TECHNICAL DELIVERY REQUIREMENTS

POST PRODUCTION AND PROMOTIONS STANDARD

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The following document contains the technical requirements for content being delivered to The Nine Network's Post Production and Promotions Departments.

All content that is delivered to The Nine Network will undergo a Quality Control process. Content failing to abide by the standards set forward in this document will be rejected and returned to the supplier for correction.

Please note: that this document is for content being delivered to Nine's Post Production and Promotions departments only and **NOT** for program delivery to Nine's play out center.

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QUALITY REQUIREMENTS

PICTURE

- The picture must be well lit and reasonably but not artificially sharp. It must be free of excessive noise, grain and digital compression artifacts.
- The picture must be free of excessive black crushing and highlight compression. Hard clipping of highlights (e.g. by legalisers) must not cause visible artifacts on screen.
- There must be no noticeable horizontal or vertical aliasing, i.e. jagged lines, field or frame rate fluctuations in fine detail.
- Colour rendition, especially skin tones, must be consistent throughout, and a realistic representation of the scene portrayed unless it is altered as an editorially essential visual effect.
- There must be no visible contouring or artifacts caused by digital processing.
- There must be no noticeable spurious signals or artifacts e.g. streaking, ringing, smear, echoes, overshoots, moiré, hum, cross-talk etc

SOUND

- The audio must be free of spurious signals such as clicks, noise, hum and any distortion.
- Audio levels must be appropriate to the scene portrayed and dynamic range must not be excessive.
- Stereo audio must be appropriately balanced and free from phase differences, which cause audible cancellation in mono.
- The audio must not show dynamic and/or frequency response artifacts as a result of the action of noise reduction or low bit rate coding systems.

STANDARDS CONVERSIONS

- For material was shot at 24fps (or 23.98) then it should be sped up to 25fps via a 4% speed change and not frame repeats.
- Material shot natively at 59.94i/p, should be standards converted via a high quality motion vector compensated standards converter. The aim is to eliminate temporal conversion artefacts. Many software conversion programs are not up to the task, and simply blend frames (interpolate), resulting in motion judder.
- If material was originally shot at 24fps (23.98), and then post processed in the 60Hz (59.94) domain using the standard "3:2 pull-down", a **two step conversion process** must take place. First, content needs to be processed using the 'reverse telecine' or '3:2 extraction' method - this is necessary in order to extract the original 24Hz footage from within the 60Hz footage containing the 3:2 pull-down. Then, once extracted, the 24fps (23.98) material can be converted using the normal 24 to 25fps (4%) speed change – the end result being a seamless, motion artefact-free conversion.

N.B. The use of audio "pitch correction" when using 24 to 25 speed up is not accepted as it creates unwanted irreversible audible artefacts.

ACCEPTED DELIVERABLE FORMATS

The Nine Network accepts the delivery of content in the following formats.

If a file is to be delivered to Nine which does not conform to the standards noted below please liaise with your Nine contact so acceptability may be verified. Clients wishing to deliver media in alternative formats may be required to submit a file for testing.

All footage delivered to Nine, is to be backed up before being submitted.

If footage is being submitted on an external hard drive, which is not the original camera drive please copy the whole camera file and folder structure and not just the media files.

All drives, discs and tapes must be clearly labeled before arriving at Nine.

The Content Delivery Form must accompany all content being delivered to The Nine Network. – found below.

TIMECODE SETTINGS

TIME OF DAY - Single Clip Mode.

NON TIME OF DAY - Continuous timecode in Single Clip mode for each location / scene / segment.

FILE BASED DELIVERY

UNCOMPRESSED		
	SD	**HD**
VIDEO		
Container	MOV	MOV
Compression Format	None	None
Format	Quicktime	Quicktime
Frame Size	PAL 720x576 (1024x576)	PAL 1920x1080
Frame Rate	25	25
Video Standard	PAL	1080i50
Field Order	Upper First	Upper First
AUDIO		
Audio Codec	Uncompressed	Uncompressed
Sample Rate	48Khz	48Khz
Sample Size	24 bit	24 bit
Channels	Stereo	Stereo

XDCAM

	SD	HD
VIDEO		
Container	MXF OP1a	MXF OP1a
Compression Format	XDCAM	XDCAM
Format	IMX 50	HD 4:2:2 50 Mbits
Frame Size	PAL 720x576 (1024x576)	PAL 1920x1080
Frame Rate	25	25
Video Standard	PAL	1080i50
Field Order	Upper First	Upper First
AUDIO		
Audio Codec	Uncompressed	Uncompressed
Sample Rate	48Khz	48Khz
Sample Size	24 bit	24 bit

DNxHD

	SD	HD
VIDEO		
Container	MXF OP1a	MXF OP1a
Compression Format	MPEG2	DNxHD VC-3
Format	IMX 50	DNxHD 120 8-bit
Frame Size	PAL 720x576 (1024x576)	PAL 1920x1080
Frame Rate	25	25
Video Standard	PAL	1080i50
Field Order	Upper First	Upper First
AUDIO		
Audio Codec	PCM 8 Channels	PCM 8 Channels
Sample Rate	48Khz	48Khz
Sample Size	24 bit	24 bit
Note: The above formats are also accepted in .mov containers		

PRORES

	SD	HD
VIDEO		
Container	MOV	MOV
Compression Format	ProRes 422	ProRes 422
Format	Quicktime	Quicktime
Frame Size	PAL 720x576 (1024x576)	PAL 1920x1080
Frame Rate	25	25
Video Standard	PAL	1080i 25
Field Order	Upper First	Upper First
AUDIO		
Audio Codec	Uncompressed	Uncompressed
Sample Rate	48Khz	48Khz
Sample Size	24 bit	24 bit
Channels	up to 8	up to 8

H.264

	SD	HD
VIDEO		
Container	MP4	MP4
Compression Format	H.264	H.264
Format	MPEG4	MPEG4
Frame Size	PAL 720x576 (1024x576)	PAL 1920x1080
Frame Rate	25	25
Video Standard	PAL	1080i 25
Field Order	Upper First	Upper First
CBR or VBR	CBR	CBR
AUDIO		
Audio Codec	AAC	AAC
Sample Rate	48Khz	48Khz
Sample Size	24 bit	24 bit
Channels	Stereo	Stereo
Note: The above formats are also accepted in .mov containers		

Delivery via EVS – Nine does except the delivery of EVS content, please liaise with your Nine contact about delivering content in this manner.

TAPE/DISC DELIVERY

	SD	HD
TAPE		
	Digital Betacam	HD Cam / SR
	625 lines	1080 lines
	50Hz interlaced	50Hz interlaced
XDCAM DISC		
	XDCam	XDCam
	IMX50	1080/50i
	50Mbps	4:2:2
	24Bit	50Mbps
		24Bit

Other acceptable Acquisition Formats

SR – all material will be accepted
HDCam – all material will be accepted
HDV Footage – all material will be accepted

5.1 MULTI-CHANNEL AUDIO

Please see below for the correct channel order (SMPT320M) for delivering multi channel audio to Nine.

On HD-CAM SR (or other <10 channel capable formats), this 5.1 channel order is acceptable:

HD-CAM SR (12 TRACK) 5.1 LAYOUT		
Track 1	Stereo Left Total (Lt)	
Track 2	Stereo Right Total (Rt)	
Track 3	Lt M+E	
Track 4	Rt M+E	
Track 5	5.1 Left Front	
Track 6	5.1 Right Front	
Track 7	5.1 Centre	
Track 8	5.1 LFE	
Track 9	5.1 Left Surround	
Track 10	5.1 Right Surround	

On an 8 channel format (like XD-CAM 422), this 5.1 channel order is acceptable:

XD-CAM (8 TRACK) 5.1 LAYOUT		
Track 1	Stereo Left Total (Lt)	
Track 2	Stereo Right Total (Rt)	
Track 3	5.1 Left Front	
Track 4	5.1 Right Front	
Track 5	5.1 Centre	
Track 6	5.1 LFE	
Track 7	5.1 Left Surround	
Track 8	5.1 Right Surround	

ACCEPTED CAMERA FORMATS

| CAMERA / BRAND	FORMAT	COMPRESSION	CONTAINER	BIT RATE	MAX FRAME SIZE
ARRI ALEXA	DNxHD	DNxHD VC-3	.MXF	120/185/220x	1920 x 1080
RED CAMERA SERIES	REDCODE	RAW	.R3D		5K - 5120 x 2700
PANASONIC	DVCPro HD	DV	.MXF		1280 x 1080
P2 SERIES	AVC - Intra	H.264/AVC	.MXF		1920 x 1080
	AVC - Ultra	H.264/AVC	.MXF		4096 x 2160
PANASONIC	HDV	MPEG-2	.MTS		1440 X 1080
AVCCAM SERIES	AVCHD	MPEG-4 AVC/H264	.MTS		1920 X 1080
SONY XDCAM/EX SERIES	MPEG IMX	MPEG-2	.MXF	30,40,50 (CBR)	720 x 576
	MPEG HD	MPEG-2	.MXF / .MP4	35 (VBR) 25 (CBR)	1920 x 1080
	MPEG HD422	MPEG-2	.MXF	50 (CBR)	1920 x 1080
SONY NXCAM SERIES	AVCHD (FX)	MPEG-4 AVC/H264	.MTS		1920 x 1080
	AVCHD (FH)	MPEG-4 AVC/H264	.MTS		1920 x 1080
CANON XF SERIES & C300	XF CODEC	MPEG-2 Long GOP	.MXF		1920 x 1080
CANON DSLR SERIES	MOV	H.264	.MOV		1920 X 1080
BLACKMAGIC	DNXHD	DNxHD VC-3	.MOV	220x 10bit	1920 X 1080
CINEMA CAMERA	PRORES	422 OR 422 (LT)	.MOV		1920 X 1080
	RAW	CINEMA DNG	.MOV		2K - 2432 x 1366
GOPRO HERO SERIES	MOV	H.264	.MP4		1920 X 1080

EXPORTING FROM MEDIA COMPOSER

The following is a step-by-step guide to exporting sequences from Media Composer for delivery to The Nine Network. This is a two-part export. One part is for video and the other is for multichannel audio.

NOTE: Please be aware that a WAV file has a file size limit of 4GB. If your export exceeds this limit Media Composer will give you an 'AUDIOEXPORT_FILE_TOO_LARGE' error on export. If this happens you will need to export half the tracks (Example 1-9) in one file, and the other half (10-19) in another file.

First, export the flattened video file.

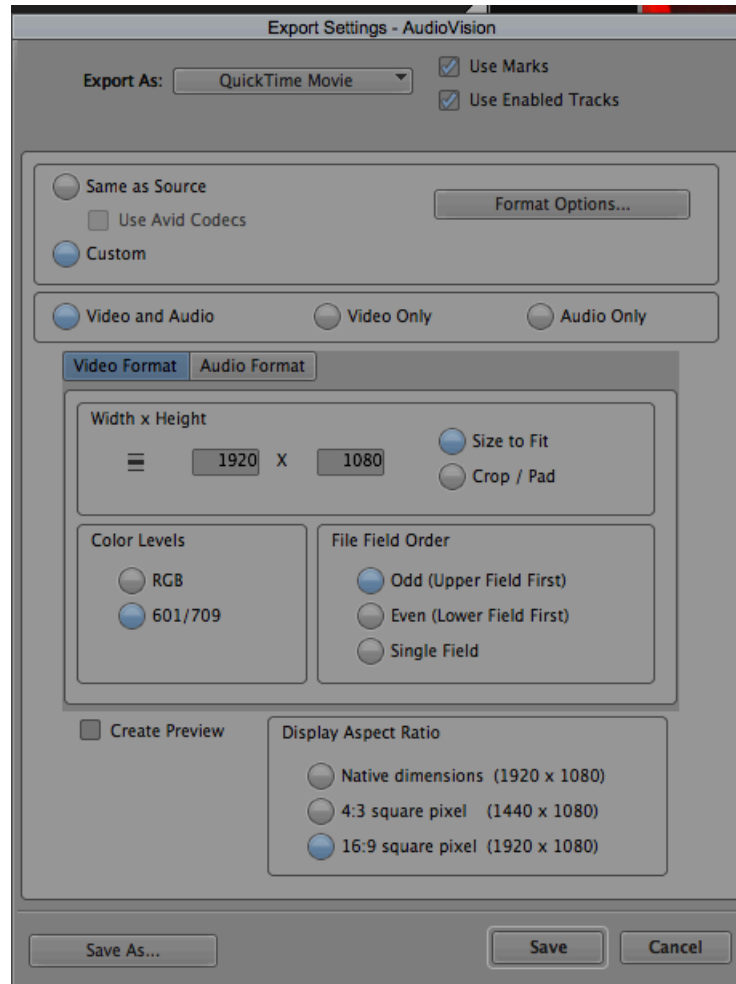Right click on the sequence and select export.
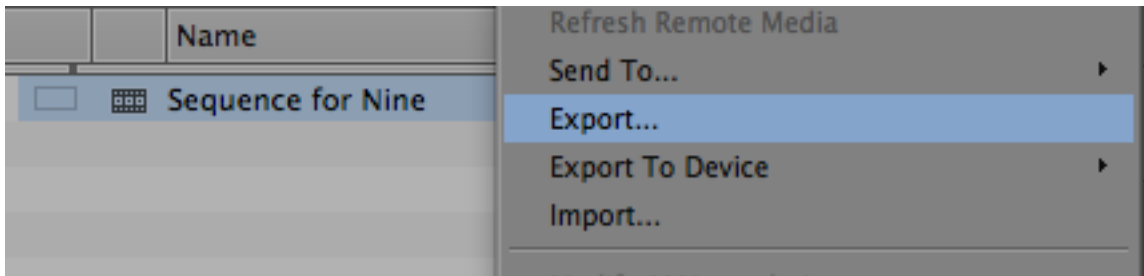
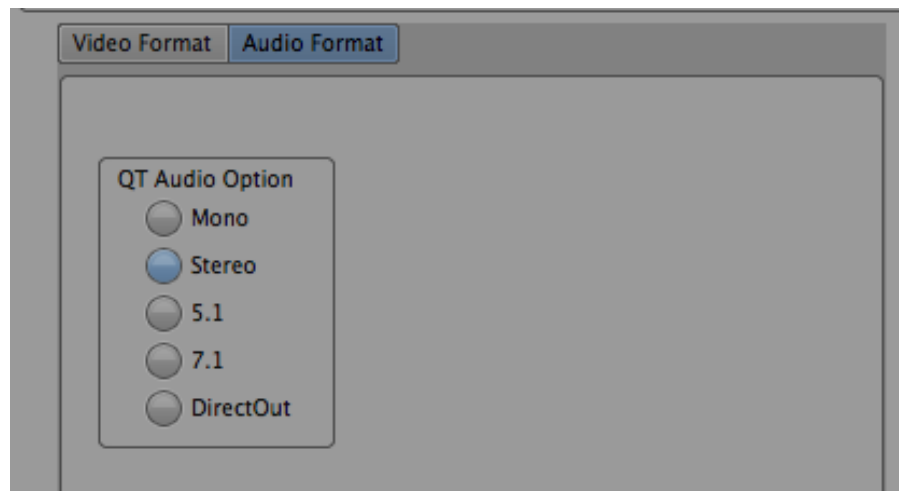At the next window select the **Options** button.
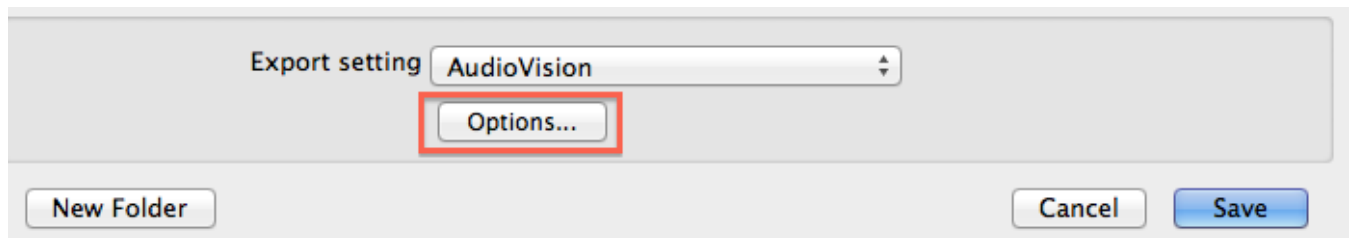
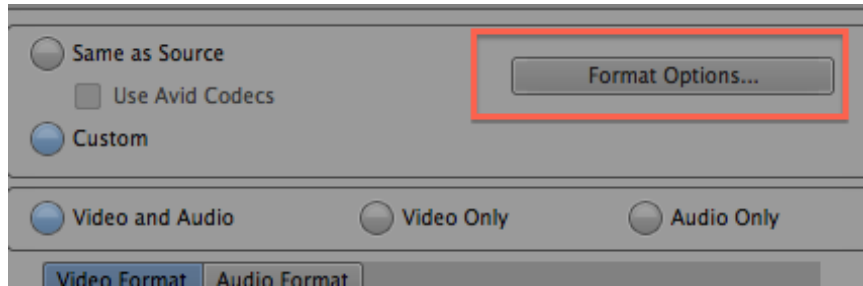From the **Export As** drop down menu, select **QuickTime Movie**.
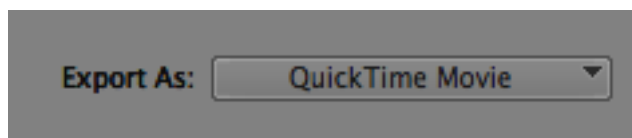
Use the exact settings below.

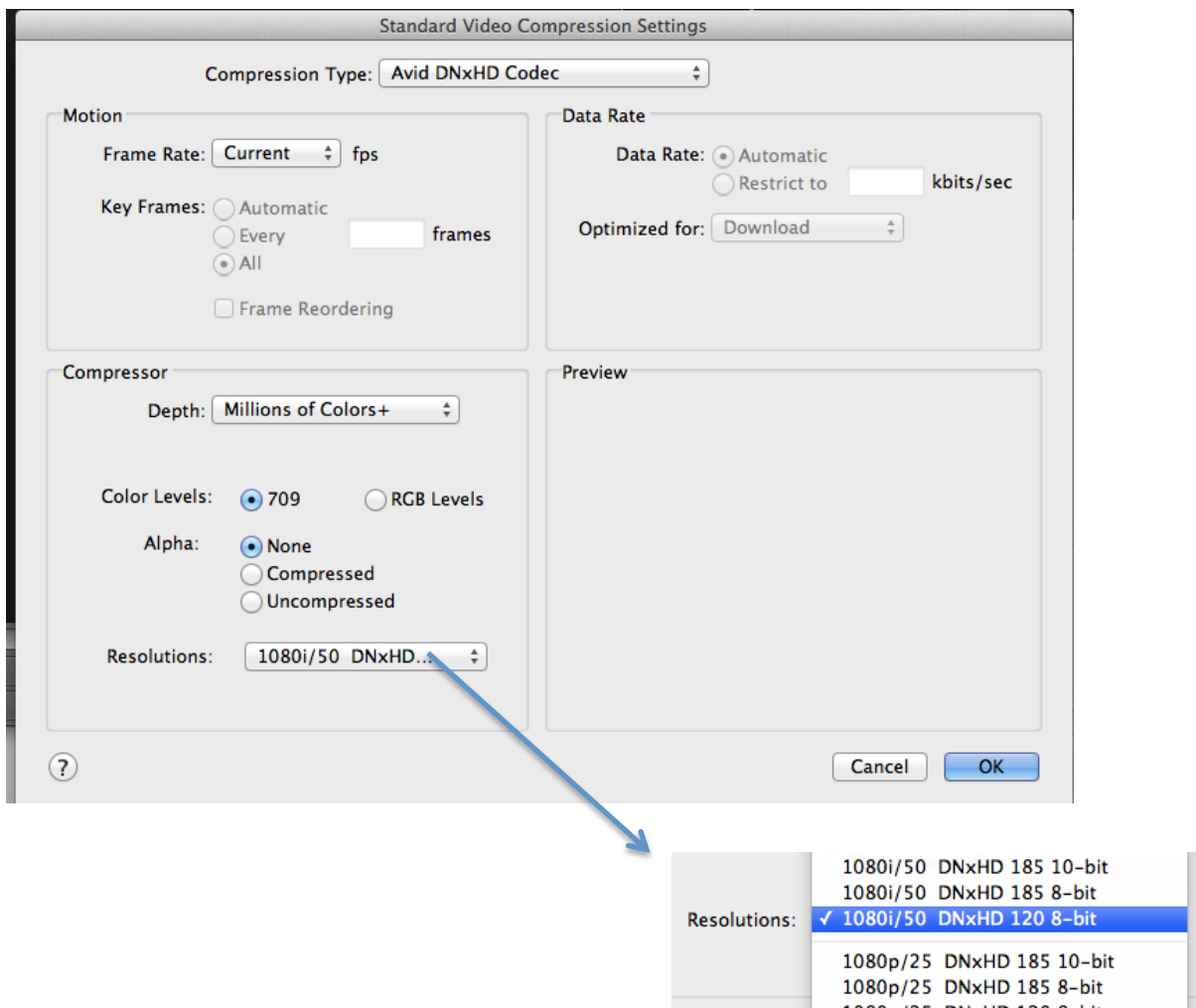For Audio Format, select the following.

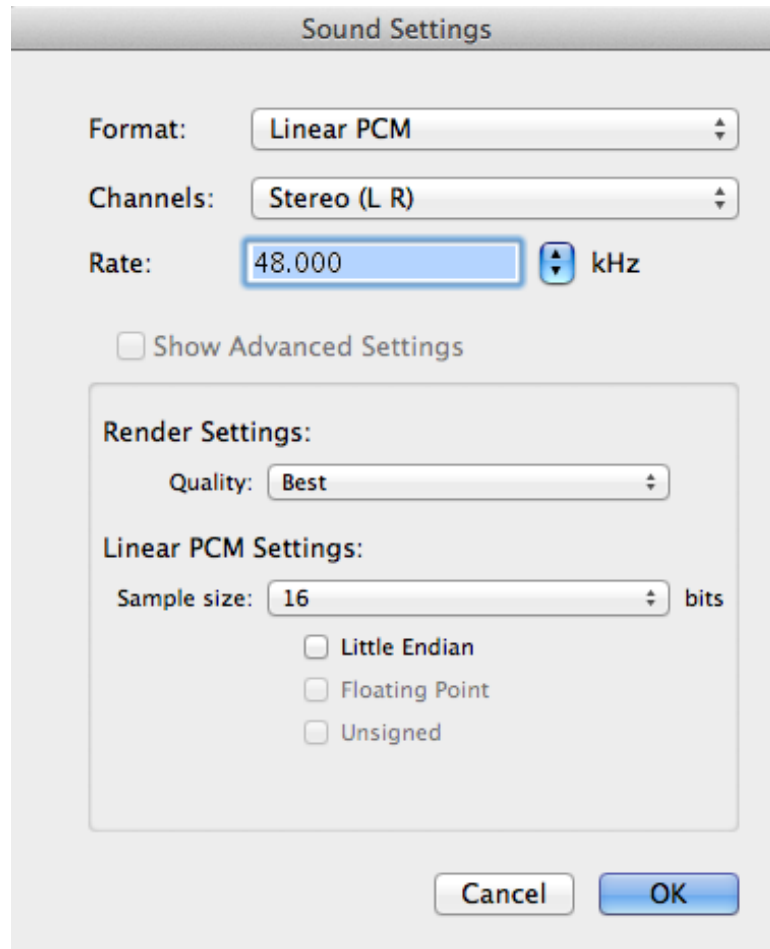Now, select the **Format Options** button.

Next, press the **Format Options** button.

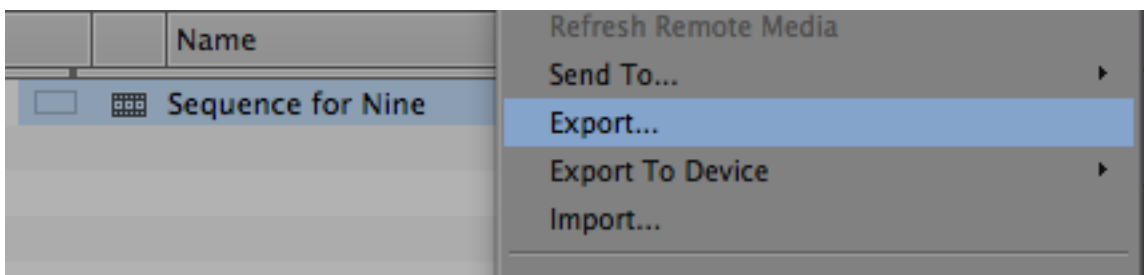In the **Standard Video Compression Settings** window select the following settings.

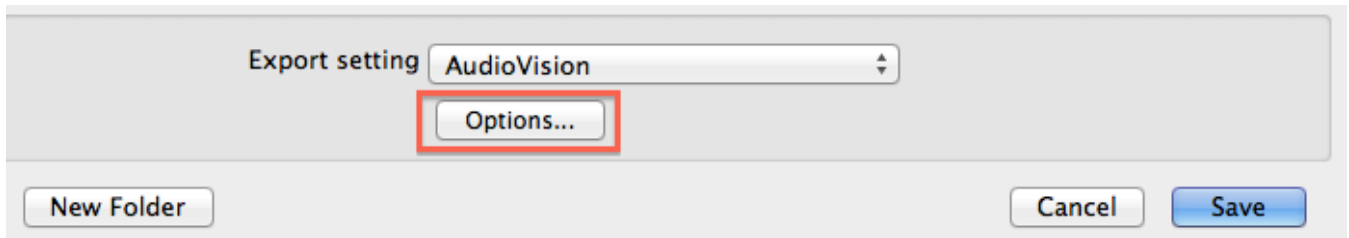In the **Sound Settings** window, use the following settings.

Next, save the video to your delivery device.
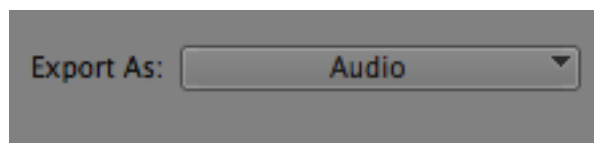
Now, export the multichannel audio.

Right click on the sequence again and select export.

At the next window select the **Options** button.

Export setting AudioVision ⏷

Options...

New Folder   Cancel   **Save**

From the **Export As** drop down menu, select **Audio**.

Export As: Audio   ▼

Use the following settings below.

Export Settings - AudioVision

Export As: Audio   ▼   ☑ Use Marks
                                                ☑ Use Enabled Tracks

○ Mono   Sample Rate: 48 kHz   ▼
○ Stereo   Bit Depth: 16 Bit   ▼
○ 5.1   Audio Format: WAVE   ▼
○ 7.1
● Direct Out

Save As...   Save   Cancel
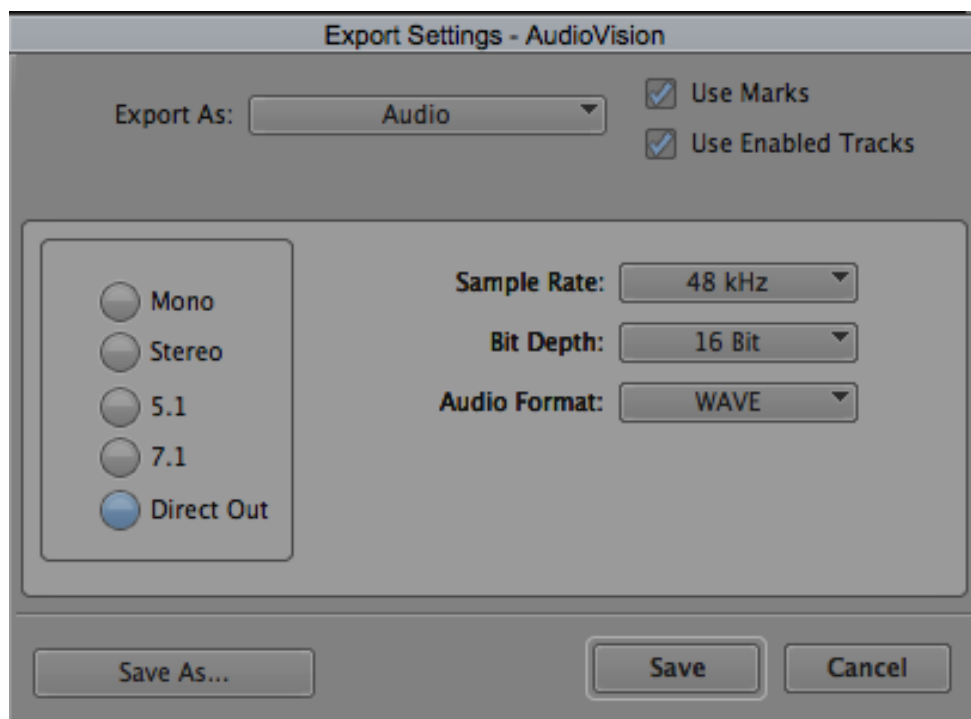
NOTE: When saving your Video and Audio file please give them matching names.

CONTENT DELIVERY FORM

Please completed the following form for all content being delivered on an external device

Supplied By:

Phone: **Email :**

Address:

State: **Postcode:**

No. of Devices: **Format:**   MAC   NTFS
                                            FAT32

Media Type: Original Camera Rushes   Transcoded Media

Original Media Format: **Frame Size:**

Transcoded Using: **Frame Rate:**

Camera Make & Model:

Device Type/s (Please Tick):	Tape	HardDrive	SD/CF Card	USB
	EVS Drive	P2 Card	Camera SSD	CD/DVD
	Other			

Included Items (Please Tick):	USB Cable	Power Supply	Case
	Thunderbolt Cable	Firewire Cable	Drive Caddy
	Other		

FOR NINE USE ONLY

Contact Name: Phone #:

Department: Code:

TX Date: Catalog Code:

Ep # :   Card/Drive # :