

*Integrated Rig Instrumentation System*  
**iRIS GENERAL USER INTERFACE**  
 Quick Start Guide for *JOIDES RESOLUTION*

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**READ IN CONJUNCTION WITH THE FOLLOWING MANUALS:**

- iRIS User’s Manual
- iRIS Driller’s Quick Start Guide
- iRIS Operations Superintendent Quick Start Guide

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# iRIS General User Interface

## a) iRIS User Interface Layout

The iRIS General User Interface (GUI) is divided into several functional areas detailed below.

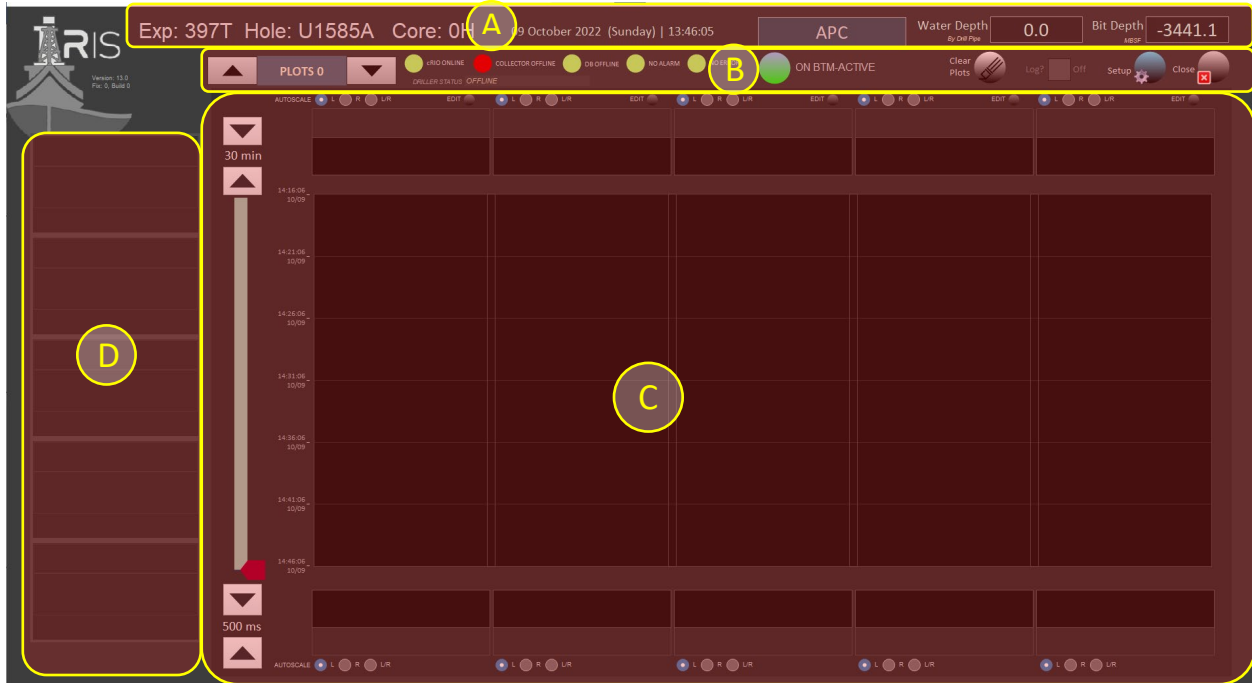


Figure 1. iRIS GUI Functional Areas

## b) Plot Control / Program Status

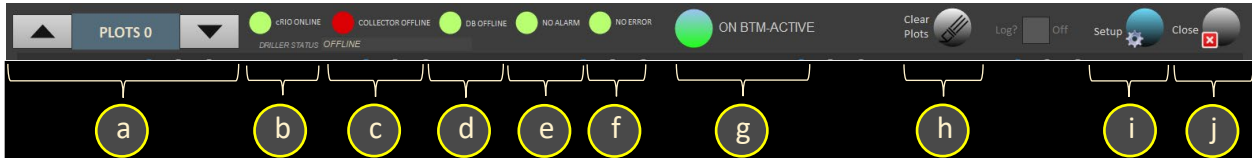


Figure 2. Plot Control / Program Status Functional Area

The Plot Control / Program Status functional area gives the User control over the graphing display area, plus gives the status of

- a. Waterfall plot display selection drop down menu (Choice of “PLOTS 0”, “PLOTS 1”, “BIG”, “NAV”, “CORE SUM”, and “EXPORT”)
- b. iRIS cRIO Controller (online/offline)
- c. Data Collector Subsystem Status (online/offline)
- d. Datalogging Database Status (online/offline)
- e. General alarm status (alarm active/clear) – **Future Feature**
- f. General error status (alarm active/clear) – **Future Feature**
- g. Drilling is Active and on Bottom
- h. Clear Graph Window
- i. Configuration File Setup
- j. Close and Exit iRIS Program

c) Interactive Display Field

The User can switch between several different data displays by selecting the appropriate drop-down menu item located in the Plot Control / Program Status area as show below in Figure 3. Alternatively, the User can scroll through the selections using the scroll buttons located next to the drop-down menu.

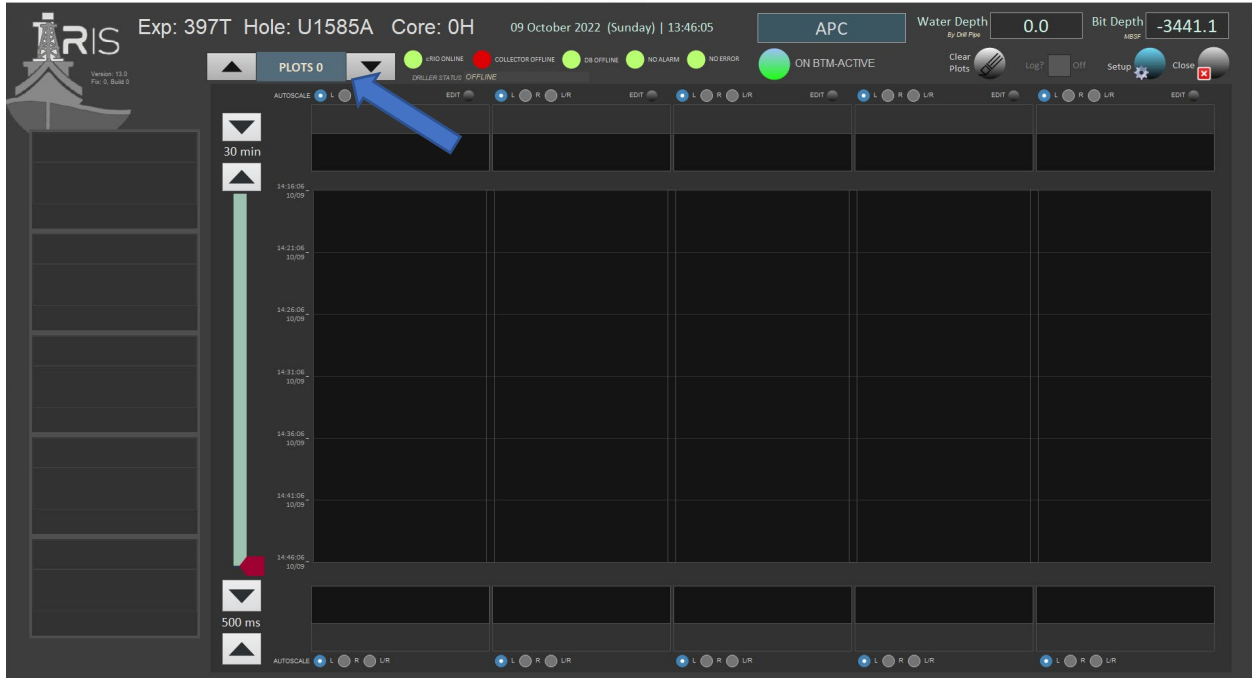


Figure 3. Screen Selection Drop-Down

Graphing Display Screen (PLOTS 0 and PLOTS 1)



Figure 4. Graphical Plot Display Functional Area

The graphing display screen functional area is the location where the User will select a variety of drilling, coring, environmental, and navigational criteria in which to display in both numerical and waterfall graphing. Each plot “lane” can display two (2) plots each, with both numerical and graphical data displayed. In addition, each plot is auto scaled to best fit data in the lane. A total of twenty (20) plots can be displayed between the two (2) plot screens (identified as PLOTS 0 and PLOTS1).

- a. Time scale adjustment. User selectable from 30 seconds to 4 hours
- b. Numerical display. The top numerical display is used for the “left” side graphs, and the bottom numerical display is used for the “right” side graphs in each lane
- c. Waterfall graph area
- d. Slider used to shift graphs back in time to review historical data
- e. Data collection frequency, measured in milliseconds. Adjustable from 100ms to 2000 ms

### *Navigational Information Display (NAV)*

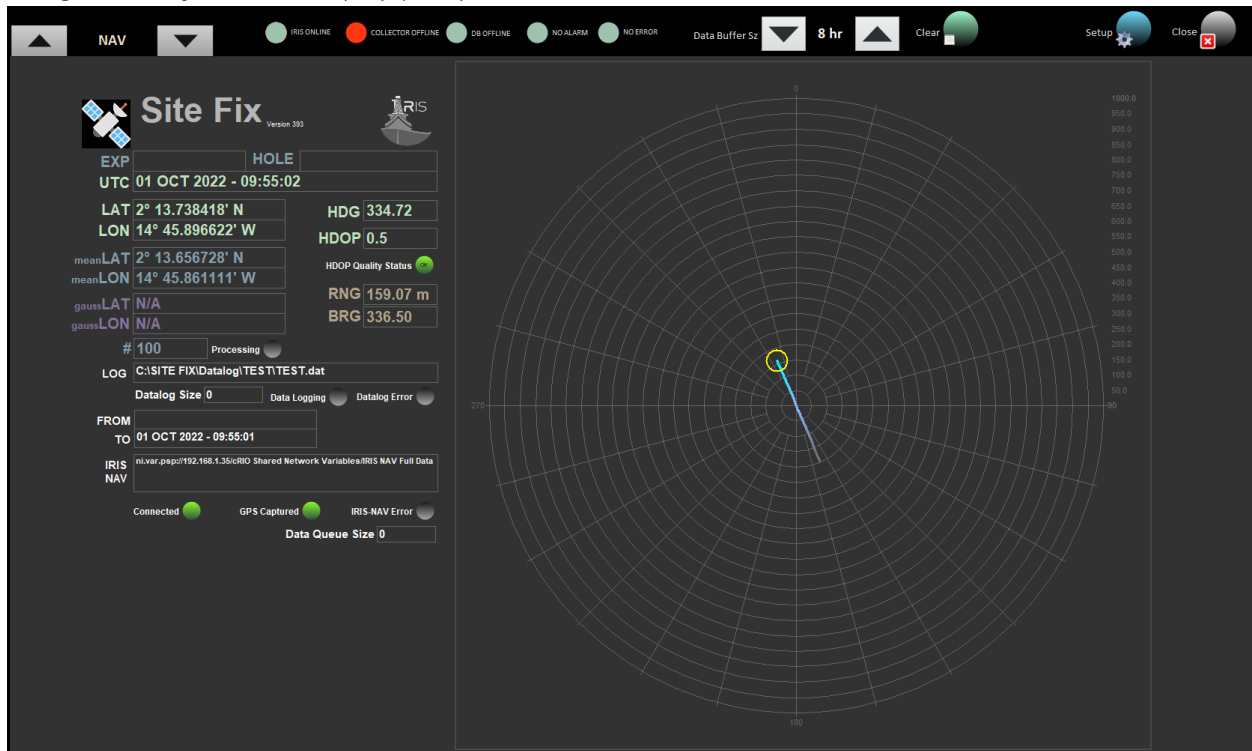


Figure 5. Navigational Information Display

The navigational display functional area current GPS fixes, UTC time, and other related information. No other datalogging is available through this display.



Figure 7. Datalogging Collection and Export Screen

The Datalogging Collection and Export screen is where the User can configure and log a set of data streams to an output ASCII file for later analysis.

- a. Data stream selection
- b. Data logging rate setpoint
- c. Start/Stop log capture
- d. Select previous datalog definitions

d) Sidebar

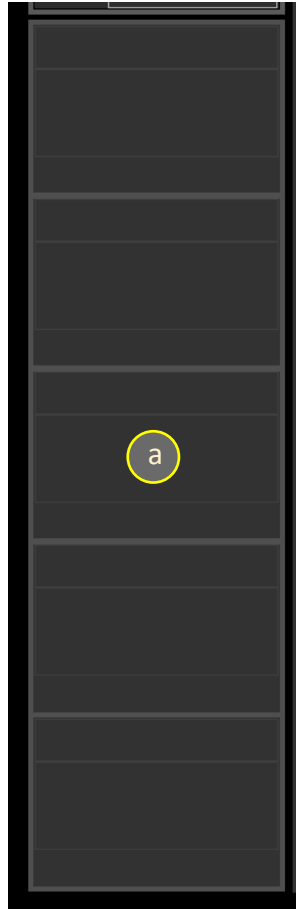


Figure 8. Sidebar Display

The sidebar display is an area where the User can configure up to five (5) data stream to show numerical values of selected criteria.

- a. Numerical display of data channels. User can select and configure up to six (6) data channels to view.

## Configuring the Graphical Display Screen Waterfall Plots (PLOTS 0 and PLOTS 1)

To setup a waterfall plot in the Graphical Display Screen, select the desired parameter (*See Figure 2*) by using the drop-down menu in the Plot Control / Program Status functional area (*See Section C(2) - Plot*

*Control / Program Status*). First, click on the “Edit” button located above the lane to configure, the iRIS Plot Editor Window will open (See Figure 10 below)



Figure 9. iRIS Plot Editor Window



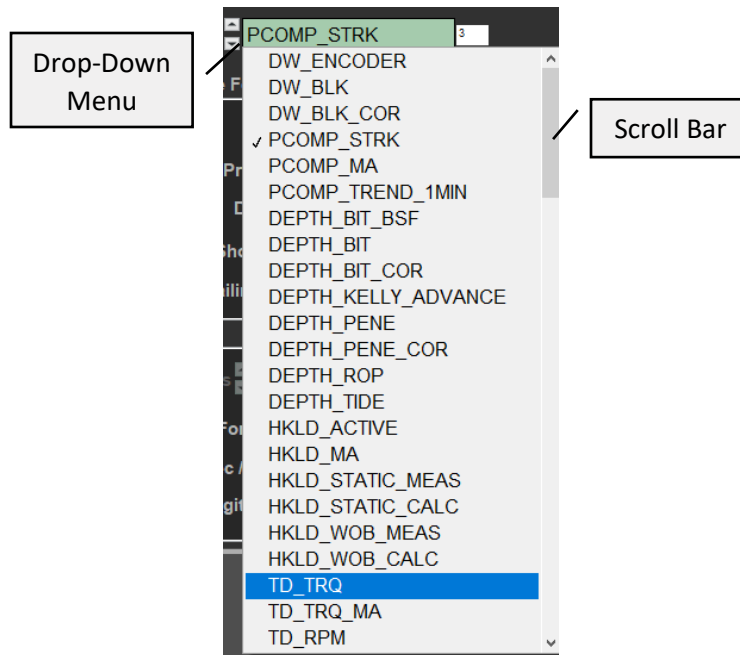


Figure 10. Plot Parameter Drop-Down Menu

In the iRIS Plot Editor Window, the User can apply the following controls to generate a custom plot for the five (5) “swim lanes” available in the Plot Display Window. Each plot can be configured as follows:

**NOTE, AS CUSTOM SETTINGS ARE SELECTED A PREVIEW OF THE PLOT WILL APPEAR IN THE PREVIEW WINDOW.**

- a. Click “Enable Plots” to activate the graphing function. Click a second time to deactivate the plot. [See Figure 9 above](#)
- b. Select one of the parameters that appear in the drop-down menu. To find a particular parameter, begin typing the name. Alternatively, click and drag the scroll bar located to the right of the menu. [See Figure 10 above](#)

**NOTE: THE “REPORT ALARM” CHECK BOX IS A FUTURE FEATURE AND NOT ACTIVE AS OF THIS VERSION**

- c. Configure Plot Display
  1. LINE/FONT COLOR: Select custom line and font color
  2. LINE STYLE: Solid, Long Dash, Short Dash, Dash-Dot, Dash-Dot-Dot
  3. LINE WIDTH: Used to adjust the line thickness
- d. Configure Data Formatting
  1. FORMAT: Floating Point, Decimal, Scientific Notation, Engineering Notation, SI Notation
  2. DIGITS: Number of digits to be displayed
  3. TRAILING ZERO: Show/Hide trailing zeros
- e. Select how to Auto Scale the plot
  1. LEFT: Will anchor the plot to the left side of the waterfall diagram and auto scale the graph to the right
  2. RIGHT: Will anchor the plot to the right side of the waterfall diagram and auto scale the graph to the left
  3. L/R: Will center the plot in the lane and auto scale the plot in the center of the lane

- f. Select “Enable 2<sup>nd</sup> Plot to add a second plot in the same lane. If enabled, the parameter title will appear at the bottom of the swim lane. The second plot can be customized in “BTM PLOT” with some added features
- g. The User can customize the 2<sup>nd</sup> plot as well
  1. OFF: Toggles the 2<sup>nd</sup> plot on/off
  2. OVERLAY: Lays the 2<sup>nd</sup> plot on top of the primary plot
  3. SPLIT: Displays the 2<sup>nd</sup> plot in a split lane configuration and automatically scales both plots to their respective half lane
  4. 1<sup>ST</sup> PLOT TREND: Displays
- h. Preview plot view
  1. “TOP PLOT” preview shows in the upper title area
  2. “BTM POT” preview shows in the lower title area
- i. Commit changes or cancel activity by selecting the appropriate button

iRIS allows up to two (2) plots per lane in the five (5) lanes, and two (2) separate plotting functional areas, for a total of twenty (20) customized waterfall diagrams.

a) Selecting Data Parameters for BIG and SIDEBAR Displays

To select a data parameter in the BIG or SIDEBAR display, simply click anywhere in the individual panel which brings up the respective Display Editor



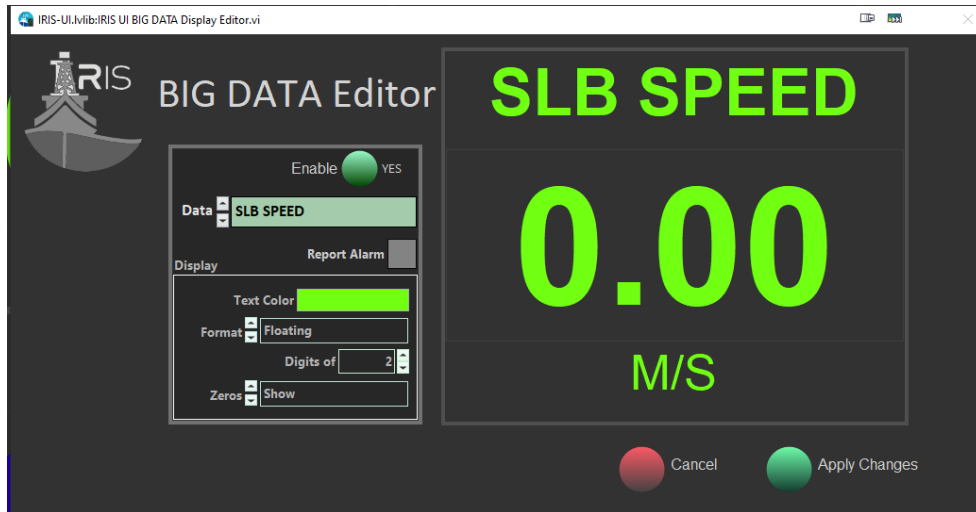


Figure 11. BIG Display Editor

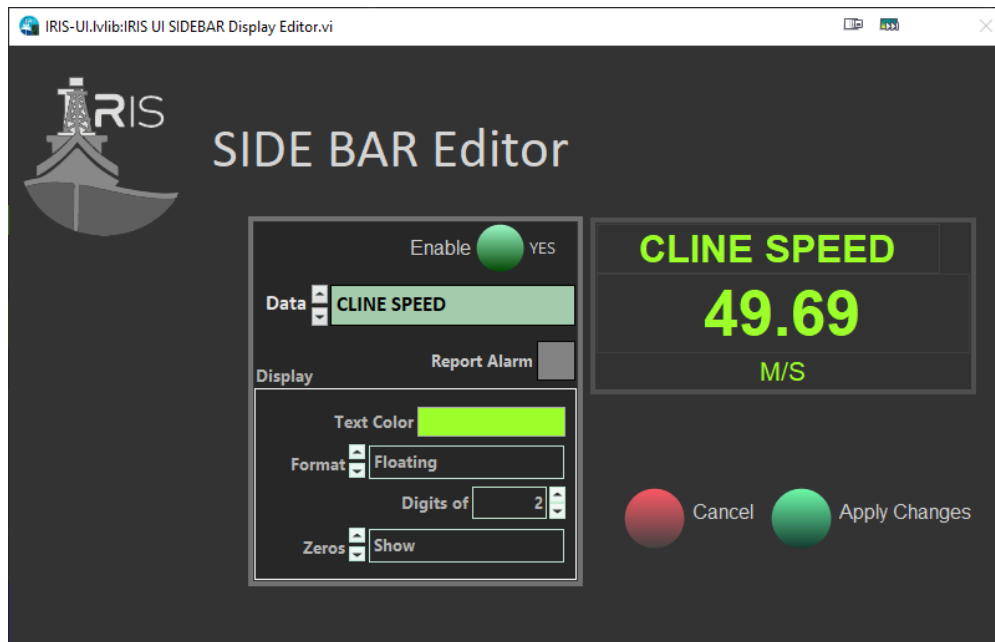


Figure 12. SIDEBAR Display Editor

The User then can modify the display as described previously in [Configuring the Graphical Display Screen Waterfall Plots \(PLOTS 0 and PLOTS 1\)](#)

## Datalog Export Display (EXPORT)

iRIS allows the User to create custom designed datalogging files that can be used to collect and convert any of the parameters that are collected. Further, the Export feature allows multiple configuration files to be developed, saved, and recalled, which allows the User to have multiple types of reports for analyzing specific data for specific scenarios, like having APC versus RCB-specific coring data sets. The Exporter can also export the data into ASCII and CSV-formatted files to be imported into analysis packages. [See Figure 13.](#)

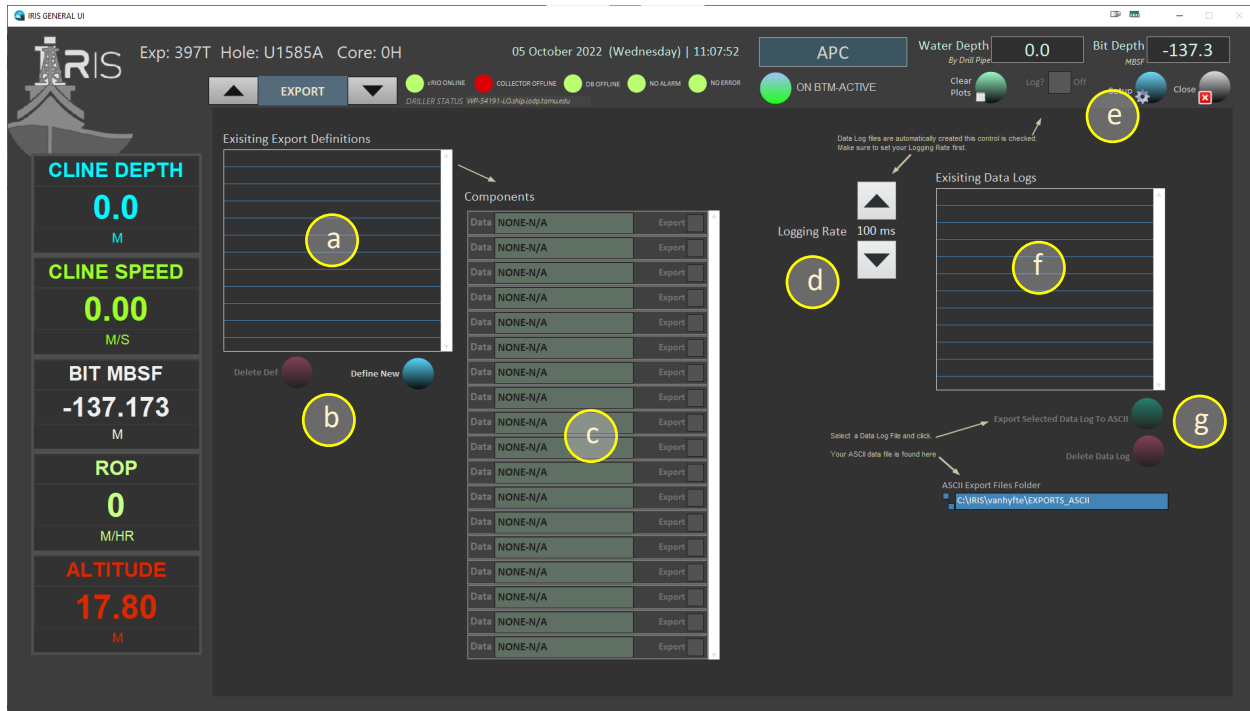


Figure 13. Data Export (EXPORT) Display

The display screen consists of the following controls:

- a. List of existing data definition files available to configure for logging
- b. Define new data definition file or delete existing file
- c. List of parameters that will be collected for datalogging
- d. Set data capture rate in milliseconds (ms)
- e. Toggle to being capturing data
- f. List of existing datalog files available, with newest file at the top of the list
- g. Export selected data file to ASCII (or CSV) format or delete selected datalog file

b) Create New or Modify Existing Data Definition File

To capture a datalog from iRIS, the User must first create a Data Definition File (DDF). The DDF is simply an iRIS-readable list of drilling/coring/environmental parameters the User wishes to collect in a datalogging session. iRIS will allow the User to generate many multiple DDF's that can be created for a wide variety of scenarios, such as different coring types, drilling plans, environmental conditions, geologic formations, etc.

To create a data definition file, click on the "Define New" button on the EXPORT front panel.

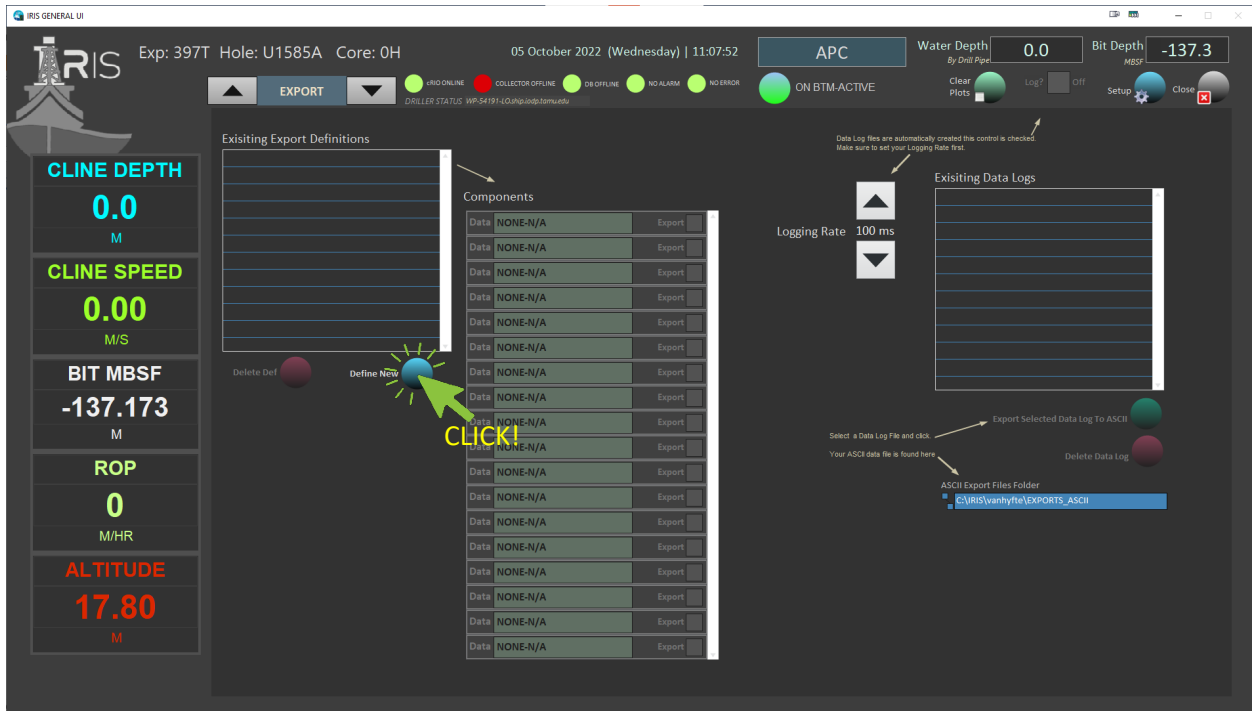


Figure 14. EXPORT Front Panel

This will bring up the Export Definition Panel. (See Figure 15)

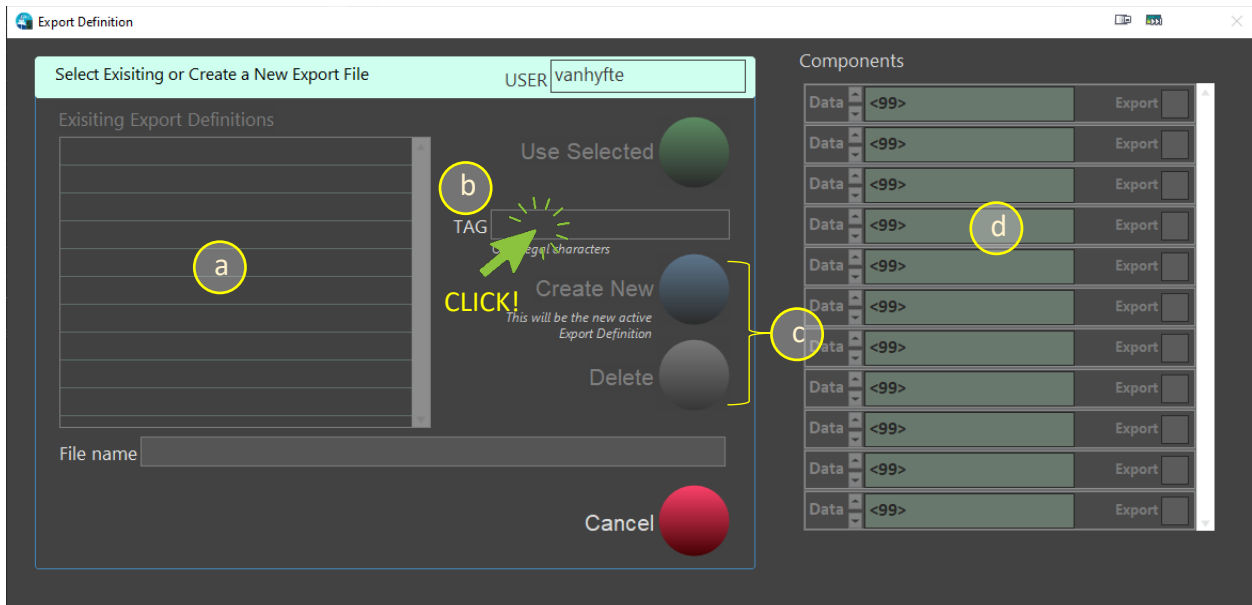


Figure 15. Export Definition Panel

In this panel, the User can perform the following functions:

- a. See existing data definitions files in a list
- b. Enter a new filename for a new definition file
- c. Create a new file or delete an existing file
- d. Review the selected logged parameters

To start the process, click in the “TAG” box and start typing the name the file that is to be used. Simultaneously, iRIS will begin to append that name with “\_Export\_Def” to make the final file name <filename\_Export\_Def.dat> located in the “\.<username>\EXPORTS\_DEF” folder that was created during installation of iRIS.

Once the new definitions file is created, click on the “Create New” button to bring up the “Select Export Components” dialog box (*See below*).

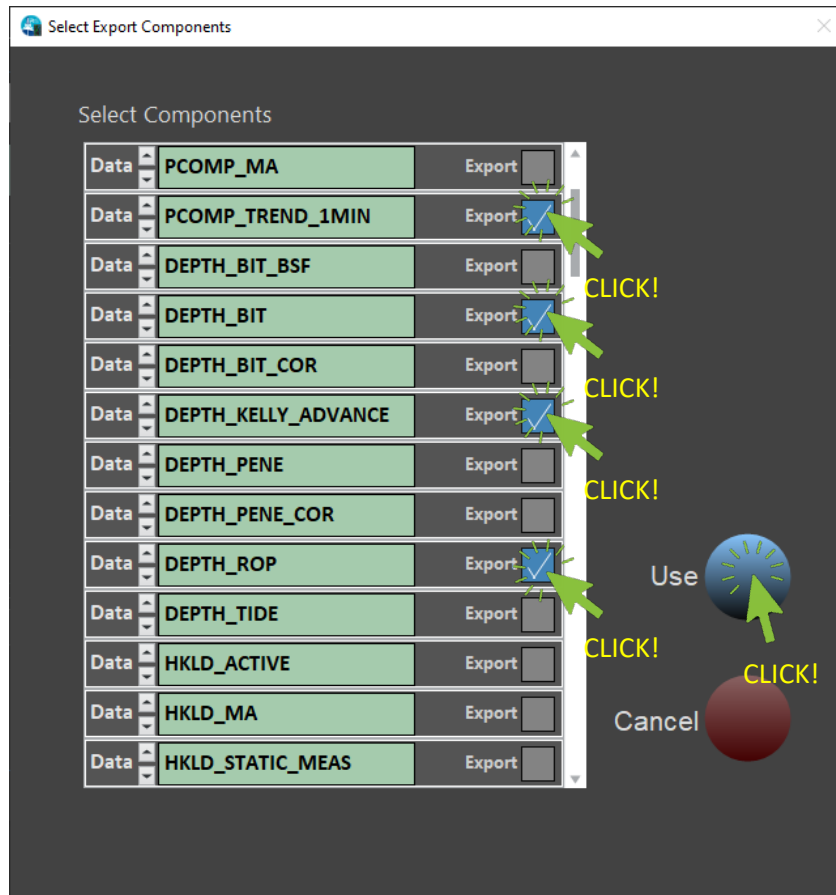


Figure 16. Select Export Components Dialog Screen

In this screen, the User will select the desired components to be included in the datalogging session. The User can also scroll down the list to see all available parameters. Once all the desired parameters are selected, click on the “USE” button to close the window. The User will be returned to the EXPORT front panel, but now with the Components table now populated with the selected parameters.

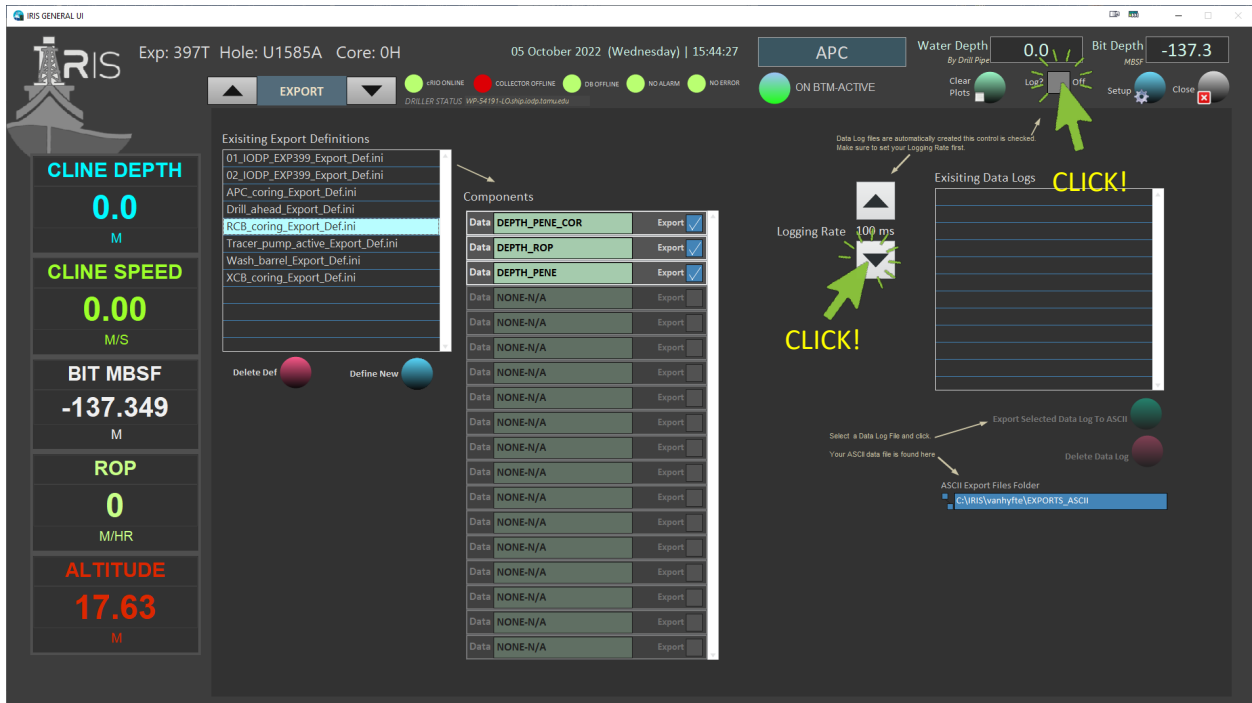


Figure 17. Data Definitions Selected

Next, the User selects the desired Logging Frequency using the Logging Rate selector (*see above*). The User has the option to select capture rates of 100ms, 250ms, 500ms, 1000ms, and 2000ms. Once selected, the User then will click the “LOG” checkbox to begin collecting data. This is indicated by the display showing the number of records collected iRIS will continue to collect data until the “Log” checkbox is deselected.

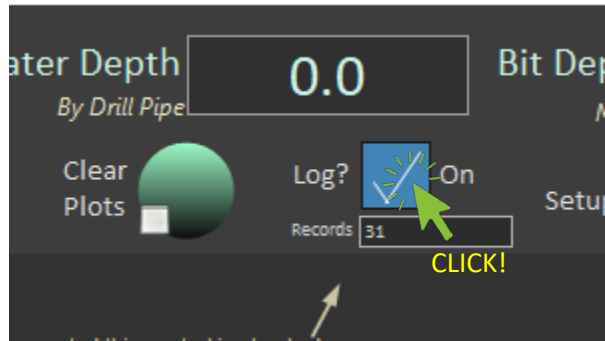


Figure 18. Datalog Collecting Records

**NOTE: THE “LOG” INDICATOR WILL BE DISPLAYED DURING DATA COLLECTION OPERATIONS, EVEN WHEN THE USER CHANGES TO ANOTHER DISPLAY PANEL. THE LOGGING FUNCTION ONLY STOPS WHEN THE “LOG” CHECKBOX IS DESELECTED.**

Once the logging is stopped, iRIS will write the data into the .DAT file as indicated. The user could then start another logging session using the same definitions file, select another definitions file, or convert one or more .DAT files into ASCII. See

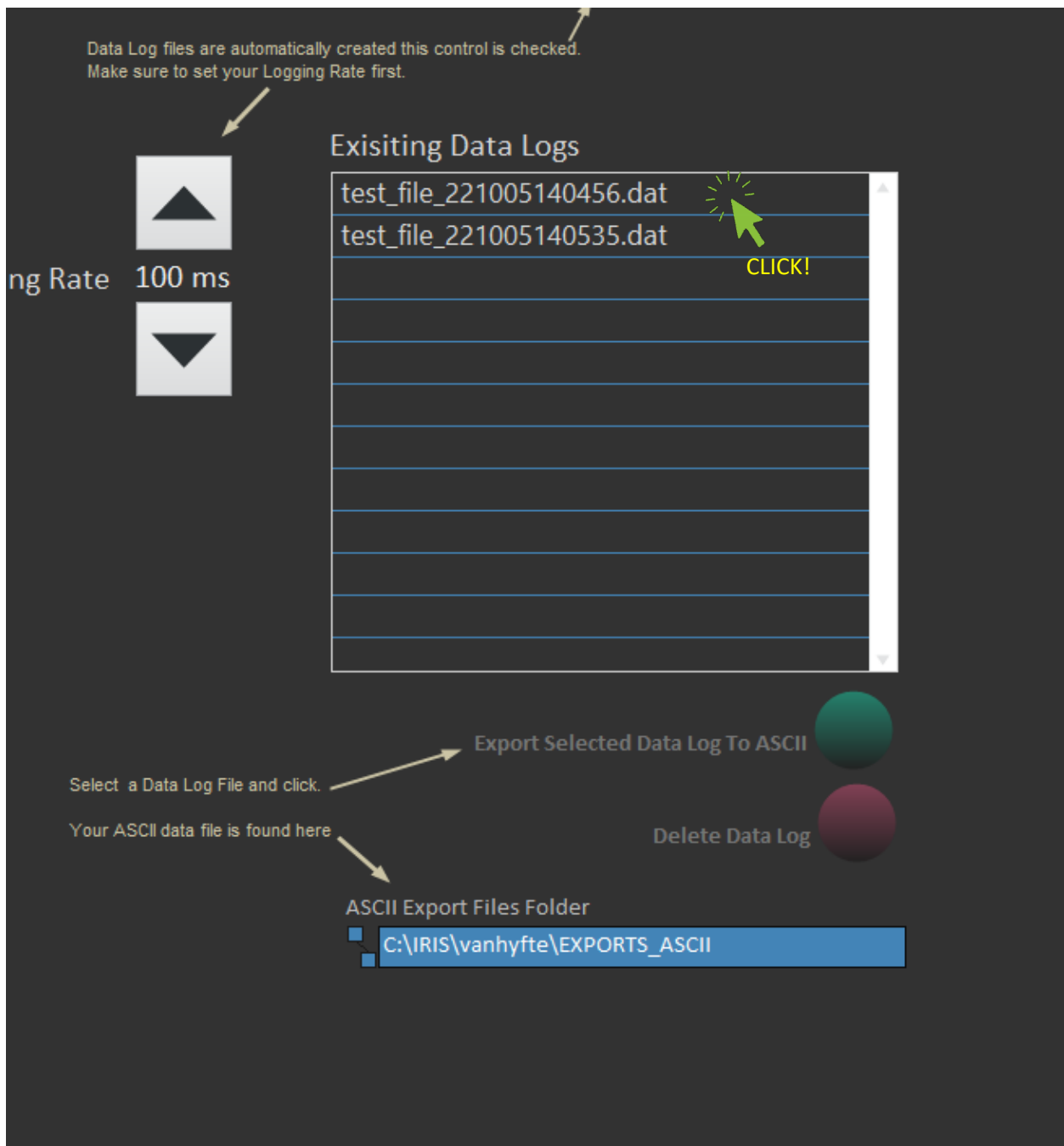


Figure 19. Data Files Ready for Conversion

To convert a data (.DAT) file, click on the filename in the list shown, then click on the “Export the Selected Data Log to ASCII” button. iRIS then requests a filename and location to save the file, with the default folder being the \.<USERNAME>\EXPORTS\_ASCII folder. iRIS then converts the file to either a text file (.TXT) or Comma Separated Value (.CSV) file.



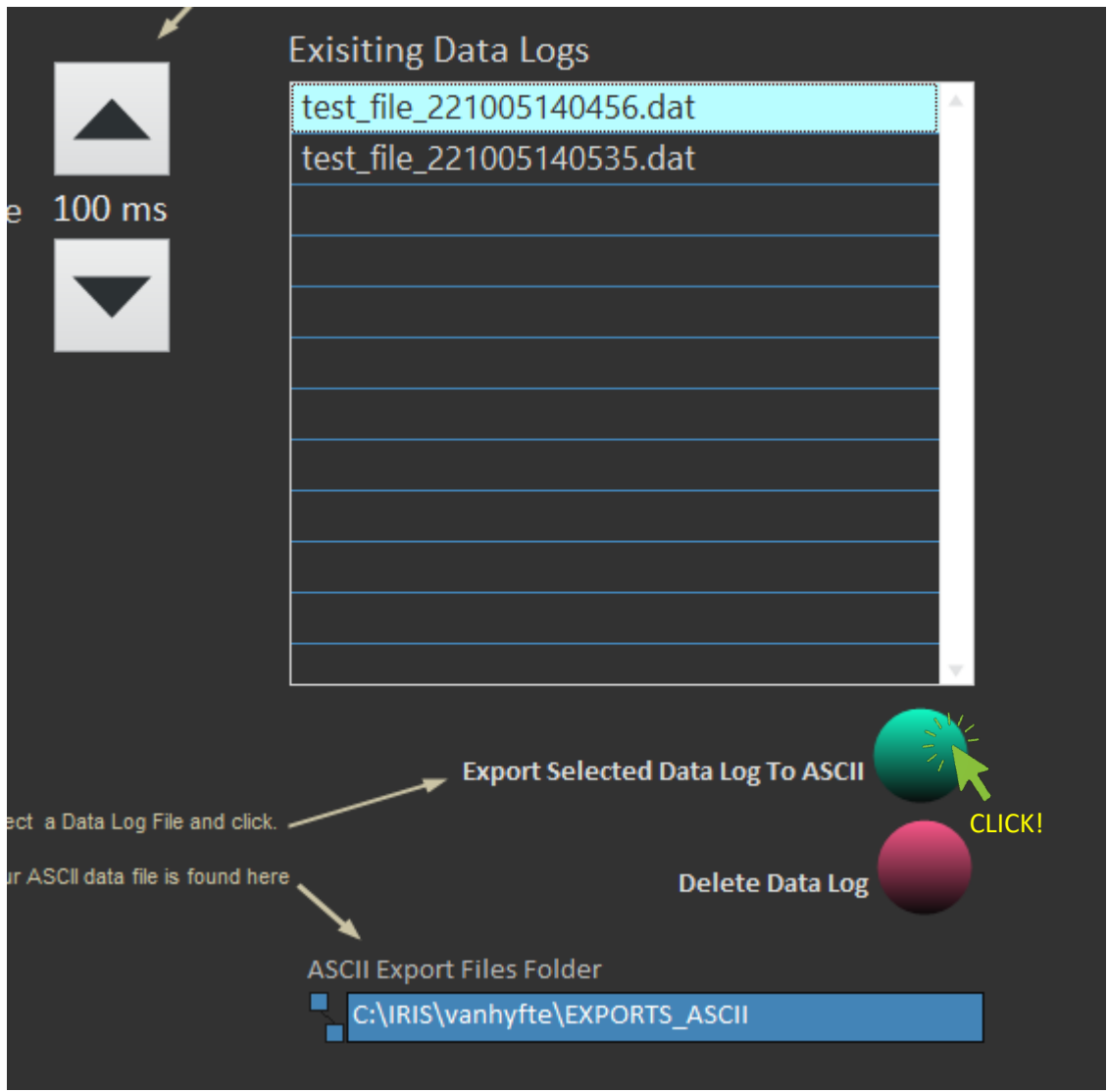


Figure 20. Export .DAT File to ASCII

The file is converted to the desired filetype. (See Figure 21 below)

	A	B	C	D	E	F	G	H	I
1		DW_ENCODER	DW_BLK	DW_BLK_COR	PCOMP_TREND_1MIN	DEPTH_BIT	DEPTH_KELLY_ADVANCE	DEPTH_ROP	
2	5/10/2022 14:04	16	-1.26	-1.26	16	3303.47	1.26	0	
3	5/10/2022 14:04	16	-1.26	-1.26	16	3303.47	1.26	0	
4	5/10/2022 14:04	16	-1.058	-1.06	16	3303.27	1.058	0	
5	5/10/2022 14:04	16	-1.058	-1.06	16	3303.27	1.058	0	
6	5/10/2022 14:04	16	-1.266	-1.27	16	3303.48	1.266	0	
7	5/10/2022 14:04	16	-1.266	-1.27	16	3303.48	1.266	0	
8	5/10/2022 14:04	16	-1.213	-1.21	16	3303.42	1.213	0	
9	5/10/2022 14:04	16	-1.213	-1.21	16	3303.42	1.213	0	
10	5/10/2022 14:04	16	-1.265	-1.27	16	3303.48	1.265	0	
11	5/10/2022 14:04	16	-1.265	-1.27	16	3303.48	1.265	0	
12	5/10/2022 14:04	16	1.000	1.1	16	3303.21	1.000	0	

Figure 21. Converted CSV Data File



Figure 22. Deleting Data Definitions and Data Log Files