

ODYSSEY 7Q™



4K RAW
QHD RAW
2K 12-BIT DPX
HD 12-BIT DPX

2K 10-BIT DPX
HD 10-BIT DPX
HD 422 DPX
Apple ProRes 422 (HQ)

convergent
design

Updated October 29, 2014 | Firmware Release v3.10.100

ProRes

4K



RECORDING TIMES

Maximum record time in minutes, recording to two 512G SSDs (1TB)

RECORD TIME

		FRAMES PER SECOND						
		23.98	25	29.97	50	60	100	120
REC MODE	4K RAW	62	60	50	30**	25**		
	4K Half RAW				60	50	30**	35**
	QHD RAW	67	64	53	32**	26**		
	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*		
	HD Apple ProRes	775	744	620	159	132		

Note: The Odyssey7Q 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)

***4K Half Raw x 1080 is not supported at this time.*

**HD 120 fps is not supported at this time.*

FORMAT DETAILS

4K RAW	4096x2160, 10-bit linear data, recorded as Uncompressed .RMF
4K Half RAW	4096x2160, 10-bit linear data, where every other line is sampled by the camera sensor, for faster frame rate support, recorded as Uncompressed .RMF
QHD	3840x2160, 10-bit linear data, recorded as Uncompressed .RMF
2K 12-BIT DPX*	2048x1080, 12-bit log 4:4:4 RGB video, recorded as Uncompressed .DPX
HD 12-BIT DPX*	1920x1080, 12-bit log 4:4:4 RGB video, recorded as Uncompressed .DPX
2K 10-BIT DPX*	2048x1080, 10-bit log 4:4:4 RGB video, recorded as Uncompressed .DPX
HD 10-BIT DPX*	1920x1080, 10-bit log 4:4:4 RGB video, recorded as Uncompressed .DPX
HD 422 DPX	1920x1080, 10-bit log 4:2:2 video, recorded as Uncompressed .DPX
HD Apple ProRes	1920x1080, 10-bit log video, recorded as Apple ProRes 422 (HQ) compressed HD video

** 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.*

TYPICAL DOWNLOAD TIME IN MINUTES

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

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.



FORMAT DETAILS

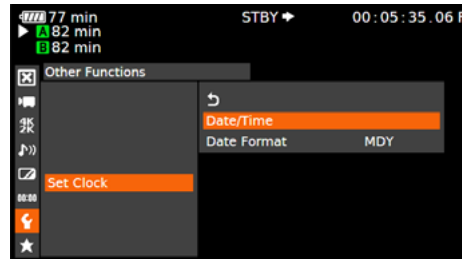
	Canon C500 Mode	Resolution	Bit-Depth	Frame Rates	Supported in Current Firmware	Two SSD's Required
4K RAW (OPTIONAL)	4K RAW	4096 x 2160	10-Bit	23.98p, 24p, 25p, 29.97p, 50p, 59.94p	Yes (RAW .RMF)	50p / 59.94p
	4K (QHD) RAW	3840 x 2160	10-bit	23.98p, 24p, 25p, 29.97p, 50p, 59.94p	Yes (RAW .RMF)	50p / 59.94p
	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/HD DPX	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
	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 .MOV	HD MXF 4:2:2	1920 x 1080	10-Bit	23.98p, 24p, 25p, 29.97p, 50p, 60p	Yes (Apple ProRes .MOV)	No
	HD YCbCr 4:2:2	1920 x 1080	10-Bit	50p, 59.94p, and 62p up to 119.88p	No	No



C500 CONFIGURATION

1. SET TIME & DATE

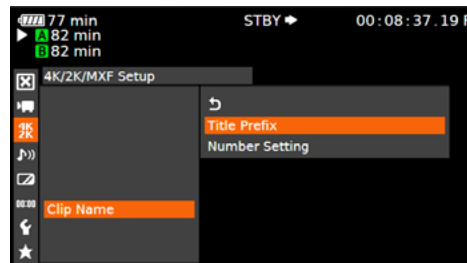
MENU » Other Functions » Set Clock » Date/Time



*Set Time & Date so both the C500 and Odyssey7Q 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 Odyssey7Q match.

3. ENABLE 3G-SDI OUTPUT & REC COMMAND

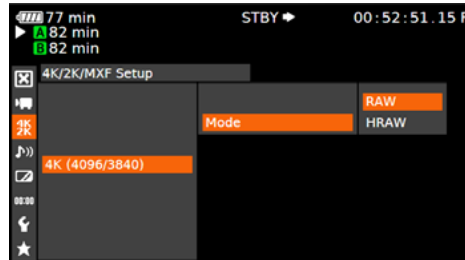
MENU » 4K/2K/MXF » 3G-SDI Output » ON
(BACK) » REC Command » ON





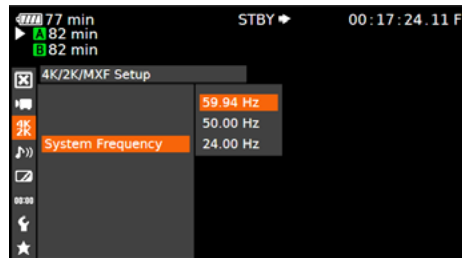
4. SET 4K RAW MODE

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



5. SET SYSTEM FREQUENCY (HZ)

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



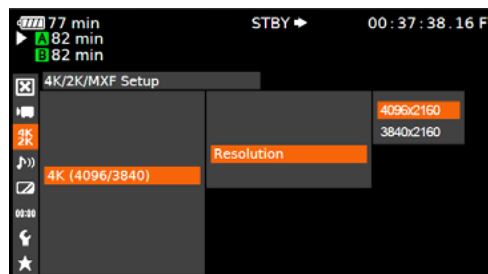
59.94p selected you will have the options 59.94,29.97,23.98

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

24p this is the only option under frame rate

6. SET RESOLUTION

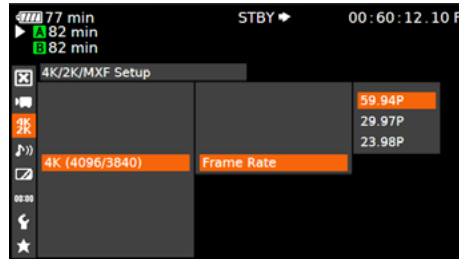
MENU » 4K/2K/MXF Setup » 4K (4096/3840) » Resolution » 4096x2160





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

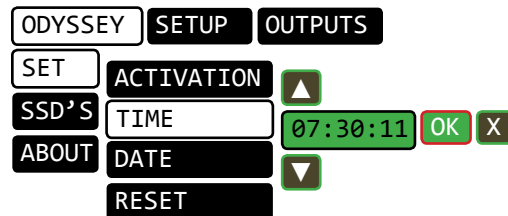
ODYSSEY7Q CONFIGURATION

1. SET ODYSSEY7Q TO C500 RAW MODE

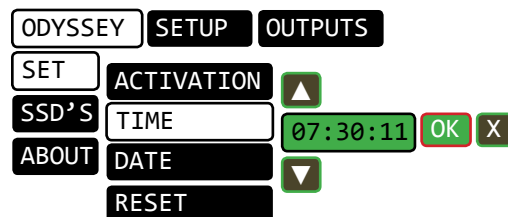
⚙️ » SETUP » CAMERA » CANON » C500 RAW->RAW(.RMF)

2. SET DATE & TIME TO MATCH C500

⚙️ » ODYSSEY » SET » DATE



⚙️ » ODYSSEY » SET » TIME





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 FS700 3G-SDI output to Odyssey7Q SDIA input

NOTE

Use only 3G-SDI rated cables from FS700 to Odyssey7Q. Using a 1.5G SDI cable is not recommended and may cause issues.

The status on your Odyssey7Q will display your camera's output.

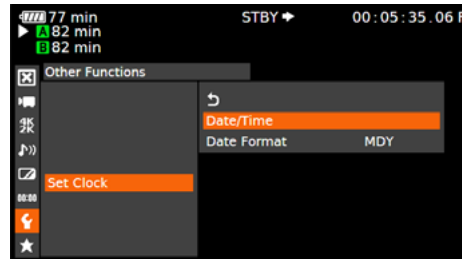
Example:



C500 CONFIGURATION

1. SET TIME & DATE

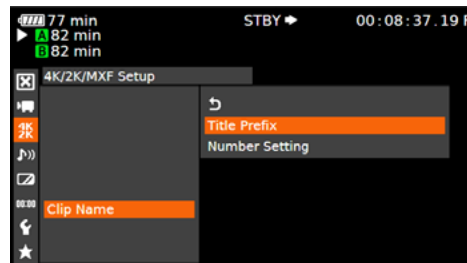
MENU » Other Functions » Set Clock » Date/Time



*Set Time & Date so both the C500 and Odyssey7Q 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 Odyssey7Q match.

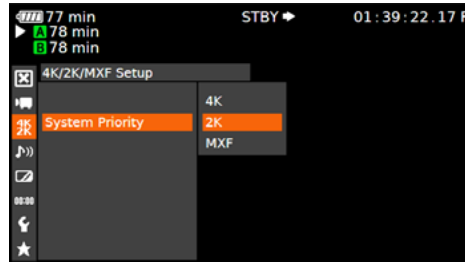
3. ENABLE 3G-SDI OUTPUT & REC COMMAND

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



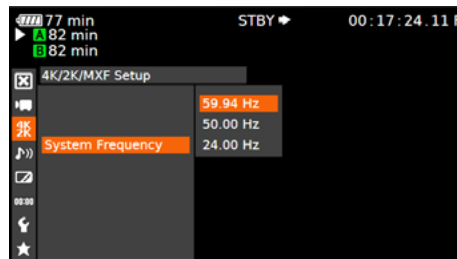
4. SET SYSTEM PRIORITY

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



5. SET SYSTEM FREQUENCY (HZ)

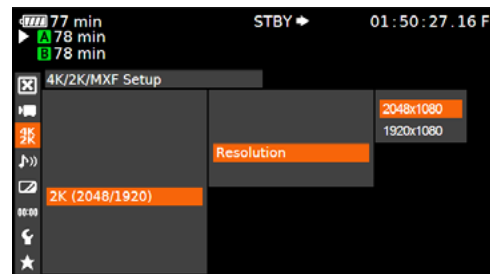
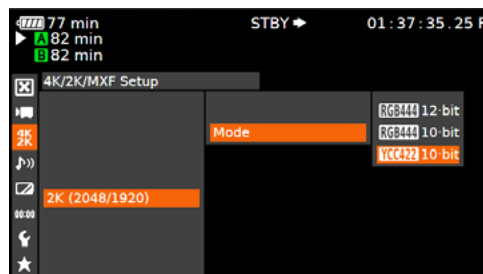
MENU » 4K/2K/MXF Setup » System Frequency » (Selection)



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

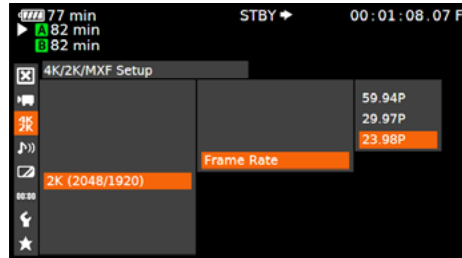
6. SET MODE AND RESOLUTION

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



7. SET FRAME RATE

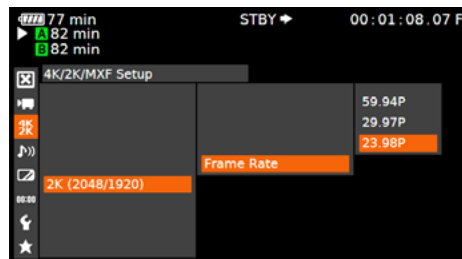
MENU » 4K/2K/MXF Setup » 2K (2048/1920) » Frame Rate » (Selection)



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

8. SET USER BIT

MENU » TCB/UB Setup » Type » Setting



Note: Time currently not supported



ODYSSEY7Q CONFIGURATION

1. SET ODYSSEY7Q TO UNCOMPRESSED DPX MODE

⚙️ » SETUP » CAMERA » CANON » HD/2K->4:4:4 (.DPX)

2. MAKE C500 THE RECORD TRIGGER

⚙️ » SETUP » RECORD TRIGGER » CAMERA

3. SET TIMECODE SOURCE

⚙️ » SETUP » TIMECODE SOURCE » SDI/HDMI

4. FORMAT SSDs

⚙️ » ODYSSEY » SSD'S » FORMAT BOTH

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

5. CONNECT TO CAMERA AND VERIFY STATUS INPUT

Connect FS700 3G-SDI output to Odyssey7Q SDIA input

NOTE

Use only 3G-SDI rated cables from FS700 to Odyssey7Q. Using a 1.5G SDI cable is not recommended and may cause issues.

The status on your Odyssey7Q will display your camera's output.

Example:

4K 29.97

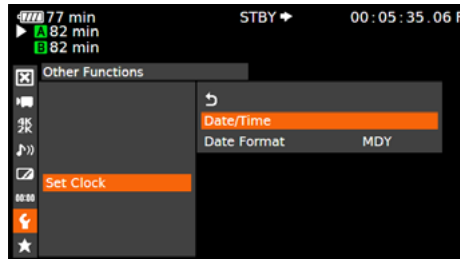
C500
RAW



C500 CONFIGURATION

1. SET TIME & DATE

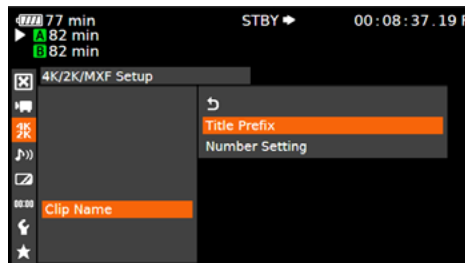
MENU » Other Functions » Set Clock » Date/Time



Set Time & Date so both the C500 and Odyssey7Q match.
This is REQUIRED for using internal media as proxy.

2. NAME THE CLIP

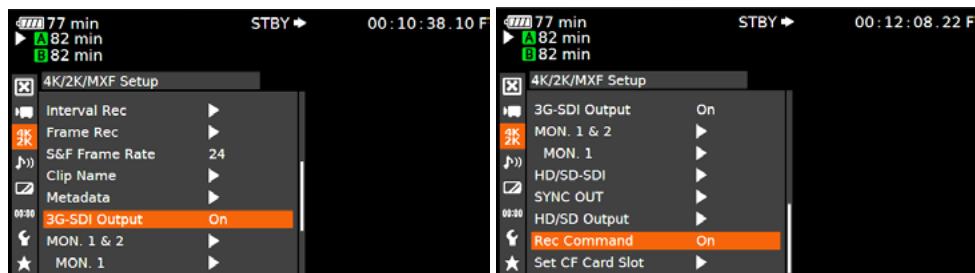
MENU » 4K/2K/MXF » Clip Name » Title Prefix (or NUMBER SETTING)



Name the clip so that C500 and Odyssey7Q match.

3. ENABLE 3G-SDI OUTPUT & REC COMMAND

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

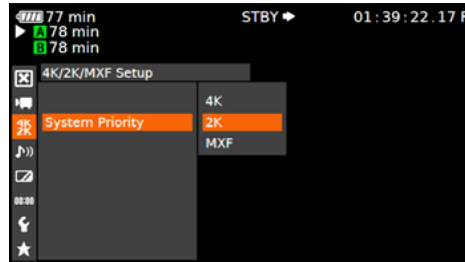


*NOTE: Depending on the frame rate you wish to record it may be best to use the HD-SDI output on the C500.



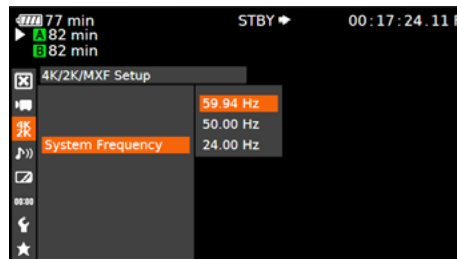
4. SET SYSTEM PRIORITY

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



5. SET SYSTEM FREQUENCY (HZ)

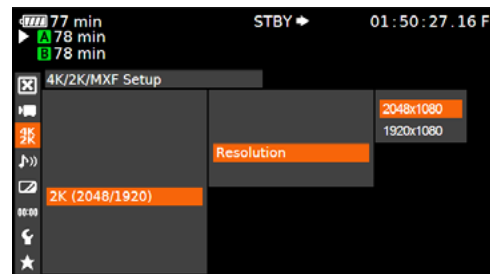
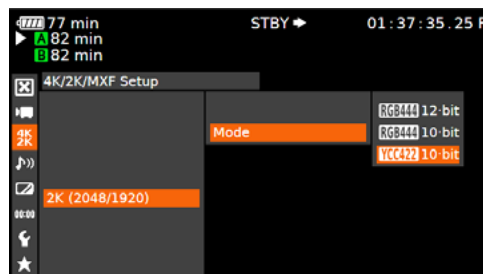
MENU » 4K/2K/MXF Setup » System Frequency » (Selection)



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

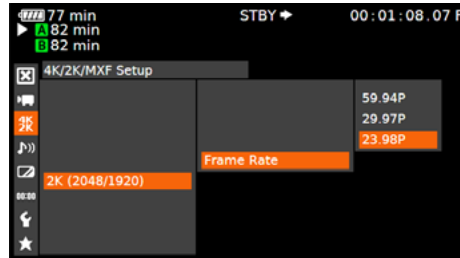
MENU » 4K/2K/MXF Setup » 2K (2048/1920) » Mode » YCC42210-bit
 (BACK) » Resolution » 2048x1080 (2K)
 -OR-
 » Resolution » 1920x1080 (HD)





7. SET FRAME RATE

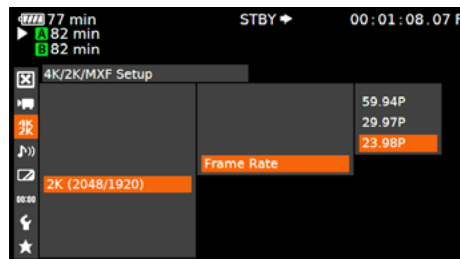
MENU » 4K/2K/MXF Setup» 2K (2048/1920) » Frame Rate » (Selection)



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

8. SET USER BIT

MENU » TCB/UB Setup » Type » Setting



Note: Time currently not supported.



ODYSSEY7Q CONFIGURATION

1. SET ODYSSEY7Q 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. FORMAT SSDs

⚙️ » ODYSSEY » SSD'S » FORMAT BOTH

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

5. CONNECT TO CAMERA AND VERIFY STATUS INPUT

Connect FS700 3G-SDI output to Odyssey7Q SDIA input

NOTE

Use only 3G-SDI rated cables from FS700 to Odyssey7Q. Using a 1.5G SDI cable is not recommended and may cause issues.

The status on your Odyssey7Q will display your camera's output.

Example:

4K 29.97

C500
RAW



COPYING FILES TO YOUR COMPUTER

1. 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.

FREE SOFTWARE UTILITIES

CD CLIP MERGER *(FREE DOWNLOAD FROM WEBSITE)*

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 *(FREE DOWNLOAD FROM WEBSITE)*

Use to combine clips into a single file
Use to copy all files to a single directory without folder structure.

CD DATA UNPACKER *(FREE DOWNLOAD FROM WEBSITE)*

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

DOWNLOAD HERE: <http://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.

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

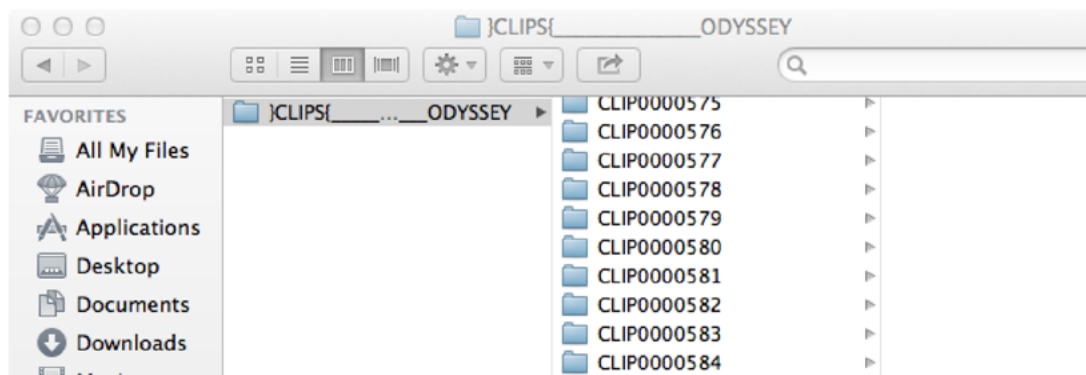
You will now be able to run the installer for installing any Convergent Design Applications.



WORKING WITH RECORDED FILES

There are numerous post systems and NLEs that can read natively the various file formats recorded by the Odyssey7Q. 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 Odyssey7Q.

FILE STRUCTURE



UNCOMPRESSED SUPPORT (DPX SEQUENCE)

All Uncompressed recording on the Odyssey7Q 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	Black Magic DaVinci Resolve	Grass Valley Eduis (Does not support 16-Bit)
Apple Color	Cineform Studio	The Foundry Nuke
AutoDesk Smoke	ColorFront OnSet Dailies	Xnview(Does not support 16-Bit)
Assimilate Scratch Lab	DJViewer	
Avid DS	Eyeon Fusion	

PLUGINS FOR DPX SUPPORT

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



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.

** 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.*

Apple ProRes 422 (HQ)

The Odyssey 7 and 7Q records in Apple ProRes HQ which is a 10 bit 4:2:2 220Mb compressed codec. This will allow for high quality recording while avoiding high data rates of working with uncompressed video. (DPX)

NATIVE APPLE PRORES 422 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

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

1. Under Final Cut Pro select Preferences
2. Be sure the Still Images editing duration is set to 0.0.1 Seconds
3. Select navigate to File and select Import Media
4. Navigate to the Clips directory, and select the Clip Folder contain your RAW files.
5. At this point you can start correcting the files to a 2.2 Gamma. using the Color Board.

** 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.*



CANON C500 4K RAW SUPPORT

All Canon C500 4K recording on the Odyssey7Q 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

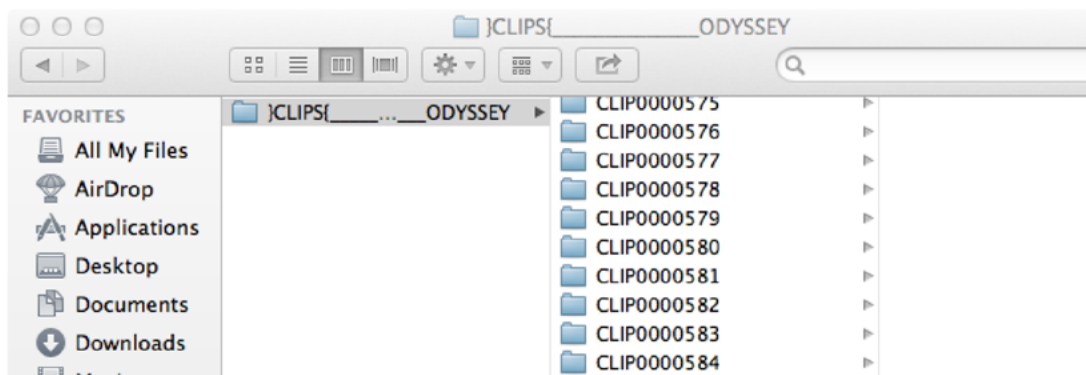
Canon Cinema RAW Development



WORKING WITH RECORDED FILES

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FILE STRUCTURE



UNCOMPRESSED SUPPORT (DPX SEQUENCE)

All Uncompressed recording on the Odyssey7Q 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 C5CC/2014	Black Magic DaVinci Resolve	Grass Valley Evis (Does not support 16-Bit)
Apple Color	Cineform Studio	The Foundry Nuke
AutoDesk Smoke	ColorFront OnSet Dailies	Xnview(Does not support 16-Bit)
Assimilate Scratch Lab	DJViewer	
Avid DS	Eyeon Fusion	

PLUGINS FOR DPX SUPPORT

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



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