CINEMA RAW
DEVELOPMENT

INSTRUCTION MANUAL

4K

Version 1.4

Mac OS

Table of Contents

Introduction

About Cinema RAW Development

Cinema RAW Development allows you to develop, play back and export Canon RAW files (referred to as "RAW clips" in this manual) shot with Canon digital cinema cameras. This software is also compatible with RAW clips recorded using a color space with a wider gamut than BT.709 (Cinema Gamut, BT.2020 or DCI-P3+). The following are the main features of Cinema RAW Development.

Develop and play back	Develop RAW clips stored on your computer and simultaneously play the clips back.
Develop and export	Develop RAW clips stored on your computer and export the clips as DPX files, OpenEXR files or MOV files. You can also copy RAW clips as is.

(i) NOTES

When you use this software, make sure to set your computer so that it does not enter sleep mode.

Conventions in the Manual

❶	Important precautions related to the software's operation.
(i)	Additional information that complements the main procedure.
▭	Reference page number in this instruction manual.
File > Open	This font is used to indicate menu options and commands, as they appear onscreen.

• For the most part, screens shown in this manual were captured on a computer running Mac OS X, ver. 10.9. Actual screens may differ slightly.

Disclaimers

• This software was developed for exclusive use with RAW clips created using a Canon digital cinema camera and external recorder compatible with Canon RAW data.

• While every effort has been made to ensure that the information contained in this manual is accurate and complete, Canon shall not be liable for any damages resulting from corrupted or lost data due to mistaken operation or malfunction of the software.

• Your camera may not support all of the features and functions described in this manual. Screens show clips recorded using a Canon EOS C500 digital cinema camera and external recorder.

• The software records internal operations, including full path information of the clips used, on a log file kept on the hard disk. The information recorded will be used only for the purpose of providing technical support in case of a problem with the software.

Running Cinema RAW Development

Starting Up Cinema RAW Development

Click on the Cinema RAW Development icon on the dock. After a short while, the application's main window will appear.

Click
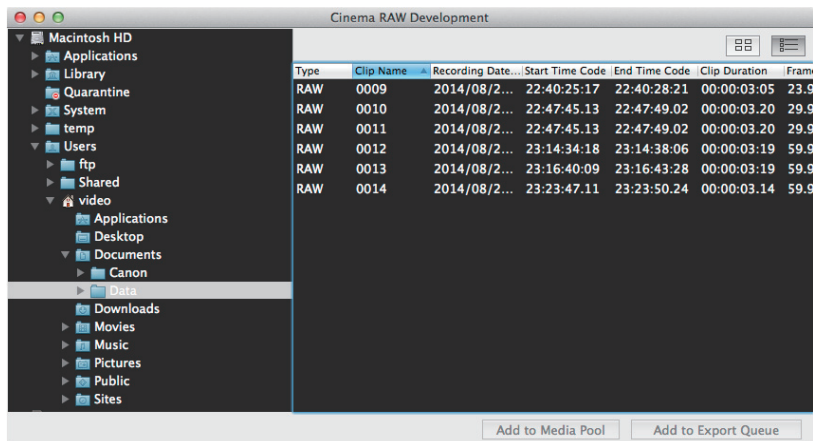
(i) NOTES

• Multiple instances of Cinema RAW Development cannot be opened simultaneously.

• If your computer is running resident software that periodically accesses the hard disk, such as an antivirus application, computer performance when playing back and exporting clips may decrease.

Exiting Cinema RAW Development

Using the menu: Click **Cinema RAW Development > Quit Cinema RAW Development**.
From the main window: Click the 🔴 (Close) icon on the top left corner of the window.

Overview of the Main Window

The main window shows the folders panel and clips panel.

File view format buttons

Folders panel

Clips panel

Add to Export Queue button

Add to Media Pool button
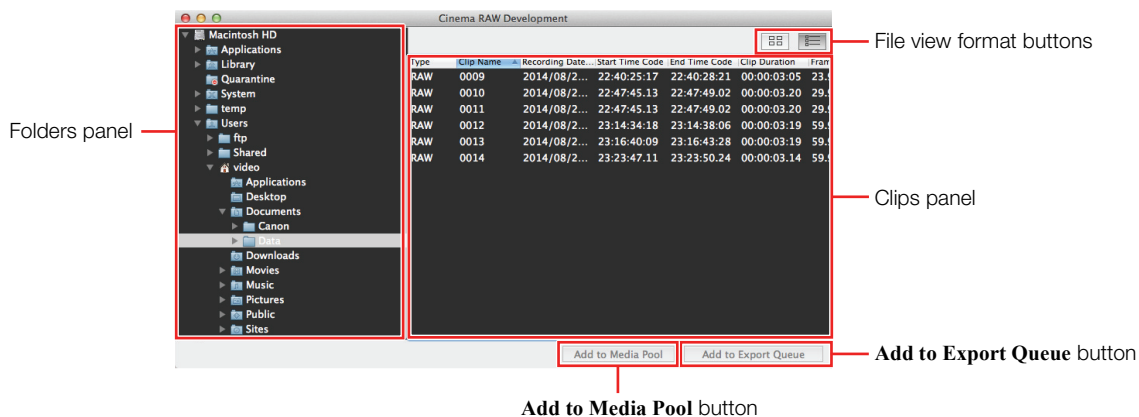
Folders Panel

Shows a list of folders on your computer. Select the folder that contains the desired clips.

Clips Panel

After you select a folder in the folders panel, the clips panel will display the clips saved in that folder. From this panel, you can select which RAW clips* to play back or export. The list shows the file types (RAW, DPX and OpenEXR).

* RAW clips are folders that contain video, audio and management files.

Selecting Clips

Selecting clips in the Main Window

To play back or export a clip, you must first select it. When exporting, you can select multiple RAW clips.

In the clips panel, click on the desired clips.

• To select multiple, non-successive clips: Click the desired clips while holding the ⌘ key (⌘ + Click).

• To select multiple, successive clips: Click the first clip and then click the last clip while holding the Shift (⇧) key (Shift + Click).

Changing the file view format
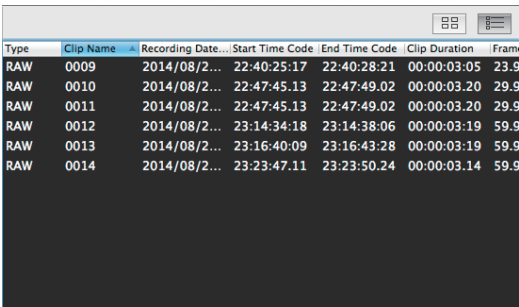
You can click the file view format button in the main window to switch how the clips in the clips panel are displayed.

■ Options

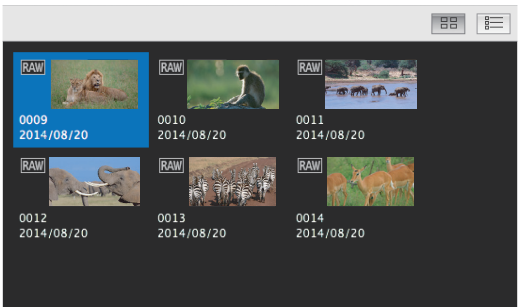|	
⊞ Thumbnails	Displays the each clip's thumbnail, name, recording date/time and file type*.
▤ Detailed Information	Displays the file type*, clip's name, recording date/time, starting time code, ending time code, length, frame rate, shooting frame rate, number of frames, resolution, bit depth, audio type, number of audio channels and audio sampling rate.

* The file type will be RAW, DPX or OpenEXR.

Thumbnail view

Detailed information view

Icons displayed in the thumbnail

In thumbnail view, an icon of the file type is displayed to the upper left of the thumbnail.

Adding RAW Clips to the Media Pool

You can select the RAW clips you plan to use and add them to the media pool. In the media pool, you can display RAW clips saved in multiple folders. You can play back, export, view clip information and view frame information for such clips in a similar way to RAW clips in the clips panel.

1. Click **View > Media Pool/EDL**.
   - The **Media Pool/EDL** window will appear.
   - When the EDL screen is displayed, click **Media Pool** to display the media pool screen.

2. In the main window, select the RAW clips you wish to add to the media pool from the clips panel (❶).
   - You can select multiple clips at once.

3. In the main window, click **Add to Media Pool** (❷).
   - The selected RAW clips will be added to the media pool screen of the **Media Pool/EDL** window.
   - You can also drag a clip from the clips panel and drop it on the media pool to add it.
   - In the media pool screen, select the clip you want to use in the same way that you select a clip in the clips panel of the main window (🕮 5).
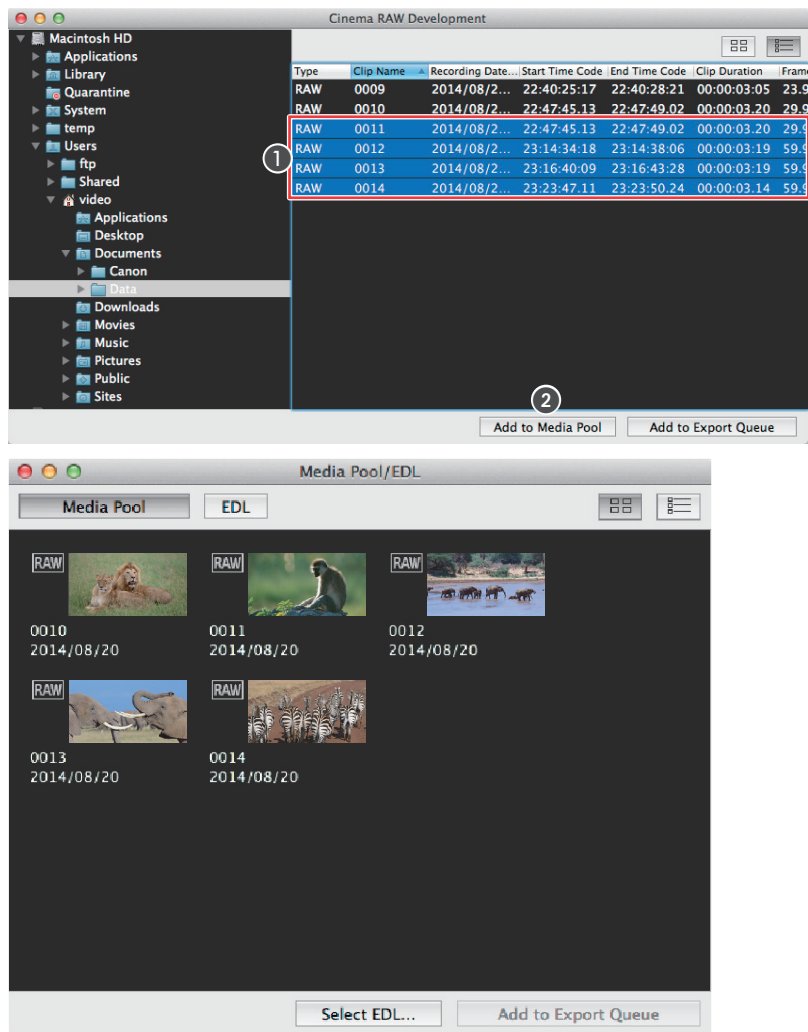
Adding clips with the contextual menu
- In the main window, move the mouse pointer over a folder and then open the contextual menu. Select **Add to Media Pool > Clips in Selected Folder** or **Clips in Selected Folder and Subfolders**. The RAW clips in the selected folder or the selected folder and all subfolders will be added to the media pool.
- In the main window, move the mouse pointer over a RAW clip and then open the contextual menu. Select **Add to Media Pool**. The RAW clip will be added to the media pool.

(i) NOTES

In the media pool, the file view format can be changed in the same way that you change the file view format in the clips panel of the main window (6).

Removing clips from the media pool

Follow the steps below to remove a RAW clip from the media pool.

1. In the media pool, select the desired RAW clip.
   - You can select multiple clips at once.

2. Move the mouse pointer over the selected RAW clip and then open the contextual menu.

3. Select **Remove from Media Pool**.

4. Select **Yes**.

Searching for Clips in the Media Pool (EDL Search)

In the media pool, you can search for RAW clips that are included in the time codes of events in the EDL and display them in a list (hereafter referred to as an "EDL search"). After you find RAW clips, you can add them to the export queue from the EDL screen.

1. Add the desired RAW clips to the media pool (📖 6).

2. In the **Media Pool/EDL** window, click **EDL** (❶).
   - The **Media Pool/EDL** window will switch to the EDL screen.

3. From the **FPS** list (❷), select the frame rate that matches the frame rate of the time code in the EDL.
   - Available frame rates are **23.98**, **24.00**, **25.00**, **29.97 DF**, **29.97 NDF**, **50.00**, **59.94 DF** and **59.94 NDF**.

4. For 59.94P and 50.00P clips, remove the check from the **Advance Time Code Every 2 Frames** box (❸) to advance the clip's time code one frame at a time*.
   * Some NLE systems generate an EDL with a time code that requires this step.

5. Click **Select EDL** (❹) and select the EDL file for the EDL search.
   - RAW clips that are included in the time codes of events in the selected EDL are displayed in a list.
   - The EDL screen will be refreshed after you select an EDL file, add/delete clips to/from the media pool, select a different option in the **FPS** list, or change the **Advance Time Code Every 2 Frames** setting.
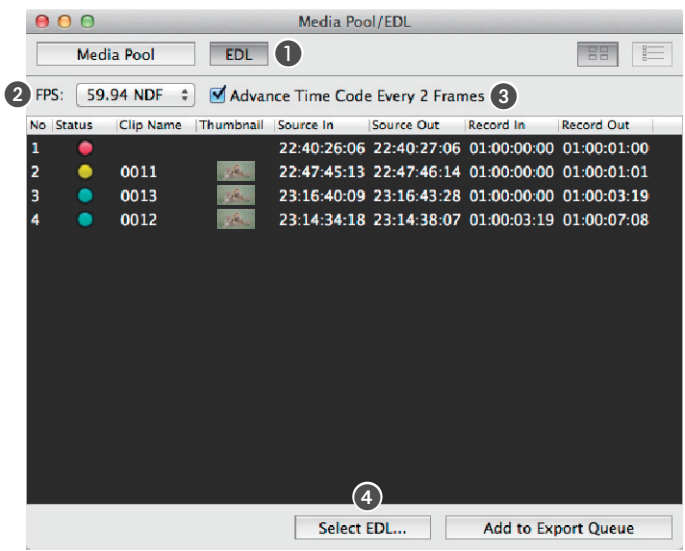
Items displayed in the EDL search results

Item	Description
No.	Number indicating the event order in the EDL (event number).
Status	🔵 (green): Operation successful. A clip matching the frame rate in the **FPS** list was found. 🔴 (red): Error. No matching clips found. 🟡 (yellow): Warning. Multiple matching clips were found (conflict) or a clip not matching the frame rate in the **FPS** list (frame rate mismatch) was found. Move the mouse pointer over the icon to display which warning it is. ✅ (green with check mark): Conflict resolved. You selected one clip from the multiple clips that were found.
Clip Name	RAW clip name.
Thumbnail	Shows the first frame of the clip.
Source In	Time code of the clip's in point.
Source Out	Time code of the clip's out point.
Record In	Time code of the starting point of the time line position in which the clip was placed after editing.
Record Out	Time code of the ending point of the time line position in which the clip was placed after editing.

Adding margins to the time codes in the EDL (source in/source out)

When performing an EDL search, you can compare with the time code of the RAW clip's in point and out point and then you can set margins (0 to 5 seconds in 1-second increments, or 0 to 999 frames in 1-frame increments) before/after the source in/source out. If you set the margins to n seconds, the RAW clip will be compared with a time code of $-n$ seconds/frames for source in and $+n$ seconds/frames for source out, where n represents the margin length.
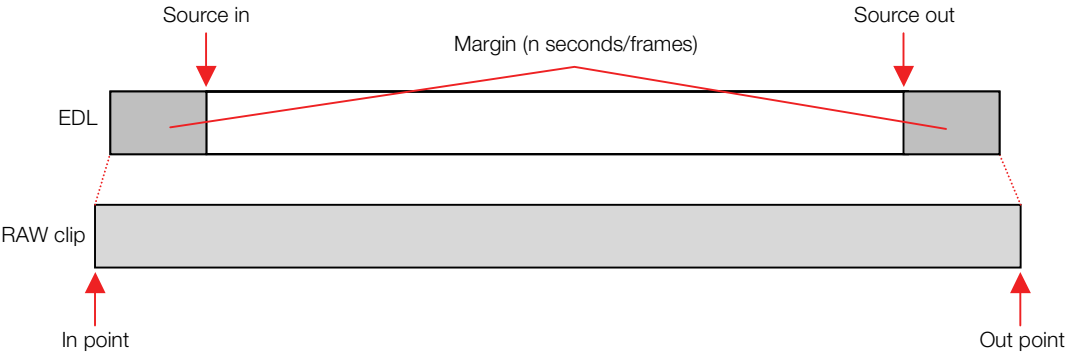
1. Click **Cinema RAW Development > Preferences**.
   - The **Preferences** dialog box will appear.

2. Select the desired margin.
   - To select the margin in seconds, select a value from the **sec.** list (❶). To select the margin in frames, click the button next to the **frames** (❷) value and enter a value between 0 and 999.

3. Click **OK** (❸).
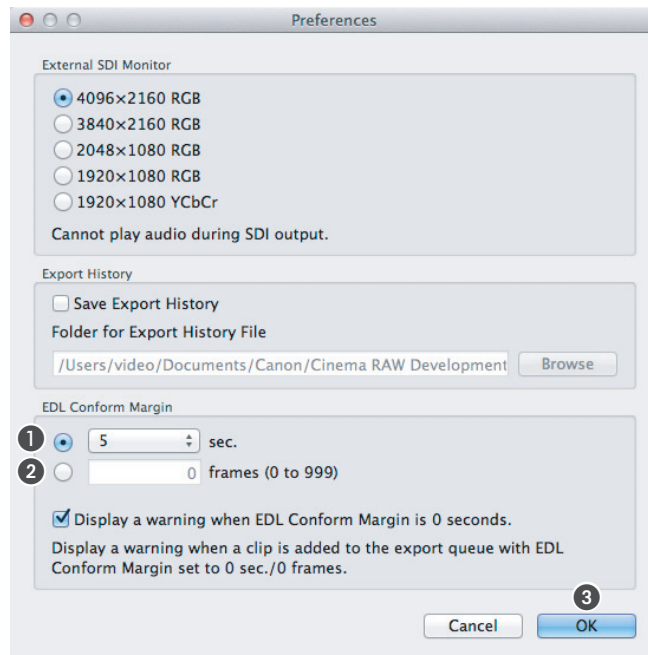
Searching for RAW clips that match error results

You can search for RAW clips in a desired folder that fall within the time codes of events resulting in an error from the EDL search.

1. In the EDL display, select an event whose status is ● (error).

2. Move the mouse pointer over the selected event and then open the contextual menu.

3. Click **Search for Clips**.
   - A dialog box will appear.

4. Select the folder to search.
   - RAW clips from the selected folder and all subfolders that fall within the time codes of the event from step 1 will be searched for.
   - The results will appear in the EDL display. If only one RAW clip is found, it will be added to the media pool.

Selecting a RAW clip to resolve during a clip conflict

When multiple RAW clips are found in the EDL search that result in a clip conflict, you can select the RAW clip to use for the event.

1. In the EDL display, select an event whose status is ⬤ (conflict).

2. Move the mouse pointer over the selected event and then open the contextual menu.

3. Click **Resolve Conflict**.
   - A dialog box will appear.

4. Select the desired clip (①) and then click **OK** (②).
   - The clip conflict will be resolved and the status will change to ✓.
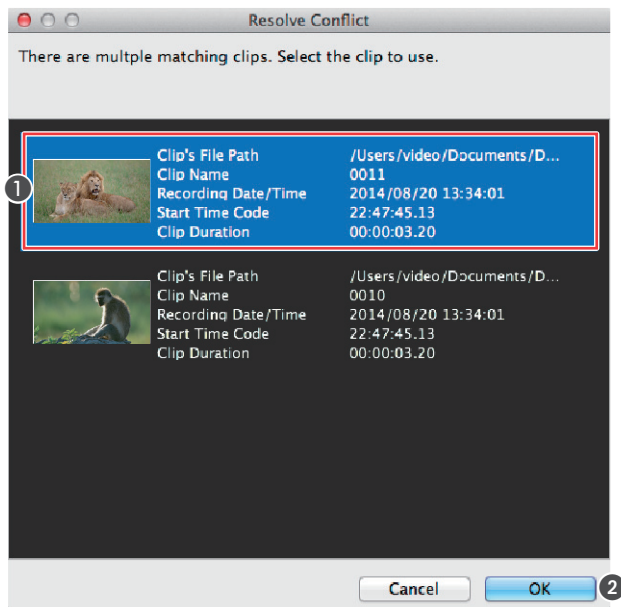
Playing Back and Developing Clips

Displaying the Preview Window

The preview window shows the preview panel and development settings panel. You can develop and play back the RAW clip currently selected in the clips panel or media pool screen.

> Click **View** > **Preview**.
> • The **Preview** window will appear.

Preview panel   Development settings panel
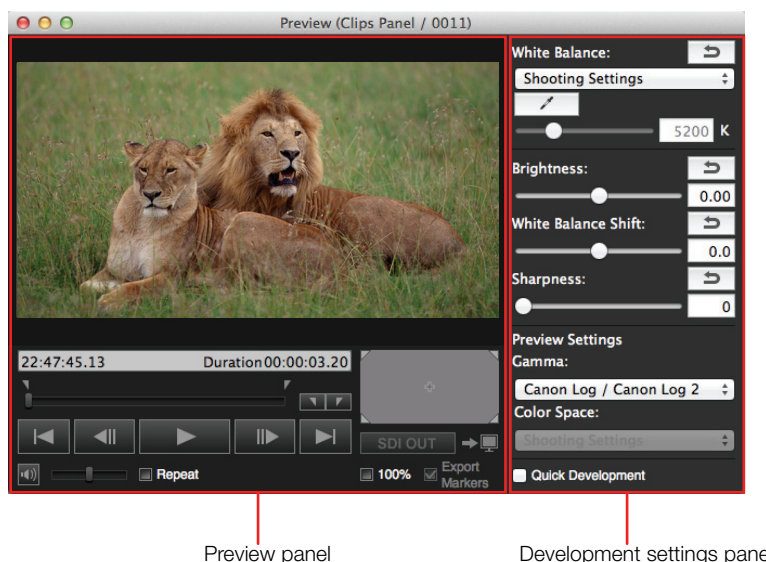
Playing Back Clips

This software features basic playback functionality of your clips. You can play back the RAW clip currently selected in the clips panel or media pool screen and display it in the preview panel. During playback, you can use the playback controls under the video display area. RAW clips will be played back using quick development (📖 16).

1. In the clips panel or media pool screen, select the clip you want to play back (📖 5).
   • The video display area in the **Preview** window will show the first frame from the clip.
   • After selecting a RAW clip, it is developed according to the settings in the development settings panel (📖 16) and then displayed.

2. In the **Preview** window, click ▶ to start the playback.
   • The clip will be played back. The playback position slider and time code display will advance as the clip is played back.
   • During the clip's playback, the ▶ button will change to ■.

3. Click ■ to stop the playback.
   • Selecting a different clip will also stop the playback of the current clip.

Video display area

Time code — 22:47:46.14   Duration 00:00:03.20 — Total duration of the clip

Playback position slider

SDI OUT

100%   Export Markers   Repeat

Playback controls
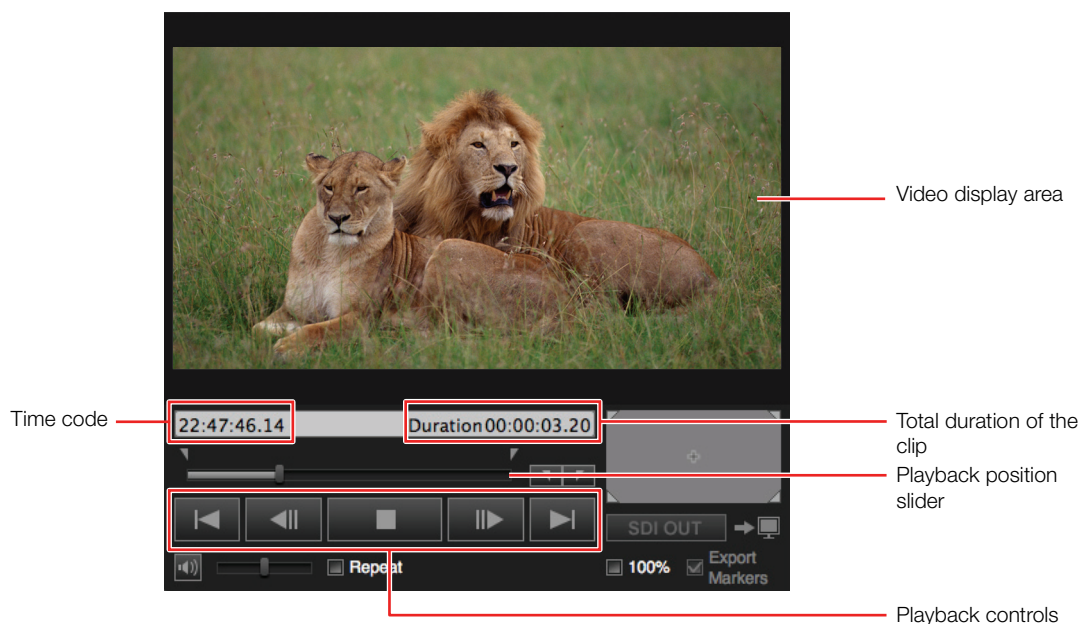
❶ IMPORTANT

Your computer's performance can affect the playback quality. In certain cases, you may notice some of the following anomalies.
- Playback is not smooth and frames are dropped.
- The displayed time code does not match the actual frame being displayed.
- Parts of the screen freeze or take longer to be refreshed.

ⓘ NOTES

• You can play back RAW clips shot with Canon digital cinema cameras.

• When the input focus* is on the playback position slider in the preview panel, you can press the space key or K key to start/stop the playback.

  * "Input focus" refers to the window or item that can receive keyboard input from the user.

Changing the way video is displayed

By placing a check in the **100%** box or removing it, you can change how video is displayed in the video display area.

Options

100% box not checked	Displays the entire video so that the entire picture is visible.
100% box checked	Displays the video at actual size. As such, only a portion of the video will be displayed. The ⊞ mark inside the display area graphic to the right of the playback position slider indicates the area of the picture currently visible. You can use the mouse to drag the picture in the video display area to change what is being displayed.

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Display area graphic

Part of the picture currently visible
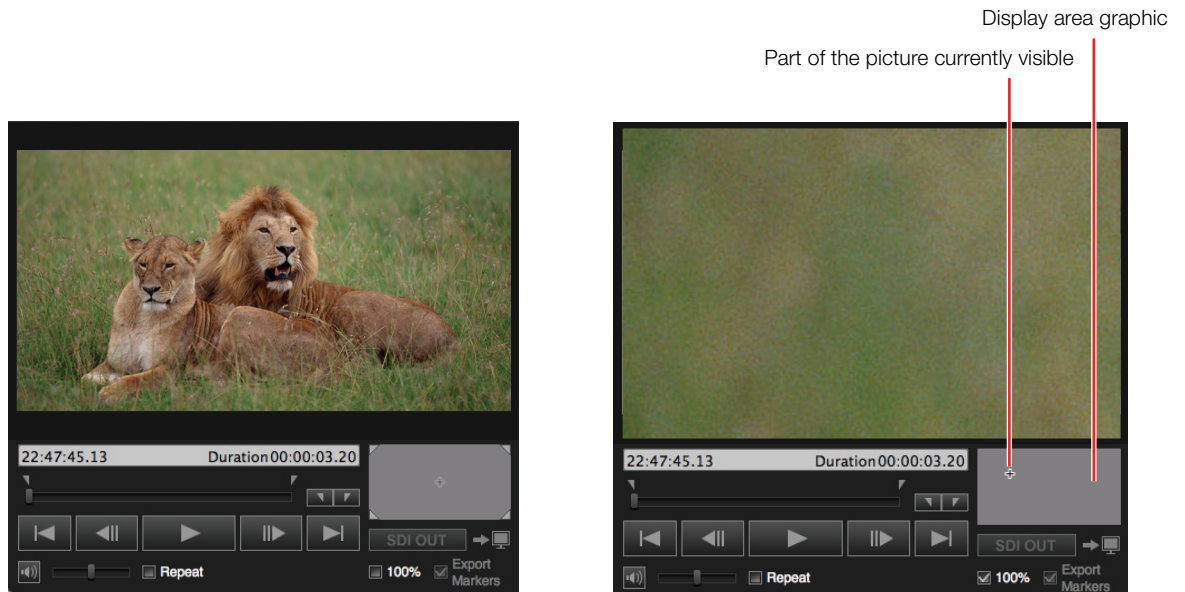
Adjusting the volume

Drag the volume slider to adjust the playback volume. You can click 🔊 to temporarily mute the sound (🔇).

Click to mute the audio

Volume slider

Changing the playback position

You can change the playback position during playback or in playback pause mode in the following ways.

Playback position slider

Move to the out point

Next frame

Previous frame

Move to the in point

Mouse operation	Keyboard shortcut*	Action
◄◄	home	Move to the in point. Move to the first frame if the current frame position is before the in point.
►►	end	Move to the out point. Move to the last frame if the current frame position is after the out point.
◄❙❙	← arrow or J	Go back one frame.
❙❙►	→ arrow or L	Advance one frame.
Playback position slider	—	Drag it to bring the playback position to the desired frame. You can also click on the slider to jump to the selected playback position.

* Usable when the input focus is on the playback position slider in the preview panel.

Repeating playback of a clip

When you place a check in the **Repeat** box, you can have the clip play back in a loop. After playing back to the out point, playback starts again from the in point.
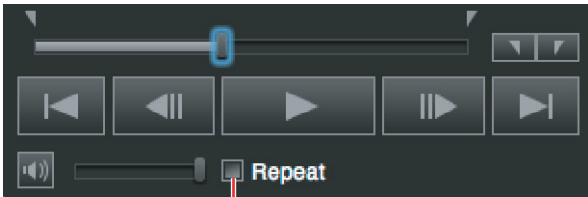
Place a check in the box to repeatedly play back the clip

Playing back 4K1K RAW clips

When 4K1K RAW clips are exported, the sides of the picture will be cropped depending on the output picture angle (resolution of the full-quality file). By adjusting the **Resolution of Full-quality File** setting, you can preview the cropped picture as it will be exported.
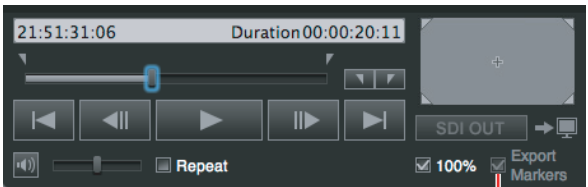
Export marker

1. In the **Export Configuration** dialog box, select the resolution for **Resolution of Full-quality File** (📖 23).

2. Place a check in the **Export Markers** box and play back the clip.
   - The clip will be played back with a portion of the picture masked so that the visible area matches the resolution selected in step 1.

(i) NOTES

- If you select a DPX or OpenEXR clip in the clips panel that was exported with this software, you can display a desired frame. Use the playback position slider, and the ◀II (go back one frame) and II▶ (advance one frame) controls to select a frame.
- The colors of OpenEXR clips will be different from those of the original RAW clips before export.
- This software displays OpenEXR clips by applying the Reference Rendering Transform (RRT), which is stipulated in the ACES specifications, and Output Device Transform (ODT) into BT.709.

Developing Clips

Adjusting the development settings

RAW clips must be developed before they can be played back or exported. You can adjust various development settings using the development settings panel.

1. Select the desired RAW clip from the clips panel or media pool/EDL window.
   - The clip will be developed and the video display area will show the first frame from the clip.

2. In the development settings panel, adjust the desired settings.
   - The clip is developed again based on the new settings and then displayed in the video display area.

3. Play back the clip (☐ 12).

Development settings
Default settings are underlined.

Setting		Setting options	Function
White balance adjustment mode	**Shooting Settings, Click White Balance, Color Temperature**	Selects how the white balance is adjusted. You can click ↰ to return the setting to its default value.
	Click White Balance	—	Adjusts the white point. After clicking the ✐ button, click in the video display area to adjust the white balance by using the color of the location clicked as the white point.
	Color Temperature	2,000 to 15,000 K (<u>5200</u>)	Allows you to adjust the color temperature using the slider or by directly entering a value (in increments of 100 K).
Brightness		-3.00 to 3.00 (<u>0.00</u>)	Allows you to adjust the brightness using the slider or by directly entering a value (in increments of 0.01). You can click ↰ to return the setting to its default value.
White Balance Shift		-10.0 to 10.0 (<u>0.0</u>)	Allows you to adjust the white balance shift using the slider or by directly entering a value (in increments of 0.1). You can click ↰ to return the setting to its default value.
Sharpness		0 to 10 (<u>0</u>)	Allows you to adjust the sharpness using the slider or by directly entering a value (in increments of 1). You can click ↰ to return the setting to its default value.
Preview Settings: Gamma		**<u>BT.709</u>, Canon Log/Canon Log 2, Wide DR**	Selects the gamma setting for development that will be applied during playback of a RAW clip. This setting will be applied to the preview panel and the picture output through the SDI terminal (◻ 19).
Preview Settings: Color Space		**<u>Shooting Settings</u>, BT.709, DCI-P3**	Selects the color space setting for development that will be applied during playback of a RAW clip. This setting will be applied to the preview panel and the picture output through the SDI terminal (◻ 19). The **Shooting Settings** option refers to the settings at the time of shooting.
Quick Development		<u>Off</u>, On	When a check mark is placed in the box, processing is simplified when exporting RAW clips or during playback/playback pause, in order to shorten the development time. Because some processes such as false color reduction will not be implemented, the color and resolution will differ from the result obtained using normal development.

Playing Back and Developing Clips

Available Settings by Color Space Used While Recording
The color space and gamma settings available for displaying a clip in the software depend on the color space used when recording the RAW clips.

Color space used for recording	Display settings	
	Color space	Gamma
Cinema Gamut, DCI-P3+	**Shooting Settings**	**Canon Log / Canon Log 2, BT.709, Wide DR, DCI**
	DCI-P3	**Canon Log / Canon Log 2, DCI**
	BT.709	**Canon Log / Canon Log 2, BT.709, Wide DR**
BT.2020	–	**Canon Log / Canon Log 2, BT.2020, Wide DR**
BT.709	–	**Canon Log / Canon Log 2, BT.709, Wide DR**

(i) NOTES

- Use a computer with a GPU supported by this software to develop clips. Although it is possible to develop clips using a computer that does not have a GPU supported by this software, it is not recommend to do so. For the latest information on this software, including system requirements, visit your local Canon Web site.
- Development settings cannot be changed while playing back a RAW clip.
- You cannot adjust the sharpness of RAW clips that were recorded in HRAW recording mode (4096x1080, 3840x1080)
- When a clip with a color space of BT.709 or BT.2020 is selected, the **Preview Settings: Color Space** option in the development settings cannot be selected.

Setting In and Out Points

You can set the in and out points (starting and ending points) of a range of frames in a clip. By default, the first frame of the clip will be the in point and the last frame will be the out point. However, you can change these points. The in and out points will be represented by the ◤ and ◢ icons, respectively.

Mouse operation	Keyboard shortcut*	Action
◤	I	Sets the current frame as the in point.
◢	O	Sets the current frame as the out point.

* Usable when the input focus is on the playback position slider in the preview panel.

In point icon
Out point icon

Set Out Point button
Set In Point button
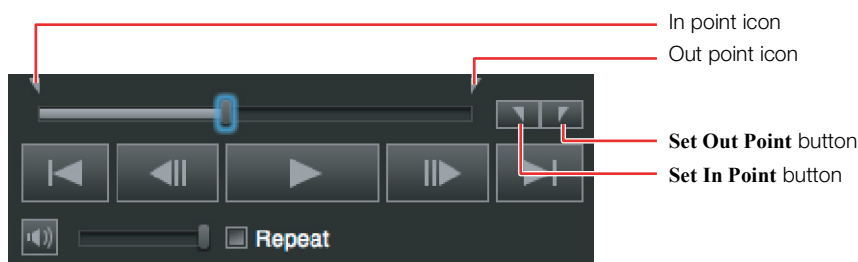
1. Select the frame you wish to set as in or out point.

2. Click ◣ or ◢ to set the in or out point, respectively.
   • The corresponding mark will appear above the selected position on the playback slider.

(i) NOTES

• You can set in and out points to export only a specific portion of a clip (◻ 21).

• When a RAW clip is selected in the EDL screen, the in and out points will be displayed in the **Source In** and **Source Out** fields of the EDL. If an EDL Confirm Margin is set, the time code displayed will already reflect the applied margin.

Connecting to an External Monitor Using SDI Output

If your computer has an expansion card with SDI output capability, you can use this software to play back clips on an external monitor using your computer's SDI terminal*. During output, an output area graphic (see the illustration below for an example) will be available to select what portion of the playback picture is displayed but the playback picture itself will not appear in the graphic.
Refer also to the instruction manual of the expansion card.
* The picture resulting from playing back a clip with this software will be referred to hereafter as the "playback picture".

1. Connect the external monitor to the computer's SDI terminal.
   • Follow the procedure in the instruction manual of the expansion card.

2. Click **Cinema RAW Development** > **Preferences**.
   • The **Preferences** dialog box will appear.

3. Select the video output configuration that matches the external monitor's capability (❶).

4. Click **OK** (❷).

5. Click the **SDI OUT** button (❸).
   • A graphic will appear in the video display area indicating what portion of the picture is being displayed.
   • Click the **SDI OUT** button again to disable SDI output.

6. Play back the clip (◻ 12).
   • The playback picture will be output from the SDI terminal.
   • The size of the output picture will automatically be enlarged or reduced depending on the aspect ratio of the playback picture and the resolution selected in step 3 for **External SDI Monitor**. If the aspect ratios are different, the output picture will be letterboxed or pillarboxed.

■ To play back without reducing the size

Place a check in the **100%** box.

- During playback pause, you can use the mouse to drag the picture on the output area graphic to change what is being displayed.
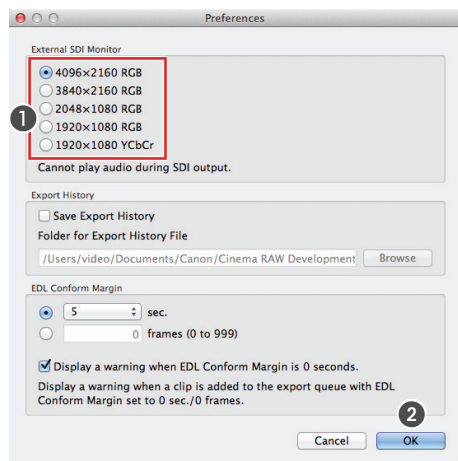
Preferences dialog box
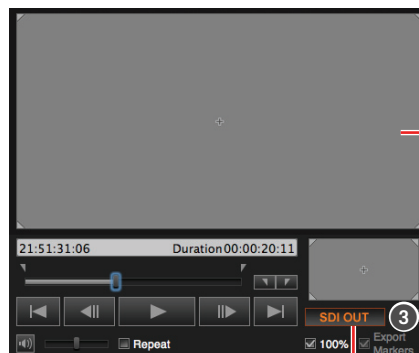
ⓘ NOTES

- If you select **4096x2160 RGB**, **3840x2160 RGB** or **2048x1080 RGB** for **External SDI Monitor**, clips with a frame rate of 59.94P or 29.97P will be output at 23.98P and those with a frame rate of 50.00P will be output at 25.00P. If you select **1920x1080 RGB**, clips with a frame rate of 59.94P will be output at 29.97P and those with a frame rate of 50.00P will be output at 25.00P.
- If the playback picture size is reduced, moiré patterns or other artifacts may appear.
- If the resolution of the clip and SDI monitor differ, dropped frames may occur during playback.

Exporting Clips

Adjusting the Export Settings

You can select the type of file exported, the file name and the destination folder. You can also set the desired color space and gamma settings individually for each color space option used for recording. Perform the settings before adding the desired RAW clip to the export queue. You can also change the settings of clips already in the export queue.

1. Click **View** > **Export**.
   - The export window will appear.

2. Click the ⚙ button (**1**).
   - The export configuration dialog box will appear.

3. Click the **Output Settings** tab (**2**).
   - The output settings screen will appear.

4. Select how the exported file's name will be generated (**3**).

   Use clip name of metadata
   For clips other than MOV clips:
   [metadata clip name][1]_[number corresponding with the RAW file].[file extension]
   For MOV clips:
   [metadata clip name].MOV

   Use same file name as RAW file
   For clips other than MOV clips:
   [RAW file name].[file extension]
   For MOV clips:
   [RAW file name].MOV

   Enter file name
   For clips other than MOV clips:
   [file name input by user[2]][_consecutive clip number[3]]_[number corresponding with the RAW file].[file extension]
   For MOV clips:
   [file name input by user[1]][_consecutive clip number[2]].MOV

   [1] This is the clip name that was given to the clip recorded on a recording media in the camera/camcorder at the same time the RAW clip was recorded. If no clip was recorded on a recording media when the RAW clip was recorded, then the file name method will be the same as that of **Enter file name**.
   [2] Every time you add clips to the export queue, you will be asked to enter the desired file name.
   [3] This consecutive number is added when multiple clips are added to the export queue at once.

   - For proxy files, "Proxy_" will be added to the beginning of the file name.

5. Under **Export Destination**, click **Browse** and then select the export destination folder (**4**).

6. Under **Export File**, select the development process (**5**).
Output Full-quality Files	The RAW clip that is output is developed normally so that the generated file will have image quality as close as possible to the original RAW clip.
Output Proxy Files	The RAW clip that is output is partially developed and reduced in size so that the generated file will be easier to edit.
Copy RAW Files	The RAW file is copied to the export destination folder.

7. Next, you can select detailed color space and gamma settings for the exported files.
   - Depending on your selection for the **Export File** setting in the previous step, change the desired settings under the **Output Type (Full-quality Clips)** tab (□ 22), the **Output Type (Proxy Clips)** tab (□ 23) or both.
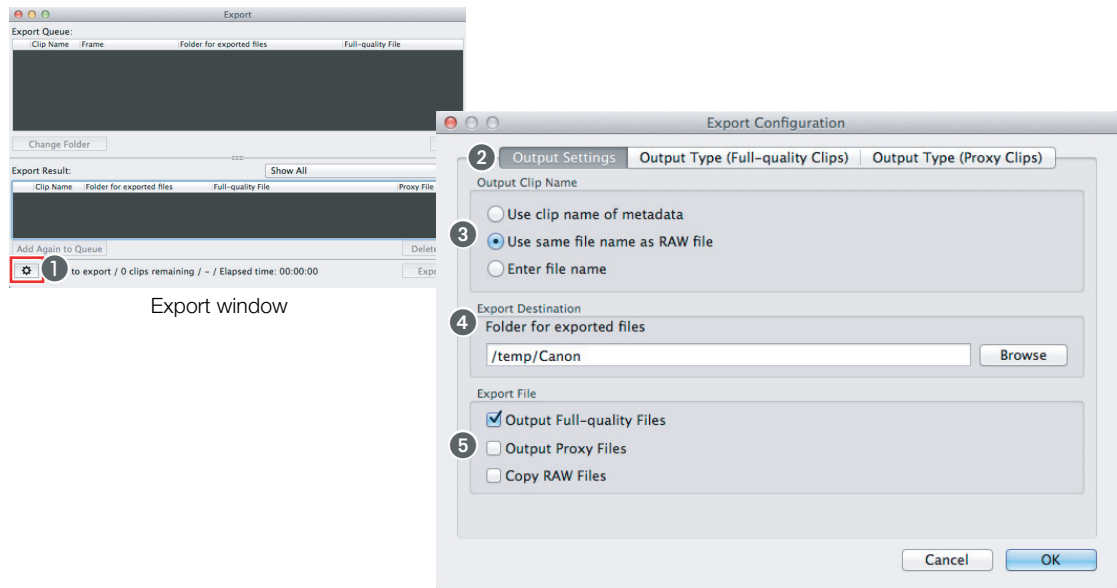
Export window

Export Configuration dialog box (output settings)

Settings for Full-quality Clips

1. Click the **Output Type (Full-quality Clips) tab (❶)**.
   - The output file type screen will appear.

2. Select the file type (❷), color space (❸) and gamma setting (❹).
   - Refer to the *Available Settings by Color Space Used While Recording* table (📖 18).
   - You can select the following for the file type.
     DPX RGB 10-bit
     DPX RGB 16-bit
     Apple ProRes 4444
     OpenEXR (ACES)
   - You can select the desired color space settings for each of the color space options that could be used for recording. You can select the following for the color space setting. However, you cannot select the color space setting if the file type is **OpenEXR (ACES)**.
     Shooting Settings
     BT.709
     DCI-P3
   - You can select the desired gamma settings for each of the color space options that could be used for recording. You can select the following for the gamma setting. However, you cannot select the gamma setting if the file type is **OpenEXR (ACES)**.
     Canon Log / Canon Log 2
     BT.709
     BT.2020
     Wide DR
     DCI
   - When the file type of the exported full-quality file is **OpenEXR (ACES)**, note the following.
     - The file will be output as ACES color space without the color space setting applied.
     - The file will be output as scene-linear data without the gamma setting applied.
     - For **ACES IDT (❺)**, you can select **Auto Select**, **Daylight** or **Tungsten**.

3. If you selected to export 4K1K RAW clips, select the full-quality file resolution (**6**).
   - You can select from the following options.
     4096x1080
     4096x2160 (Letterbox)
     2048x1080 (Side Crop)
     1920x1080 (Side Crop)
     2538x1080 (Side Crop)

4. Click **OK** (**7**).
   - If necessary, continue with the following procedure to change the settings under the **Output Type (Proxy Clips)** tab instead of clicking **OK**.
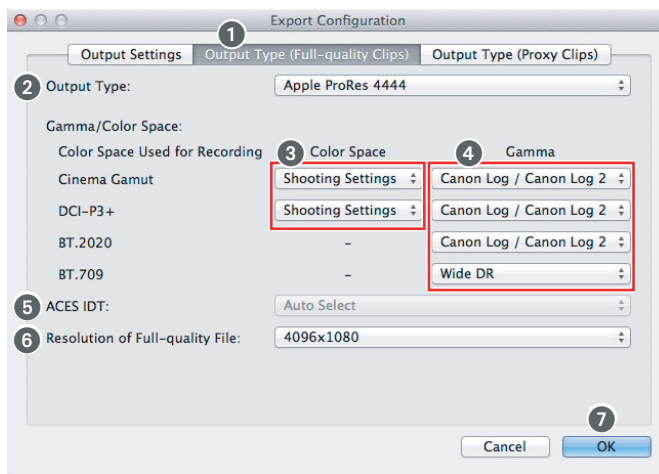
Export Configuration dialog box **Output Type (Full-quality Clips)** tab

Settings for Proxy Clips

1. Click the **Output Type (Proxy Clips)** (**1**) tab.
   - The output file type screen will appear.

2. Select the file type (**2**), color space (**3**) and gamma setting (**4**).
   - Refer to the *Available Settings by Color Space Used While Recording* table (📖 18).
   - You can select the following for the file type.
     DPX RGB 10-bit 720x480
     DPX RGB 10-bit 1920x1080
     Apple ProRes 4444 720x480
     Apple ProRes 4444 1920x1080
     Apple ProRes 422 (HQ) 720x480
     Apple ProRes 422 (HQ) 1920x1080
     Apple ProRes 422 720x480
     Apple ProRes 422 1920x1080
     Apple ProRes 422 (LT) 720x480
     Apple ProRes 422 (LT) 1920x1080
     Apple ProRes (Proxy) 720x480
     Apple ProRes (Proxy) 1920x1080
   - You can select the following for the color space setting.
     Shooting Settings
     BT.709
     DCI-P3

- You can select the following for the gamma setting.
  Canon Log / Canon Log 2
  BT.709
  BT.2020
  Wide DR
  DCI
- You can also place a check in the **Same as Full-Quality Files** box (❺), to use the same color space and gamma settings selected with the previous procedure.

3. Click **OK** (❻).
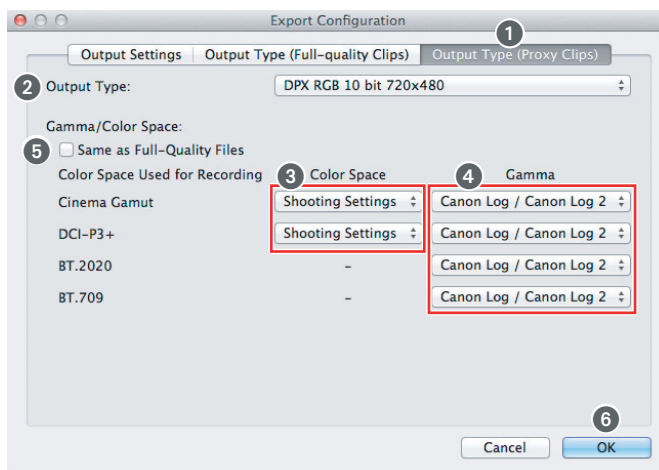
Export Configuration dialog box **Output Type (Proxy Clips)** tab

Processing and file types

Development process	Output file	Picture output	Gamma
Output Full-quality Files	DPX	RGB 10 bit RGB 16 bit	**Canon Log / Canon Log 2, BT.2020, BT.709, Wide DR, DCI**
	MOV	Apple ProRes 4444	
	OpenEXR	RGB 16 bit	**Linear**
Output Proxy Files	DPX	RGB 10 bit 720x480 RGB 10 bit 1920x1080	**Canon Log / Canon Log 2, BT.2020, BT.709, Wide DR, DCI**
	MOV	Apple ProRes 4444 720x480 Apple ProRes 4444 1920x1080 Apple ProRes 422 (HQ) 720x480 Apple ProRes 422 (HQ) 1920x1080 Apple ProRes 422 720x480 Apple ProRes 422 1920x1080 Apple ProRes 422 (LT) 720x480 Apple ProRes 422 (LT) 1920x1080 Apple ProRes (Proxy) 720x480 Apple ProRes (Proxy) 1920x1080	

(i) NOTES

- Files will be saved in subfolders in the folder you selected in step 5. For full-quality files, the subfolder name will have the same name as the RAW clip. For proxy files, the subfolder name will have the same name as the RAW clip with "Proxy_" added to the beginning. For RAW copied files, the subfolder name will have the same name as the RAW clip with "Copy_" added to the beginning.
- When an OpenEXR clip is exported, it will be converted into a color space defined by the Academy Color Encoding System (ACES), which was proposed by the Academy of Motion Picture Arts and Sciences (AMPAS).
- **Changing the export settings with clips already in the export queue**
  - You can change the export settings after clips were already added to the export queue. When the confirmation message appears, select **Yes** to apply the new export settings also to the clips that are already in the export queue.
  - If a dialog box appears prompting you to change the file name, enter a file name and click **OK**. The new file name will be applied also to the clips that are already in the export queue.

Developing and Exporting RAW Clips

You can develop a RAW clip and convert it to a standard file type for export. You can also save a log file of the export operations performed.

1. In the clips panel or media pool screen, select the RAW clip to be exported.

2. Adjust the development settings as necessary (16).

3. In the main window, click **Add to Export Queue** (❶).
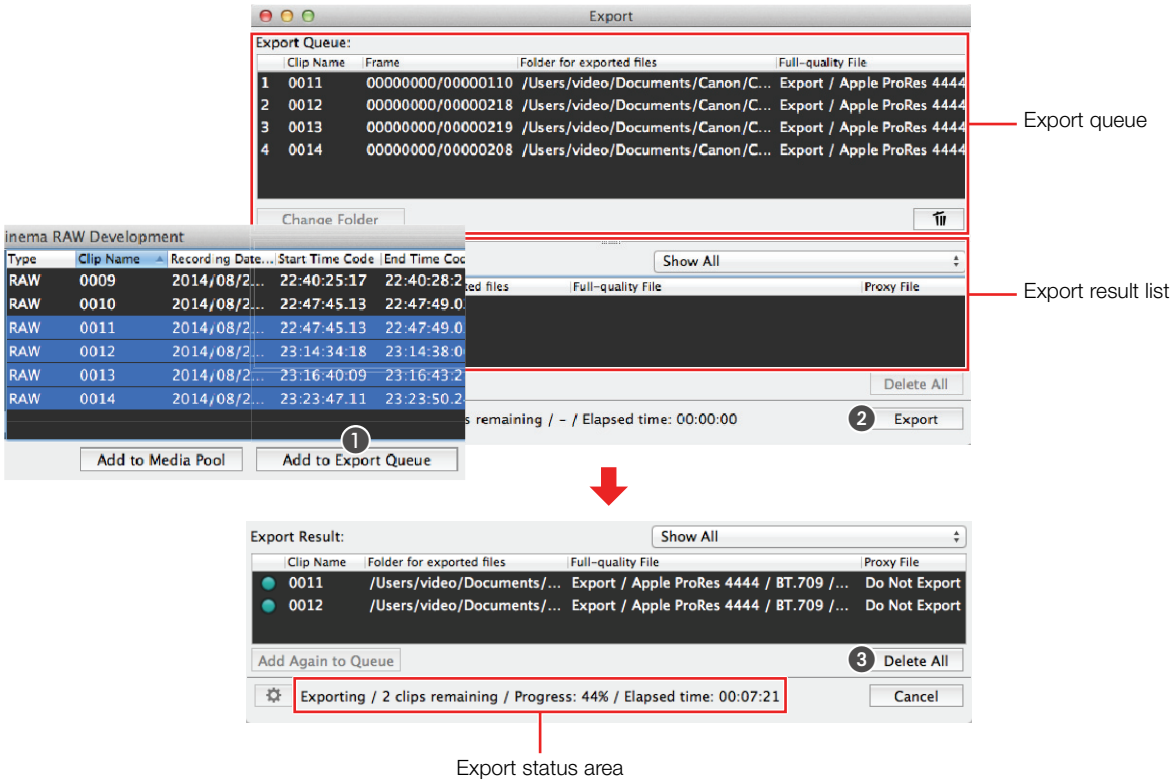   - If a dialog box appears prompting you to change the file name, enter a file name and click **OK**.
   - The selected RAW clip(s) will be added to the bottom of the export queue.
   - You can also drag a clip from the clips panel or media pool screen and drop it on the export queue to add it.
   - You can also move the mouse pointer over the selected folder/RAW clip and perform the operation from the contextual menu (33).
   - In the media pool screen, click **Add to Export Queue** to add a RAW clip in the media pool to the queue.

4. Repeat steps 1 to 3 as necessary to add other RAW clips to the export queue.
   - You can change the export settings for each clip separately (21).

5. If necessary, activate the option to save a log file of the export operations (28).

6. Click **Export** (❷).
   - The RAW clips in the export queue will be exported in order starting from the file on the top.
   - The range of frames from the in point to the out point will be exported.
   - RAW clips that have been exported will be removed from the export queue and then be added to the export result list.
   - For clips that are displayed in the export result list, you can select **Show All**, **Show Clips with Errors/Canceled Exports** or **Show Successful Clips**.
   - After the export operation begins, **Export** will change to **Cancel**, which you can click to cancel the export process. If part of the files have already been exported when you cancel the operation, you will be asked whether you want to delete the output files already exported. Click **Delete** to delete all the output files already exported.
   - You can click **Delete All** (❸) to clear the export result list.
   - You can develop full-quality files using quick development. Proxy files will always use quick development regardless of the **Quick Development** setting (17).
   - When all the RAW clips in the export queue have been exported, a notification message will appear. Click **OK** to close the message.

Export queue

Export result list

Export status area

Items displayed in the export queue and export result list

Item	Description
Clip Name	Shows the name of the RAW clips.
Frame	Shows the frame currently being processed on the left and the total number of frames on the right. The number on the left will be updated while RAW clips are being exported. This appears only in the export queue.
Folder for Exported Files	Shows the folder to which exported files are saved.
Full-quality File	Shows whether the RAW clip is being exported as a full-quality file (**Export**) or not (**Do Not Export**), and if so, the output file type, color space, gamma setting and ACES IDT (for OpenEXR files only).
Proxy File	Shows whether the RAW clip is being exported as a proxy file (**Export**) or not (**Do Not Export**), and if so, the output file type, color space and the gamma setting.
Copy	Shows whether a copy of the RAW clip is being exported.
Export status area	During the export operation, in the export status area you can check the number of clips remaining in the queue, the progress status (percentage) and the elapsed time since the export operation started.
Export Result	The ⬤ (blue) icon indicates that the file was successfully exported, the ⬤ (red) icon indicates an error, and the ⬤ (yellow) icon indicates a canceled operation.
Status	Shows details of the export results (explains the reason an error occurred).

Messages displayed in the status column

Item	Description
Successful	Clip export was completed successfully.
Development Error	The RAW clip is corrupted. Use backup data.
Destination drive does not exist.	Cannot access the drive that contains the destination folder. Check the drive.
Insufficient Space	The drive that contains the destination folder does not have enough available space. Select a different drive for the destination folder.
Read Error	The RAW clip is corrupted. Use backup data.
Write Error	Could not write to the destination folder. Check that the folder permissions allow for writing.
Cannot Create a Folder	
Unknown Error	An error not covered by the other error messages in this list, such as a lack of memory error, has occurred. After restarting your computer, perform the operation again.
Canceled	The export operation was canceled.

(i) NOTES

The following operations cannot be performed during export.
- Playing back a clip
- Adjusting development settings
- Viewing clip information or frame information

Removing clips from the export queue

Follow the steps below to remove a RAW clip from the export queue.

1. Select the RAW clip to remove from the export queue.
   • You can select multiple clips at once.

2. Click 🗑 (❶).
   • The selected RAW clip will be removed from the export queue.

Changing the destination folder

You can change the destination folder for clips added to the export queue.

1. Select a RAW clip in the export queue.
   • You can select multiple clips at once.

2. Click **Change Folder** (❷) and select the destination folder.

Adding a RAW clip in the export result list to the export queue again

You may find it convenient to add a RAW clip in the export result list to the export queue again in cases such as when an error has occurred.

1. Select a RAW clip in the export result list.
   - You can select multiple clips at once.

2. Click **Add Again to Queue** (❸).
   - The selected RAW clips will be added to the export queue with their previous settings.
   - If necessary, you can also change the destination folder.
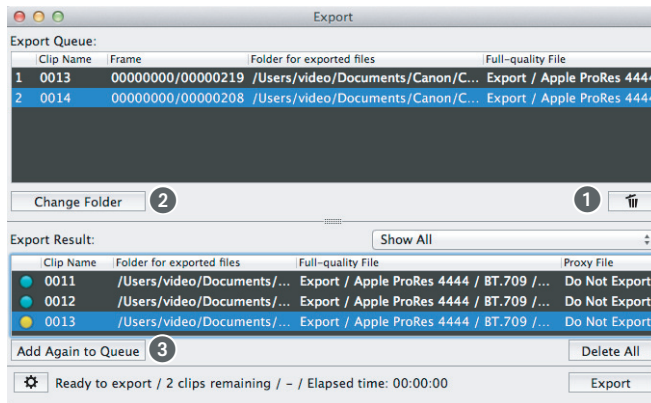
Saving the export log

1. Click **Cinema RAW Development** > **Preferences**.
   - The **Preferences** dialog box will appear.

2. Place a check in the **Save Export History** box (❶).

3. Click **Browse** (❷) and select a destination folder.

4. Click **OK** (❸).
   - The export log from this point on will be saved in an export log file (CSV format).
   - Export log files are generated on a daily basis on days in which files are exported. The file's name will appear in the destination folder as [CRD_Export_YYYYMMDD].CSV where YYYYMMDD represents the year, month and day.
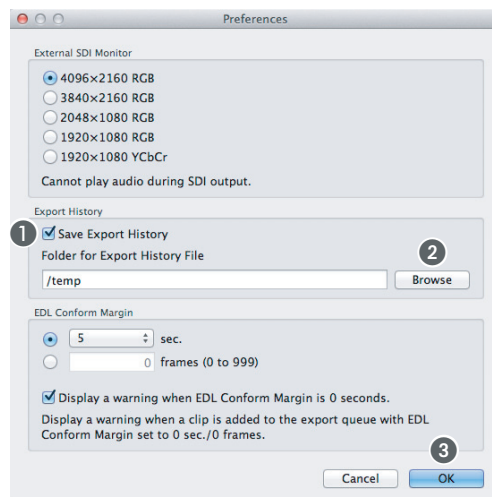
Data recorded in the export log file

Item	Description
Status	Shows the result of the export process.
Date	Shows the date in which the file was exported.
Time	Shows the time in which the file was exported.
Source	Shows the file path of the RAW clip.
Destination	Shows the file path of the exported file.
Type	Shows the output format of the exported file. If the RAW file was copied, this appears as **RMF**.
Resolution	Shows the resolution of the exported file.
Color Space at the Time of Shooting	Shows the color space of the RAW clip.
Color Space after Conversion	Shows the color space of the exported file.
Gamma	Shows the gamma settings for the exported file. For OpenEXR files, this appears as **Linear**.
IDT	Shows the IDT setting applied to OpenEXR files.
Start TC	Shows the starting time code for the exported file.
End TC	Shows the ending time code for the exported file.

Displaying and Editing Metadata

Displaying Clip Information

When you display the clip information window, you can display the clip information in the metadata associated with the RAW clip that is selected in the clips panel or media pool screen.

Click **View** > **Clip Information**.
- The clip information window will appear.

Entering and editing clip information

1. In the clip information window, double-click **Clip Title**, **Creator** or **Description**.
   - The **Edit Clip Information** dialog box will appear.

2. Enter text or edit the fields as necessary.
   - You can enter up to 1000 characters into the description field and a maximum of 100 characters for the other fields.

3. Click **OK**.
   - The user information will be saved with the RAW clip.
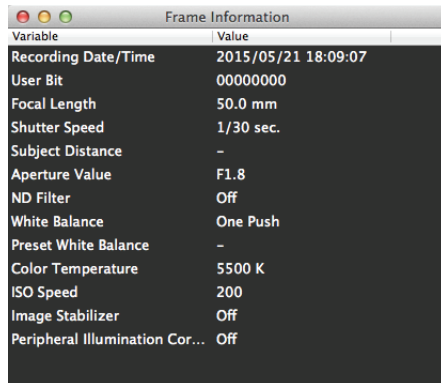
Displaying Frame Information

When you display the frame information window, you can display the frame information (information on each frame in the RAW clip) recorded in the metadata of the frame that currently appears in the preview window. During playback, the information will be updated to match the frame being played back.

Click **View** > **Frame Information**.
• The **Frame Information** window will appear.

Frame Information	
Variable	Value
Recording Date/Time	2015/05/21 18:09:07
User Bit	00000000
Focal Length	50.0 mm
Shutter Speed	1/30 sec.
Subject Distance	–
Aperture Value	F1.8
ND Filter	Off
White Balance	One Push
Preset White Balance	–
Color Temperature	5500 K
ISO Speed	200
Image Stabilizer	Off
Peripheral Illumination Cor…	Off

Reference and General Information

Menus and Keyboard Shortcuts

Main menu bar

Menu submenu	Keyboard shortcut	Function	📖
Cinema RAW Development			
About Cinema RAW Development	—	Displays details about the software's version. Also displays the GPU name when a compatible GPU is detected and the number of GPUs, if more than one is detected.	—
Preferences	⌘ + ,	Opens the **Preferences** dialog box.	19
Services	—	Standard option for Mac OS.	—
Hide Cinema RAW Development	⌘ + H	Standard option for Mac OS.	—
Hide Others	⌥ + ⌘ + H	Standard option for Mac OS.	—
Show All	—	Standard option for Mac OS.	—
Quit Cinema RAW Development	⌘ + Q	Exits Cinema RAW Development.	4
File			
Export Configuration	—	Opens a dialog box where you can adjust export settings.	21
Start Export	—	Starts export.	25
Cancel Export	—	Stops export.	
Select EDL	—	Selects the EDL so that you can search the media pool for RAW clips that match the editing data in the EDL.	8
Edit			
Cut	⌘ + X	Standard option for Mac OS.	—
Copy	⌘ + C	Standard option for Mac OS.	—
Paste	⌘ + V	Standard option for Mac OS.	—
Delete	⌫	Standard option for Mac OS.	—
Select All	⌘ + A	Standard option for Mac OS.	—
Start Dictation	—	Standard option for Mac OS (OS X 10.8 Mountain Lion and later).	—
Special Characters	⌥ + ⌘ + T	Standard option for Mac OS.	—
View			
Preview	—	Opens or closes the preview window.	12
Media Pool/EDL	—	Opens or closes the media pool/EDL window.	6
Export	—	Opens or closes the export window.	21
Clip Information	—	Opens or closes the clip information window.	30
Frame Information	—	Opens or closes the frame information window.	31

Menu submenu	Keyboard shortcut	Function	📖
Display at 100%	⌘ + control + N	Displays the picture in the preview panel at 100% size. Select this option again to display the picture at the previous size.	13
Display Export Makers	⌘ + control + M	Displays the export marker when previewing a 4K1K RAW clip.	15
Windows			
Minimize	⌘ + M	Standard option for Mac OS.	—
Zoom	—	Standard option for Mac OS.	—
Bring All to Front	—	Standard option for Mac OS.	—
Cinema RAW Development	—	Brings Cinema RAW Development to the front.	—
Help			
View Instruction Manual	—	Open's Cinema RAW Development's instruction manual (this PDF file).	—

Contextual menus

Following is a list of menus that appear when you control (^) –click* certain icons. The contextual menu displayed will depend on the location of the mouse pointer at the time of clicking.

* You can right-click instead, if you are using a multi-button mouse.

Contextual menu in the folders panel

Menu	Options	Function	📖
Add to Media Pool	**Clips in Selected Folder**	Adds all RAW clips in the selected folder to the media pool.	7
	Clips in Selected Folder and Subfolders	Adds all RAW clips in the selected folder and all subfolders to the media pool.	
Add to Export Queue	**Clips in Selected Folder**	Adds all RAW clips in the selected folder to the export queue.	25
	Clips in Selected Folder and Subfolders	Adds all RAW clips in the selected folder and all subfolders to the export queue.	

Contextual menu in the clips panel

Menu	Function	📖
Add to Media Pool	Out of the selected clips, adds the RAW clips to the media pool.	7
Add to Export Queue	Out of the selected clips, adds the RAW clips to the export queue.	25

Contextual menu in the media pool screen

Menu	Function	📖
Add to Export Queue	Adds the currently selected clip to the export queue.	25
Remove from Media Pool	Removes the currently selected clip from the media pool.	8

Contextual menu in the EDL screen

Menu	Function	📖
Search for Clips	Searches for clips that match events with a status of 🔴 (error).	10
Resolve Conflict	Selects a clip when multiple clips are found that matches an event with a status of 🟡 (conflict).	11

Troubleshooting Error Messages

Following is a partial list of error messages in alphabetical order.

A clip conflict has occurred. Resolve to continue.
- The EDL search resulted in multiple clips being found. Select the clip to use (□ 11).

Cannot add clips. Export queue has reached the maximum number of clips.
- The export queue already contains the maximum number of RAW clips. You can add other RAW clips after export has finished.

Cannot add clips. Media pool has reached the maximum number of clips.
- The media pool already contains the maximum number of clips (999 clips) so additional clips cannot be added.

Cannot add clips because a corresponding IDT does not exist.
- Because the selected RAW clip was recorded using a color space that is not supported by the software, it cannot be exported with a file type of OpenEXR. Select a DPX or MOV file type when exporting.

Cannot start program due to insufficient memory.
- Close other applications and then start this software again.

Cinema RAW Development has already been started by other user.
- Multiple users cannot open the software simultaneously on the same computer. The user who has already started the software must exit it.

Could not add some clips. Export queue has reached the maximum number of clips.
- The export queue has reached the maximum number of clips (999 clips) so additional clips cannot be added.

Could not add some clips. Media pool has reached the maximum number of clips.
- The media pool has reached the maximum number of clips (999 clips) so additional clips cannot be added.

EDL Conform Margin is set to 0 seconds.
EDL Conform Margin is set to 0 frames.
- You tried to add a clip found from the EDL search to the export queue while the **EDL Conform Margin** setting was set to 0 seconds or 0 frames. To prevent this message from appearing, remove the check from the **Display a warning when a clip is added to the export queue with EDL Conform Margin set to 0 sec./0 frames** box in the **Preferences** dialog box.

EDL not found. Select the EDL again.
- The EDL file was moved from its previous location. Select the EDL file again.

The media pool could not be restored to its previous state (how it was the last time the application was closed).
- One or more clip files were moved from their previous location. Add the desired RAW clips to the media pool again.

There are clips whose settings could not be changed.
- A list of clips in the export queue whose export settings could not be changed will be displayed. Click **Yes** to change the export settings only of those clips whose settings can be changed.

There are events with an error. The following clips will not be added.
- Check the event number with an error. Look for clips that match the results (□ 10) and add them again to the export queue.

There are events with mismatching frame rates. The following clips may not be added correctly.
- In the media pool/EDL window, set the frame rate in the **FPS** list correctly (□ 8).
- If your intention is to add the clip, click **Add**.

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• Other names and products not mentioned above may be trademarks or registered trademarks of their respective companies.

For support concerning this software, please contact a Canon Service Center. For details see the back cover of your camera's Instruction Manual.

The information in this manual is verified as of July 2015. Subject to change without previous notice.

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