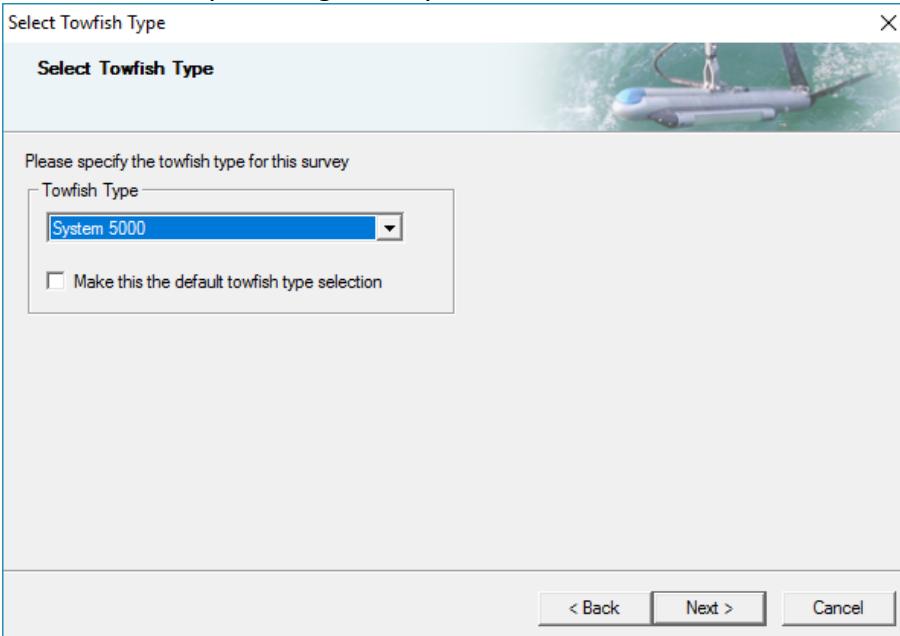
- d. Once the sonar is connected you will go through the Sonar Wizard setup



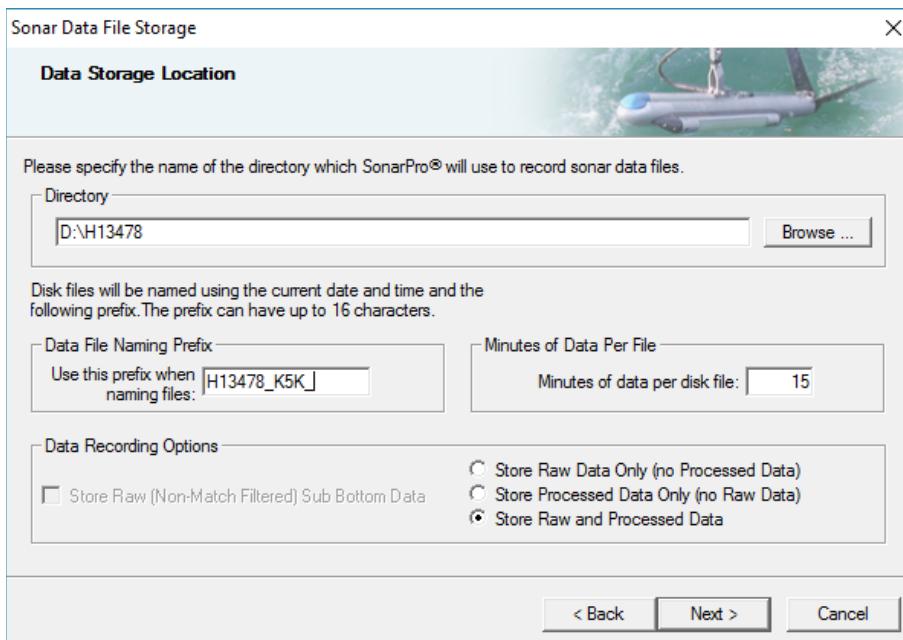
Select “Yes”



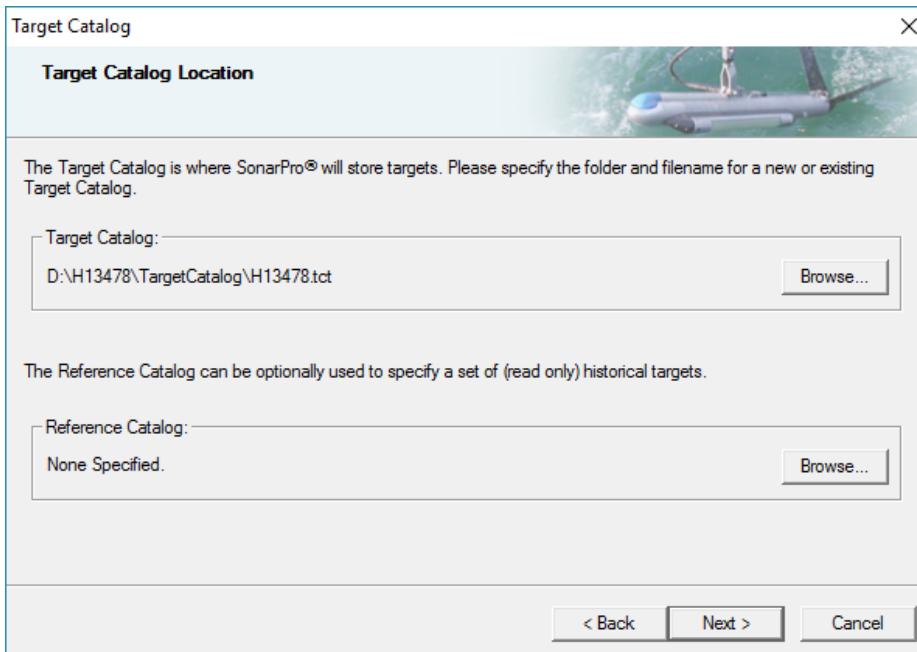
Enter the survey name, generally "HXXXXX"



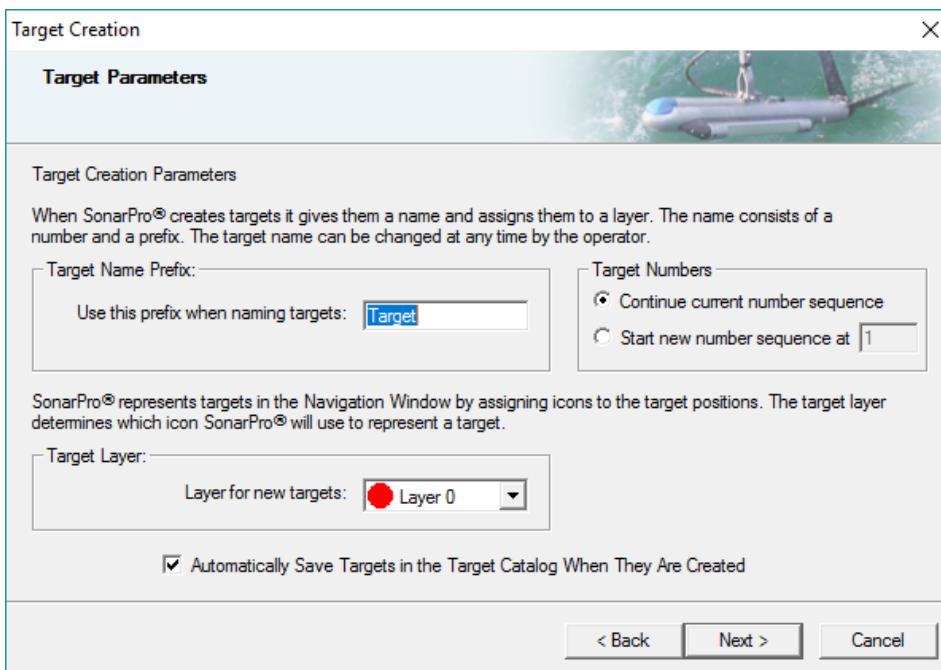
For Klein 5000



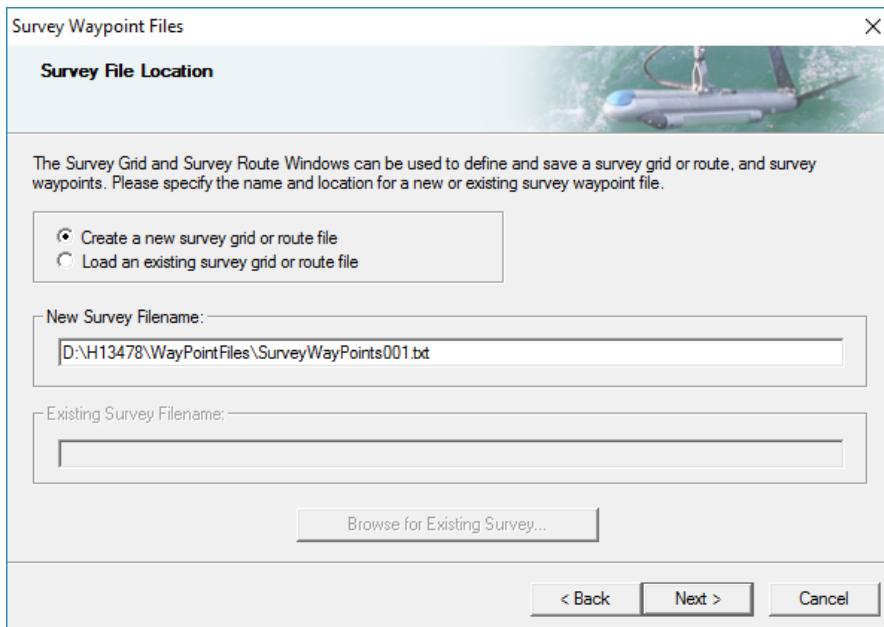
Map “Directory” to sheet folder on D or E Drive, make sure there is room for the files. Change the “Data File Naming Prefix” to HXXXXX_K5K (for Klein 5000). Ensure minutes of data per file is set to 15 minutes. **Double check that “Data Recording Options” is set to “Store Raw and Processed Data.”** Check again that you are saving both, without both Charlene & Caris cannot process the SSS data.



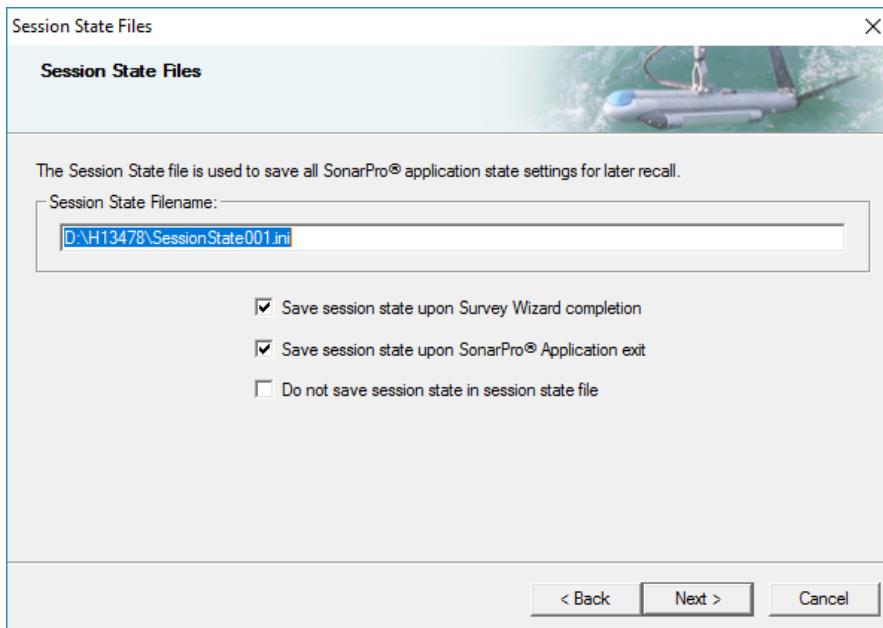
Double check that the “Target Catalog” is being saved in the same folder as the SSS lines.



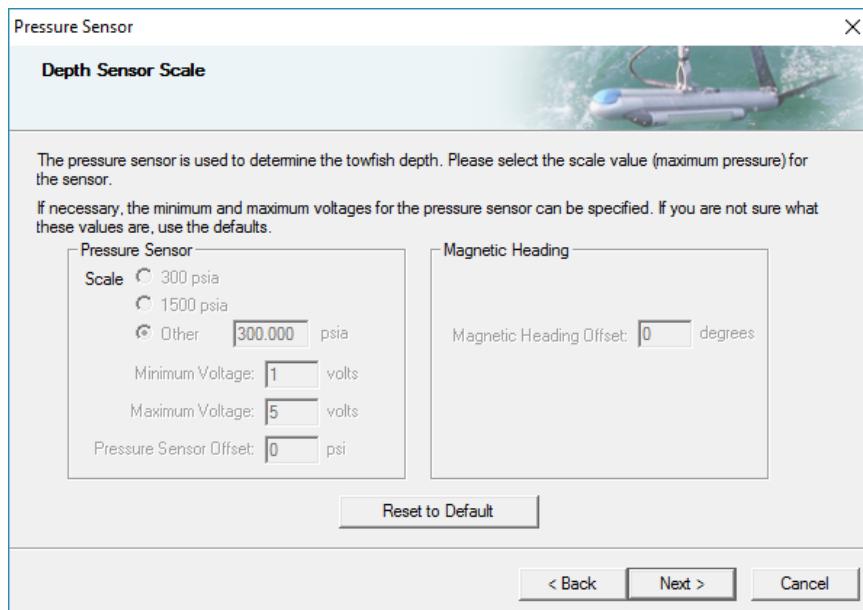
Use default settings.



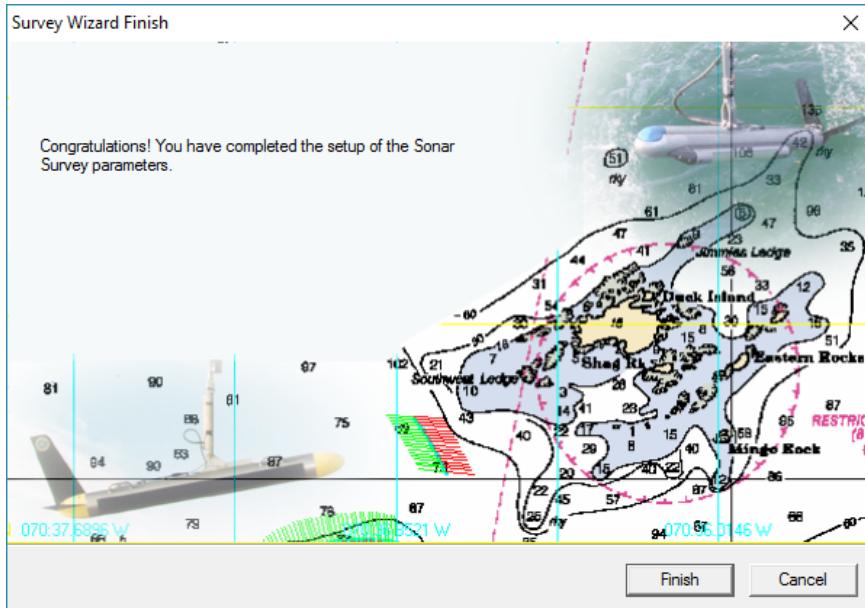
Select "Create new" and make sure its pathway is to the same directory as the SSS lines.



Select the first two boxes and check the session state filename pathway is to the same directory as the SSS lines.

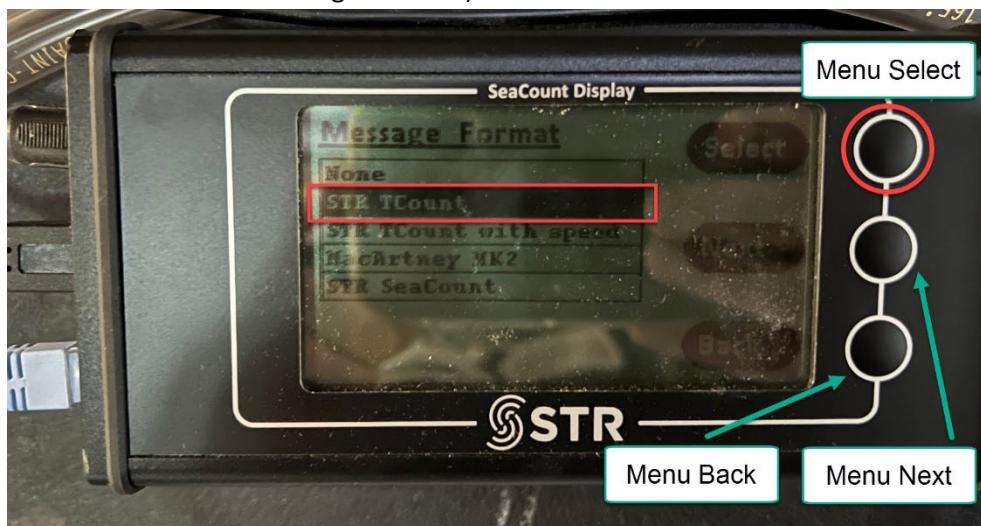


Use default settings.

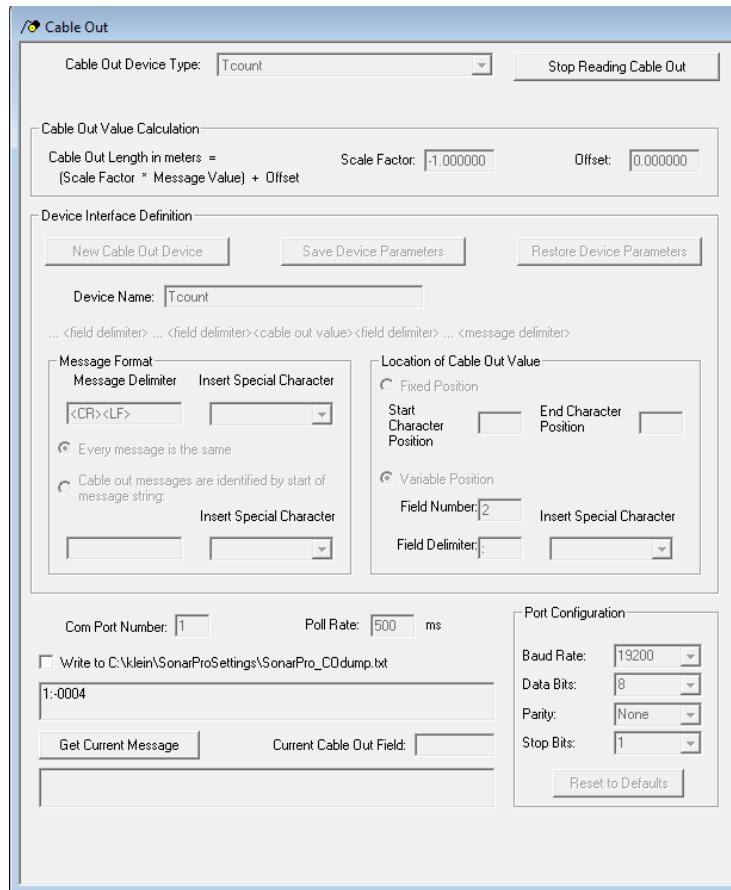


- e. **For Cable Counter:** it should already be setup correctly, and you don't need to do anything so you can skip this step. But if this is not the case, then this is how it should be configured:

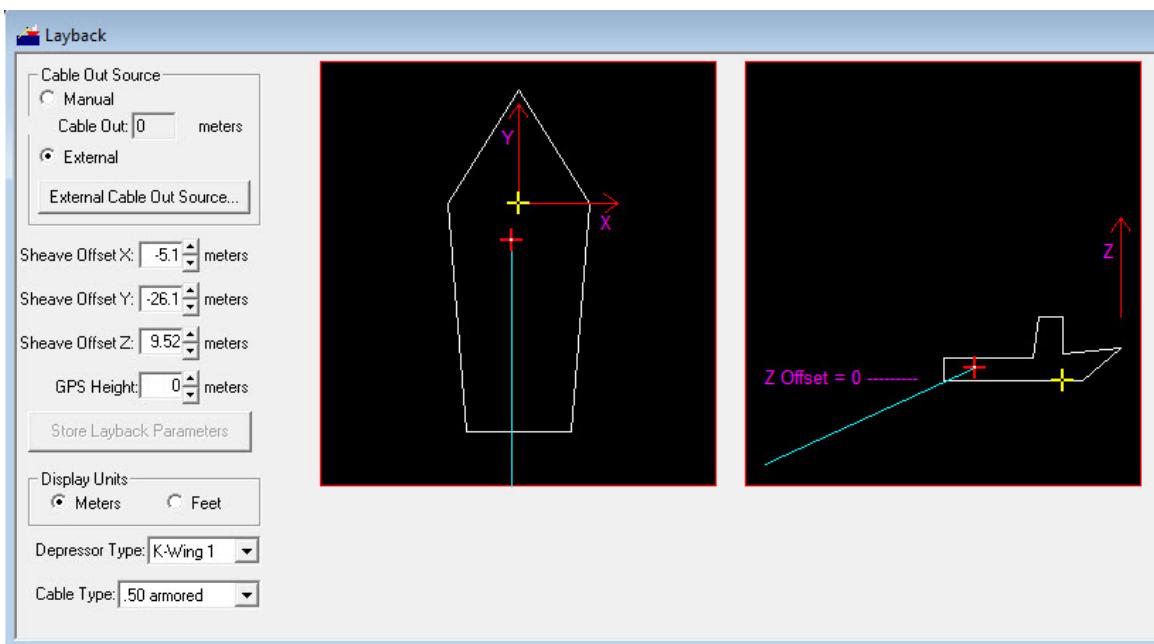
- In the SonarPro menu, click Window > Cable Out
- In the Cable Out window, the Cable Out Device Type should be “**Tcount**”.
- General notes about this (referencing below images):
 - i. The STR Cable Counter is configured to output this format but it is named “STR TCount” as seen on the STR topside control unit / display menu under “Setup > Serial Port > Message Format”):



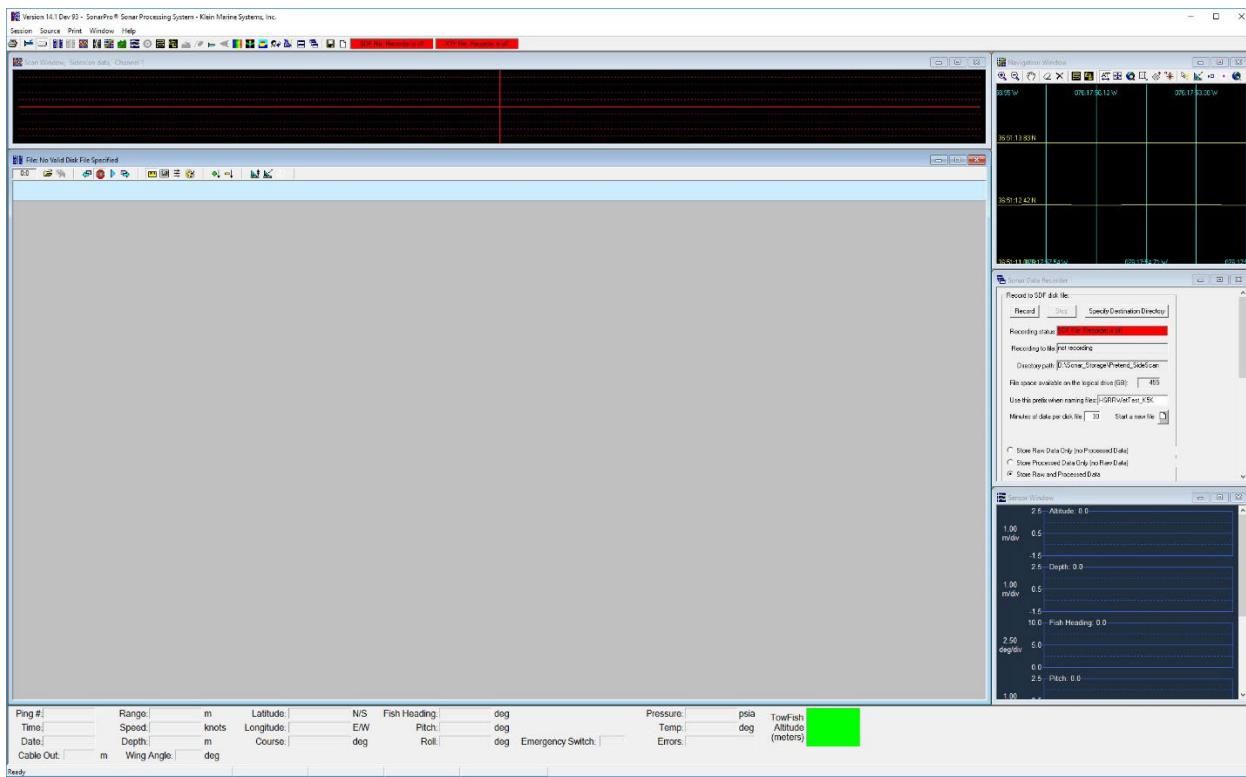
And is named “Tcount” the SonarPro Cable Out setup window:



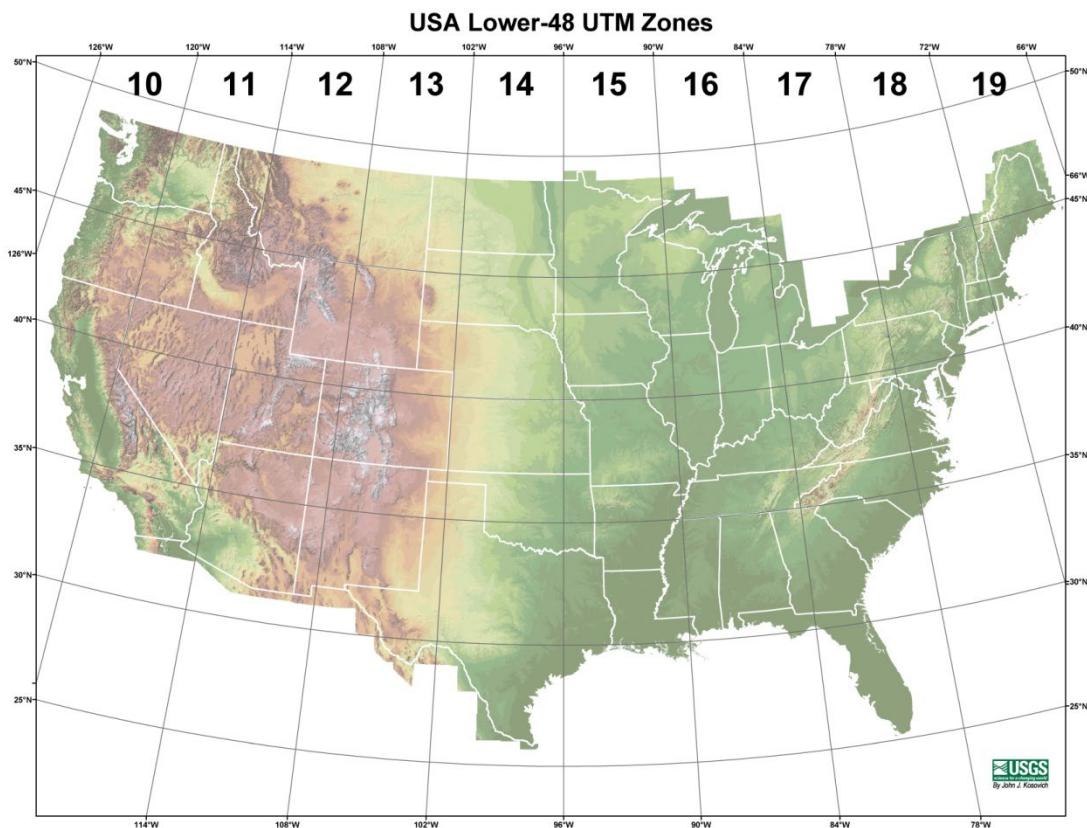
- ii. The baud rate was changed to “19200”, which is the preferred baud rate that will work with both Klein SonarPro and the split off to Hypack.
- iii. The Tcount format is:
#:+/-CCCC, where the # is the Tcount ID# and the CCCC is the cable out in meters, minimum is 0000 and max +/-9999.
- iv. The “Offset” is set to 0, because the X,Y,Z offsets from the IMU to the SSS Tow Sheave are accounted for in the SonarPro “Layback” setup window as seen here:



- v. The “Scale Factor” is set to -1.0, (in the Cable Out settings two images above) because the Cable Out reading is negative while the towfish / cable is deployed and streamed aft of the ship (this number may be positive while the fish is on deck). This is the case because the sheave is hanging 180deg from what it should be. Per the STR manual when mounted correctly the cable counter sensor should be pointing to the STBD side of the vessel. The current solution to this is to apply a “-1.0” scale factor into the Cable Out setup on SonarPro (seen above) rather than to remove the cable line from the sheave and re-loop it which would be a substantial undertaking. **It is recommended this be done at a convenient time.**
- f. **Setting** up the windows: this can be incredibly annoying. By default SonarPro starts in the “SonarPro Tile” mode (found under the “Window” menu”) which auto arranges the display windows. If you open a new window it will fit it in by changing the sizing of the other windows open in the “SonarPro Tile” mode. There is a “Windows Tile” mode which does not auto arrange the open windows. It is recommended to use the “SonarPro Tile” mode unless you want to do a lot of window moving and sizing. You can find the different data displays offered in the “Window” dropdown options. The displays most useful for surveying are:
- Sensor Window (for towfish altitude and towfish depth)
 - Targets (can get this by double left clicking on the Sonar Viewer image)
 - Sonar Data Recorder (to start/stop logging SDF)
 - Information (for larger Towfish altitude and other survey information like position and Cable Out)
 -
- g. Screen view once everything is up and running.

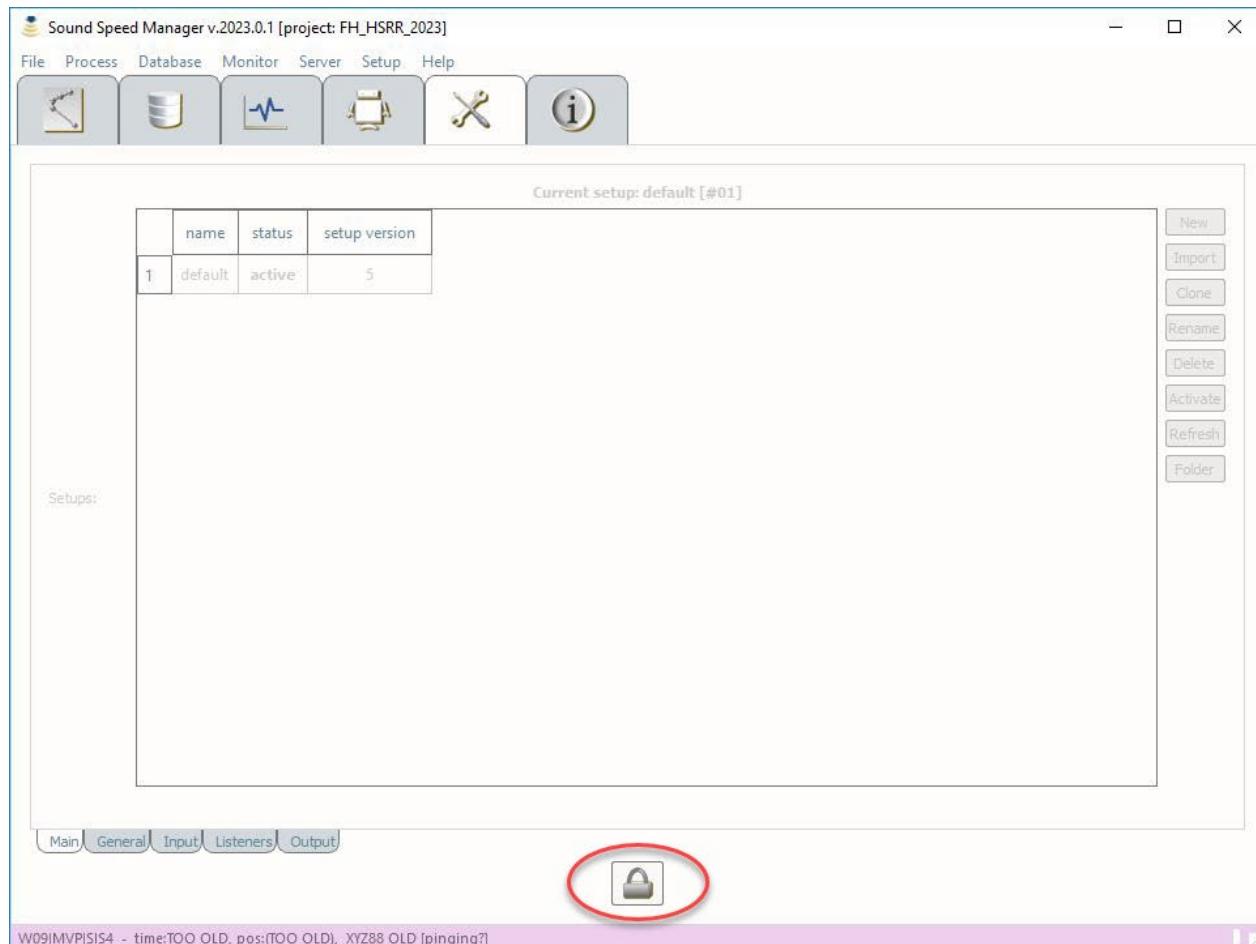


Appendix I Lower 48 UTM Zones



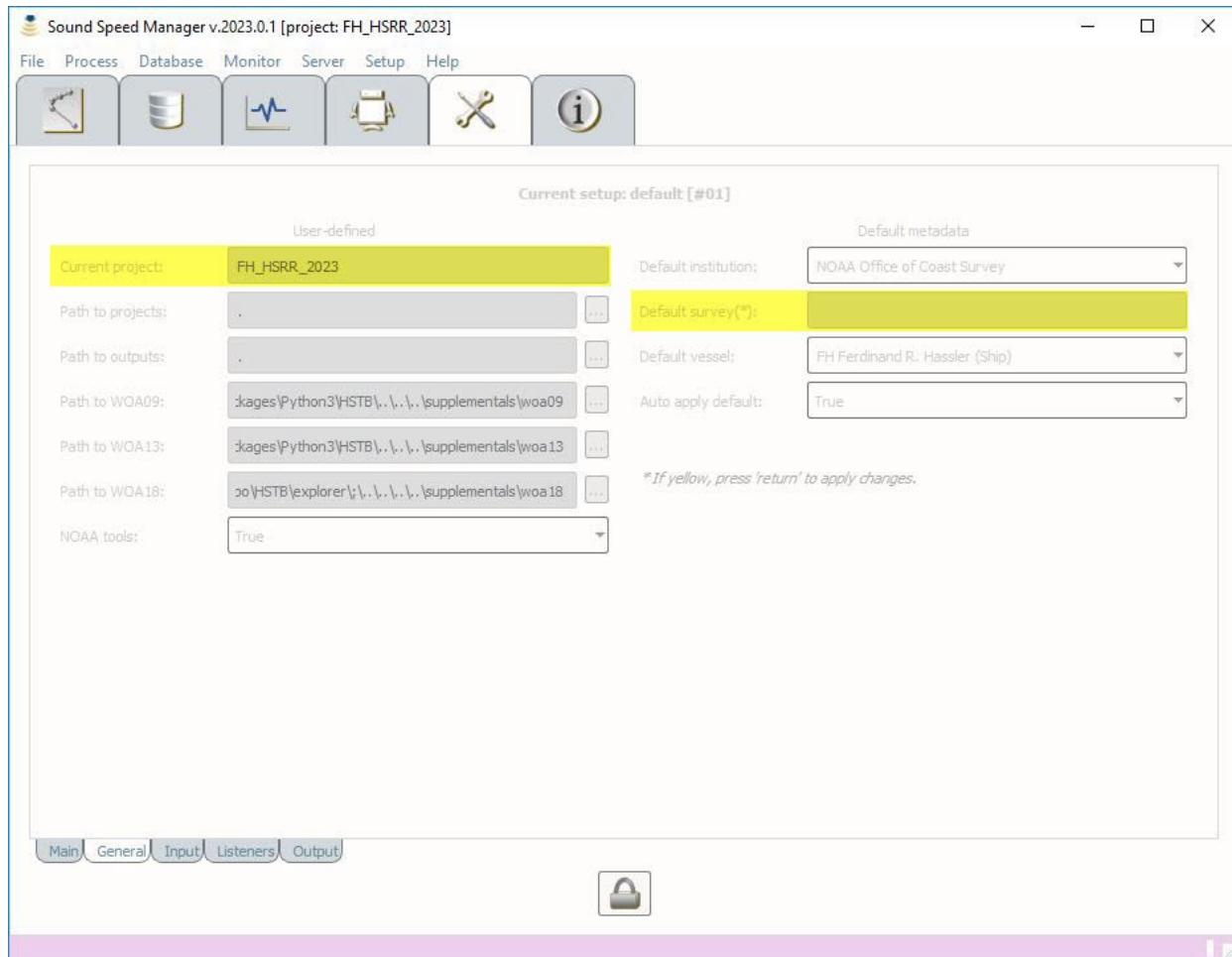
Appendix II SOUND SPEED MANAGER SETTINGS AS OF 03/2023

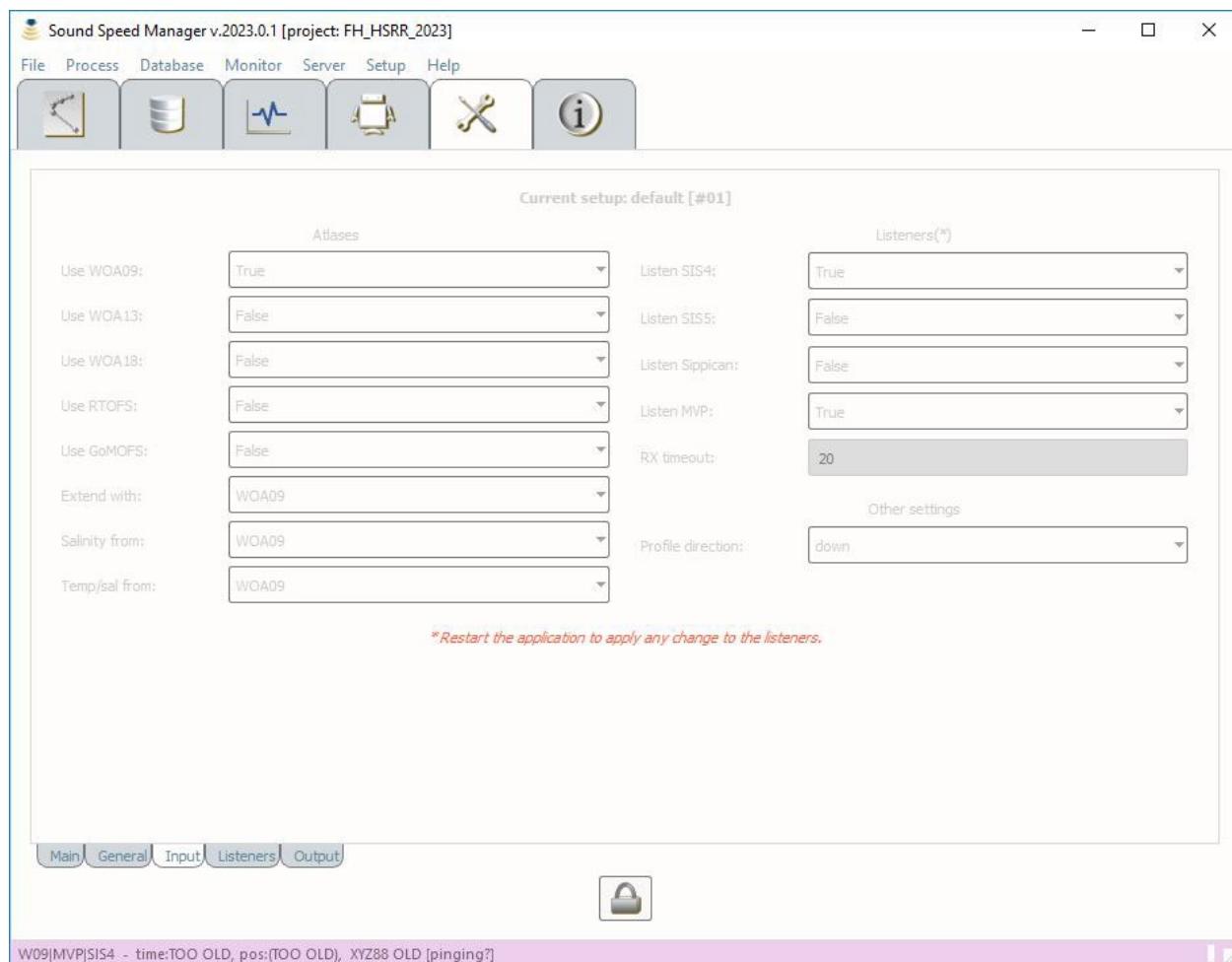
Main



General

- Highlighted below are the Current Project and Default Survey. These two will be different depending on the project and survey you are on
- BE SURE TO POPULATE THESE SO THAT THE CAST METADATA IS CORRECT.
- Project: OPR-XXXX-FH-YY Survey: HXXXX or(FXXXX,WXXXX, etc.)



INPUT

Listeners

Sound Speed Manager v.2023.0.1 [project: FH_HSRR_2023]

File Process Database Monitor Server Setup Help

Current setup: default [#01]

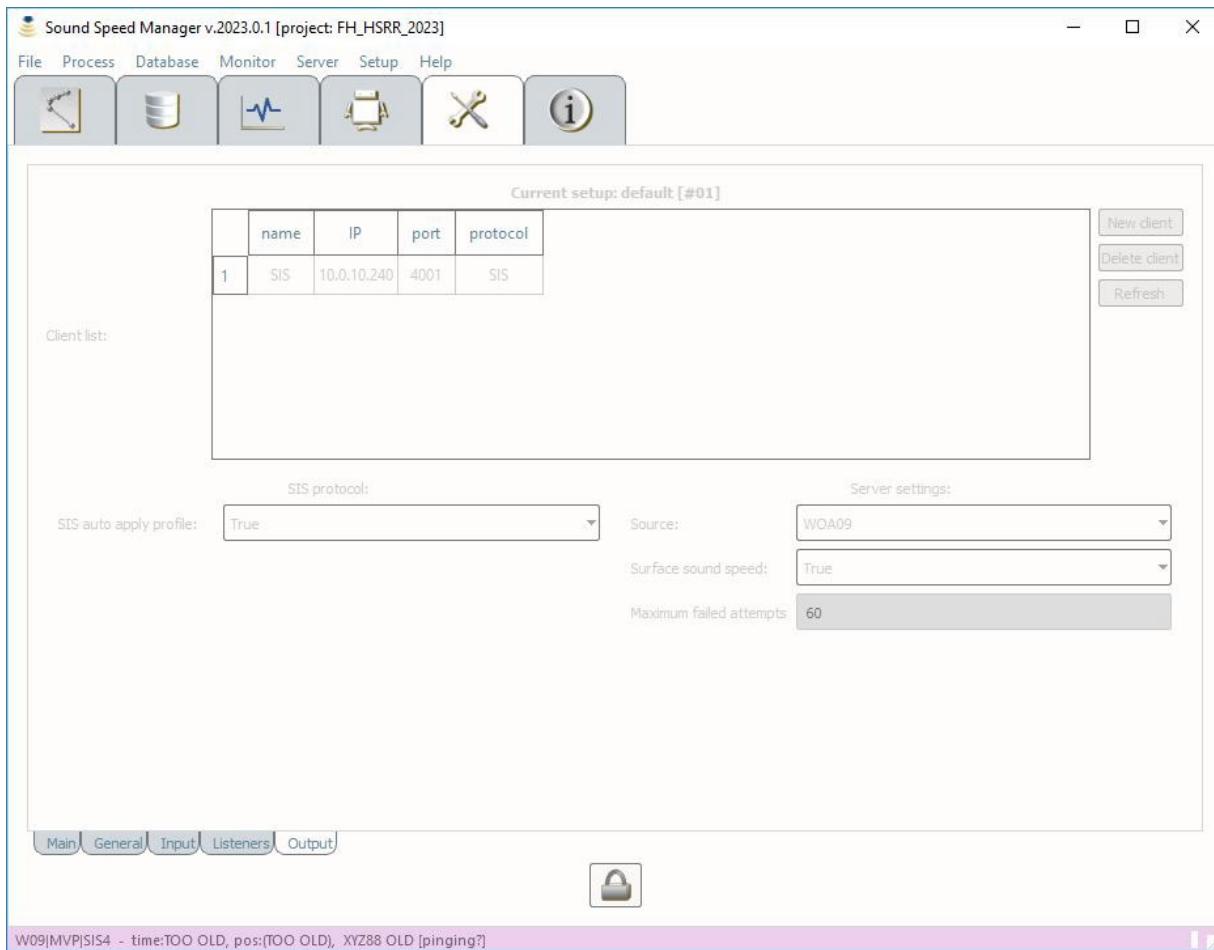
SIS(*):	MVP(*):		
Listen port:	16103	Listen IP:	10.48.8.86
Listen timeout:	10	Listen port:	2006
Sippican(*):		Listen timeout:	10
Listen port:	2002	Protocol:	NAVO_ISS60
Listen timeout:	10	Format:	S12
		Winch port:	3601
		Fish port:	3602
		Nav port:	3603
		System port:	3604
		SW version:	2.47
		Instrument ID:	M
		Instrument type:	AML_uSVPT

**Restart the application to apply any change to the listeners.*

Main General Input Listeners Output

W09|MVP|SIS4 - time:TOO OLD, pos:(TOO OLD), XYZ88 OLD [pinging?]

Output



	name	IP	port	protocol
1	SIS	10.0.10.240	4001	SIS

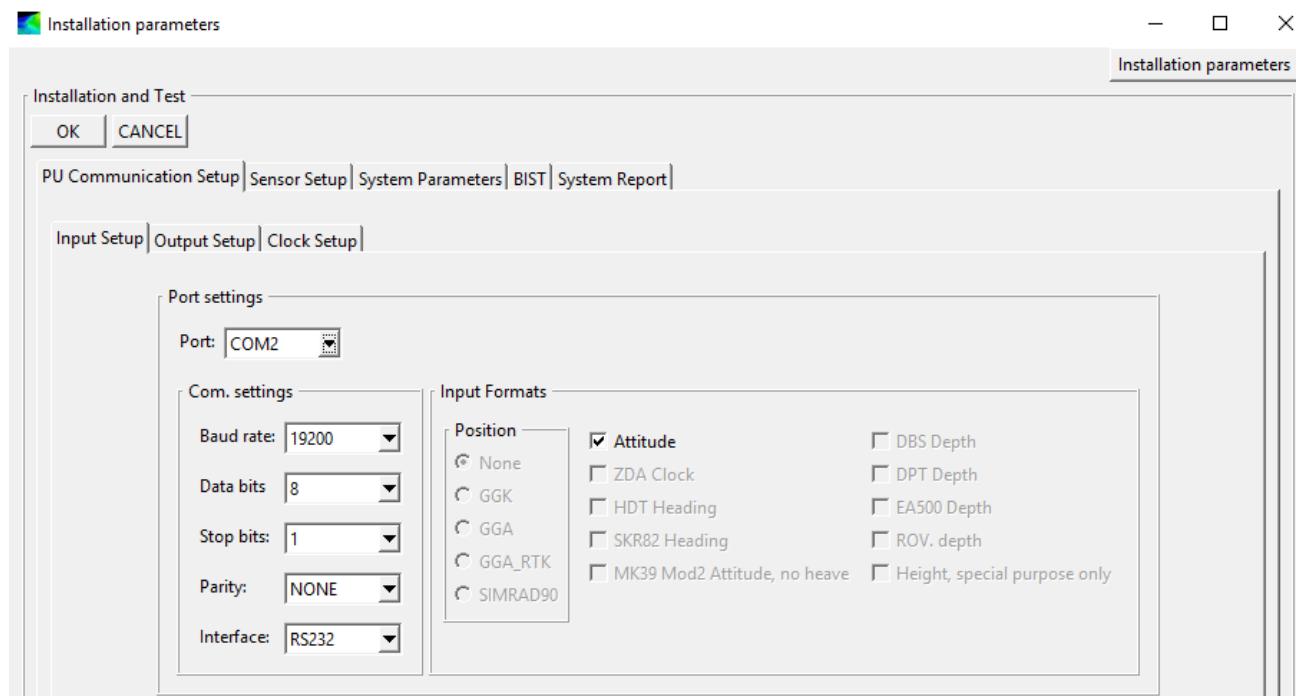
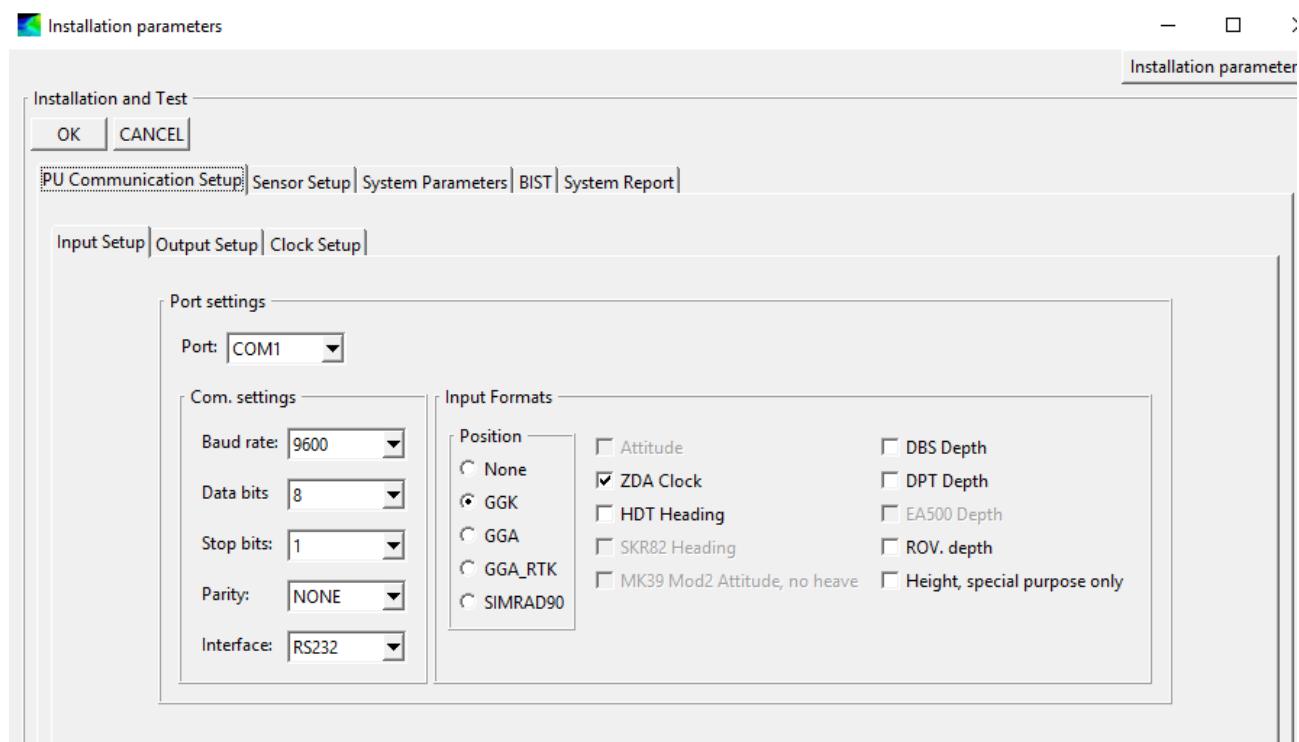
SIS protocol:

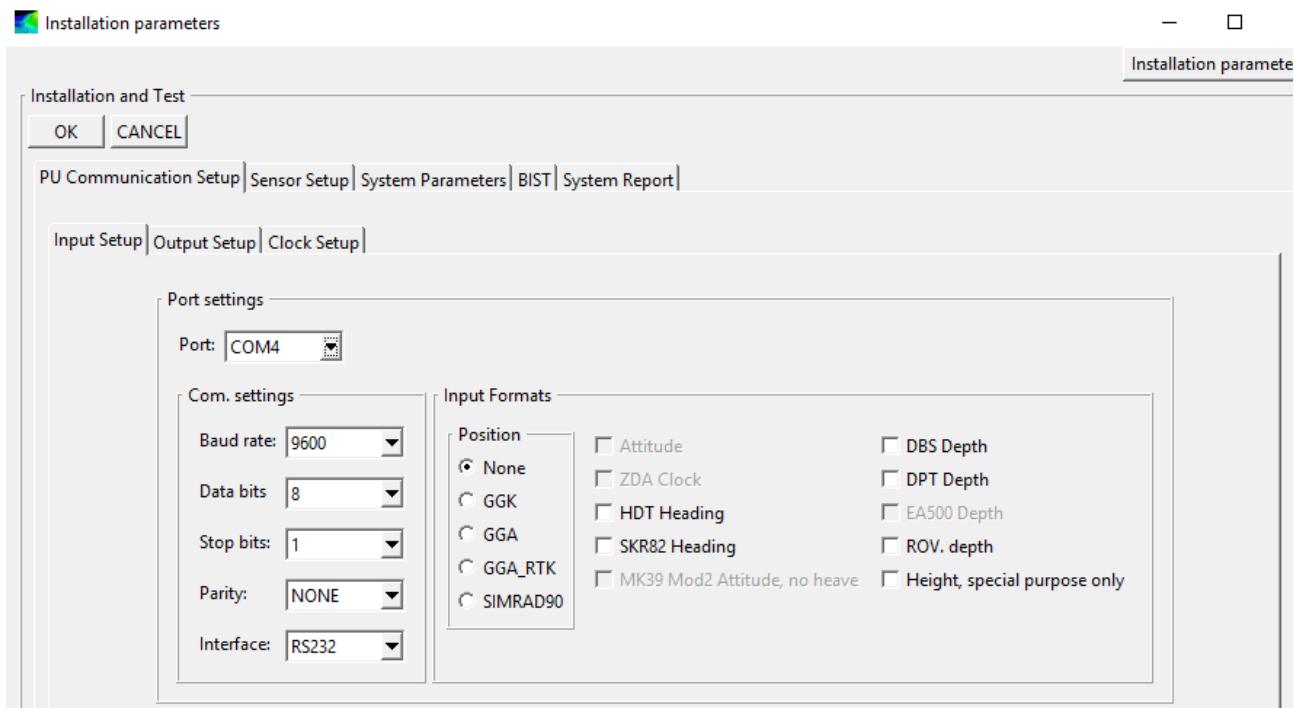
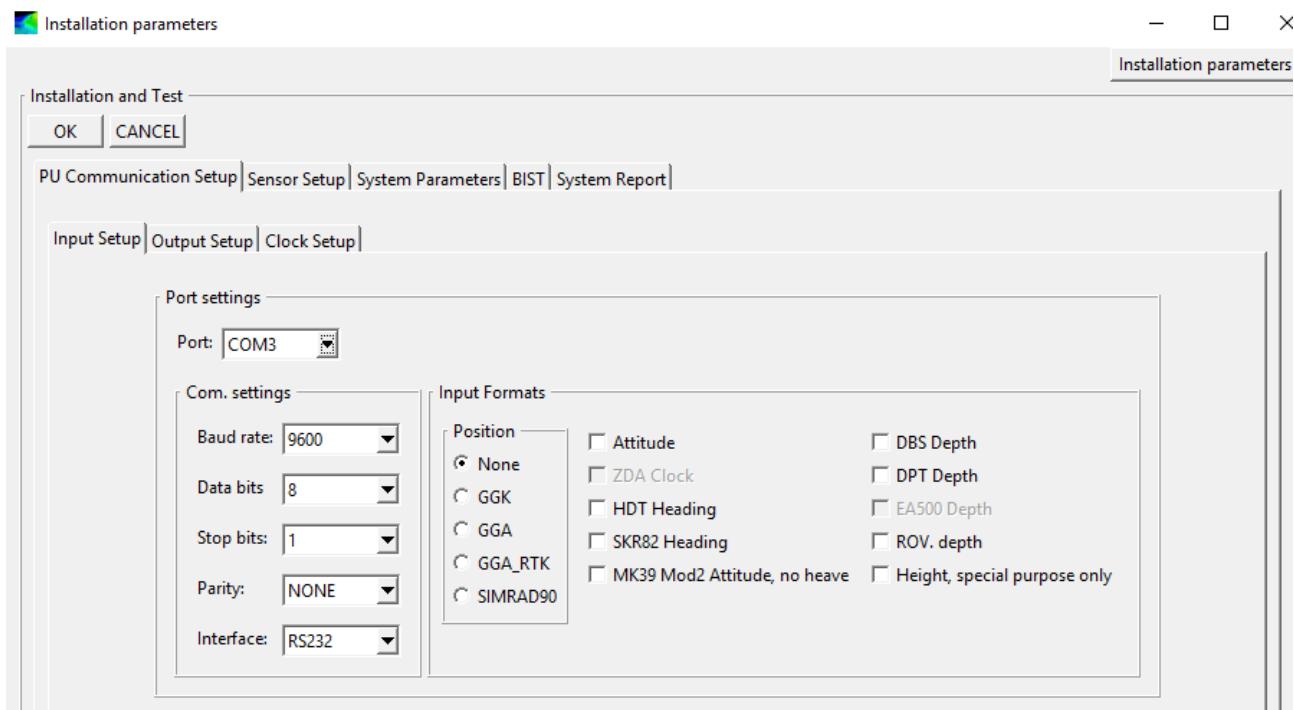
Server settings:

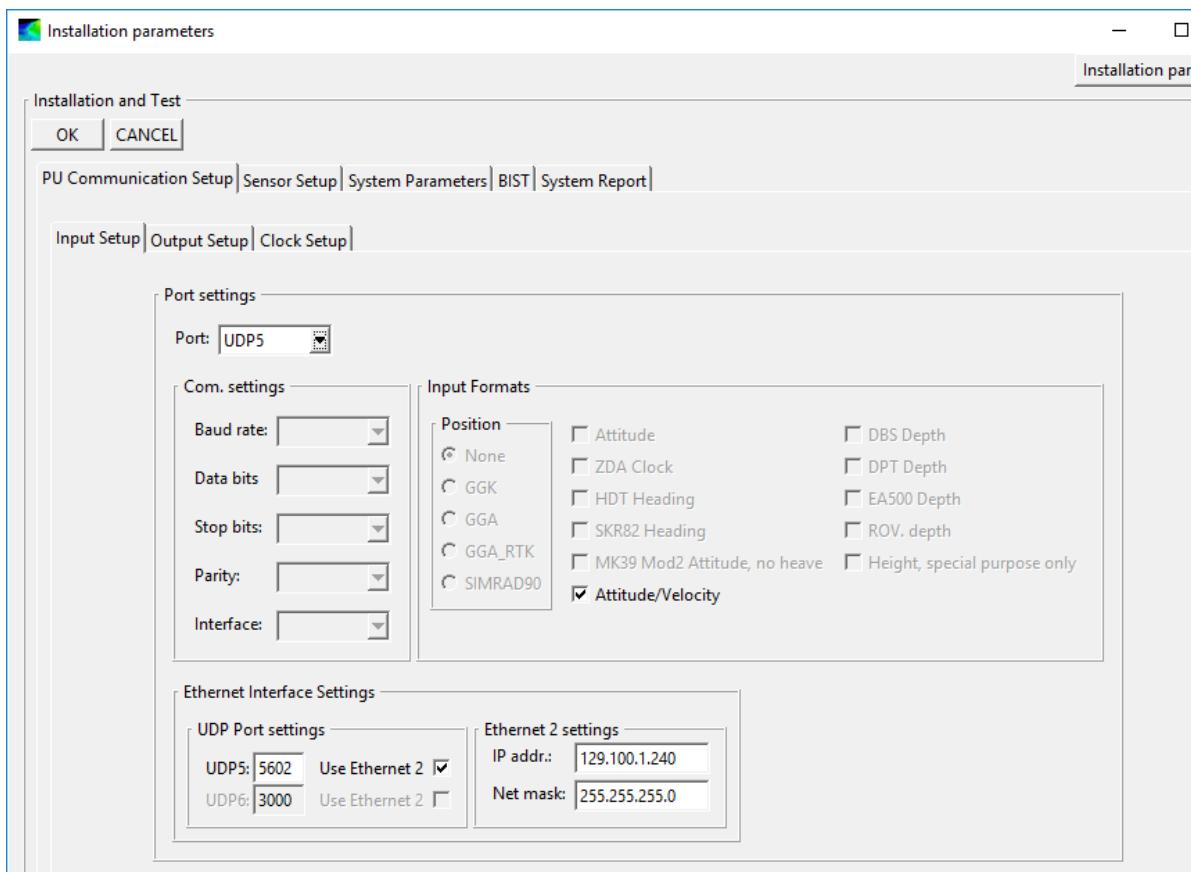
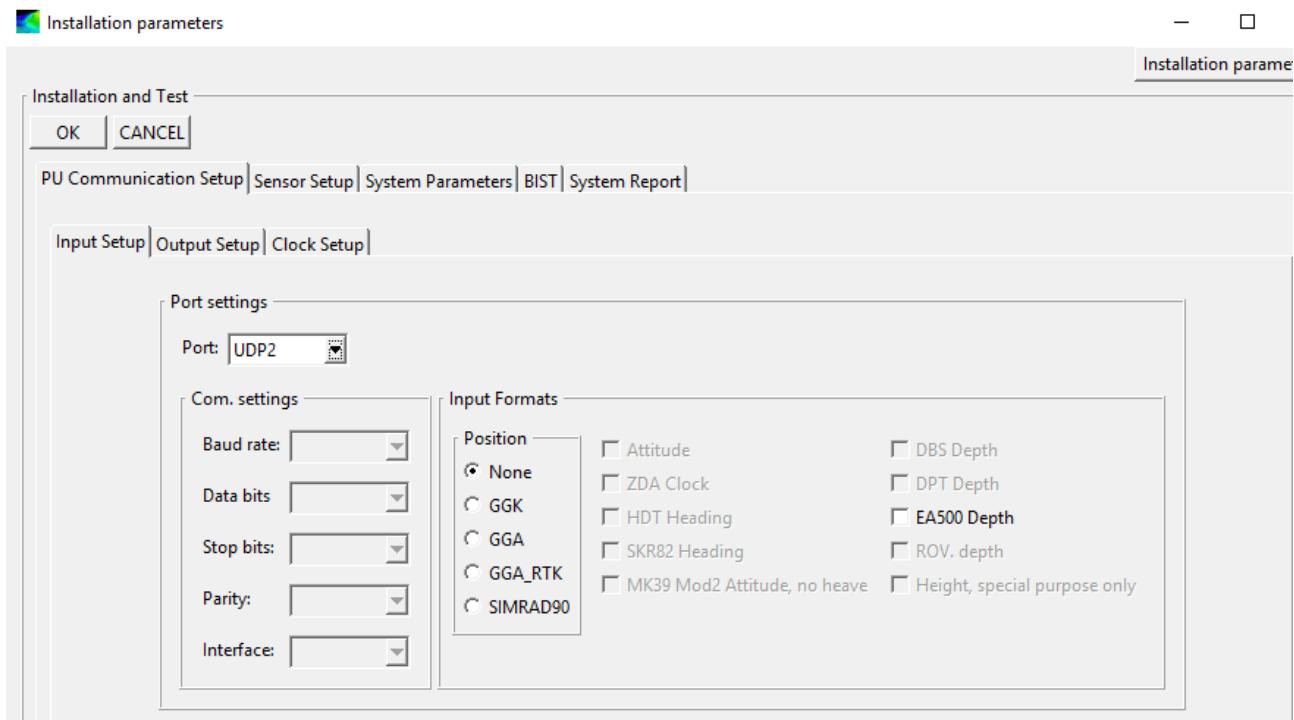
Source: Surface sound speed: Maximum failed attempts

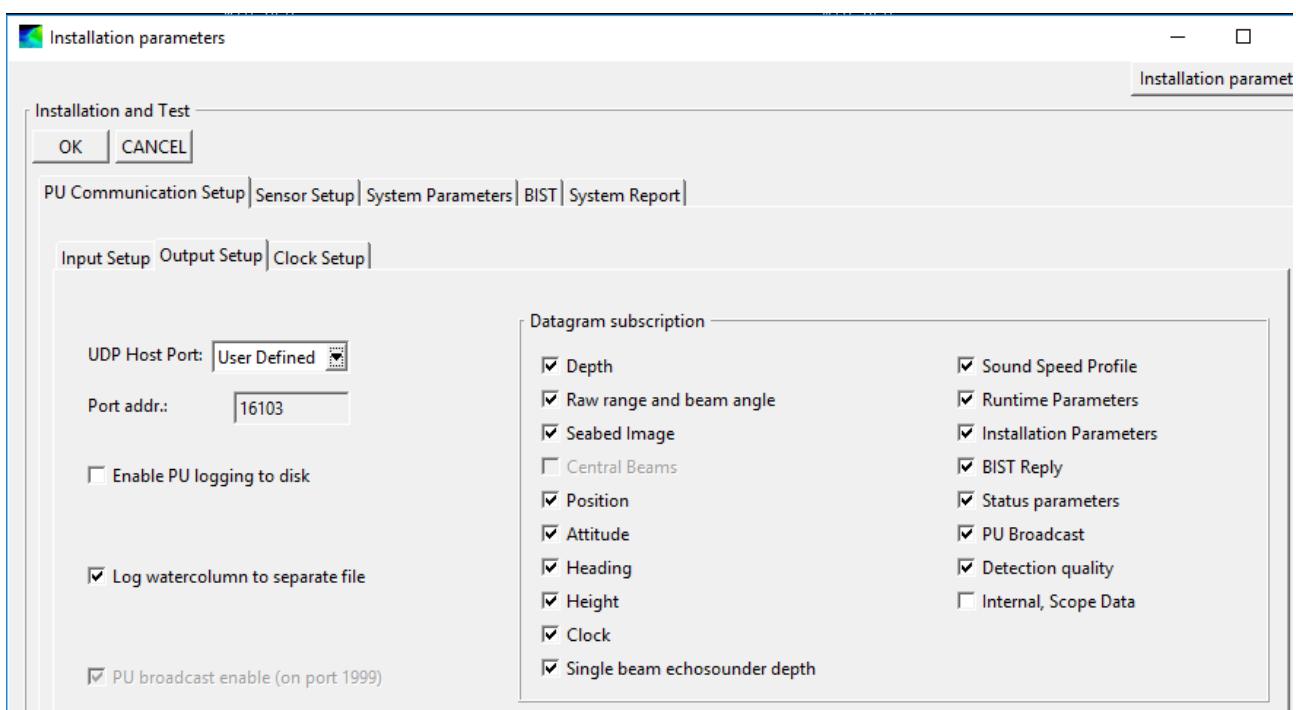
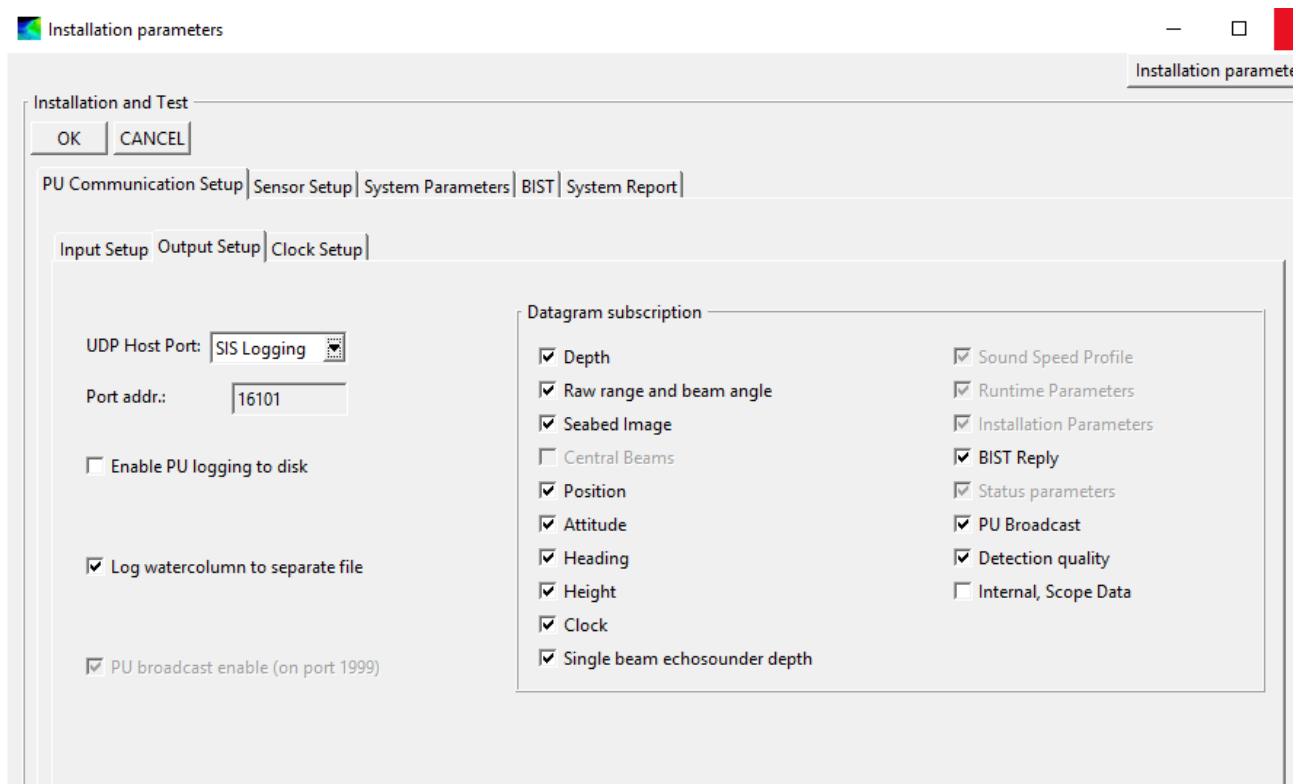
Appendix III SIS Screen Shots (03/2023, post HSRR)

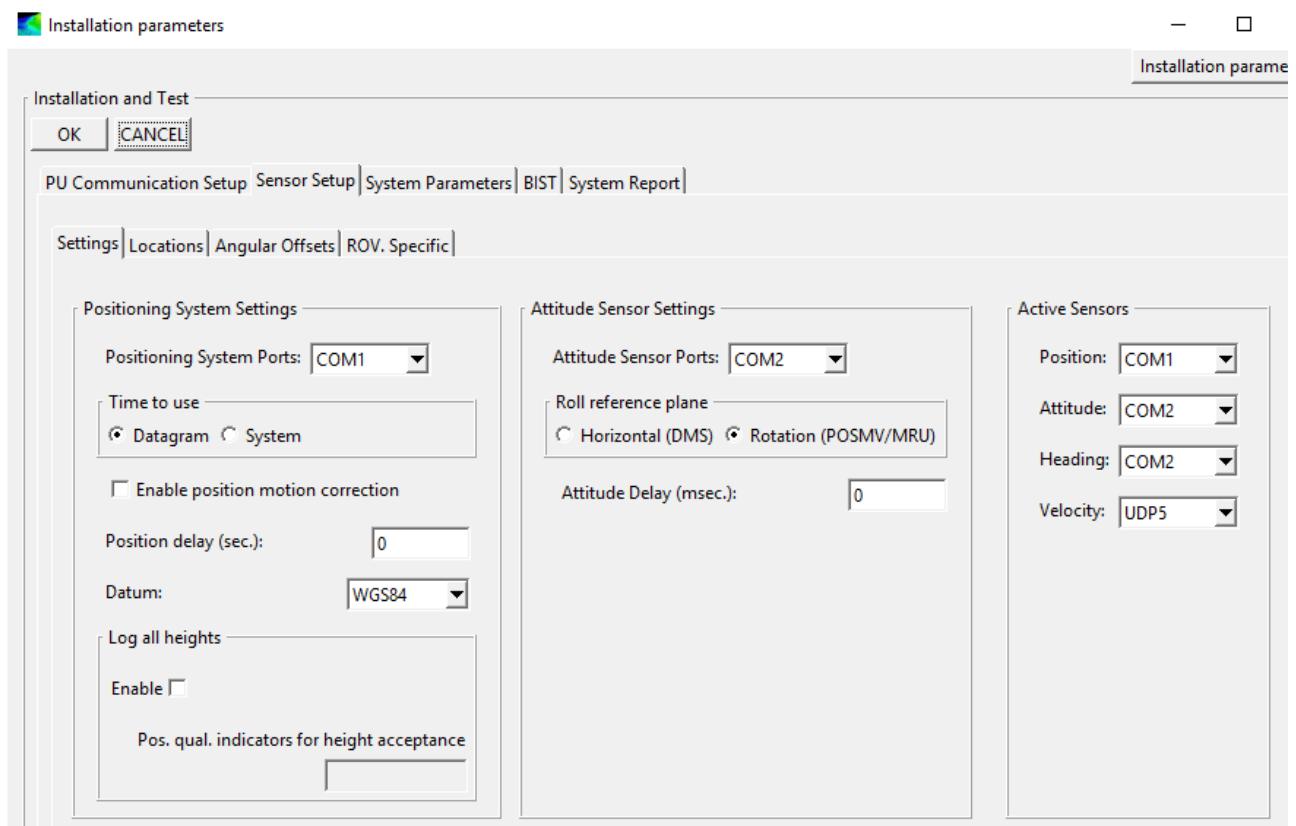
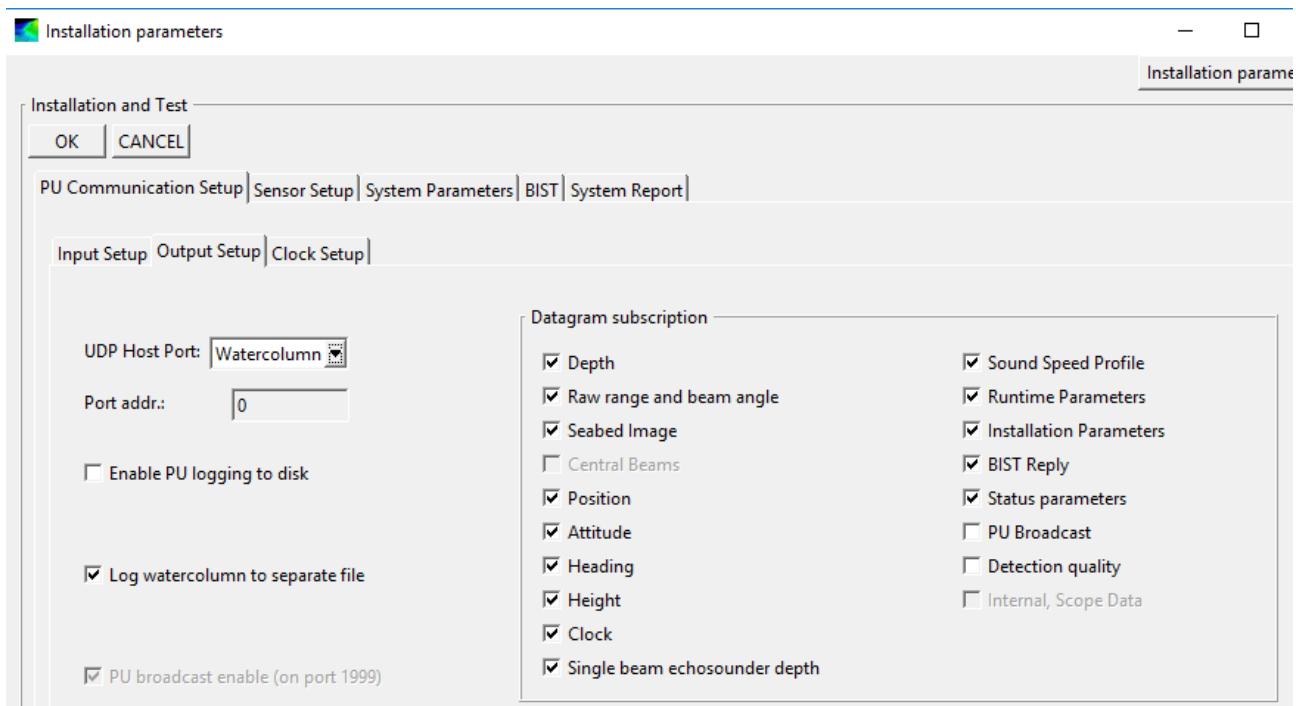
INSTALLATION PARAMETERS

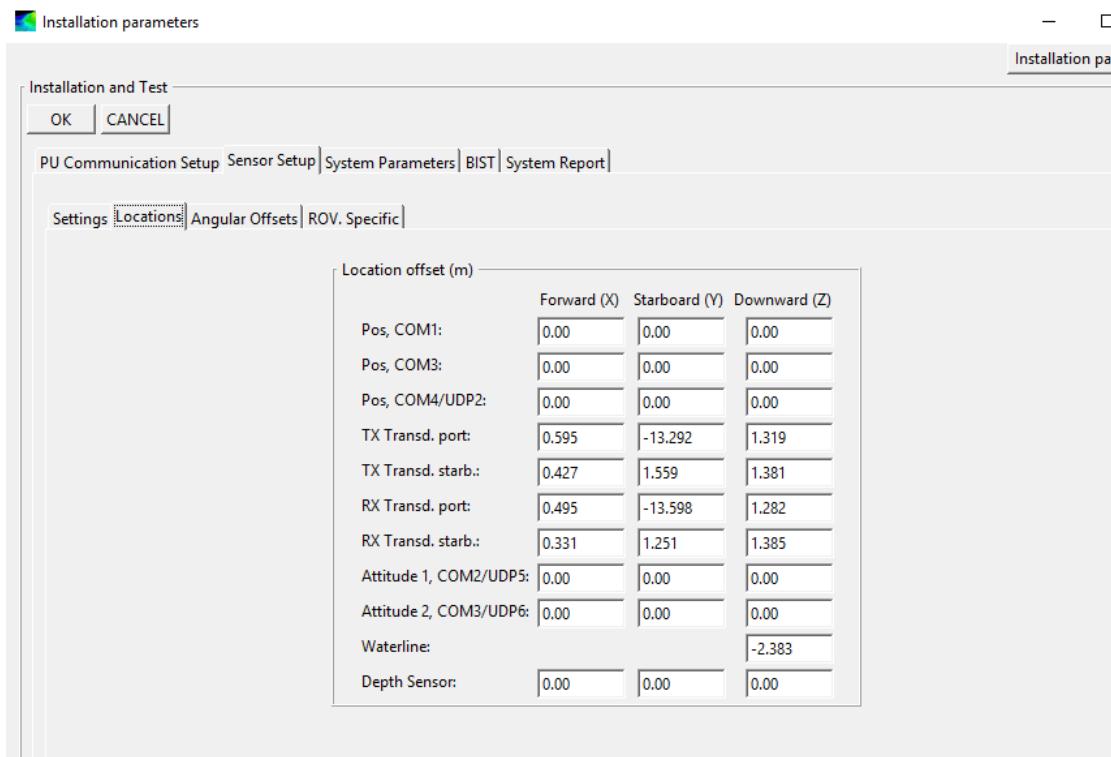




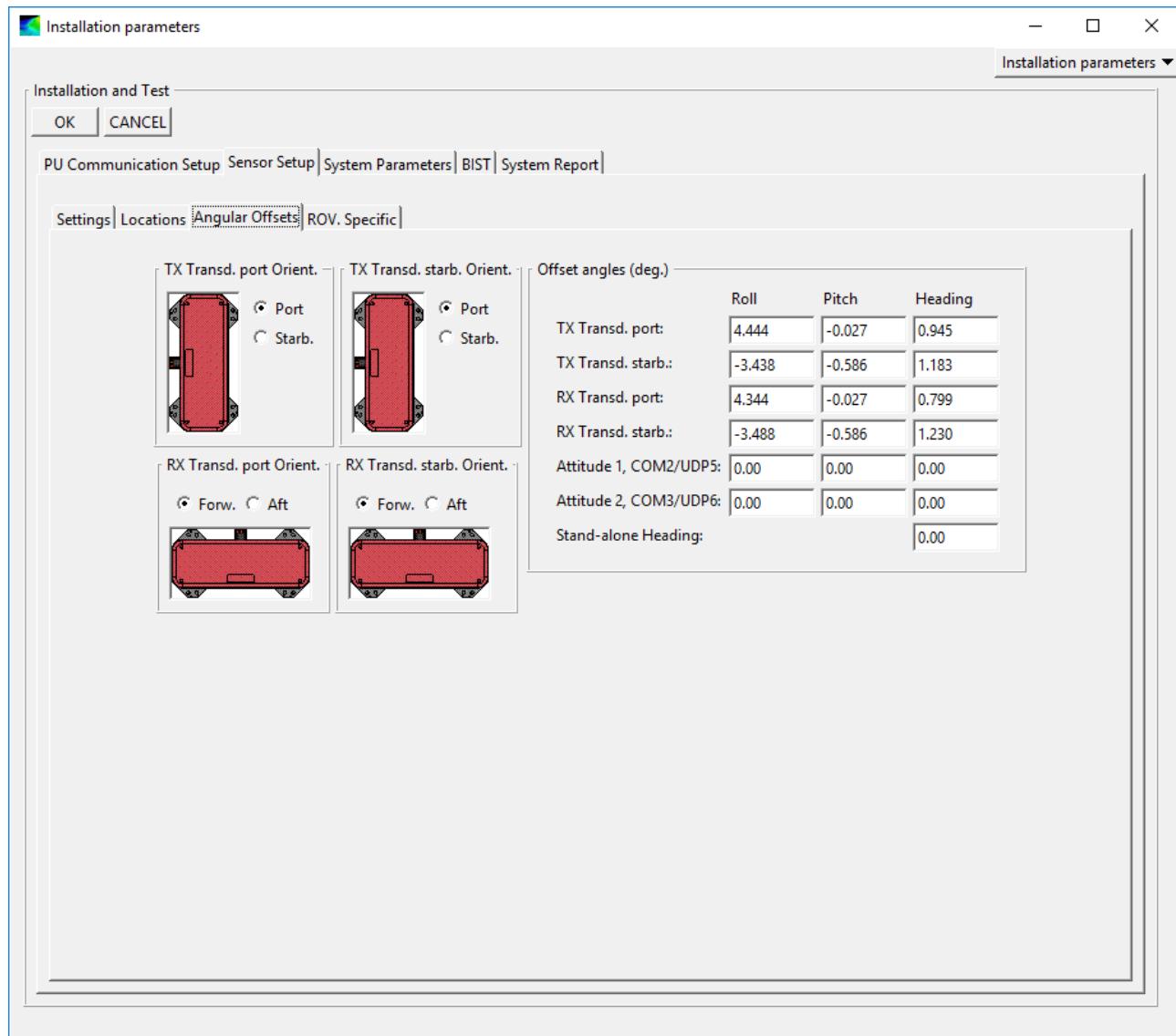




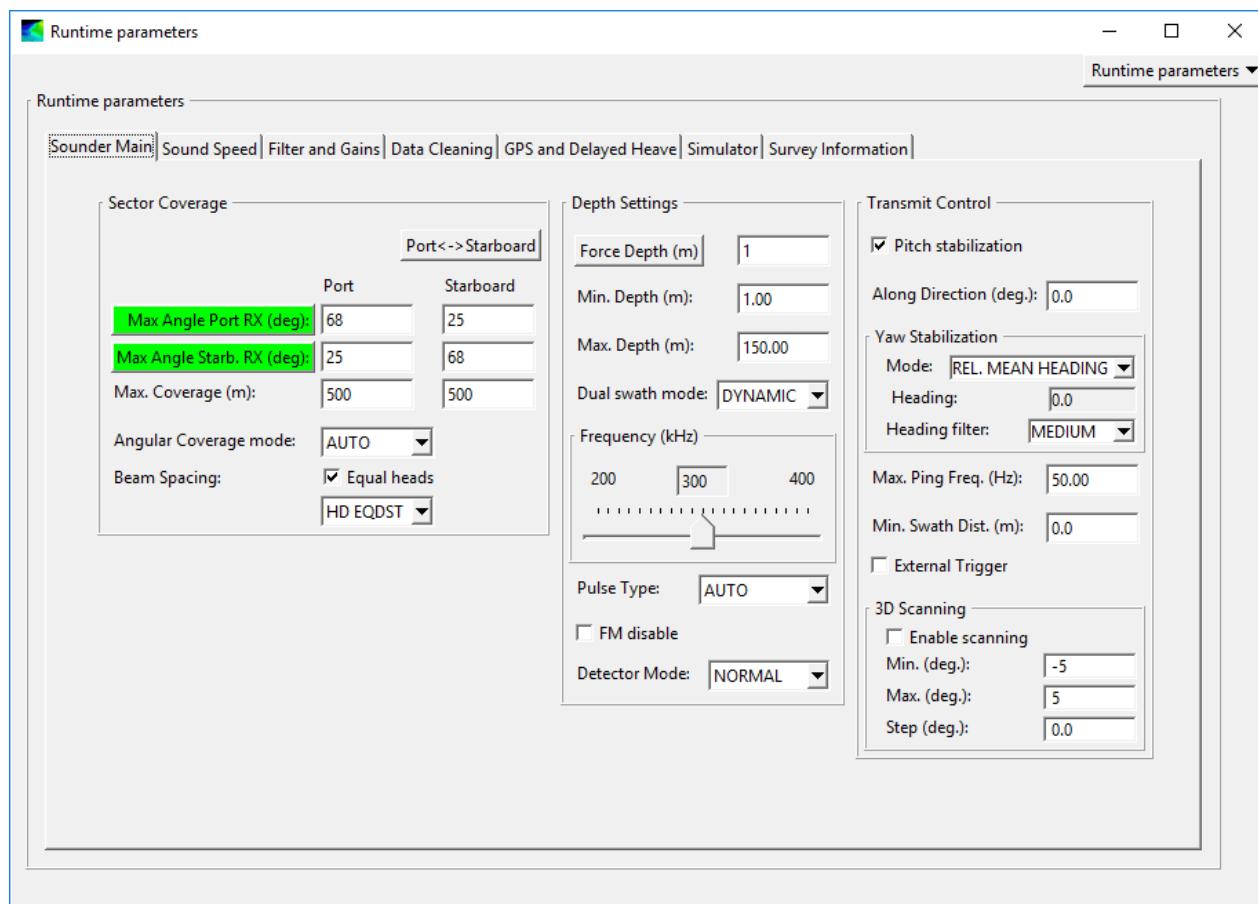


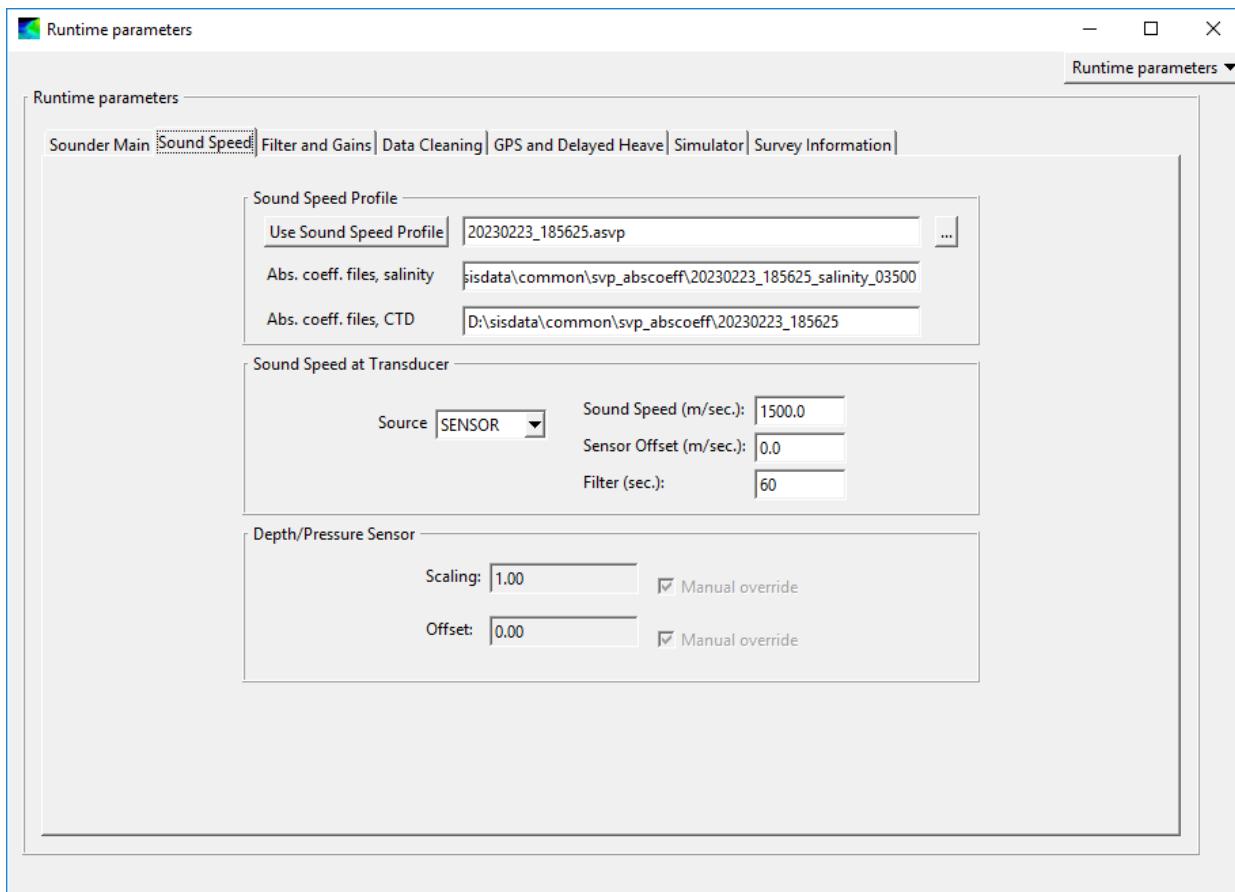


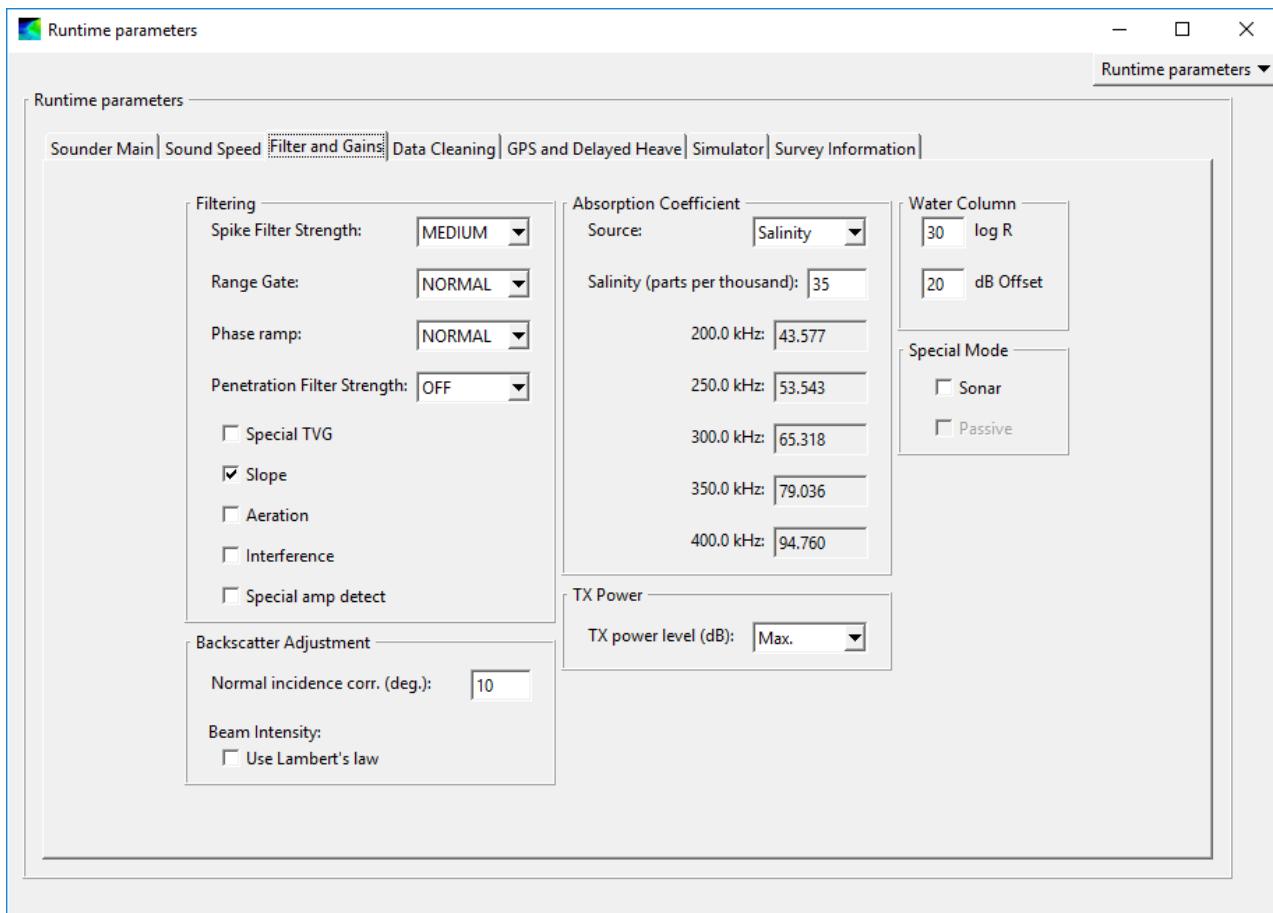
NOTE: THE ANGULAR OFFSETS BELOW (FROM 2023 HSRR FINAL PATCH) WILL BE SUBJECT TO CHANGE EVERY YEAR AFTER HSRR ACTIVITIES.



Runtime Parameters







Appendix IV Familiarization with Ship Network

On the *Ferdinand R. Hassler* (S-250), acquired bathymetry data is stored in five (5) locations:

SIS1 Computer*.all files:

*Not connected to the FH network.

a. **RawData (D:)\sisdata\raw\HXXXXX**

- This is where all your raw MBES .all files are logged to on the SIS computer. During the UTC Midnight Data Transfer process, you will COPY them to the orange FH SIS MBES FILE TRANSFER drive first. Once transferred, then you will COPY them from the external drive to the DATA_TRANSFER folder located at Q:\2023\DATA_TRANSFER via any of the Processing Machines (1 through 3).
- 2. Positioning (POS) Files (on Ship Acquisition computer):
 - a. **DATAPART 1 (E:)\GNSS_data**
 - i. Create a project folder (*OPR-X###-FH-23*), sheet folder (*HXXXXX*), and day number folder (*2023-DDD*)
 - ii. Final folder destination for logging POS:
 - 1. **DATAPART1 (E:)\GNSS_data\OPR-X###-FH-23\HXXXXX\2023-DDD**
- 3. Data_Transfer folder location:
 - a. **Q:\2023\DATA_TRANSFER**
 - This is your “launch transfer drive,” where you will store all of your positioning, raw multibeam, sound speed, and acquisition log files for each day of acquisition. The next section will instruct you on how to make a folder structure for your next day of data acquisition. You will also be directing Charlene to the MBES files located in here.
- 4. RAW (Q:)
 - a. **Q:\2023**

This is where Charlene will transfer the raw data files to during processing. Charlene will create this project folder structure the first time you run data through the program. (Do NOT create manually!)

5. Proc (S:)

a. **S:\2023**

This is where Charlene will deposit all of the processed data, including your .hips file and Master SVP file. Charlene will also create this project folder structure the first time you run data through the program. (Do NOT create manually!)

Appendix V Daily Acquisition Log

- A blank acquisition log exists on the ship acquisition computer's desktop:
 - *HXXXXX_Bank_Acquisition_Log_DDD*
- Save this to the "Acquisition Log" folder in the data directory you created
 - Rename it and fill out the survey-specific information at the top of the document

HXXXXX_Bank_Acquisition_Log_DDD.xlsx - Excel

The screenshot shows a Microsoft Excel spreadsheet titled "HXXXXX_Bank_Acquisition_Log_DDD.xlsx - Excel". The spreadsheet is a template for a "Daily Acquisition Log". It includes fields for survey parameters like vessel name, date, depth range, and sound velocity measurements. The "Depth Range" section contains dropdown menus for "DGPS Beacon Location" and "DGPS Beacon Frequency (kHz)". The "Sound Velocity" section includes a note about listing first and last casts and a table for entering cast details. The bottom section is for sound velocity comments.

Acquisition Log		S250-EM2040 DUAL DUAL	HXXXXX	v042014
3/28/2022	087	Sublocality	Vessel	
Date	Dn	Local Area	Wx	Depth Range
Change date only, watch magic happen				
8	Personnel 0600-1800			DGPS Beacon Location ### kHz
9	Personnel 1800-0600			DGPS Beacon Frequency (kHz)
11	Comments			Heave Bandwidth Filter (secs)
14	-2.383	Waterline	Lines Waterline applies to	
15	Waterline		Lines Waterline applies to (if boat configuration changes)	
18	Waterline Measurement for input into SIS			
20	2022 DDD S250 A.000 first, 2022 DDD S250 A.XXX last			
21	POSMV filename(s)	YYYY_DDD_S250_A or B		
23	Sound Velocity (need only list first and last cast of the watch, and those with special features or problems. List when casts are transferred)			
25	MVP cast filename	LAT	Long	Time of Cast (UTC)
26				Remarks (QC: salinity, start of cast depth)
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38	ADD NEW LINE		(MVP surface velocity should be within 2 m/s of SV70 sound velocity)	
40				
41	Sound Velocity Comments (Recommend - Profile Selection Method for data)			
42				

Reference: Data Transfer Process (End of acquisition/UTC Midnight)

Prior to jumping into Charlene, it is good practice to look over the data in the drives to ensure that the files in the Data Transfer folder are properly named and located. The following are some issues you should look for which have tripped night processors up in the past:

- Make sure you have data in all of your needed folders—Acquisition Log, MBES, positioning, and SVP!
 - **Acquisition Log:** save directly into Data Transfer folder from acquisition computer
 - *Q:\2023\Data_Transfer\OPR-X###-FH-22\HXXXXX\Data\Acquisition_Logs\Hassler_2040_Dual\YYYY-DDD*
 - **MBES:** copy Kongsberg .all files from SIS1 computer's local Raw drive:
 - *RawData D:\sisdata\raw\HXXXXX\S250\YYYY\MM\DD*

First, COPY the .all files to the orange external transfer drive labeled **FH SIS MBES FILE TRANSFER**. You will first need to plug the drive in to the front of the SIS1 (HWS) machine.

 - *MBES_XFER (F:) (or whichever drive letter) \2023\Data_Transfer\OPR-X###-FH-23\HXXXXX\Data\MBES\Hassler_2040_Dual\YYYY-DDD*

Properly eject the drive, and then using one of the three processing computers (PROC 1 - 3), COPY to:

 - *Q:\2023\Data_Transfer\OPR-X###-FH-23\HXXXXX\Data\MBES\Hassler_2040_Dual\YYYY-DDD*
 - **Positioning:** For ship acquisition, retrieve from local Acquisition computer:
 - *DATAPART1 (E:\GNSS_data\OPR-X###-FH-23\YYYY-DDD)*

Copy to

 - *Q:\2023\Data_Transfer\OPR-X###-FH-YY\HXXXXX\Data\Positioning\Hassler_2040_Dual\YYYY-DDD*
 - Raw, SVP, and NCEI files need to be moved manually from the local disk (C:) Drive (*C:\MVPDATA\RAW\ OPR-X###-FH-23*) to their respective locations in the Data Transfer folder through Sound Speed Manager***
 - *Q:\2023\Data_Transfer\OPR-X###-FH-23\HXXXXX\Data\SVP\Hassler_2040_Dual\Raw\YYYY-DDD*
 - *Q:\2023\Data_Transfer\OPR-X###-FH-23\HXXXXX\Data\SVP\Hassler_2040_Dual\SVP\YYYY-DDD*
 - *Q:\2023\Data_Transfer\OPR-X###-FH-23\HXXXXX\Data\SVP\Hassler_2040_Dual\NODC\YYYY-DDD*
 - ***If the day number folders have the wrong year, this will carry through via Charlene and all data for that vessel and day will be referenced to the wrong year.

- Make sure the POSPac positioning files are named correctly. They should be YYYY_DDD_S250.000
 - If there is an additional “.000”, remove the FIRST .000 from the file name. Do this to a set of COPIED files before changing the original files to avoid deleting the .000 file extension

Reference: Setting up the Data Transfer Folder

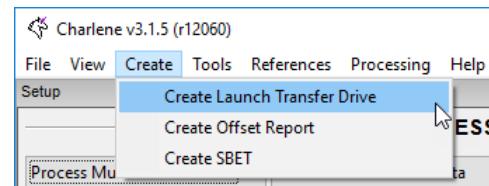
Hassler utilizes a “Data Transfer” folder that holds all the daily data to facilitate data management. These folders are populated during day-change at UTC midnight and are where you will direct Charlene to look for the data before processing. This folder should be as such:

Q:\2023\ DATA_TRANSFER\OPR-X###-FH-23\HXXXXX\Data\...

- Acquisition_Logs\Hassler_2040_Dual\2023-DDD
- MBES\Hassler_2040_Dual\2023-DDD
- Positioning\Hassler_2040_Dual\2023-DDD
- SVP\Hassler_2040_Dual\

You can use Charlene to set up a launch transfer drive in this folder so that the data will be organized by type and then by day number. (*A Julian Date Calendar is located in the front of the ship's boat book*).

1. Click *Create > Create Launch Transfer Drive*
2. Replicate the following settings



Create Launch Transfer Drive

Enter the following fields:

Launch Transfer Drive: Select a directory:	<input type="text"/>	<input type="button" value="Browse"/>	
Project Name:	<input type="text"/>		
Sheet Name:	<input type="text"/>		
<input checked="" type="checkbox"/> MBES Vessel	<input type="checkbox"/> Additional MBES Vessel	<input type="checkbox"/> SSS Vessel	<input type="checkbox"/> Additional SSS Vessel
MBES Vessel Name (without the .hvf): <input type="text"/>			
Start Day Number (YYYY-DDD):	<input type="text"/>	<input type="button" value="Use Calendar"/>	
End Day Number (YYYY-DDD):	<input type="text"/>	<input type="button" value="Use Calendar"/>	
<input type="checkbox"/> Two per day ('YYYY-DDD_am' and 'YYYY-DDD_pm')			
<input type="button" value="OK"/>	<input type="button" value="Cancel"/>		

1. Select a directory: Q:\2023\DATA_TRANSFER
2. Project Name: OPR-X###-FH-YY
3. Sheet Name: HXXXXX
4. Check MBES Vessel
5. MBES Vessel Name:
 - a. Hassler_2040_Dual
6. SSS Vessel:
 - a. S250_2021_Klein5000_V2
7. Start Day Number: Enter the day number of the first day of acquisition.
8. End Day Number:
 - a. For one day only: Enter the same day number as “Start Day Number”
 - b. Do NOT create folders over multiple days if you do not know you will be acquiring data on those days, this makes data management more difficult with empty day number folders
9. Click *OK* to finish.

When you transfer data at UTC midnight, simply copy and paste the files into the appropriate day number subfolder of the Data Transfer folder.