



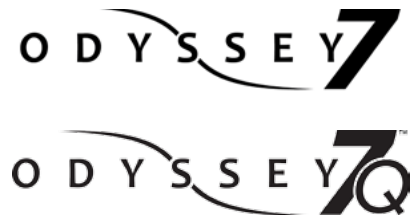
ProRes

Setup Guide Odyssey7/7Q & Apple ProRes

Updated 19-Aug-2014 | Firmware Release v2.11.110

Odyssey7
Odyssey7Q





INTRODUCTION

This Guide covers Recording in Apple ProRes 422(HQ) on the Odyssey7 and Odyssey7Q

Apple ProRes 422 HQ

The Odyssey7 and Odyssey7Q record 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.

RECORD TIME CAPACITIES

The Odyssey7 can record several video formats and frame rates. Record time varies based on format and frame rate. The chart below indicates maximum record time in minutes based on the use of one 512 GB SSD. For 256 GB, divide in half.

MAXIMUM RECORD TIME IN MINUTES TO A 512GB SSD

Recording Format	24p	25p	30p	50i	60i	50p	60p
1080p Apple ProRes 422(HQ)	330	318	264			159	132
1080i Apple ProRes 422(HQ)				318	300		
720p Apple ProRes 422(HQ)						290	264

NOTE: 720p 24/25/30 signal (720p with 3:2 or 2:2 Pulldown) is not supported at this time.

RESOLUTION

HD resolutions are 1280x720 (aka 720) and 1920x1080 (aka 1080).

FRAME RATE

While there may be many available frame rates to select for a camera's sensor, the video signal output from the camera must be one of only a few possible speeds. Standard frame rates are 23.98, 24, 25, 29.97, 30, 50, 59.94 and 60. Note that the fractional frame rates are just shy of the frame rates above them, which is a holdover from standard definition broadcast compatibility. While there are reasons for choosing 23.98 or 24 on cameras that allow both options, for the Odyssey7/7Q recorders this makes no difference and the Odyssey7/7Q will auto-detect the frame rate.



Odyssey7/7Q Apple ProRes Setup Guide

ODYSSEY7 & 7Q/Apple ProRes CONFIGURATION CHART

In HD there are different frame rates, resolutions and signal structures, all of which the Odyssey recorders can capture. In order to determine the correct settings for your camera, choose from the parameters below.

CANON

(P = PROGRESSIVE, I = INTERLACED, 32 = 3:2 PULLDOWN, 32/P = 3:2 PULLDOWN OR PROGRESSIVE)

Camera	720p50	720p60	1080p25	1080p30	1080i50	1080i60	1080p23.98	Trigger
5D MKIII	p	p	p	p	i	i	32	REC Button
IDC	p	p	p	p	i	i	32	REC Button
XLH1s	p	p	p	p	i	i	32	Timecode
XF105	p	p	p	p	i	i	32	REC Button
XF305	p	p	p	p	i	i	32	Camera
C100	p	p	p	p	i	i	32	Camera
C300	p	p	p	p	i	i	32	Camera
C500	p	p	p	p	i	i	32/p	Camera

SONY

Camera	720p50	720p60	1080p25	1080p30	1080i50	1080i60	1080p23.98	Trigger
A77	p	p	p	p	i	i	32	REC Button
A99	p	p	p	p	i	i	32	REC Button
A7s	p	p	p	p	i	i	32	REC Button
PMW EX1	p	p	p	p	i	i	32/p	Timecode
PMW EX3	p	p	p	p	i	i	32/p	Timecode
NEX-FS100	p	p	p	p	i	i	32	REC Button
NEX-FS700	p	p	p	p	i	i	32/p	Camera
PMW-F3	p	p	p	p	i	i	32/p	Camera
F5 / F55	p	p	p	p	i	i	32	Camera

PANASONIC

Camera	720p50	720p60	1080p25	1080p30	1080i50	1080i60	1080p23.98	Trigger
HDX 900	p	p	p	p	i	i	32	Timecode
AF100	p	p	p	p	i	i	32/p	Camera
GH3 / GH4	p	p	p	p	i	i	32	REC Button
Lumix Z1000	p	p	p	p	i	i	32	REC Button

NIKON

Camera	720p50	720p60	1080p25	1080p30	1080i50	1080i60	1080p23.98	Trigger
D800	p	p	p	p	i	i	32	REC Button
D810	p	p	p	p	i	i	32	REC Button
D7100	p	p	p	p	i	i	32	REC Button
D5200	p	p	p	p	i	i	32	REC Button

ARRI ALEXA

Camera	720p50	720p60	1080p25	1080p30	1080i50	1080i60	1080p23.98	Trigger
Classic	p	p	p	p	i	i	p	Camera
Plus	p	p	p	p	i	i	p	Camera

RED

Camera	720p50	720p60	1080p25	1080p30	1080i50	1080i60	1080p23.98	Trigger
Epic	p	p	p	p	i	i	32/p	Camera
Scarlet	p	p	p	p	i	i	32/p	Camera

GoPro

Camera	720p50	720p60	1080p25	1080p30	1080i50	1080i60	1080p23.98	Trigger
Hero3/ Black	p	p	p	p	--	--	32/p	REC Button
Hero3+ /Black	p	p	p	p	--	--	32/p	REC Button



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Odyssey7/7Q Apple ProRes Setup Guide

PROGRESSIVE, PSF AND INTERLACED

Historically, standard definition video divided each frame into two fields, each weaved into the other, one representing odd-numbered horizontal scan lines and the other even-numbered scan lines. Thus 30 frames of video was divided into 60 fields. Fields were offset in time so that the image changed 60 times each second, but it was only half the resolution of the entire image. This is known as Interlace video.

As technology improved it became possible to deliver complete frames of information, but compatibility was needed with installed video equipment. Progressive Segmented Frames (PSF) represents a complete frame image but splits the information and transports it as if it was a pair of interlaced fields. The PSF format is commonly used in Sony camera systems. Progressive (aka “true progressive”) video does away with the field structure entirely and organizes the data of each frame from beginning to end. It is important to know if the video signal coming from your camera is Progressive/PSF or Interlace.

Standard notation is to state the resolution and then the frame rate, separated by p, psf, or i. In 1280x720, all frame rates are Progressive, and are available as 720p50 or 720p60. In 1920x1080, frame rates can be p, psf or i. 24p is where it gets extra tricky.

3:2 PULLDOWN

24 frames per second is the worldwide standard for motion picture films. However this is not the common frame rate for video. In Europe and other parts of the world, 25fps is common for both film and video. But for countries where 30p video is the standard, a “hack” is needed to transport 24fps material across a 30p video stream. The answer is to divide the 30p into 60i (sixty interlaced fields) and then repeat the material in the 24 frames three times, then twice, then three times, then twice, etc. This stretches 24 frames across 60 fields and is known as 3:2 Pulldown. You can record this but it is difficult to cleanly edit the material and separate out the clean frames. Instead, the Odyssey features a “3:2 PULLDOWN” recording mode which will extract the original 24 frames from the 60i video stream and only record the original material without the added fields.

Some cameras do offer a 23.98p or 24p mode that sends only the original frames in either a Progressive or PSF video stream. It is important to know what your camera outputs so that you know if you need to utilize the 3:2 PULLDOWN extraction function.



Odyssey7/7Q Apple ProRes Setup Guide

SETTING UP YOUR CAMERA

Setup your camera to record internally to the correct resolution and frame rate you wish to record., then you will need to set up the the camera output based on the settings below.

The follow applies to all HDMI or SDI based cameras:

1080P50/60**

- 1) Set your camera to recording internally to 1080p50/60
- 2) Set your camera output to be 1080p

720P50/60

- 1) Set your camera to recording internally to 720p50/60
- 2) Set your camera output to be 720p

1080I50/59.94

- 1) Set your camera to recording internally to 1080i50/59.94
- 2) Set your camera output to be 1080i

1080P25/29.97

- 1) Set your camera to recording internally to 1080p25/29.97
- 2) Set your camera output to be 1080i

1080P25/29.97

- 1) Set your camera to recording internally to 1080p25/29.97
- 2) Set your camera output to be 1080i

1080P23.98 (3:2 PULLDOWN)*

- 1) Set your camera to recording internally to 1080p23.98
- 2) Set your camera output to be 1080i

1080P23.98 (3:2 PULLDOWN)

- 1) Set your camera to recording internally to 1080p23.98
- 2) Set your camera output to be 1080p24

**Certain newer cameras have the ability to output 1080p24.*

***Odyssey7/7Q do not support 1080p/60 over HDMI, only SDI.*



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Odyssey7/7Q Apple ProRes Setup Guide



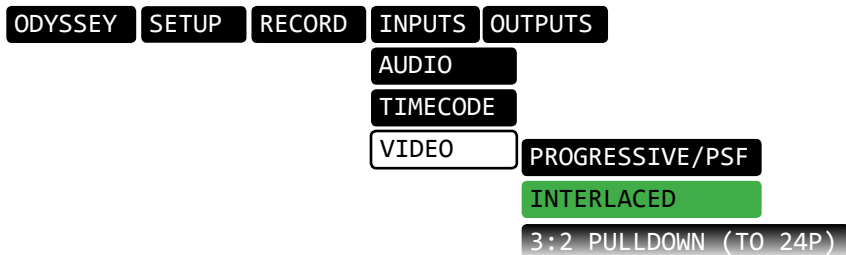
CONFIGURE ODYSSEY7/7Q INPUT TO MATCH YOUR CAMERA OUTPUT

Use the Apple ProRes Setup Guide to help best determine what is the best setting to use with your camera.

1 Set up your camera output based on the Apple ProRes Setup Guide (p3)

2 Select the input type on the Odyssey7/7Q

MENU » INPUTS » VIDEO » *(Progressive, Interlaced or 3:2 Pulldown)*



3 Verify that the input on the Odyssey7/7Q matches your camera

The input status box on the top menu of your Odyssey7/7Q will reflect the frame rate that you are going to record.

Example: **Camera Output:**
1080p30

Odyssey Input:
1080PSF30 422
SONY



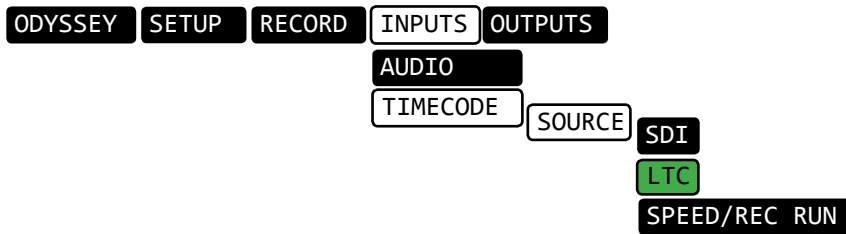
SET UP YOUR TIMECODE SOURCE

The Odyssey 7Q can accept timecode from many sources such as SDI, LTC and generate it's own via SEED / Record Run.

1 Use the Apple ProRes Setup Guide (p3) to help best determine what is the best setting to use with your camera.

2 Set Timecode Source on the Odyssey7/7Q

MENU » INPUTS » TIMECODE » SOURCE » *(Select source)*



3 Verify that the timecode is displaying and incrementing correctly.



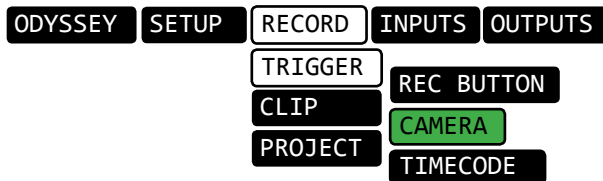
SET UP YOUR RECORD TRIGGER

The Odyssey7/7Q can accept various triggering methods, depending on your camera and setup.

1 Use the Apple ProRes Setup Guide (p3) to help best determine what is the best setting to use with your camera.

2 Set Record Trigger on the Odyssey7/7Q

MENU » RECORD » TRIGGER » (*REC BUTTON, CAMERA OR TIMECODE*)



3 Verify that when you press record the Odyssey7/7Q starts recording.



Odyssey7/7Q Advanced Triggering Setup

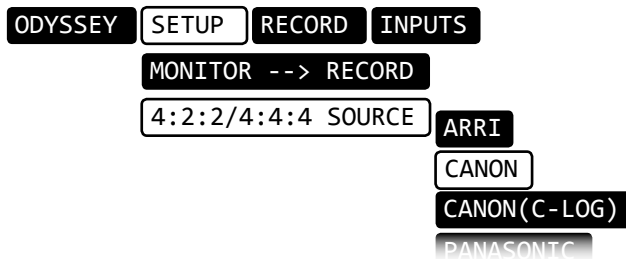
SDI CAMERA TRIGGER

Certain newer camera's are outfitted with a SDI record trigger, or "SDI record command." to enable triggering the Odyssey when you press record on the camera. Please see the ProRes Setup chart for camera compatibility.

1 Set your camera's SDI Record Command Trigger to ON

2 Select your camera brand from the list found in the Odyssey7/7Q menu

MENU » SETUP » 4:2:2/4:4:4 SOURCE » (SELECT CAMERA BRAND)



3 Format the media in the camera, and then press record

4 Verify that when you press record the Odyssey7/7Q starts recording.

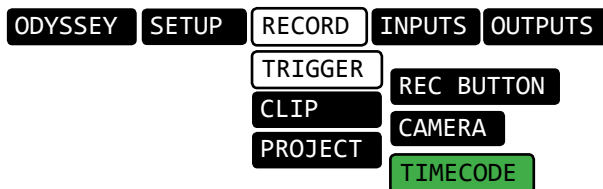
TIMECODE TRIGGER

Certain camera's can trigger the Odyssey when you press record by setting the Odyssey7/7Q to timecode trigger. Please see ProRes Setup Guide for compatibility.

1 Set your camera to Record Run for Timecode

2 Set the Odyssey7/7Q to Timecode Trigger (LTC or SDI)

MENU » RECORD » TRIGGER » TIMECODE





Odyssey7/7Q Advanced Triggering Setup

3 Format the media in the camera, and then press record

4 Verify that when you press record the Odyssey7/7Q starts recording.

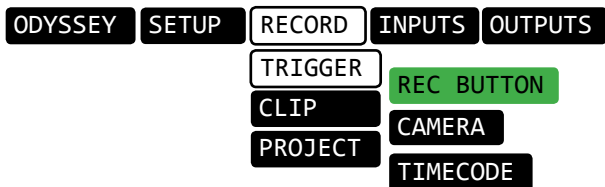
RECORD BUTTON TRIGGER

If your camera does not have a SDI trigger, or cannot be triggered over timecode via SDI or LTC, you will need to trigger the Odyssey7/7Q with the record button on the display. Please see Apple ProRes Setup Guide for compatibility.

1 Set your camera to Record Run for Timecode

2 Set the Odyssey7/7Q to REC BUTTON Trigger

MENU » RECORD » TRIGGER » TIMECODE



3 Format the media in the camera, and then press record

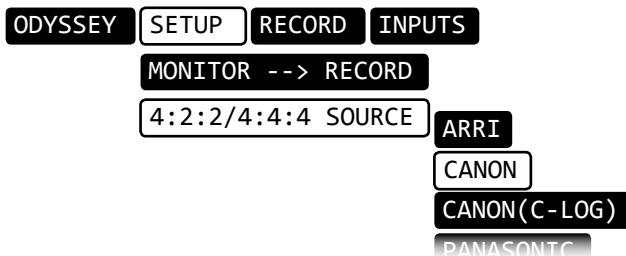
4 Verify that when you press record the Odyssey7/7Q starts recording.

LUT SUPPORT

The Odyssey7/7Q support standard LOG to Rec709 LUTs for various camera's. to enable this function, please select your camera under the Setup menu.

» Select your camera brand from the list found in the Odyssey7/7Q menu

MENU » SETUP » 4:2:2/4:4:4 SOURCE » (SELECT CAMERA BRAND)





Odyssey7/7Q Off-Loading Data

COPYING FILES FROM SSD MEDIA

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 Apple ProRes 422 Transfer Tool *(Free Download MAC/PC)*

- Optimize files for Final Cut Pro X
- Use to combine clips into a single file
- Combine spanned files up to 512GB in size.
- Copy all recorded Apple ProRes files from their clip directories to one directory.

NOTE: If you will be using a combination of RAW/Uncompressed files and Apple ProRes files you can download and install the CD Data Unpacker Utility and CD Clip Merger, also available free for both Mac & PC on our website.

Software/Utilities Downloads

<https://convergent-design.com/support/firmware-downloads/software-utilities.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.**
- 4) Now you will be able to run the installer for installing any Convergent Design Applications.



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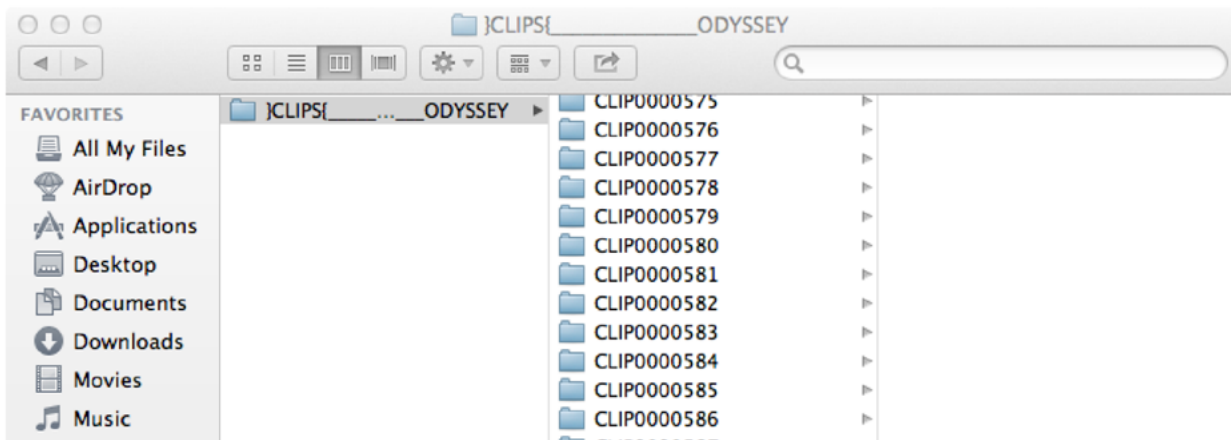
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WORKING WITH FILES RECORDED BY THE ODYSSEY7/7Q

There are numerous post systems and NLEs that can read natively the various file formats recorded by the Odyssey7/7Q. 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 Odyssey7/7Q.

FILE STRUCTURE



Apple ProRes 422 (HQ) - POST WORKFLOW

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

Apple ProRes PLAYBACK

To playback Apple ProRes 422(HQ) files in QuickTime Player X, the files must be first run through our Apple ProRes 422(HQ) Utility to be optimized for the recently released Apple ProRes 422(HQ) Codec update. If files are not optimized, then they will play the first second of audio only. *This is not an issue when playing in FCPX.*



For the latest firmware, product manuals and other information visit Convergent-Design.com



Odyssey7/7Q Apple ProRes Setup Guide

ONLINE RESOURCES

Firmware and Downloads

<https://convergent-design.com/support/firmware-downloads.html>

Software/Utilities

<https://convergent-design.com/support/firmware-downloads/software-utilities.html>

Knowledge Base

<https://convergent-design.com/support/knowledgebase.html>

Videos

<https://convergent-design.com/support/cd-videos.html>

NOT SUPPORTED AT THIS TIME

- 720p 24/25/30 signal (720p with 3:2 or 2:2 Pulldown)
- SD NTSC/PAL video
- Analog audio input
- File name matching from the camera in video recording
- LTC Timecode Trigger
- HDMI Timecode in
- HDMI Record Trigger



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