

Odyssey7Q Odyssey7Q+



4K RAW 2K Half RAW 120 **QHD RAW** 2K 12-BIT DPX **HD 12-BIT DPX** 

2K 10-BIT DPX **HD 10-BIT DPX HD 422 DPX HD Apple ProRes 2K Apple ProRes** 







ProRes 422 (HQ) ProRes 422 ProRes 422 (LT)



## RECORDING CAPABILITIES



## **RECORD TIMES & FORMATS**

The following are approximate maximum record time in minutes, based on recording two 512G SSDs (1TB). Record times may vary slightly.

#### **RAW RECORDING**

Odyssey7Q and Odyssey7Q+ are capable of recording the RAW signal ouput from the C500 if the Canon C500 Cinema RAW Recording Option Upgrade license has been purchased through our website and the license key has been entered in the unit.

The C500 Recording Option Upgrade is required for recording 4K RAW, Half RAW and QHD.

		FRAMES PER SECOND						
		23.98	25	29.97	50	60	100	120
DPX	4K RAW	62	60	50	30**	25**		
d b	4K Half RAW				60	50	30**	35**
V and	QHD RAW	67	64	53	32**	26**		
RAW	2K 12-BIT DPX	70*	67*	56*				
	HD 12-BIT DPX	74*	71*	59*				
	2K 10-BIT DPX	78	75	67				
	HD 10-BIT DPX	83	80	72				
	HD 422 DPX				43	36*		

Note: The Odyssey does not currently support Scan and Reverse mode on the C500, or Slow and Fast, except for the maximum rates in RAW and HRAW (100/120)

<sup>\*</sup>HD 120 fps is not supported at this time.

	C500 Mode	Resolution	Bit- Depth	Frame Rates	Supported in Current Firmware	Two SSD's Required
	4K RAW	4096 x 2160	10-Bit	23.98p, 24p, 25p, 29.97p, 50p, 59.94p	Yes (RAW .RMF)	50p / 59.94p
W NAL)	4K (QHD) 3840 x 2160 10-bit 23.98p, 24p, 25p, 29.97p, 50p, 59.94p Yes (RAW .RMF)	Yes (RAW .RMF)	50p / 59.94p			
4K RAW (OPTIONAL)	4K Half RAW	4096 x 2160	10-Bit	23.98p, 24p, 25p, 29.97p, 50p, 59.94p, 100p, 120p	Yes (RAW .RMF)	100p / 120p
	4K RAW x 1080	4096 x 1080	10-Bit	62p up to 119.88p (by 2 frame steps)	No	

	2K RGB 4:4:4	2048 x 1080	10-Bit 12-Bit	23.98p, 24p, 25p, 29.97p, 50p, 59.94p	Yes (Uncompressed .DPX)	50p / 59.94p
2K/HD DPX	HD RGB 4:4:4	1920 x 1080	10-Bit 12-Bit	23.98p, 24p, 25p, 29.97p, 50p, 59.94p	Yes (Uncompressed .DPX)	50p / 59.94p
	HD YCC 4:2:2	1920 x 1080	10-Bit	62p up to 119.88p (by 2 frame steps)	No	

HD DPX files at 60p are "packed" on SSDs due to high data rate. Use free CD Data Unpacker utility software to unpack files after transfer.

<sup>\*\*4</sup>K Half Raw x 1080 is not supported at this time.



## **SUPPORT FOR CANON C500**



## APPLE PRORES RECORDING

Odyssey now supports recording Apple ProRes 422 (HQ), Apple ProRes 422 and Apple ProRes 422 (LT). Files are saved in .MOV format.

ProRes	HD Apple ProRes 422 (HQ)	775	744	620	159	132	
	HD Apple ProRes 422						
Apple	HD Apple ProRes 422 (LT)						
A	2K Apple ProRes 422 (HQ)	600	572	475			
	2K Apple ProRes 422						
	2K Apple ProRes 422 (LT)						

## APPLE PRORES FORMAT DETAILS

	C500 Mode	Resolution	Bit- Depth	Frame Rates	Supported in Current Firmware	Two SSD's Required
	HD MXF 4:2:2	1920 x 1080	10-Bit	23.98p, 24p, 25p, 29.97p, 50p, 60p	Yes (Apple ProRes .MOV)	No
2K/HD ProRes	HD YCbCr 4:2:2	1920 x 1080	10-Bit	50p, 59.94p, and 62p up to 119.88p	No	No
	2K RGB 4:4:4	2048x1080	10-Bit	23.98p, 24p, 25p, 29.97p	Yes (Only 4:2:2 Monitor Output must be used)	No

## TYPICAL DOWNLOAD TIME IN MINUTES

Media	USB3.0	Thunderbolt
256G SSD	20	10
512G SSD	40	20
1TB SSD	80	40

Actual transfer rates are dependent on computer system and capture media.

USB 3.0 or Thunderbolt connections are recommended by Convergent Design for efficient data rates

# IG(2)

## C500 CONFIGURATION

#### 1. SET TIME & DATE

MENU » Other Functions » Set Clock » Date/Time



Set Time & Date so both the C500 and Odyssey match. This is REQUIRED for using internal media as proxy.

## 2. NAME THE CLIP

MENU » 4K/2K/MXF » Clip Name » Title Prefix (or NUMBER SETTING)



Name the clip so that C500 and Odyssey match.

## 3. ENABLE 3G-SDI OUTPUT & REC COMMAND

MENU » 4K/2K/MXF » 3G-SDI Output » ON (BACK) » REC Command » ON



# 4K RAW/PRORES (4096/3840x2160) RECORDING



## 4. SET 4K RAW MODE

MENU » 4K/2K/MXF Setup » 4K (4096/3840) » Mode » RAW



## 5. SET SYSTEM FREQUENCY (HZ)

MENU » 4K/2K/MXF Setup » System Frequency » (Selection)



59.94p selected you will have the options 59.94,29.97,23.98

50p selected you will have the options 50p and 25p

24p this is the only option under frame rate

## 6. SET RESOLUTION

MENU » 4K/2K/MXF Setup » 4K (4096/3840) » Resolution » (4096x2160 or 3840x1080)



# 4K RAW/PRORES (4096/3840x2160) RECORDING



## 7. SET FRAME RATE

MENU » 4K/2K/MXF Setup » 4K (4096/3840) » Frame Rate » (Selection)



You will have the options 59.94p,29.97p,23.98p

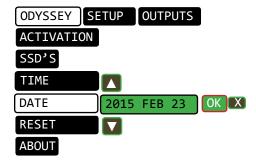
## **ODYSSEY CONFIGURATION**

## 1. SET ODYSSEY TO C500 RAW MODE

★ » SETUP » CAMERA » CANON » C500 RAW->RAW(.RMF)

## 2. SET DATE & TIME TO MATCH C500

☆ » ODYSSEY » SET » DATE

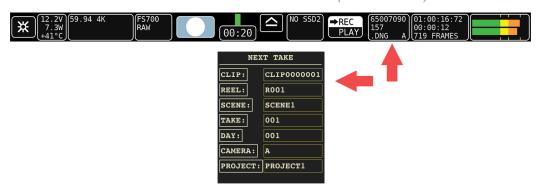


# 4K RAW/PRORES (4096/3840x2160) RECORDING



## 3. SET CLIP NAME AND METADATA

TAP ON CLIP NAME IN TOOLBAR » TAP ON FIELD » (ENTER DATA)



## 4. MAKE C500 THE RECORD TRIGGER

★ » SETUP » RECORD TRIGGER » CAMERA

## 5. SET TIMECODE SOURCE

⇒ » SETUP » TIMECODE SOURCE » SDI/HDMI

## 6. FORMAT SSDs

## ☼ » ODYSSEY » SSD'S » FORMAT BOTH

(or FORMAT SSD1 if you do not have a second SSD drive installed.)

### 7. CONNECT TO CAMERA AND VERIFY STATUS INPUT

Connect C500 3G-SDI output to Odyssey SDIA input

#### NOTE

Use only 3G-SDI rated cables from C500 to Odyssey. Using a 1.5G SDI cable in not recommended and may cause issues.

The status on your Odyssey will display your camera's output.

Example:





## C500 CONFIGURATION

#### 1. SET TIME & DATE

MENU » Other Functions » Set Clock » Date/Time



Set Time & Date so both the C500 and Odyssey match. This is REQUIRED for using internal media as proxy.

## 2. NAME THE CLIP

MENU » 4K/2K/MXF » Clip Name » Title Prefix (or NUMBER SETTING)



Name the clip so that C500 and Odyssey match.

## 3. ENABLE 3G-SDI OUTPUT & REC COMMAND

MENU » 4K/2K/MXF » 3G-SDI Output » ON (BACK) » REC Command » ON





## 4. SET 4K RAW MODE

MENU » 4K/2K/MXF Setup » 4K (4096/3840) » Mode » HRAW \*4K1K RAW not supported at this time.



## 5. SET SYSTEM FREQUENCY (HZ)

MENU » 4K/2K/MXF Setup » System Frequency » (Selection)



59.94p selected you will have the options 59.94,29.97,23.98 50p selected you will have the options 50p and 25p 24p this is the only option under frame rate

## 6. SET RESOLUTION

MENU » 4K/2K/MXF Setup » 4K (4096/3840) » Resolution » (4096x2160)





# 4K HALF RAW (4096x2160 ONLY)



## 7. SET UP SLOW AND FAST

MENU » 4K/2K/MXF Setup» Special Rec » Slow and Fast Motion



## 8. SET SLOW & FAST FRAME RATE

MENU » 4K/2K/MXF Setup» S&F Frame Rate » [102]

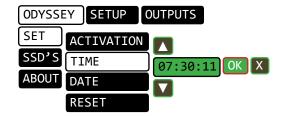


## 4K HALF RAW (4096x2160 ONLY)

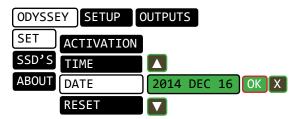


## **ODYSSEY CONFIGURATION**

- 1. SET ODYSSEY TO C500 RAW MODE
  - ★ » SETUP » CAMERA » CANON » C500 RAW->RAW(.RMF)
- 2. SET DATE & TIME TO MATCH C500
  - ☼ » ODYSSEY » SET » TIME



☼ » ODYSSEY » SET » DATE



3. SET CLIP NAME AND METADATA

TAP ON CLIP NAME IN TOOLBAR » TAP ON FIELD » (ENTER DATA)



## 4K HALF RAW (4096x2160 ONLY)



### NOTES ON CLIP NAME

When recording RAW and using Camera Trigger the clip name comes from the C500

When recording Canon HRAW 100/120 the clip name will be from the Odyssey as the C500 does not record HRAW internally.

## 4. MAKE C500 THE RECORD TRIGGER

☆ » SETUP » RECORD TRIGGER » CAMERA

## 5. SET TIMECODE SOURCE

☼ » SETUP » TIMECODE SOURCE » SDI/HDMI

## 6. FORMAT SSDs

☼ » ODYSSEY » SSD'S » FORMAT BOTH

(or FORMAT SSD1 if you do not have a second SSD drive installed.)

## 7. CONNECT TO CAMERA AND VERIFY STATUS INPUT

Connect C500 3G-SDI 1 output to Odyssey SDI A input

Note: When recording HRAW 100/120 connect 3G-SDI 2 output on the C500 to SDI B input on the Odyssey.

#### NOTE

Use only 3G-SDI rated cables from C500 to Odyssey. Using a 1.5G SDI cable in not recommended and may cause issues.

The status on your Odyssey will display your camera's output.

Example:

4K 29.97 C500 RAW

## 2K/HD 10-BIT/12-BIT (DPX)/2K Apple ProRes



## C500 CONFIGURATION

#### 1. SET TIME & DATE

MENU » Other Functions » Set Clock » Date/Time



Set Time & Date so both the C500 and Odyssey match. This is REQUIRED for using internal media as proxy.

## 2. NAME THE CLIP

MENU » 4K/2K/MXF » Clip Name » Title Prefix (or NUMBER SETTING)



Name the clip so that C500 and Odyssey match.

## 3. ENABLE 3G-SDI OUTPUT & REC COMMAND

MENU » 4K/2K/MXF » 3G-SDI Output » ON (BACK) » REC Command » ON



## 2K/HD 10-BIT/12-BIT (DPX)/2K Apple ProRes



## 4. SET SYSTEM PRIORITY

MENU » 4K/2K/MXF Setup » System Priority » 2K



## 5. SET SYSTEM FREQUENCY (HZ)

MENU » 4K/2K/MXF Setup » System Frequency » (Selection)



59.94p selected you will have the options 59.94,29.97,23.98 50p selected you will have the options 50p and 25p 24p this is the only option under frame rate

## 6. SET MODE AND RESOLUTION

MENU » 4K/2K/MXF Setup » 2K (2048/1920) » Mode » YCC42210·bit (BACK) » Resolution » 2048x1080 (2K)\*
-OR
» Resolution » 1920x1080 (HD)





\*In camera version 1.0.5.1.100 2048x1080 VCC is not supported.

# 2K/HD 10-BIT/12-BIT (DPX)/2K Apple ProRes



## 7. SET FRAME RATE

MENU » 4K/2K/MXF Setup» 2K (2048/1920) » Frame Rate » (Selection)



You will have the options 59.94p,29.97p,23.98p

## 8. 2K APPLE PRORES SETUP (SKIP THIS STEP FOR DPX RECORDING)

NOTE: Only 2K 4:2:2 23.98, 24, 25 and 29.97 are supported at this time.

Connect Odyssey to Monitor Output on the C500



Confirm that Zebra's, OSD and LUTs are not applied to monitor output.

## 9. SET MONITOR OUTPUT TO 2K

MENU » 4K/2K/MXF Setup» Monitor 1&2 » Resolution » 2048x1080





## **ODYSSEY CONFIGURATION**

#### SET ODYSSEY TO UNCOMPRESSED DPX MODE

\* » SETUP » CAMERA » CANON » (HD/2K->4:4:4 (.DPX) or HD/2K ProRes)

#### 2. MAKE C500 THE RECORD TRIGGER

☼ » SETUP » RECORD TRIGGER » CAMERA

## 3. SET TIMECODE SOURCE

☼ » SETUP » TIMECODE SOURCE » SDI/HDMI

## 4. SET PRORES BITRATE

### ☼ » SETUP » VIDEO CODEC » (SELECT)

PRORES HQ	The Apple ProRes 422 (HQ) codec offers the utmost possible quality for 4:2:2 or 4:2:0 sources (without an alpha channel) and provides the following:  Target data rate of approximately 220 Mbps (1920 x 1080 at 60i)  Higher quality than Apple ProRes 422
PRORES 422	The Apple ProRes 422 codec provides the following:  Target data rate of approximately 145 Mbps (1920 x 1080 at 60i)  Higher quality than Apple ProRes 422 (LT)
PRORES LT	The Apple ProRes 422 (LT) codec provides the following:  Roughly 70 percent of the data rate of Apple ProRes 422 (smaller file sizes than ProRes 422)  Higher quality than Apple ProRes 422 (Proxy)

#### 5. FORMAT SSDs

#### 

(or FORMAT SSD1 if you do not have a second SSD drive installed.)

#### 6. CONNECT TO CAMERA AND VERIFY STATUS INPUT

YCC 10-Bit: Connect C500 3G-SDI 1 output to Odyssey SDIA input RGB 4:4:4: Connect C500 3G-SDI 1&2 output to Odyssey SDIA & SDIB input 2K ProRes: Connect C500 Monitor output 1 or 2 to Odyssey SDIA input

## NOTE

Use only 3G-SDI rated cables from C500 to Odyssey. Using a 1.5G SDI cable in not recommended and may cause issues.

The status on your Odyssey will display your camera's output.

Example:

2K 29.97 C500 RGB 4:4:4 DPX



## C500 CONFIGURATION

#### 1. SET TIME & DATE

MENU » Other Functions » Set Clock » Date/Time



Set Time & Date so both the C500 and Odyssey match. This is REQUIRED for using internal media as proxy.

## 2. NAME THE CLIP

MENU » 4K/2K/MXF » Clip Name » Title Prefix (or NUMBER SETTING)



Name the clip so that C500 and Odyssey match.

## 3. ENABLE 3G-SDI OUTPUT & REC COMMAND

MENU » 4K/2K/MXF » 3G-SDI Output » ON (BACK) » REC Command » ON



\*NOTE: Depending on the frame rate you wish to record it may be best to use the HD-SDI output on the C500.



## 4. SET SYSTEM PRIORITY

MENU » 4K/2K/MXF Setup » System Priority » 2K



## 5. SET SYSTEM FREQUENCY (HZ)

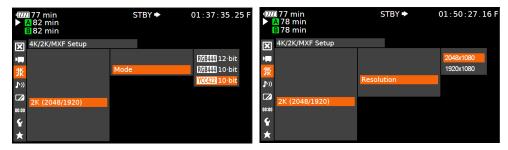
MENU » 4K/2K/MXF Setup » System Frequency » (Selection)



59.94p selected you will have the options 59.94,29.97,23.98 50p selected you will have the options 50p and 25p 24p this is the only option under frame rate

## 6. SET MODE AND RESOLUTION

MENU » 4K/2K/MXF Setup » 2K (2048/1920) » Mode » YCC42210·bit (BACK) » Resolution » 2048x1080 (2K) -OR
» Resolution » 1920x1080 (HD)



Note: In camera version 1.0.5.1.100 2048x1080 YCC is not supported.



## 7. SET FRAME RATE

MENU » 4K/2K/MXF Setup» 2K (2048/1920) » Frame Rate » (Selection)



You will have the options 59.94p,29.97p,23.98p

NOTE: For 2K ProRes follow DPX setup and connect Monitor Output 1 or 2 to SDIA or SDIB input on Odyssey.



## **ODYSSEY CONFIGURATION**

#### 1. SET ODYSSEY TO APPLE PRORES 422 MODE

☼ » SETUP » CAMERA » CANON » HD/2K 4:4:4-> HD/2K PRORES (.MOV)

## 2. MAKE C500 THE RECORD TRIGGER

☼ » SETUP » RECORD TRIGGER » CAMERA

## 3. SET TIMECODE SOURCE

☼ » SETUP » TIMECODE SOURCE » SDI/HDMI

## 4. SET PRORES BITRATE

## ☼ » SETUP » VIDEO CODEC » (SELECT)

PRORES HQ	The Apple ProRes 422 (HQ) codec offers the utmost possible quality for 4:2:2 or 4:2:0 sources (without an alpha channel) and provides the following:  Target data rate of approximately 220 Mbps (1920 x 1080 at 60i)  Higher quality than Apple ProRes 422
PRORES 422	The Apple ProRes 422 codec provides the following:  Target data rate of approximately 145 Mbps (1920 x 1080 at 60i)  Higher quality than Apple ProRes 422 (LT)
PRORES LT	The Apple ProRes 422 (LT) codec provides the following:  Roughly 70 percent of the data rate of Apple ProRes 422 (smaller file sizes than ProRes 422)  Higher quality than Apple ProRes 422 (Proxy)

#### 5. FORMAT SSDs

#### ☼ » ODYSSEY » SSD'S » FORMAT BOTH

(or FORMAT SSD1 if you do not have a second SSD drive installed.)

## 6. CONNECT TO CAMERA AND VERIFY STATUS INPUT

YCC 50/60 1080p: Connect C500 3G-SDI 1 output to Odyssey SDIA input 2K ProRes: Connect C500 Monitor output to Odyssey SDIA input 1920x1080 23.98-29.97: Connect C500 HD-SDI (4:2:2) output to Odyssey SDIA input

## SDI CABLES

Use only 3G-SDI rated cables from the camera to the Odyssey. Using a 1.5G SDI cable in not recommended and may cause issues.

The status on your Odyssey will display your camera's output.

Example:





## **COPYING FILES TO YOUR COMPUTER**

#### CONNECT SSD DRIVE TO ADAPTER

Connect the Convergent Design 2.5" Premium SSD Media to any off-the-shelf 2.5" SATA adaptor (example: Seagate GoFlex Thunderbolt Adaptor or USB 3.0 Adaptor)

#### 2. CONNECT ADAPTER TO COMPUTER

The SSD will mount within 10-20 Seconds. (You will see this mount on the desktop or within finder on MAC, or within My Computer on Windows machines).

## 3. COPY FILES FOR PLAYBACK/EDITING

All Clips or Takes are located within the "Clips" directory, navigate to this and copy all of your files to a local or external drive or RAID for playback and/or editing.

## **SOFTWARE UTILITIES (FREE DOWNLOAD FROM WEBSITE)**

#### **CD CLIP MERGER** (RAW/DPX)

Use the Clip Merger for any Raided Record (ie if your recorded clip required more than one SSD). See the At A Glance Chart, "No. of SSD's Req" column, on page 2.

### CD APPLE PRORESS TRANSFER TOOL V1.5 (FREE DOWNLOAD FROM WEBSITE)

Use to combine clips into a single file

Use to copy all files to a single directory without folder structure.

Required in order to transfer markers to your NLE.

#### **CD DATA UNPACKER (DPX)**

Use CD Data Unpacker to convert "packed" files to "unpacked" data.

ALL UTILITIES CAN BE DOWNLOADED FROM THE FIRMWARE/DOWNLOADS AREA OF OUR WEBSITE: Convergent-Design.com/support/firmware-downloads.html

## ATTENTION MAC OSX USERS

Before installing Convergent Design Software on Mac OSX You must first change the following settings.

- Navigate to Applications » Utilities » System Preferences
- 2. Select Security and privacy
- 3. Under General » Allow applications downloaded from: Select Anywhere.

You will now be able to run the installer for installing any Convergent Design Applications.

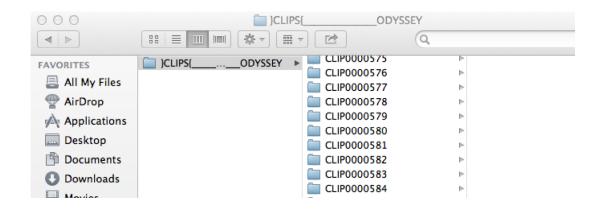
## **POST PRODUTION**



## WORKING WITH RECORDED FILES

There are numerous post systems and NLEs that can read natively the various file formats recorded by the Odyssey. Some NLEs may require plug-ins in order to read certain file formats. Blackmagic Design Resolve software is available for free and can read all formats recorded by the Odyssey.

#### **FILE STRUCTURE**



## **UNCOMPRESSED SUPPORT (DPX SEQUENCE)**

All Uncompressed recording on the Odyssey is recorded as 10 bit RGB 4:4:4 DPX, this is for all sources regardless if the source is 8 bit, 10 bit, 4:2:2, 4:4:4. With 12 bit camera's the files are recorded as a 16 bit DPX, for more universal compatibility. Also note that with DPX files timecode, and Clip Metadata is stored in every frame, as well as in the XML file within each clip. All audio is recorded 48Hz 16 bit Uncompressed WAV audio.

Also Note 1080p59.94/60p, 1080p119/120 and 12 bit files are recorded as Packed, so our CD unpacker utility will need to be used before the files can be used in any editor.

## NATIVE 10-BIT / 16-BIT DPX SUPPORT

Adobe CS6 / Adobe CSCC/2014 Apple Color AutoDesk Smoke Assimilate Scratch Lab Avid DS Black Magic DaVinci Resolve Cineform Studio ColorFront OnSet Dailies DJViewer Eyeon Fusion Grass Valley Eduis (Does not support 16-Bit) The Foundry Nuke Xnview(Does not support 16-Bit)

#### PLUGINS FOR DPX SUPPORT

Glue Tools Apple FCP Pro Apple FCP Pro X Meta Fuse Avid Media Composer

## POST PRODUCTION



## 2K / 1080P 12 BIT RECORDINGS IN DAVINCI RESOLVE 11\*

Generating a LUT and applying it as an input lut should help fix the issue. Here is how it can be done:

- 1. Add a single DPX sequence to a new project and create a timeline
- 2. In the color page, go to the RGB Mixer and swap the red and blue channels
- 3. Right click on the VSR of the Clip and generate a LUT. Save the LUT in the default location or in a sub folder then open the project with the DPX files that exhibit the issue. Apply the saved LUT as an input LUT.

## **Apple ProRes**

The Odyssey can record in Apple ProRes 422 (HQ), Apple ProRes 422 and Apple ProRes 422 (LT) compressed codecs. This allows for high quality recording while avoiding high data rates of working with uncompressed video.

#### NATIVE APPLE PRORES SUPPORT

Adobe CC 2014\* Apple FCP X, Aperture Cineform Studio Final Cut Pro 7 Black Magic DaVinci Resolve The Foundry Nuke Autodesk Smoke Sony Vegas

## FCP X IMPORT SETTINGS (Apple ProRes Only)

Once you have created a new project be sure to check the following Settings:

- 1. Under Final Cut Pro select Preferences
- 2. Select navigate to File and select Import Media
- 3. Navigate to the Clips directory, and select the Clip Folder contain your Apple ProRes (.MOV) files.

<sup>\*</sup> If using Resolve 10 or older, or other NLE's such as Adobe, Scratch Lab, or Autodesk Smoke, then you can simply import the DPX files after running through the data unpacker.

<sup>\*</sup> Note if you are recording the the internal media you can import the matching Slog2 file, and select Match Color for a close approximation of Slog2, but will most likely need additional tweaking.



## **POST PRODUCTION**



## **CANON C500 4K RAW SUPPORT**

All Canon C500 4K recording on the Odyssey is recorded as 10 bit Cinema RAW file.

Also note that with RMF files timecode, and Clip Metadata is stored in every frame, as well as in the XML file within each clip. All audio is recorded 48Hz 32 bit Uncompressed WAV audio.

It is important to correctly set the white balance of the camera, as this is baked into the RAW file.

#### NATIVE CINEMA RAW SUPPORT

Assimilate Scratch Lab Adobe CC 2014 Black Magic DaVinci Resolve

Canon Cinema RAW Development

NOTE: Canon Half Raw files are not supported in Resolve 10-11 or Adobe CC2014.

