3 VIT DVR OVERLAY AND IRIS VIT CONTROL SOFTWARE MANUAL

IODP VIT Assembly Part Number OV7000

IODP JRSO

Version 2

9/25/22

Revision	Date	Originator	Approval
0	3/5/19	Mike Meiring	Mike Meiring
1	3/31/20	Dean Ferrell	Dean Ferrell
1	4/24/20	Andrew Howard	Andrew Howard
2	9/25/22	Andrew Howard	Andrew Howard

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CHAPTER 1.0   OPERATOR (SUBC DVR, OVERLAY, VITOF)

1.1 SCOPE OF THIS DOCUMENT

This document is intended to give the user information unique to the IODP video system and to outline the basic steps and requirements to run the DVRO and device control software for a standard VIT deployment. In depth information about the DVRO software can be found in the SubC help files accessible from a link in the upper righthand corner of the software.

1.2 SUBC IMAGING SOFTWARE

The SubC DVRO software was purchased in July 2014 from SubC Imaging located in Newfoundland, Canada. The current version is 6.3.1.

CHAPTER 2.0   RUNNING THE SUBC DVR OVERLAY

SubC DVRO should start when Windows starts, otherwise click the SubC DVRO icon on the windows desktop or on the task bar.


2.1 VIDEO INPUT

1. Click the appropriate Video Tab to select proper channel:

    ∗Video 1: Search Camera   ∗Video 2: Survey Camera

    ∗Video 3: Re-entry Camera   ∗Video 4: Not Used

    ∗Video 5: Not Used   ∗Video 6: Not Used

2. In Version 6.3.x, the program will display input channels that it detected incoming input on for quick selection. If everything is working properly, *DeckLink Quad 2*, *DeckLink Quad 2 (2)*, and *Osprey-460e Video Device 1C* should be available at a minimum.

3. Click *Video Input* and verify the saved settings for Video 1, Video 2, and Video 3 match **Figure 1**.

Figure 1. Search (Left), Survey (Middle) and Re-entry (Right) Video Input settings in the SubC DVR Overlay Program.
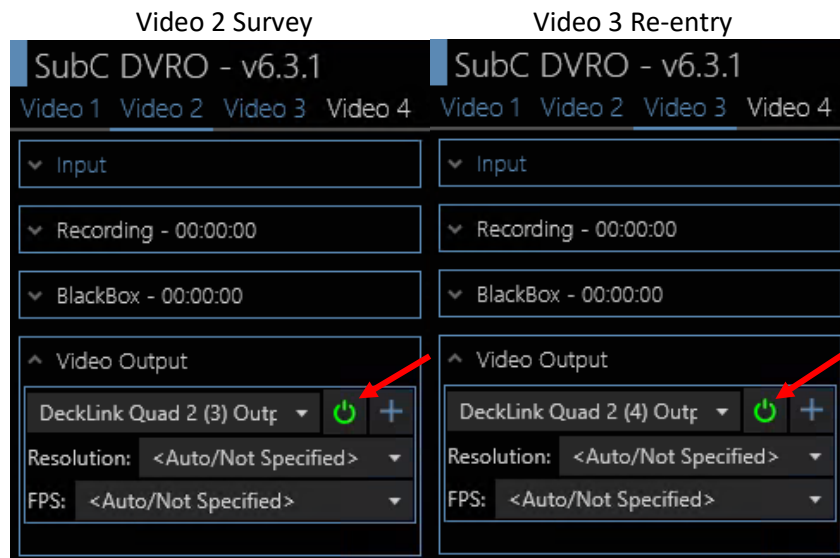
Video 1 Search	Video 2 Survey	Video 3 Re-entry
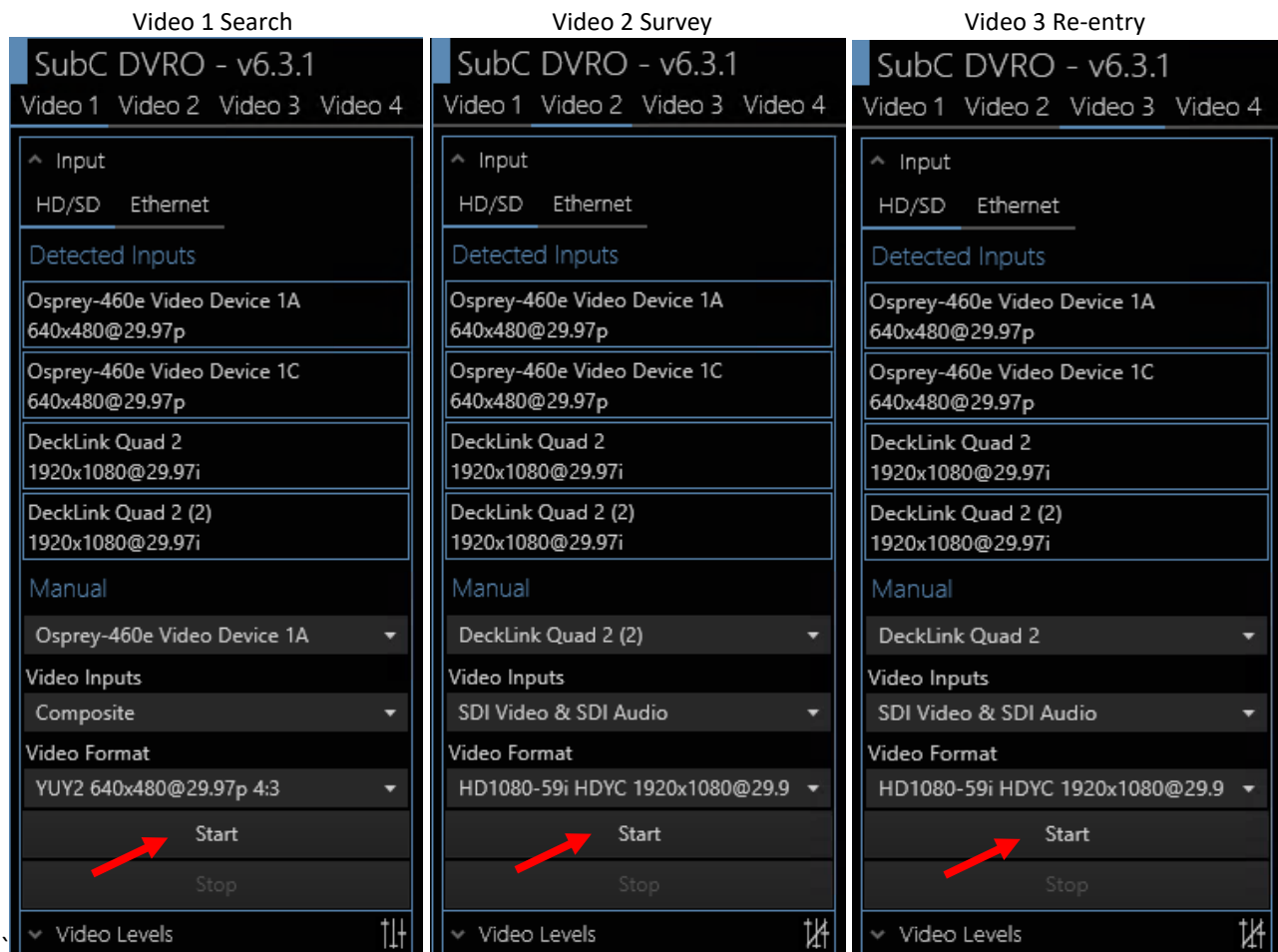
4. Click **Start** (**Fig. 1**, red arrows) in each window to activate that Input Video source.

2.2 VIDEO OUTPUT TO SHIP CCTV

1. Confirm settings below by clicking "Video output" (**Fig. 2**).

Figure 2.   Video 2 (Left, Survey) *DeckLink Quad 2 (3) Output* **and Video 3 (Right, Re-entry)** *DeckLink Quad 2 (4) Output.*

2. Click the green power symbol (**Fig. 2**, red arrows) on both Video 2 and 3 outputs to start video output to the ship's CCTV system.

2.3 TEXT OVERLAYS

EDIT EXPEDITION, SITE, HOLE

The expedition number, site, and hole information must be changed each time the VIT is run on a different hole. To edit this information:

1. Open the appropriate text overlay (it should be second from the top).

2. Click to edit (**Fig. 3**, red arrow) and enter the correct expedition number, site, and hole information. (Ex: EXP397T U1586 A)

Figure 3.   Expedition, Site, Hole - Text Overlay.
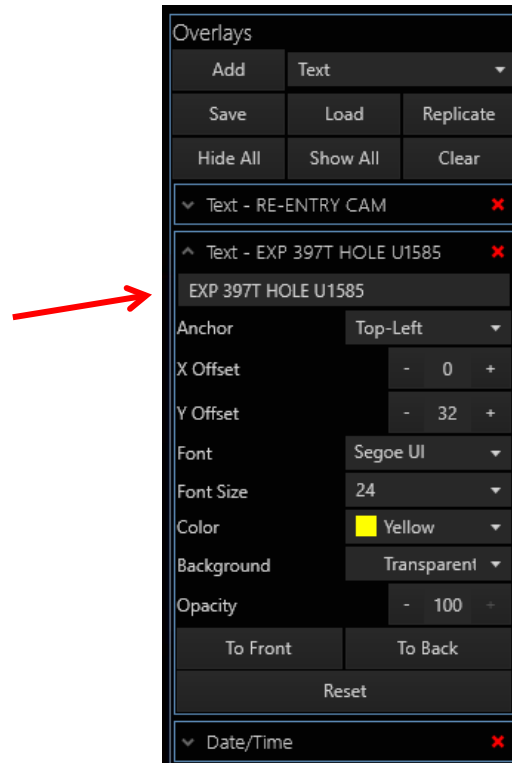
2.4 SERIAL OVERLAYS

SERIAL DATA SOURCES

VIT DEPTH DATA

VIT Depth data (**Fig. 4**) is sent from the LCi-90 in Subsea via ethernet to IRIS for initial processing and sent on from IRIS via ethernet to the black box ethernet-to-serial converter (IP 192.168.1.28) in the DP VIT rack. From there it goes via COM1 from the black box to COM4 of the SubC DVRO PC.

The data from the LCi-90 unit into SubC DVRO COM4 are in the following format:

Header,	DateTime,	Tension	Speed	Depth
01RD,	*2015-09-20T20:37:00.000,*	*-03940.0,*	*00000000,*	*-00006.5,*	*2819*

Option 1: Using the **Serial** overlay option, enter "01RD" in the *Header To Match* box and enter "{4}" into the *Format* box. This tells the DVRO to use the 4th data set (which is depth) in the data string after it sees the header (**Fig. 4**).

Option 2: Version 6.3.1 introduced the option of choosing **Depth** from the overlay menu. Set up is similar in that you set "ComPort" to COM4 and give it the "01RD" header to match. However, it introduces an auto scaling graph into the overlay that **cannot** be turned off and

cannot be rescaled. This results in either a very small graph on HD-SDI 1080i feeds, which is hard to read, or a massive graph on the 640x480 Search Camera feed that uses nearly a quarter of the screen. <mark>At this time, it is highly advised to continue using the above Option 1.</mark>

Figure 4.   VIT Depth - Serial Overlay Option.
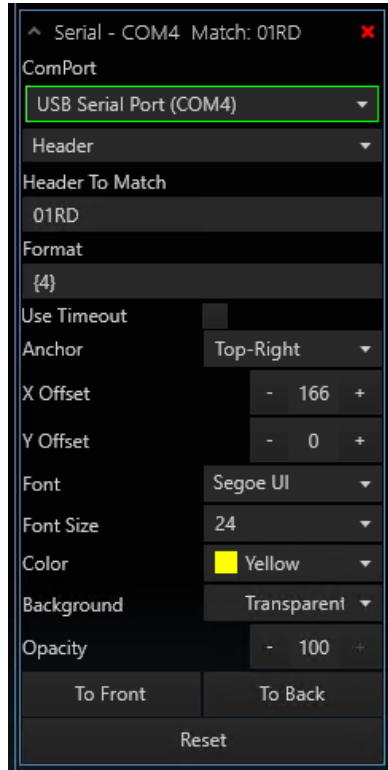
GYRO DATA

Gyro data (**Fig. 5**) is forwarded from the IRIS VIT application on the VIT PC going from COM1 on the VIT PC, to COM3 of the SubC DVRO PC.

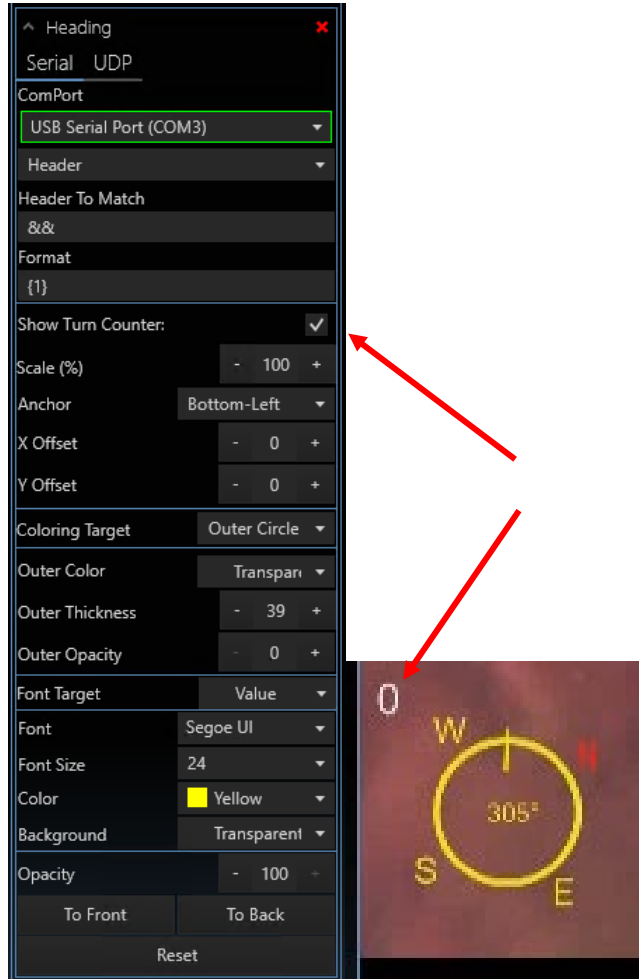Data stream into COM3 has the following format: *&&,0,Wrap:0,0.0m,!!*

&&,	*0,*	*Wrap:0,*	*0.0m,*	*!!*
Message Header,	*Gyro,*	*Wrap,*	*Altimeter,*	*Message End*

Option 1: Using the **Serial** overlay option, enter "&&" in the *Header To Match* box and enter "{1}" into the *Format* box. This tells the DVRO to use the 1st data set (which is Gyro) in the data string after it sees the header (**Fig. 5**).

Option 2: Version 6.3.1 introduced the option of choosing **Heading** from the overlay menu. Set up is similar in that you set "ComPort" to COM3 and put "&&" in the *Header To Match* box. Using **Heading** instead of **Serial** introduces an auto scaling compass into the overlay that **cannot** be turned off but **can** be rescaled. This results in a very nice addition and look to the overlay screen. The compass is locked to the VIT frame/camera orientation and the cardinal

points will rotate around the circle. Additionally, there is a check box option called *Show Turn Counter:* that displays how far the VIT has rotated from initial (see red arrows in **Fig. 5**)

Figure 5.   VIT Gyro - Heading Overlay Option with Resulting Compass.
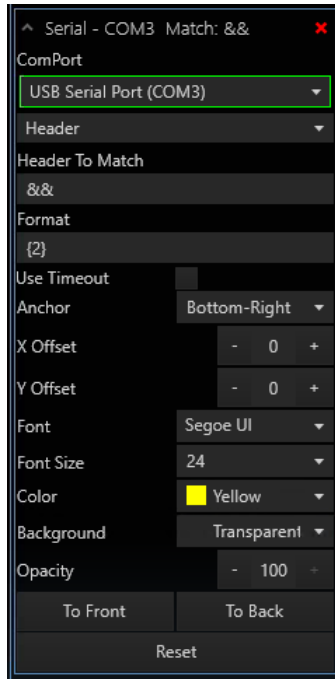

WRAP DATA

Wrap data (**Fig. 6**) is forwarded from the IRIS VIT application on the VIT PC going from COM1 on the VIT PC, to COM3 of the SubC DVRO PC.

Data stream into COM3 has the following format: *&&,0,Wrap:0,0.0m,!!*

&&,	0,	Wrap:0,	0.0m,	!!
Message Header,	*Gyro,*	*Wrap,*	*Altimeter,*	*Message End*

Using the **Serial** overlay option, enter "&&" in the *Header To Match* box and enter "{2}" into the *Format* box. This tells the DVRO to use the 2nd data set (which is Wrap) in the data string after it sees the header (**Fig. 6**).

Figure 6.   VIT Wrap -Serial Overlay Option.

ALTIMETER DATA

Altimeter data (**Fig. 7**) is forwarded from the IRIS VIT application on the VIT PC going from COM1 on the VIT PC, to COM3 of the SubC DVRO PC.

Data stream into COM3 has the following format: *&&,0,Wrap:0,0.0m,!!*

&&,	*0,*	*Wrap:0,*	*0.0m,*	*!!*
Message Header,	*Gyro,*	*Wrap,*	*Altimeter,*	*Message End*

Option 1: Using the **Serial** overlay option, enter "&&" in the *Header To Match* box and enter "{3}" into the *Format* box. This tells the DVRO to use the 3rd data set (which is Altimeter) in the data string after it sees the header (**Fig. 7**).

Option 2: Version 6.3.1 introduced the option of choosing **Altimeter** from the overlay menu. Set up is similar in that you set "ComPort" to COM3 and give it the "&&" header to match. However, it introduces an auto scaling graph into the overlay that **cannot** be turned off and **cannot** be rescaled. This results in either a very small graph on HD-SDI 1080i feeds, which is hard to read, or a massive graph on the 640x480 Search Camera feed that uses nearly a quarter of the screen. At this time, it is highly advised to continue using the above Option 1.
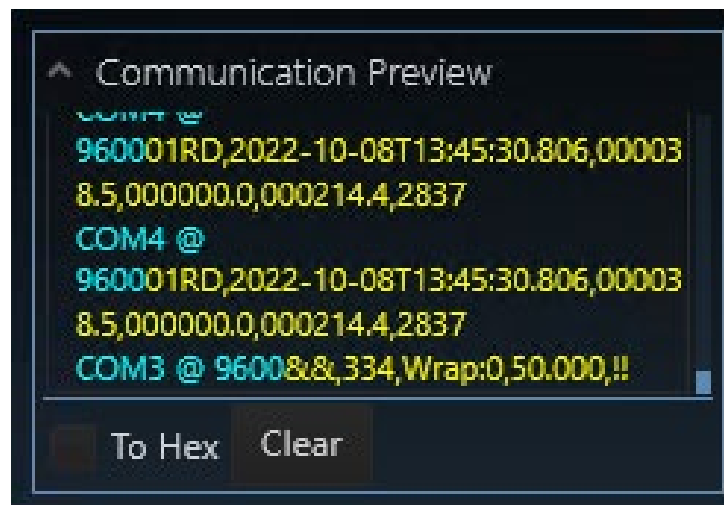
Figure 7.   VIT Altimeter – Serial Overlay Option.
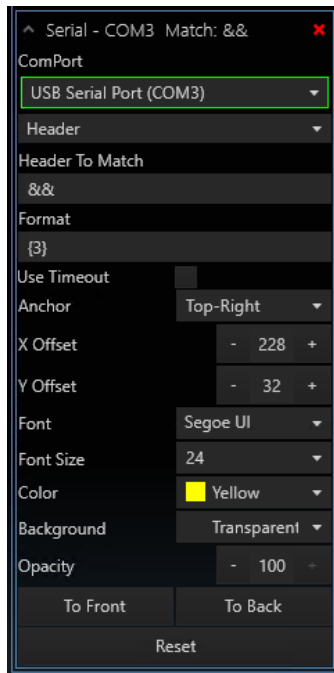
CHECKING COMMUNICATION

To check data are being received into the SubC DVRO PC, open the "Communications Preview" (**Fig. 8**) menu box at bottom right corner of display. You should see active Com ports with data received.

Figure 8.   Communication Preview.

2.5 DEFAULT OVERLAYS

Default overlays should be maintained from session to session without the need to recreate them each time. If the operator needs to change the overlays, please refer to the Overlay Help located in the upper righthand corner of the DVR/Overlay software.

Other overlay setups can be saved and loaded by clicking "Load" or "Save" in the Overlay menu box. Default overlay setup files are located in the documents folder named as:

<div align="center">

default video 1.xml

</div>

CORRUPTED OVERLAYS

Should the overlays become corrupted or accidentally changed, the operator can load from this location for each video input.

CHAPTER 3.0   IMAGE ENHANCEMENT

3.1 REAL TIME VIDEO ENHANCEMENT

New to DVRO version 6.3.1, real time video enhancement is available for all live video feeds. Unfortunately, enhanced video is not able to be fed out to the CCTV or recorded, it is strictly available on the DVRO PC only. According to SubC's DVRO user manual, it can help in low visibility situations.

1. In any of the live video feeds or in the Dive Log, click on either of the two icons in the lower left of the video box (**Fig. 9**, red box).

Figure 9.   Video Enhancement Options.
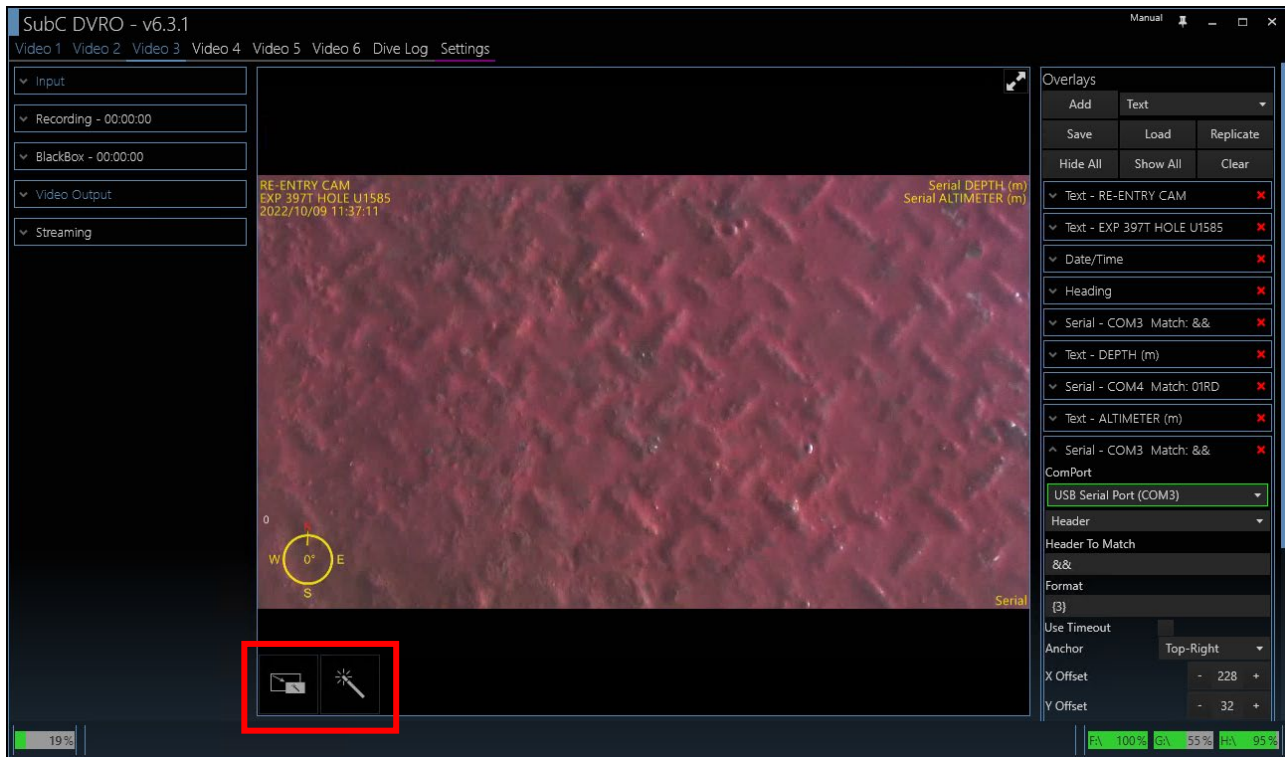
2. The left icon will enable picture-within-picture with the enhanced video being the smaller of the two (**Fig. 10**). Clicking it again will switch the two videos so the enhanced image is the larger of the two (**Fig. 11**). Clicking a third time will turn off enhancement and return to the normal video feed.

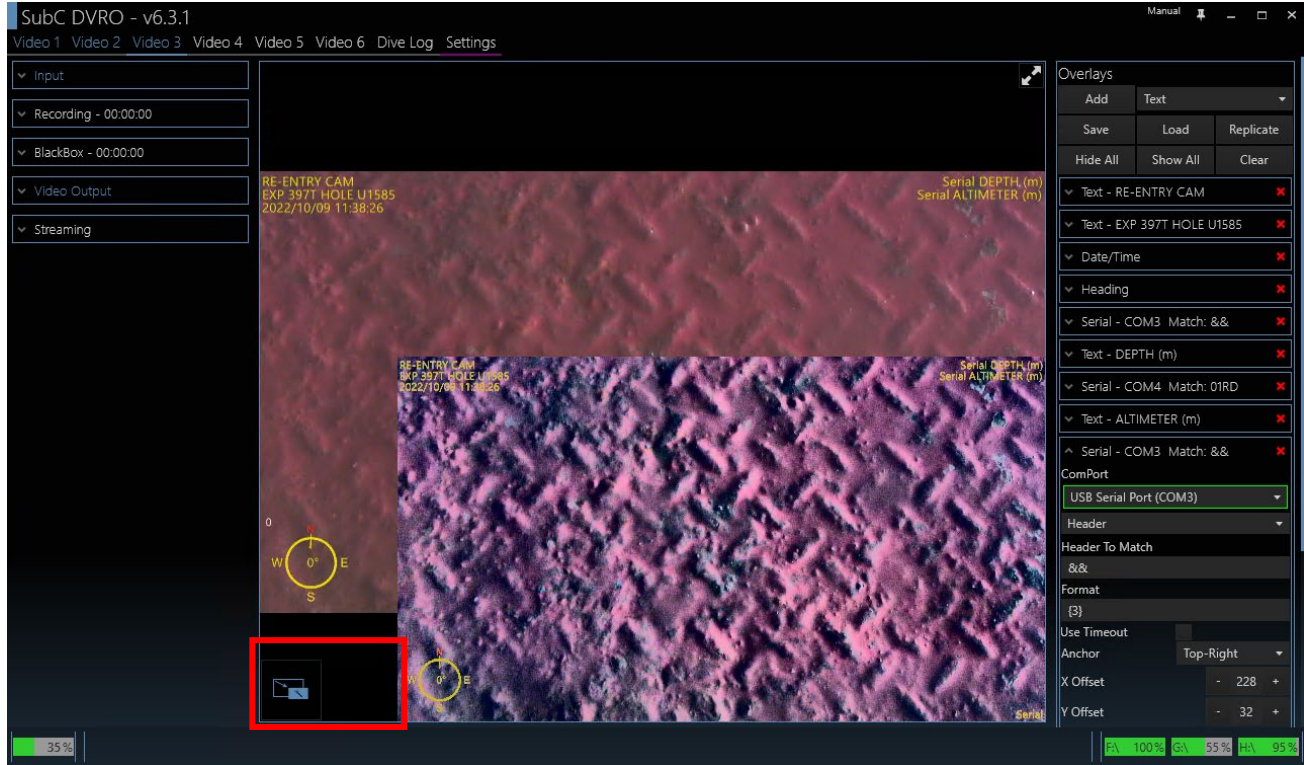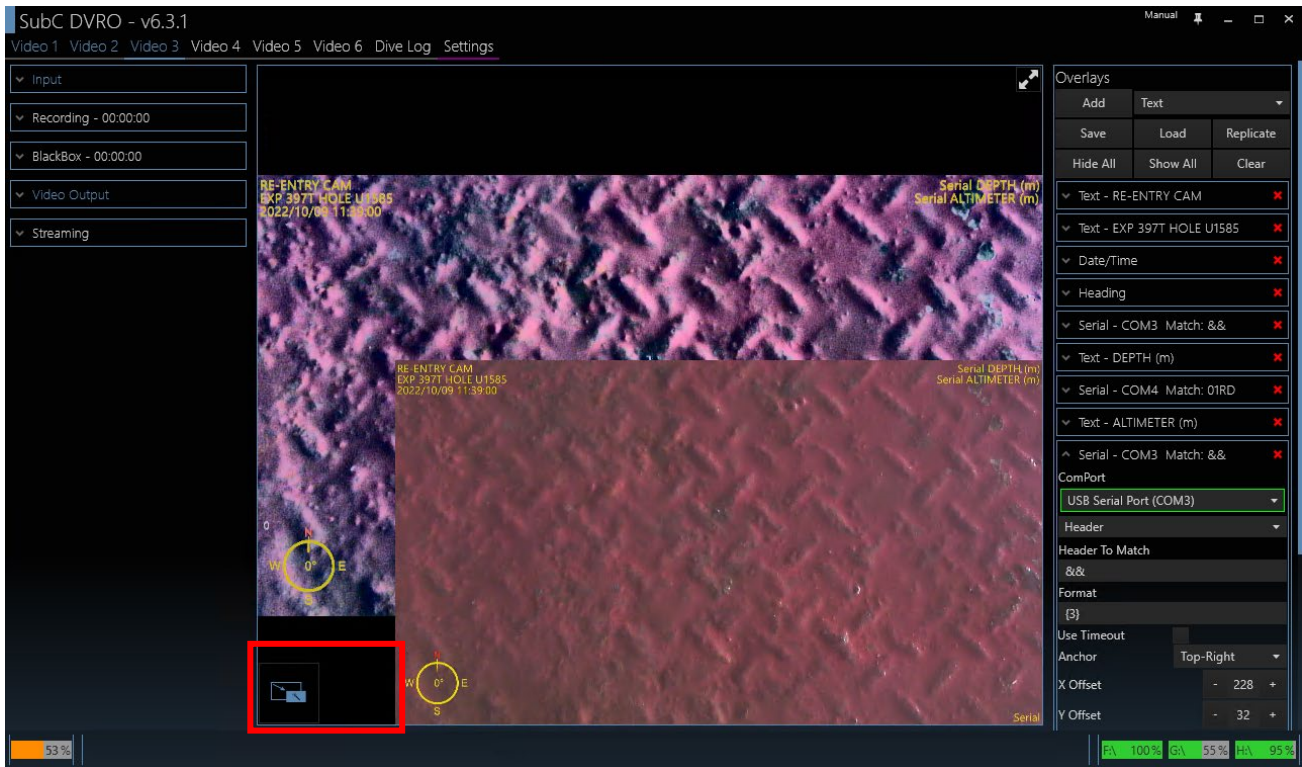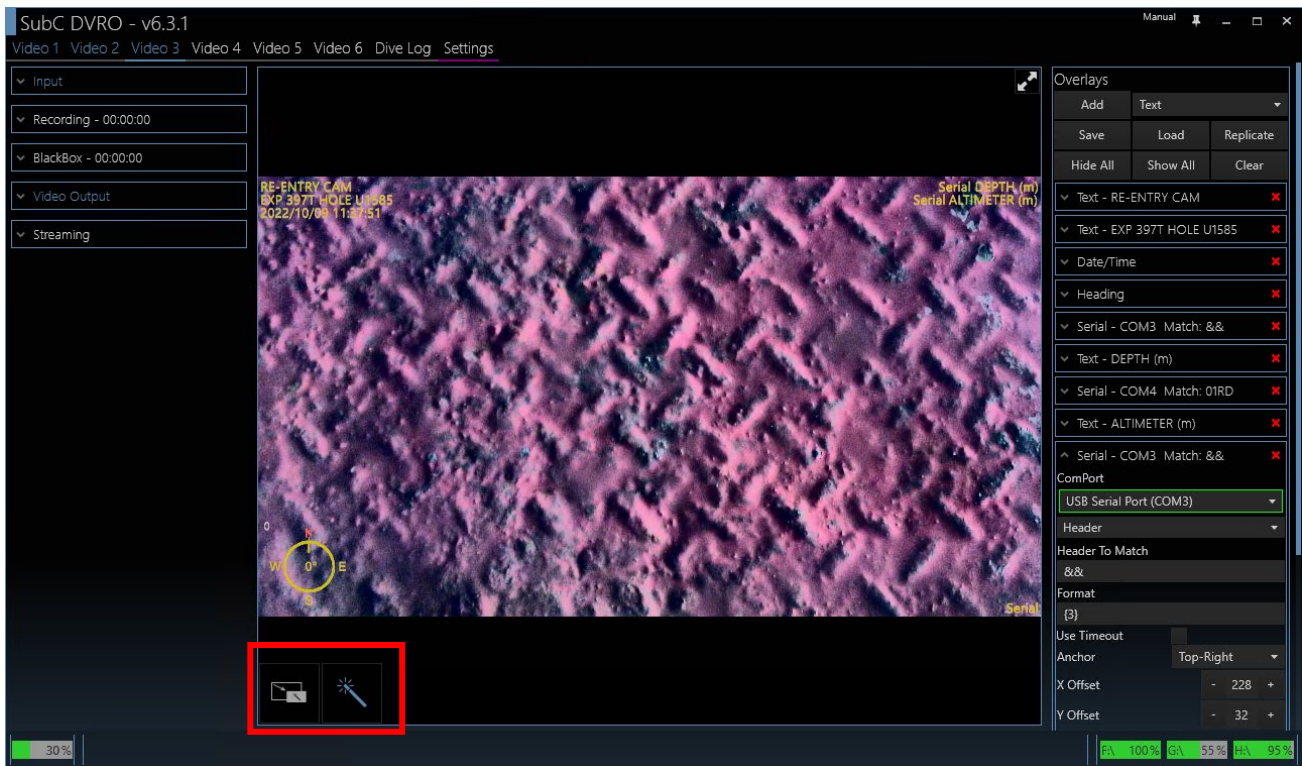**Figure 10. Video Enhancement Screen-in-Screen.**

Figure 11. Video Enhancement Screen-in-Screen.

3. The right icon will turn on enhancement and it will replace the normal video (**Fig. 12**).

Figure 12. Enhanced Video.

CHAPTER 4.0   RECORDING

4.1 SET RECORD FILE NAMES

Change the recording file name to the current site and hole for Video 3 (REENTRY) and Video 2 (SURVEY) inputs. The search camera (Video 1) is not recorded at this time.

4. Select the proper tab (Video 3 or 2) at the upper left corner of the SubC DVR window.

5. Open the Recording menu box by clicking **Recording** (**Fig. 13**).

Figure 13. Recording Menu.
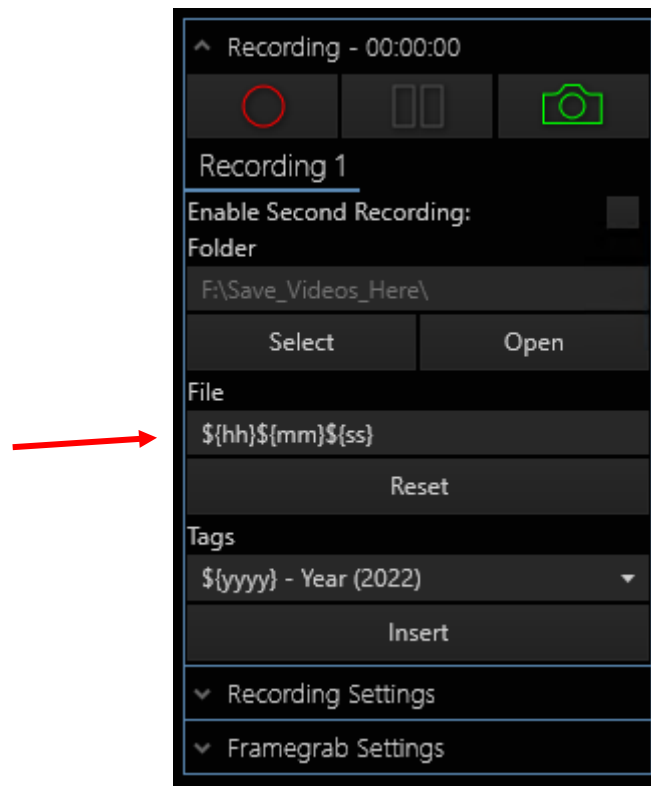
6. Click in the *File* box (**Fig. 13**, red arrow) to edit the file name.

7. Click inside the file name to edit. Use the following format:

    "CAMERA_EXP#_SITE#_HOLE#_RUN#_${year}${month}${day} _${hh}${mm}${ss}"

    Where CAMERA is either REENTRY (R) or SURVEY (S) camera.

    Where date and time are automatically entered with this format:

${year}${month}${day} _${hh}${mm}${ss}

**Example:** REENTRY_356_U1459_A_1_ ${year}${month}${day} _${hh}${mm}${ss} v.

Example: SURVEY_356_U1459_A_1_${year}${month}${day} _${hh}${mm}${ss}

8. Repeat for the other Video channel.

3.2 SET RECORDING FOLDER

1. While still in the **Recording** Menu, click in the *Folder* box (**Fig. 14**, red arrow).
2. Click **Select**, located below the display of the current save distination.
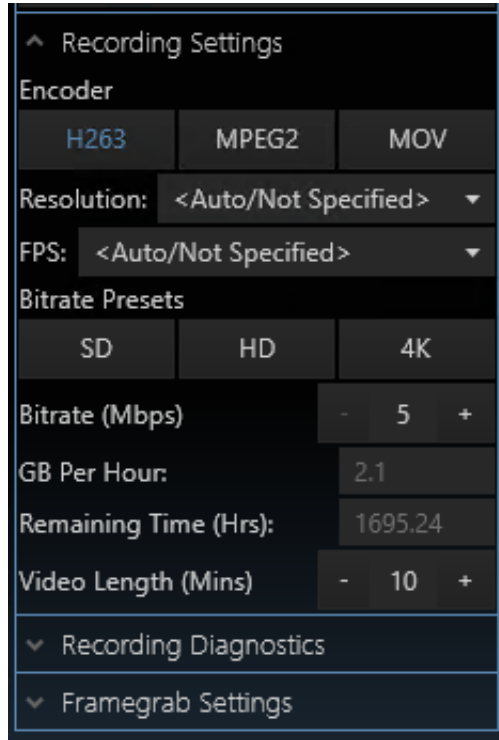3. Find or enter "F:\Save_Videos_Here\"

Figure 14. Recording Destination Folder.
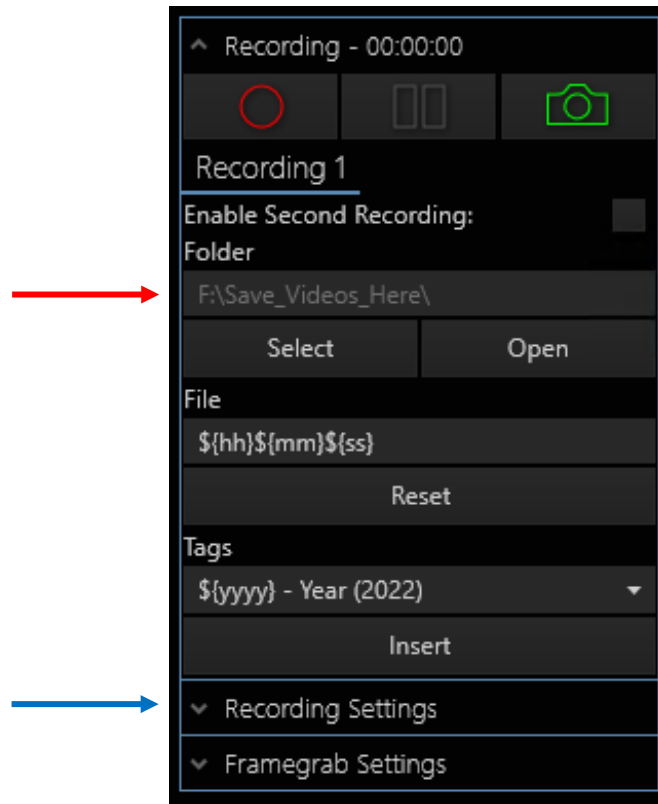
3.3 RECORDING SETTINGS

1. While still in the **Recording** Menu, click on the sub menu **Recording Settings** (**Fig. 14**, blue arrow).
2. Set *Encoder* to **H263**, *Bit rate shortcut* to **HD**, *Bitrate* to **5Mb**, *Video length* to **10 min**.

Figure 15. Recording Settings.

3.4 RECORDING ALL CHANNELS

1. Click *Dive Log* in the upper left corner of the main SubC window to show all current video feeds. In Version 6.3.1, the Dive Log replaces the All Video tab and with possible video feeds instead of the previous 4, the arrangement of the video feeds has been reorganized.

2. Recording controls are at the bottom of the screen.

3. Click the red circle to start or stop recording all channels (**Fig. 16**).
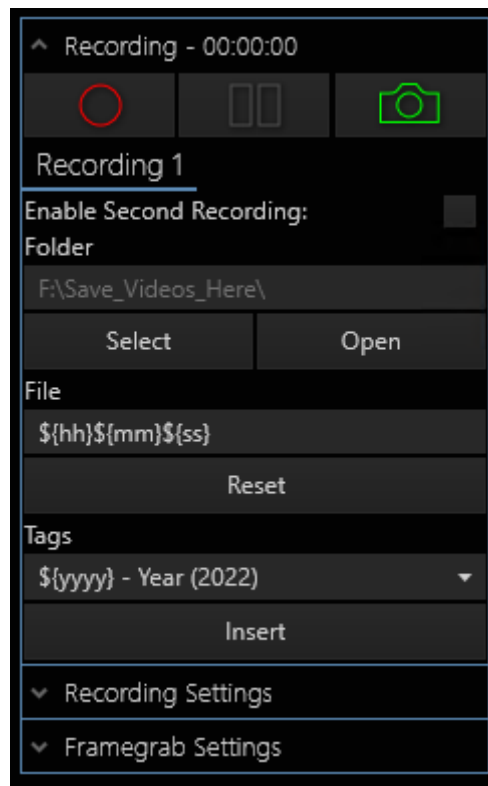
Figure 16. Recording All Channels.
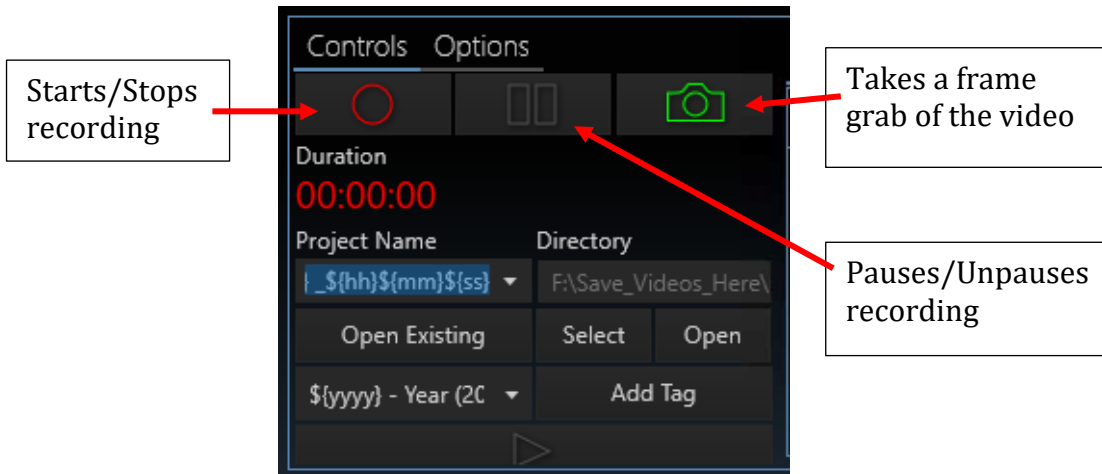
4. While recording the middle Pause icon will become available, it allows the video recording to be temporarily paused and unpaused without starting a new recording session.

5. The Camera Icon will take a screen grab of all live video feeds when clicked.

3.5 RECORDING INDIVIDUAL CHANNELS

1. Select the channel you wish to control at the top left of the SubC menu.

2. Open the *Recording* menu box (**Fig. 17**).

3. Click the round circle to start recording that channel only.

4. Click the round circle again to stop recording that channel only.

5. The green square can be used to screen capture that channel only.

Figure 17. Recording Individual Channels.

## 3.6 TRANSFERRING VIDEO FILES TO IODP STORAGE SERVER

1. When the VIT run is complete, stop all recordings (see *3.4 Recording All Channels* above).

2. Click the "VIT Video Transfer" icon on the task bar or desktop (**Fig. 18**).

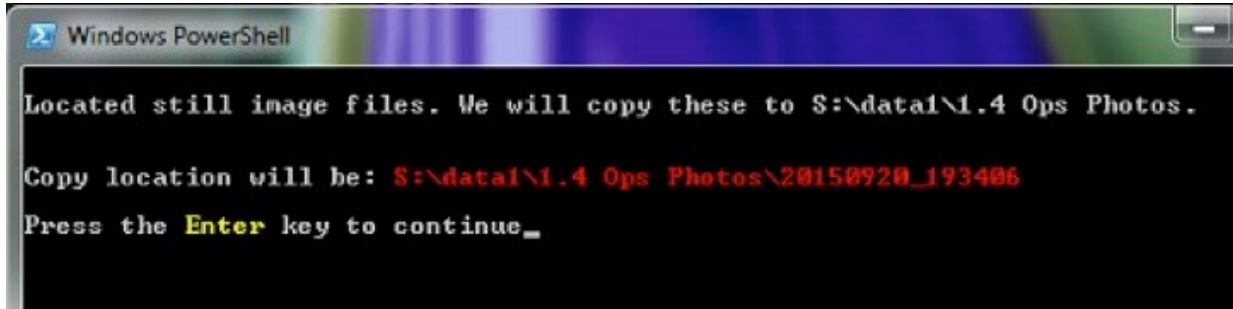**Figure 18. VIT Video Transfer Icon.**

3. When prompted to start the transfer (**Fig. 19**), click the **Y** key and hit **Enter** on the keyboard.
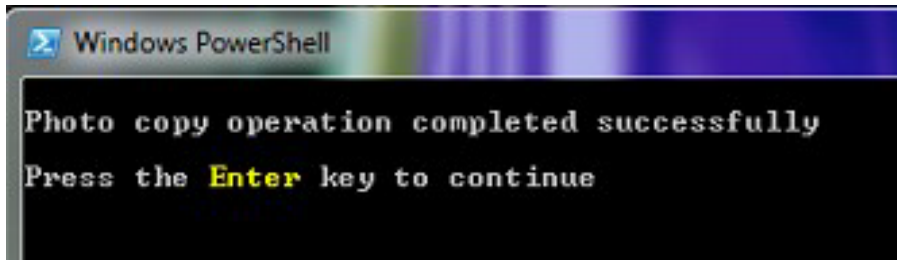
Figure 19. VIT Video File Transfer Directory.
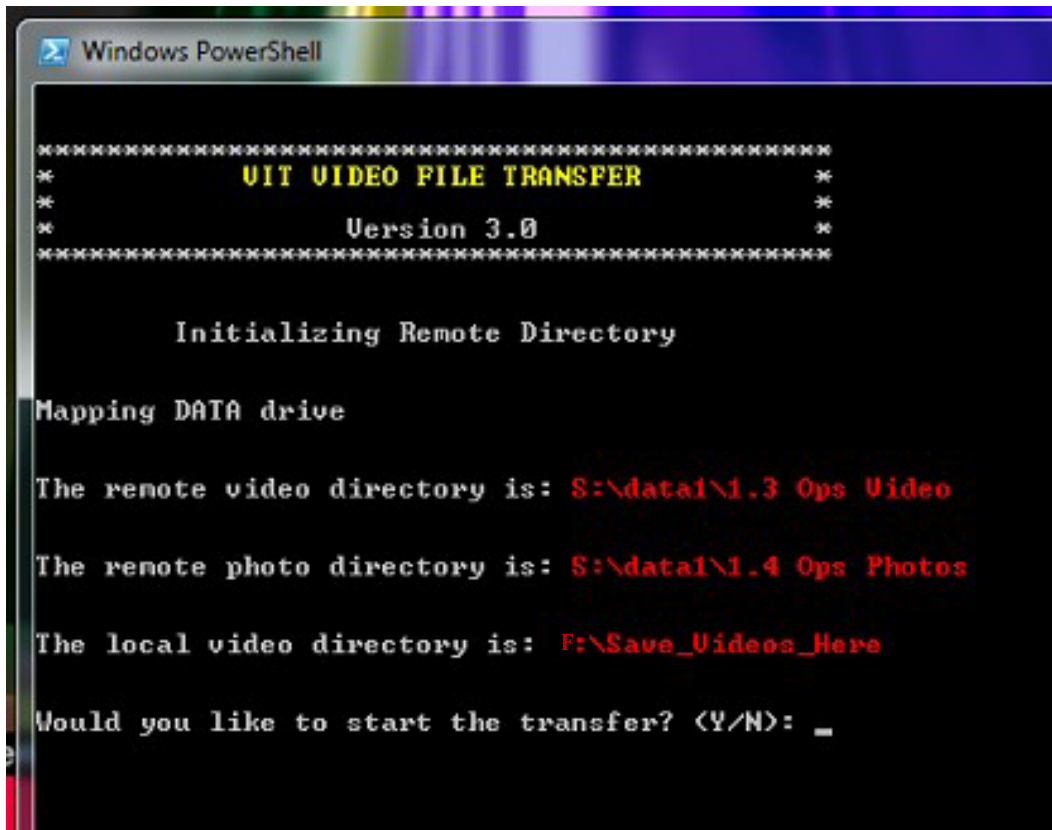
4. Verify the copy location, hit **Enter** (**Fig. 20**).

Figure 20. Verify Copy Location.

5. The script will indicate it is processing.
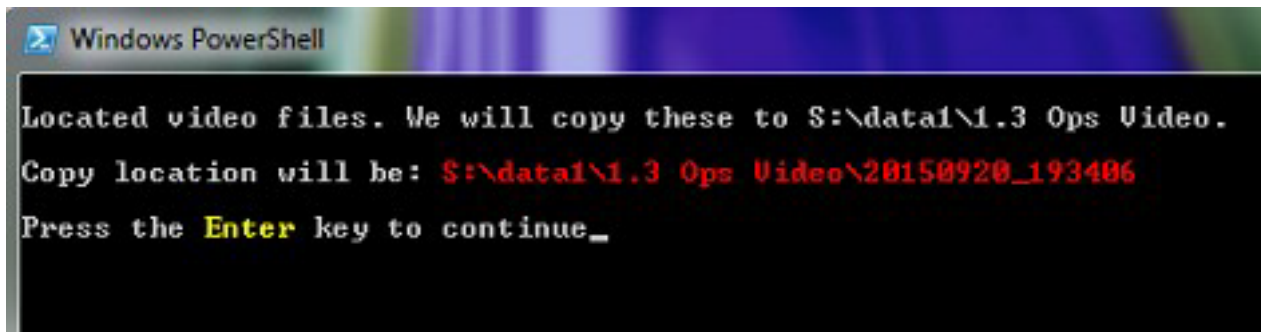6. When prompted to continue, hit the **Enter** key (**Fig. 21**).

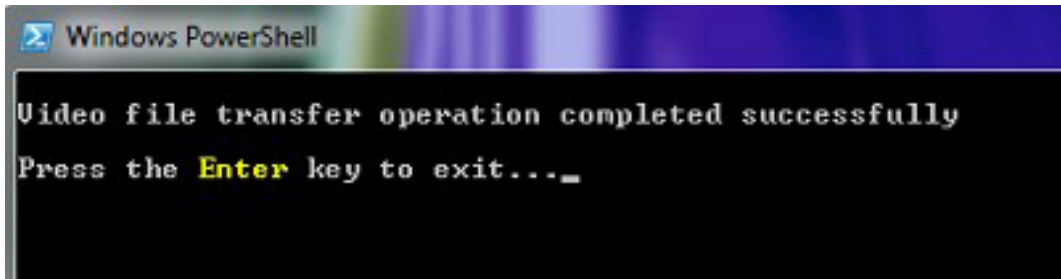**Figure 21. Processing Script.**

7. Verify the copy location, then click Enter (**Fig. 22**).

Figure 22. Verify Copy Location.

8. The script will indicate that it is processing.
9. When processing is complete, hit **Enter** to exit (**Fig. 23**).

**Figure 23. Video Transfer Operation Complete.**

The script connects to the IODP file servers and after receiving permission from the operator to proceed (Step 3 in Section 3.5), the script will check for the existence of still image captures in the F:\Save_Videos_Here\ directory and, if present, will transfer the captures to the 1.4 Ops Photos directory in Data1.

The script will then compare the transferred still image files to the originals and if successful, it will delete the files from the DVR. Then the script will transfer any video files in the F:\Save_Videos_Here\ directory to the Ops Video directory in Data1. It then compares the transferred video files to the originals and if successful, it will delete them from the DVR as well. If either comparison is not successful for any reason, it will immediately stop the operation and alert the operator to have the MCS/Ops personnel inspect the transfer for errors. In addition, it will not delete the original files from the DVR.

3.6 RECORDING TROUBLESHOOTING

1. No Video on Ship's CCTV system.
   a. Make sure "Video Output" is turned on (i.e., the power icon button is red and the output option box is greyed out; **Fig. 24**).

Figure 24. Close Button.
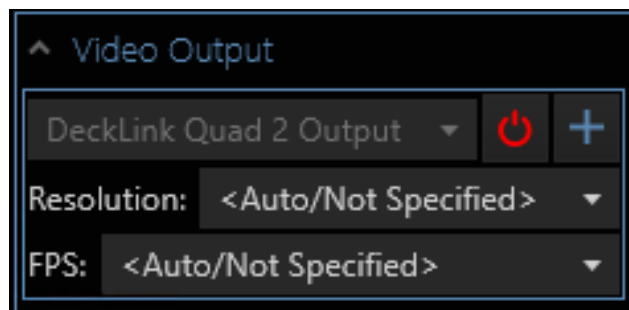
   b. Make certain the TV is on the correct channel and is setup properly.
   c. Check settings of Blackmagic SDI to Composite video converters using the "Black Magic Converter Utility" from the "ALL Programs" >> "Black Magic" folder in the start menu.
   d. Check the Video out settings.
   e. Check Video into Modulators in Radio Room.

2. No Video on the SubC DVR/Overlay PC Screen
   a. Verify the VIT is powered up.

    b. Make sure "Video Output" is turned on (i.e., the power icon button is red and the output option box is greyed out; **Fig. 24**).

    c. Verify Video input settings for the camera source.

CHAPTER 5.0   3 VIT VIDEO/DVR OVERLAY REVISION LOG

8.1 REVISION DATA

Revisions to the manual are recorded in this table. Please include the page, section or Chapter numbers in the revision Details.

Revision Date	Authority	Page	Revision Details
3/31/20	Ferrell	Various	Dean revised the document significantly. Updated figures.
7/15/20	Graber	36	Added Revision Log page. Had left that off.
9/25/22	Howard	Various	Removed VITOF section and updated for SubC DVR software version 6.3.1