ADOBE PREMIERE PRO

Best Practices & Workflow Guide

For Long Form and Episodic Post Production



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Introduction

Welcome to the Adobe Premiere Pro Best Practices and Workflow Guide for Long Form and Episodic Post Production. This deep-dive anthology of expert, step-by-step advice and illustrated examples was written by a team of industry experts and leading Adobe engineers.

This document covers a broad range of essential topics, starting with how to configure and optimize your settings, establish best practices for offline dailies, and help you navigate the remaining workflow all the way though turnovers and final deliverables.

This guide is not intended to be an all-encompassing, one-size-fits-all solution, but rather a detailed look at the recommendations and vetted procedures that have empowered our award-winning customers.

A bit of history... beginning in 2005, Adobe made a commitment to hiring seasoned experts from the post production and VFX fields to help their engineers and product design teams evolve Premiere Pro's professional toolset. The goal was to ensure that even the most demanding cutting rooms could rely on and trust Adobe applications for editing long form content.

After years of performance and feature refinements that were proven on commercials and music videos by industry vanguards such as Rock Paper Scissors and EXILE, in 2013 Premiere Pro was chosen by director David Fincher and his post team for *Gone Girl* which became the first Hollywood film to be edited with Premiere Pro. Followed soon by hits like Tim Miller's *Deadpool* and The Coen Brothers' *Hail, Caesar!*, the journey for Premiere Pro adoption in long form content was well underway.

Continuing with an impressive list of award-winning feature films, hundreds of streaming series and documentaries, we are honored to see the platform adopted by so many incredibly talented storytellers.

Our deep learnings from years of working directly with our film and video customers has helped vastly improve the capabilities, reliability, and performance of Premiere Pro and was the foundation for the guidance in this document.

In 2020 the key new Productions feature was released, dramatically improving performance and collaboration for long form editorial teams. Early iterations were first deployed on *Only the Brave, Dolemite Is My Name, Mindhunter* and *Terminator: Dark Fate. Mank* was the first film to utilize the fully-featured version of Productions, which is now available to all Premiere Pro users.

We hope this guide serves as a useful reference throughout your production and we look forward to hearing about your success using Premiere Pro.

Chapter 2

Before Getting Started

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Introduction

This chapter is a collection of important tips and recommendations to read before starting your Film or TV project in Premiere Pro. Many of the items are covered in other chapters of this guide, but are presented here because they are the most important to be aware of before you get started.

Merged Clips

Never use the Merge Clips function in Premiere Pro to sync audio and video. The merge clips feature creates a new clip which does not retain the original audio metadata, which can block common audio turnover workflows.

Don't use the Merge Clips function to sync audio and video.



Instead, use Multi-Camera to sync all footage. Multi-Camera clips can be modified after creation, match back to the original source clip, and preserve all metadata throughout your audio turnover workflow.

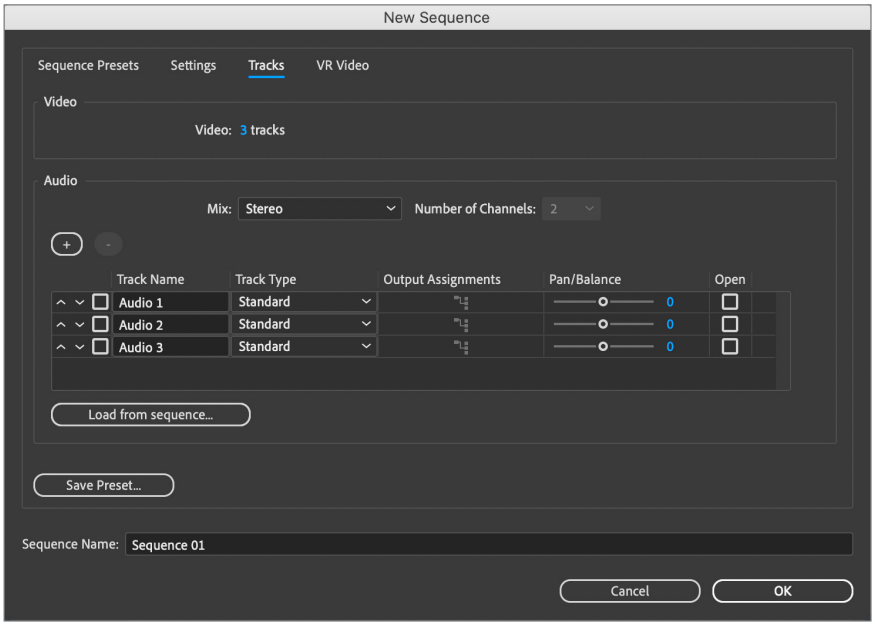
See the chapter "Multi-Camera Editing" on page 78 for more information.

Sequence Audio

When you drag a clip or Multicam into the Timeline panel to create a new sequence, Premiere Pro does its best to guess how to configure the sequence's audio channel format. However, you often don't want your sequence's audio channel format to match your clip or Multicam. Instead, always manually create your editorial sequence first and choose the appropriate format.

Choose **File > New > Sequence.** Click the Tracks tab, then select the appropriate audio channel format from the *Mix* drop-down menu. You cannot change the audio channel format of a sequence after creating it.

Save custom Sequence Settings presets.



You can save presets of your sequence settings for easy re-use later. When creating a new sequence, dial in your settings and then use the Save Preset button to save the preset.

Modifying an Existing Multicam Clip

Premiere Pro allows for the modifying of an existing Multicam clip, which can be useful to correct sync, or if new camera angles need to be added later. When working in a Production, it is best to modify Multicam clips before they have been cut into other sequences. If you need to modify a Multicam after it has been cut into other sequences, make sure to open the project containing the Multicam clip and modify that original instance.

MXF OP-Atom

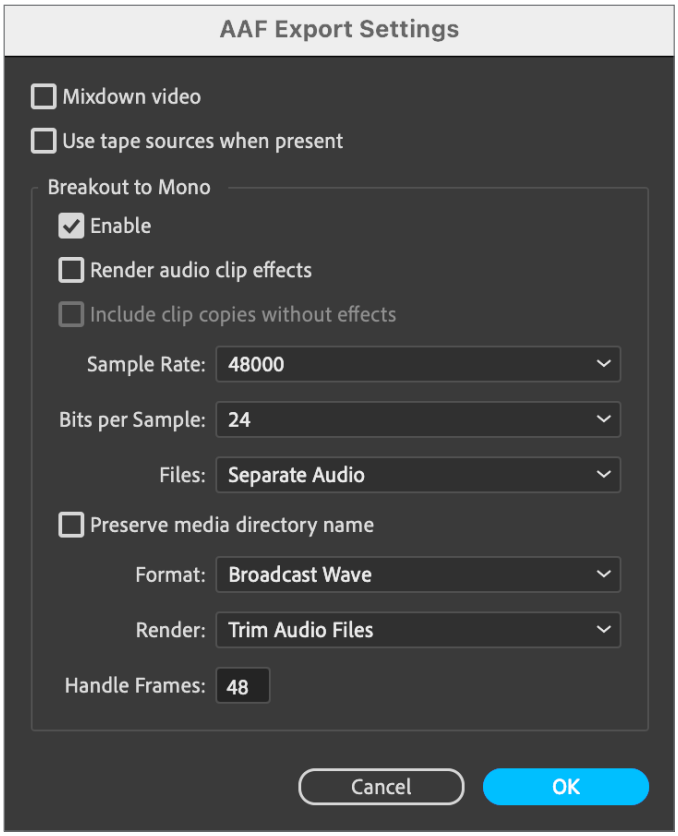
MXF files in the OP-Atom format use a separate file on disk for each track of a clip. A video clip with two audio channels would be three separate MXF files. Using MXF OP-Atom can result in increased network load as Premiere Pro has to keep more file handles open against the storage system.

While Premiere Pro can import and play back OP-Atom files, the best practice is to use MXF OP1a which puts the audio and video together in a single MXF file per clip.

AAF Export

- When exporting an AAF to Avid Pro Tools, use Breakout to Mono (check Enable).
- When exporting an AAF to Avid Media Composer do not use Breakout to Mono.

Enable or disable Breakout to Mono depending on the target software.



See the chapter "Turnovers" on page 115 for more information.

Media Cache Files

Media Cache Files and Media Cache Database are recommended to stay either in their default location on the system boot drive or on a separate fast SSD directly attached to each workstation. You can set the location in **Preferences > Media Cache**.

Adobe does not recommend and cannot support configurations where Media Cache files are placed on shared storage.

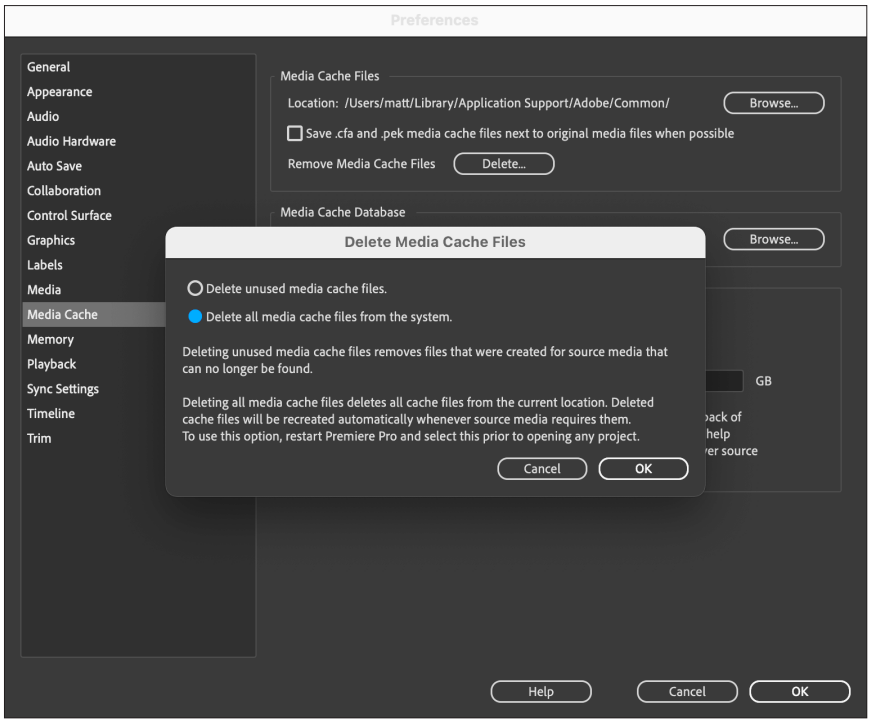
Avoid using compressed audio formats like MP3 and AAC. Transcode these files to WAV or AIFF before importing to avoid needing to create those cache files.

If you upgrade your project to a newer version of Premiere Pro and experience playback issues or instability, try clearing your media cache. Premiere Pro will rebuild the cache the next time you open a project.

Deleting the Media Cache

1. Close all Creative Cloud apps if they are open
   (After Effects, Media Encoder, and Premiere Pro share the same cache files)
2. Launch Premiere Pro
   (do not open any projects)
3. Open **Preferences > Media Cache**
4. Click *Remove Media Cache Files (Delete)*
5. You will now see *Delete all Media Cache files from the system* as an available option
6. Quit Premiere Pro and relaunch

Delete all media cache files when opening a project in a newer version of Premiere Pro.



Scratch Disks

When working in a shared environment with a team, set the Scratch Disks to a shared location so render files are shared across every editorial system. Choose **File > Project Settings > Scratch Disks** or **File > Production Settings > Scratch Disks** to set your scratch disk locations.

Auto Save

Auto Save saves a copy of the current project to the scratch disk location. If you want to save the current project at the same time an auto save copy is created, enable "Auto Save also saves the current project" found in **Preferences > Auto Save.**

The Auto Save timer starts after a project has been modified.

Transmit

Premiere Pro supports full screen playback using the built in GPU or third-party hardware.

Some transmit devices have fixed frame sizes and frame rates they support. Playing a clip in the Source Monitor or a Sequence that doesn't match a supported frame size and frame rate can lead to incorrect playback or no playback at all.

File System Notifications in a Production

Premiere Pro's Production feature uses notifications from the underlying file system in order to know when projects or folders in a production have been updated. If your shared storage system does not support file system notifications, Premiere Pro will fall back to polling the folder periodically. This method is less efficient and can cause increased network usage if many editors are all working inside a large production.

For best results, use SMB or ensure that your shared storage supports file system notifications.

Third Party Plug-ins and Extensions

Older versions of third-party plug-ins can cause instability with Premiere Pro. If you are experiencing trouble launching the application, try removing the plug-ins that can be found here:

Plug-in Paths

- **Mac: /Library/Application Support/Adobe/Common/Plug-ins/7.0/MediaCore**
- **Windows: C:\Program Files\Adobe\Common\Plug-ins\7.0\MediaCore**

Extension Paths

There are two paths on Windows where extensions can be installed. Check both locations for third-party extensions:

- **Mac: /Library/Application Support/Adobe/CEP/extensions**
- **Windows Option 1: C:\Program Files (x86)\Common Files\Adobe\CEP\extensions**
- **Windows Option 2: C:\Program Files\Common Files\Adobe\CEP\extensions**

GPU Drivers

Premiere Pro can automatically detect known issues with GPU drivers. If you see a System Compatibility Report after launching Premiere Pro, follow the instructions to resolve the issue.

When choosing an NVIDIA driver, use the Studio version for best performance and stability in Premiere Pro.

Nested Sequences in a Production

When working in a Production and moving an editing sequence between projects, any nested sequences contained in the editing sequence will travel with the editing sequence. This is because sequences cannot link across projects like regular clips can.

Save All

When working in a Production, you can end up with many project files open at the same time. Using **File > Save All** rather than the usual **File > Save** will save any open project that has been modified. Many editors prefer to map the Save All command to **CMD/CTRL+S** so they can quickly save all open projects.

Creative Cloud Cleaner Tool

The Creative Cloud Cleaner tool is a utility for experienced users to clean up corrupted installations, remove old Adobe software, or fix problem files and resolve permission issues in registry keys.

How and when to use the Creative Cloud Cleaner tool.

Chapter 3

Hardware & Settings

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Introduction

Premiere Pro runs on an incredibly wide range of hardware and configurations. This chapter provides hardware and settings recommendations geared towards film & TV productions.

Rather than give a single recommended spec, this chapter explains how Premiere Pro uses computer components so you can choose the hardware options best suited to your workflow and budget.

Hardware

Summary

If you aren't interested in the details that follow and just want a list to reference, use the following when shopping for computer hardware for Premiere Pro:

- **CPU**: The sweet spot is 8-16 cores, but keep in mind that core speed matters. 8 fast cores (3.5+ GHz) are usually preferable to 20 slower cores (2 GHz).
- **RAM**: Minimum 64 GB. Don't be afraid to go higher if you have large, complex project files.
- **GPU**: Buy as powerful a GPU as your budget can support. Keep drivers current. For NVIDIA GPUs on Windows, use the Studio driver rather than the Game Ready driver.
- **Storage Devices**: Install Premiere Pro on a fast NVMe boot drive and have a secondary fast SSD (internal or external) for Media Cache files.
- **Networking**: Use fast, modern network options like 10 GbE whenever possible. The SMB protocol works best for Productions.

A Balanced System

The key to building or choosing a good system for video editing in Premiere Pro is to build a powerful system with an eye for balancing the components to avoid severe bottlenecks in any one component. If your workflow is specific to certain video formats or workflows, you can use that to inform your choices when finding a good workstation.

Depending on the workflow, Premiere Pro can lean heavily on the GPU, or the CPU, or ideally both in unison.

CPU (Central Processing Unit)

Despite the recent advances in using the GPU and other dedicated video hardware, overall performance in any video editing system still comes down to a powerful CPU. For best performance in Premiere Pro, choose a CPU that has at least 8 cores and a minimum of 3 GHz clock speed.

It's true that more cores are generally better, but only to a point. The more cores a given CPU has, the slower each core will run. Since not everything video software needs to do can be split across multiple cores, there is still a benefit to having your cores be fast.

Therefore, there is a sweet spot for video editing, usually in the 8-16 core range. Look for reviews of a CPU you are considering to see how it handles video editing tasks.

RAM (Random Access Memory)

Generally speaking, as long as the RAM in your system is compatible with the CPU and able to run at its advertised speeds, you don't have to worry about the specifications any further. That leaves just the question of how much RAM to have. When using Premiere Pro on a professional workstation, start with 64 GB and increase from there as needed.

Premiere Pro's RAM usage consists of two main areas:

1. **Video frames decoded for playback**: This is what most people think of when considering RAM in Premiere Pro. For example, you might think "I'm working in 6K, so I'll need more RAM". While this is true, it's often more important to consider the second use case below.
2. **Project data**: When you open a project file in Premiere Pro, the data is read off of your drive and decoded into objects in memory. Each bit of data in the project uses more RAM. Every imported clip, every time an effect is used, every sequence, etc. will all use more RAM. Thus, for larger projects it is possible that the project data is using more RAM than the video frames decoded for playback mentioned above.
   The .prproj project file saved on your disk is compressed, so it's not at 1:1 mapping of file size to RAM used. For example, a 15 MB project file could require 4 GB of RAM once it is opened and ready to use.

GPU (Graphics Processing Unit)

The GPU is a specially designed type of processing chip that focuses on highly parallelizable tasks. A good example is applying a color shift to a video frame. Rather than your CPU cores going pixel by pixel and changing the color, a GPU can give a few pixels to each of its thousands of small cores and finish processing the frame more quickly.

This Help page has up-to-date GPU information:
https://helpx.adobe.com/x-productkb/multi/gpu-acceleration-and-hardware-encoding.html

The GPU is used in four main areas in Premiere Pro:

1. Hardware Accelerated Decode (playback)
2. GPU Accelerated Renderer
3. Hardware Accelerated Encode (export)
4. Sensei Machine Learning processing

Hardware Accelerated Decode

Premiere Pro can use the dedicated hardware on modern GPUs (or some CPUs) to decode certain formats more quickly than if it were done "in software", meaning as generalized software instructions. Think of it like slicing an egg: you could do it by hand, slowly slice by slice (software) or you could toss it in a dedicated egg slicer, press down once, and you're done (hardware).

Generally speaking, Hardware Accelerated Decoding is available for H.264 (AVC) and H.265 (HEVC) formats. There are some limitations as to what is supported based on things like frame size, bit depth, and chroma subsampling based on what your GPU supports.

Make sure Hardware Accelerated Decode is enabled in **Preferences > Media**.

GPU Accelerated Renderer

When your timeline playhead lands on a frame, the video frame is decoded to an uncompressed frame, then any effects are applied. GPU Accelerated Rendering refers to using the GPU to process any effects on the decoded frame. This could be a simple scale or position adjustment, a Lumetri color shift, or a third-party effect.

On Macs with Apple silicon the renderer will always be set to Metal.

The setting to control GPU accelerated rendering is found in **Projects Settings > General**. On a Mac you should leave it set to Metal. On Windows with an NVIDIA GPU, set it to CUDA. On Windows with an AMD GPU, set it to OpenCL.

Switching to "Software Only" means the GPU will not be used when creating the frames you see on screen.

Hardware Accelerated Encode

Just as modern GPUs have dedicated hardware to decode H.264 and H.265 (described above), they also have dedicated hardware to export to those formats. When you are exporting to either H.264 (AVC) or H.265 (HEVC) you can take advantage of hardware accelerated encoding to export much faster.

Like with decoding, your specific GPU will dictate exactly which frame sizes, bit depths, and other settings can be used. If you use a setting outside of those, Premiere Pro will fall back to exporting using Software Encoding (on the CPU).

Sensei Machine Learning Processing

AI = Artificial Intelligence
ML = Machine Learning

The types of processing that are involved in running machine learning models and other types of AI/ML operations benefit from running on GPU hardware. Premiere Pro will use any available GPU or dedicated ML processors when using Sensei features like Auto Reframe, Scene Edit Detection, Auto Ducking, and more.

GPU Drivers

Drivers play a key part in being the translator between Premiere Pro and the physical GPU hardware. If you are on a Mac, you don't need to worry about the GPU drivers as they are bundled into the operating system. If using a Windows computer, make sure that your drivers are up to date from the manufacturer when you set up the system. You should update them periodically, for example between jobs.

If your system is working fine and the drivers are within a year or two, you don't need to be constantly updating them. Sometimes new drivers may introduce issues in GPU performance in video editing software.

NVIDIA GeForce GPUs have two types of drivers: Game Ready and Studio. Use the Studio drivers for best performance in Premiere Pro.

Storage Devices

There are three roles storage devices can play in your editing system. Higher end workstations will have separate physical drives for each role. Lower end systems or laptops can still work well even if a single drive is handling all three roles, assuming the drive is a modern, fast SSD.

1. **Boot drive**: It is recommended to install Premiere Pro on the system boot drive. This drive should be fast, ideally using the NVMe protocol. If your system doesn't or can't have other drives, this drive can fill the following two roles as well.
2. **Cache drive**: This should be a fast SSD dedicated to Premiere Pro. In **Preferences > Media Cache**, set the Media Cache Files and Media Cache Database to this drive. You should have a dedicated cache drive for each workstation using Premiere Pro, and should not put the cache on a shared server.
3. **Media drive**: This drive holds your media and may sacrifice speed for a large capacity. While faster drives are always better, the main consideration for this drive should be that it is able to offer a read speed fast enough to handle the number of concurrent clips you need to play back multiplied by the bitrate of those clips. Shared networked storage is also commonly used as the media drive.

Networking

Premiere Pro is flexible with the type of networks it can support. As a best practice when building a modern networked storage, prefer 10 Gb Ethernet speeds as a minimum. These networks allow for many users to be using shared storage at once and can handle the higher bitrates of modern frame sizes.

While Premiere Pro can access media using a number of different types of network protocols, SMB is the preferred protocol for any type of shared setting. SMB is also recommended when using the Productions workflow in a shared environment.

Productions can work with other proprietary third-party solutions, but check with the third party vendor before assuming it works with Productions.

Hardware I/O Monitoring

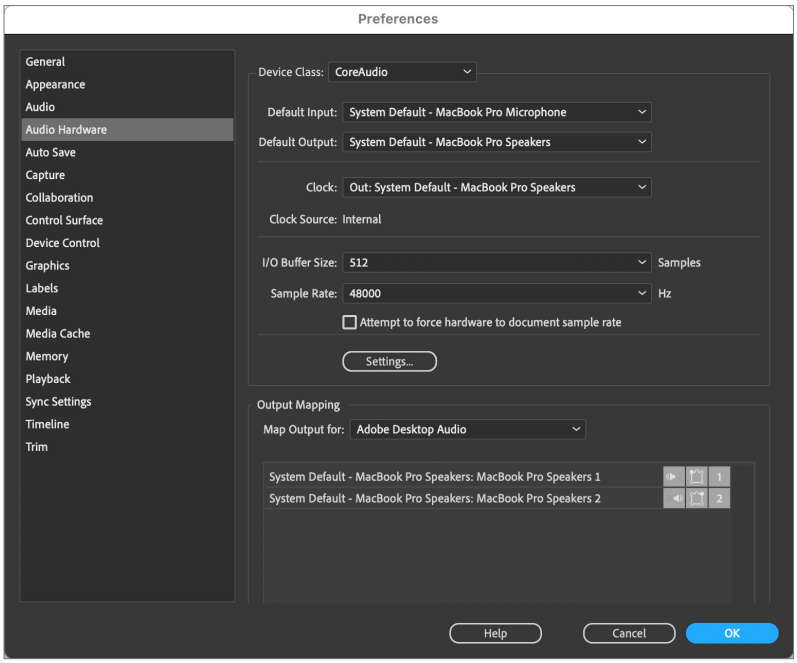
Audio

If you use a hardware audio monitoring solution, support in Premiere Pro should be essentially plug & play. Open **Preferences > Audio Hardware**, then select your device. If you are only monitoring audio (and using video on your computer monitors) you should leave Mercury Transmit turned off in the Playback preferences.

Video

Having both Audio Hardware preferences and Playback preferences set to the same audio device can cause unexpected issues.

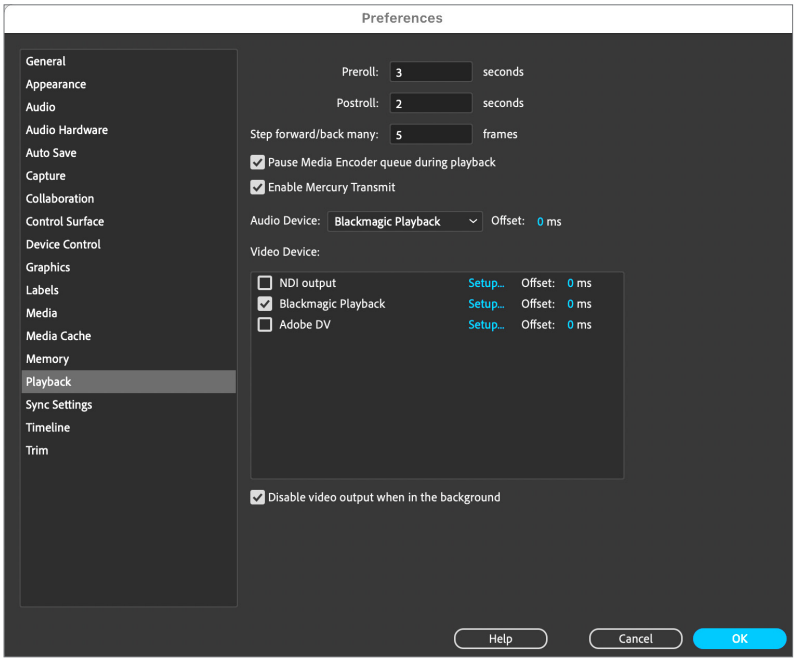
Premiere Pro's system for monitoring video and audio externally is called Mercury Transmit. The settings for Mercury Transmit are found in **Preferences > Playback**. If you are sending audio along with the video over Transmit, make sure that your Audio Hardware preferences are *not* set to also use the same audio device.



Audio Hardware preferences set to *not* use the Transmit hardware.

You can connect an additional display to your system's GPU output and select that display in the Playback preferences. Premiere Pro will then take over that full display and show whatever is playing in your Source or Program Monitor.

Playback preferences are set to use the Transmit hardware.

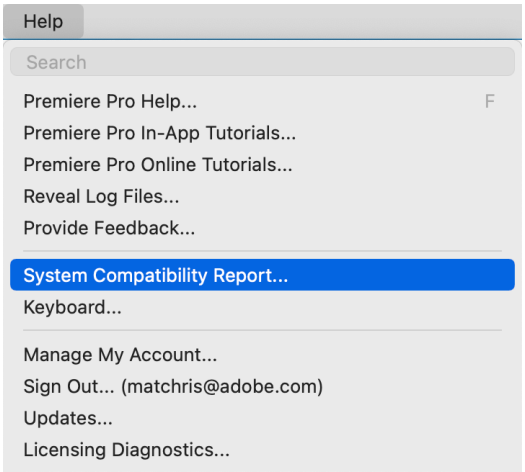


More advanced setups can utilize third-party hardware in the form of PCIe cards or Thunderbolt devices. These devices can often handle multichannel audio along with advanced video formats including HDR to monitor in professional setups. When using one of these systems, make sure to use the latest drivers from the manufacturer.

System Compatibility Report

Premiere Pro automatically performs a system check during launch to identify the capabilities of the hardware and detect any issues. If you see no alert, then no issues were found. If an issue is found, you will see the System Compatibility Report window explain what the issue is and how to address it.

You can view System Compatibility Report at any time by choosing it from the Help menu.



Operating System

Generally speaking, Premiere Pro can be expected to run on the current version of macOS or Windows, and the two previous major releases. Consult the requirements listed online for the currently supported operating systems:

https://helpx.adobe.com/premiere-pro/system-requirements.html

Settings & Configuration

Having a good hardware setup is important, but making sure to understand and configure some key options in Premiere Pro will ensure a fast and stable editing experience. This section goes over important best practices to consider and implement before starting a big project.

Project Settings / Production Settings

When working in a single project file, the settings found in **File > Project Settings** apply to that project and are stored inside the .prproj file. When working in a Production, the settings found in **File > Production Settings** are stored in the .prodset file found in the production folder and apply to any project opened by any user working in the production.

General > Renderer

This setting controls which rendering engine Premiere Pro will use. The rendering engine is responsible for taking a decoded video frame and applying any effects or modifications. Choosing Software Only means the CPU (and no GPU) is used. This method is the slowest and should only be used for troubleshooting.

If on a Mac, set the renderer to use the GPU Accelerated Metal engine. On Windows with an NVIDIA GPU, choose CUDA. On Windows with an AMD (or other) GPU, use OpenCL.

Scratch Disks

These scratch disk locations can be set wherever is best for your workflow. There is no need to set them to the same fast SSD recommended for the Media Cache. Note that in a Production workflow with a team, you need to set the scratch disks to a location that all users have access to.

Ingest Settings

Note that Ingest Settings are intentionally disabled when working in a Production to avoid unintended conflicts.

Media Cache Preferences

Where possible, Premiere Pro generates small cache files to speed up the loading and accessing of large amounts of media. The Media Cache works best when placed on a fast, dedicated solid-state drive (SSD), because then Premiere Pro is able to use the full speed of the drive without competing with other open programs or the operating system.

When working in a shared networking environment (like the Productions workflow), it is recommended to keep the Media Cache set local to each system.

In Premiere Pro, open **Preferences > Media Cache** and use the *Browse* buttons to set the Media Cache Files and Media Cache Database to your desired disk. Note that some very small Media Cache Files may still be written to the default location on the boot drive even if you set the preference to store Media Cache on an external drive. This is expected behavior.

XMP Preferences

Adobe's Extensible Metadata Platform (XMP) is a file labeling technology that lets you embed metadata into files themselves during the content creation process. Premiere Pro can use XMP to track separate media files that may have similar attributes like video files with the same file name from the camera. Premiere Pro has three XMP-related preferences found in **Preferences > Media**.

Write XMP ID to files on import

When enabled, Premiere Pro will write an ID into the XMP metadata for any imported media file. This ID can then be used to identify the clip when relinking after the media has been moved. If you are working in a Production on shared storage where every editor is using the same set of media, turn this setting *off* on all systems.

If you are setting up a project or production that will have the same set of media in different locations, follow these steps:

1. Open **Preferences > Media** and check "*Write XMP ID to files on import*"
2. Import the media (the ID is written into XMP)
3. Share the media files to the other editors

This way the ID is in the media files before they are shared, and everyone is using the same set.

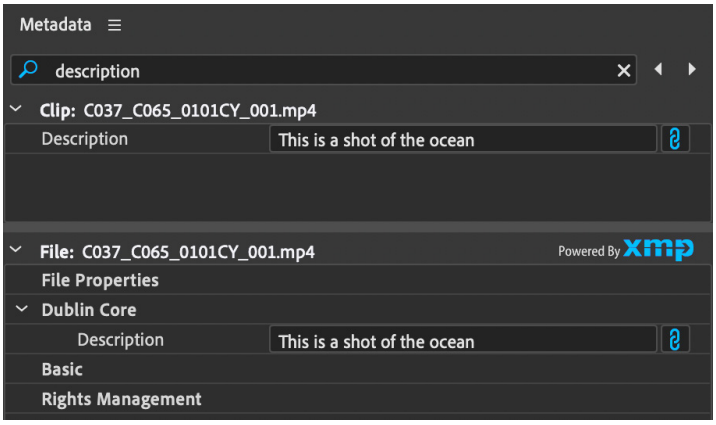
Write clip markers to XMP
When enabled, marker data is written into the XMP file metadata (in addition to the project file data). This can be useful when marking up a clip that will be used in various different projects. You can create a new empty project, import the clip, and the markers will already be there.

However, if you are working on shared storage or in a Production workflow it is best to leave this preference disabled as your markers will already share between users via the project file data.

Enable clip and XMP metadata linking
Premiere Pro has two different sets of metadata fields. One is Project metadata that includes common fields like Description, Tape Name, Scene, Shot, etc. The other is a broader set of XMP metadata fields, which contains many of the same fields as the Project metadata. Turning on this preference means that data entered into a Project metadata field can also be written into the corresponding XMP metadata field (if a match exists).

You can explore this using the Metadata panel. Select a clip, then in the Metadata panel search for a shared field, like *"Description"*. If the "Enable clip and XMP metadata linking" is enabled, you will be able to toggle the chain link icon to link the two *Description* fields so that a change in one ripples to the other.

XMP metadata linking enables toggling of the chain link icon.



Auto Save Preferences

By default, Premiere Pro's auto save takes a copy of your project as it is in memory and writes it out as a backup file in the location specified in the Project or Production Scratch Disk settings. If you would like Auto Save to also save the project for you when it does an Auto Save, enable the setting "Auto Save also saves the current project(s)" found in **Preferences > Auto Save**.

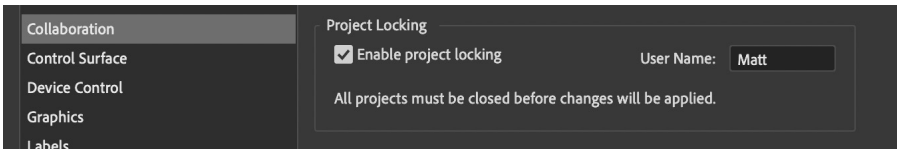
If you need to recover a file from Auto Save, navigate to the scratch disk location for Auto Save and locate the project file that matches the name of the project you are looking for. There will be one copy of the project with no user name or timestamp in the file name – this will always be the most recent Auto Save.

Older copies of the project will have a timestamp and, if Project Locking is enabled, the user name, appended in the format **ProjectName-YYYY-MM-DD_HH-MM-SS-UserName.prproj**

Collaboration Preferences

Project locking is enabled automatically when you work in a Production. You can also turn it on even if you are only working in a single project file. Project locking puts a .prlock file next to your project with the same name so that other Premiere Pro users won't be able to modify the file while you are editing. Once you close the project, the .prlock file disappears.

You can set a U*ser Name* in the Collaboration preferences so that other users can see who is working in any project in a Production.



Memory Preferences

The Adobe Video & Audio applications can share system RAM when working on the same media or projects, for example when using Dynamic Link between After Effects and Premiere Pro. In **Preferences > Memory** you can set how much system RAM is reserved for other applications.

A good rule of thumb is to leave roughly 20% of your memory for other applications. Dedicated workstations with large amounts of RAM can reserve even less.

Optimize rendering for

You should leave this setting set to "Performance". If you are working with high-resolution material and see a Low Memory Warning alert while working, change the setting to "Memory".

Playback Preferences

If using a Mercury Transmit device to play back video and audio, you choose that device in **Preferences > Playback**. If you see "Setup…" next to your video device, you can click there to find hardware-specific options for use in Premiere Pro.

Use the *Offset* control if your video and audio are out of sync due to delays in one signal path or the other. For example if your audio is coming before your video, add an offset until it aligns.

If you'd prefer to think in terms of frames, use 1000 divided by your frame rate to find how many milliseconds (ms) is equal to one frame.

If you experience lag, failure to play or pause, or other unusual timeline behaviors while using a Mercury Transmit device, **make sure that the device is selected in Preferences > Playback and is *not* selected in Preferences > Audio Hardware.**

Chapter 4

Working with Dailies

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Dailies is a film industry term used to describe all the footage that was shot on a given day. If a shoot lasted 25 days, there would be 25 days' worth of dailies. The term has been around for a long time originating in the film-only days when film was shot one day, processed at day's end, workprinted, then screened so all stakeholders could review and discuss the previous day's shoot.

Dailies are also sometimes referred to as "rushes".

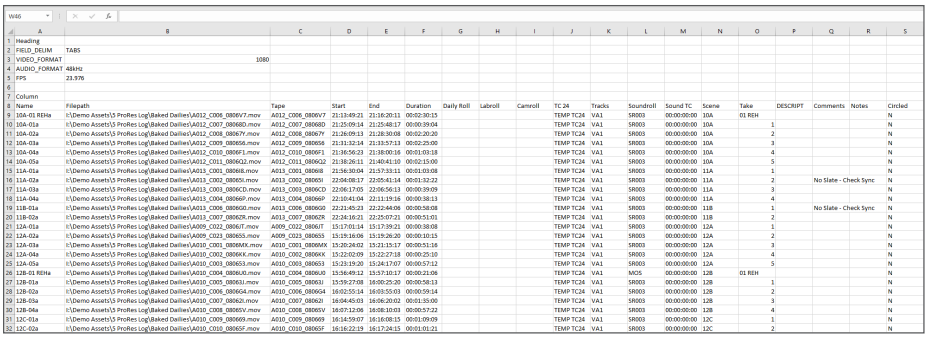
While the term *dailies* is still used today, digital technologies have expanded the definition and expectations as to what a dailies deliverable may include. These assets can be found on hard drives either locally or in the cloud, managed in folders with the camera originals, production audio, proxies, an ALE file, and reports—organized and made available as needed to any of the collaborators involved in the production.

Glossary

In this chapter we'll be using some terms and abbreviations that you may or may not be familiar with. Here's a quick explanation of some of them.

ALE (Avid Log Exchange)

An ALE file is a human readable text file with lots of metadata about each clip. It's actually a TSV (Tab Separated Values) file, which means it can be opened and edited in spreadsheet applications like Excel. See example here:



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	Heading																		
2	FIELD_DELIM	TABS																	
3	VIDEO_FORMAT	1080																	
4	AUDIO_FORMAT	48kHz																	
5	FPS	23.976																	
6																			
7	Column																		
8	Name	Filepath	Tape	Start	End	Duration	Daily Roll	Labroll	Camroll	TC 24	Tracks	Soundroll	Sound TC	Scene	Take	DESCRIPT	Comments	Notes	Circled
9	10A-01 REHa	I:\Demo Assets\5 ProRes Log\Baked Dailies\A012_C006_0806V7.mov	A012_C006_0806V7	21:13:49:21	21:16:20:11	00:02:30:15				TEMP TC24	VA1	SR003	00:00:00:00	10A	01 REH				N
10	10A-01a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A012_C007_0806ED.mov	A012_C007_0806ED	21:25:09:14	21:25:48:17	00:00:39:04				TEMP TC24	VA1	SR003	00:00:00:00	10A	1				N
11	10A-02a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A012_C008_0806?Y.mov	A012_C008_0806?Y	21:26:09:13	21:28:30:08	00:02:20:20				TEMP TC24	VA1	SR003	00:00:00:00	10A	2				N
12	10A-03a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A012_C009_080656.mov	A012_C009_080656	21:31:32:14	21:33:57:13	00:02:25:00				TEMP TC24	VA1	SR003	00:00:00:00	10A	3				N
13	10A-04a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A012_C010_0806F1.mov	A012_C010_0806F1	21:36:56:23	21:38:00:16	00:01:03:18				TEMP TC24	VA1	SR003	00:00:00:00	10A	4				N
14	10A-05a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A012_C011_0806Q2.mov	A012_C011_0806Q2	21:38:26:11	21:40:41:10	00:02:15:00				TEMP TC24	VA1	SR003	00:00:00:00	10A	5				N
15	11A-01a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A013_C001_080668.mov	A013_C001_080668	21:56:30:04	21:57:33:11	00:01:03:08				TEMP TC24	VA1	SR003	00:00:00:00	11A	1				N
16	11A-02a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A013_C002_080659.mov	A013_C002_080659	22:04:08:17	22:05:41:14	00:01:32:22				TEMP TC24	VA1	SR003	00:00:00:00	11A	2		No Slate - Check Sync		N
17	11A-03a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A013_C003_0806CD.mov	A013_C003_0806CD	22:06:17:05	22:06:56:13	00:00:39:09				TEMP TC24	VA1	SR003	00:00:00:00	11A	3				N
18	11A-04a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A013_C004_08066P.mov	A013_C004_08066P	22:10:41:04	22:11:19:16	00:00:38:13				TEMP TC24	VA1	SR003	00:00:00:00	11A	4				N
19	11B-01a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A013_C006_08066Q.mov	A013_C006_08066Q	22:21:45:23	22:22:44:06	00:00:58:08				TEMP TC24	VA1	SR003	00:00:00:00	11B	1		No Slate - Check Sync		N
20	11B-02a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A013_C007_08062R.mov	A013_C007_08062R	22:24:16:21	22:25:07:21	00:00:51:01				TEMP TC24	VA1	SR003	00:00:00:00	11B	2				N
21	12A-01a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A009_C022_0806JT.mov	A009_C022_0806JT	15:17:01:14	15:17:39:21	00:00:38:08				TEMP TC24	VA1	SR003	00:00:00:00	12A	1				N
22	12A-02a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A009_C023_080655.mov	A009_C023_080655	15:19:16:06	15:19:26:20	00:00:10:15				TEMP TC24	VA1	SR003	00:00:00:00	12A	2				N
23	12A-03a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A010_C001_0806MX.mov	A010_C001_0806MX	15:20:24:02	15:21:15:17	00:00:51:16				TEMP TC24	VA1	SR003	00:00:00:00	12A	3				N
24	12A-04a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A010_C002_0806KX.mov	A010_C002_0806KX	15:22:02:09	15:22:27:18	00:00:25:10				TEMP TC24	VA1	SR003	00:00:00:00	12A	4				N
25	12A-05a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A010_C003_080653.mov	A010_C003_080653	15:23:19:20	15:24:17:07	00:00:57:12				TEMP TC24	VA1	SR003	00:00:00:00	12A	5				N
26	12B-01 REHa	I:\Demo Assets\5 ProRes Log\Baked Dailies\A010_C004_0806U0.mov	A010_C004_0806U0	15:56:49:12	15:57:10:17	00:00:21:06				TEMP TC24	VA1	MOS	00:00:00:00	12B	01 REH				
27	12B-01a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A010_C005_08063J.mov	A010_C005_08063J	15:59:27:08	16:00:25:20	00:00:58:13				TEMP TC24	VA1	SR003	00:00:00:00	12B	1				N
28	12B-02a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A010_C006_080654.mov	A010_C006_080654	16:02:55:14	16:03:55:03	00:00:59:14				TEMP TC24	VA1	SR003	00:00:00:00	12B	2				N
29	12B-03a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A010_C007_08062I.mov	A010_C007_08062I	16:04:45:03	16:06:20:02	00:01:35:00				TEMP TC24	VA1	SR003	00:00:00:00	12B	3				N
30	12B-04a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A010_C008_08065V.mov	A010_C008_08065V	16:07:12:06	16:08:10:03	00:00:57:22				TEMP TC24	VA1	SR003	00:00:00:00	12B	4				N
31	12C-01a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A010_C009_080669.mov	A010_C009_080669	16:14:59:07	16:16:08:15	00:01:09:09				TEMP TC24	VA1	SR003	00:00:00:00	12C	1				N
32	12C-02a	I:\Demo Assets\5 ProRes Log\Baked Dailies\A010_C010_08065F.mov	A010_C010_08065F	16:16:22:19	16:17:24:15	00:01:01:21				TEMP TC24	VA1	SR003	00:00:00:00	12C	2				N

BWF (Broadcast Wave Format)

BWF is a professional audio format based on WAV, with the addition of support for metadata and timecode. The file extension is .WAV.

https://en.wikipedia.org/wiki/Broadcast_Wave_Format

CDL (Color Decision List)

A CDL is a standardized set of four color correction parameters: *Offset, Power, Slope* and *Saturation* developed by the American Society of Cinematographers. The CDL file format is much simpler than the LUT formats, and smaller.

The ASC CDL effect in Premiere Pro is very lightweight compared to the Lumetri Color effect.

The CDL format is software-agnostic, which means it's well suited for multi-software workflows. CDL values for each clip can be stored as values in an ALE (Avid Log Exchange) file.

In Premiere Pro, CDL values will be applied using the **ASC CDL** effect.

https://en.wikipedia.org/wiki/ASC_CDL

https://theasc.com/ac_magazine/October2008/PostFocus/page1.html

iXML

iXML is an open XML standard for embedding location sound metadata in Broadcast Wave audio files and in video files, including Scene, Take and Notes information. http://www.ixml.info/

Wave Agent by Sound Devices is a good, free tool to edit iXML data.

https://www.sounddevices.com/product/wave-agent/

LUT (Look-Up Table)

LUTs are used in color grading to transform an input color value into a desired output color value. LUTs are commonly used to perform a technical transformation from one color space to another, but can also capture a creative color change as well. LUTs are a primary grade; they apply to the entire frame.

LUTs come in a variety of formats and complexity.

https://en.wikipedia.org/wiki/3D_lookup_table

Premiere Pro supports many different LUT formats.

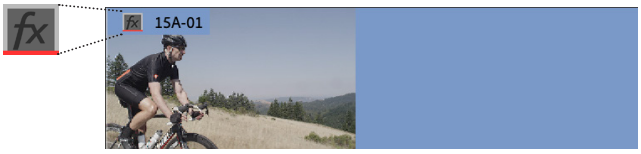
LUTs (*.cube;*.itx;*.lut;*.ilut;*.irlut;*.fccp;*.3dl;*.txt;*.cc;*.cdl)

Source Clip Effects

In addition to applying effects to track items or clips in a sequence, Premiere Pro can apply effects to Source Clips. When you apply an effect to a Source Clip, the effect automatically ripples down to all instances of the clip in all sequences.

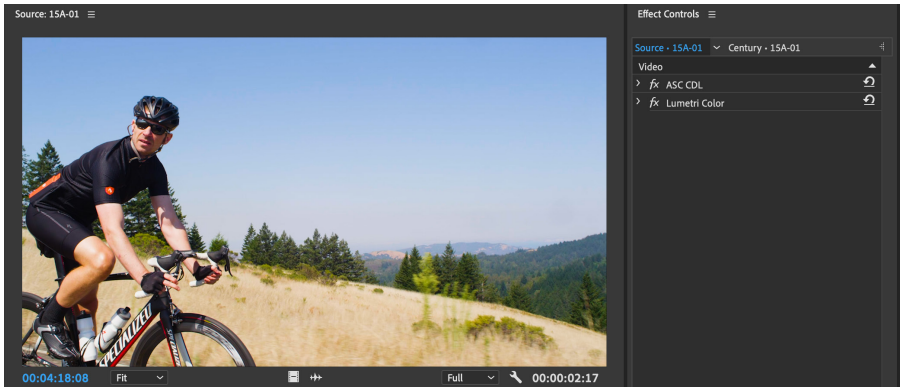
A clip that has a Source Clip effect applied displays a red line under the FX badge in the sequence. In addition, the Effects Control panel displays a new tab called Source that shows the applied effects.

FX Badge with red line.

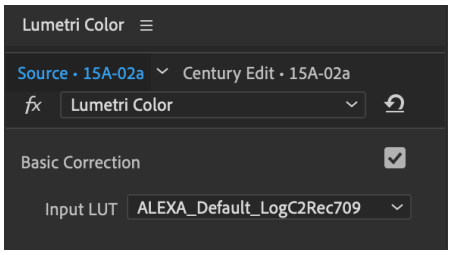


This clip has an ASC CDL effect and a Lumetri Color Effect applied as Source Clip Effects.

Footage courtesy of Michael Burton, Pretty Moving Pictures, LLC.



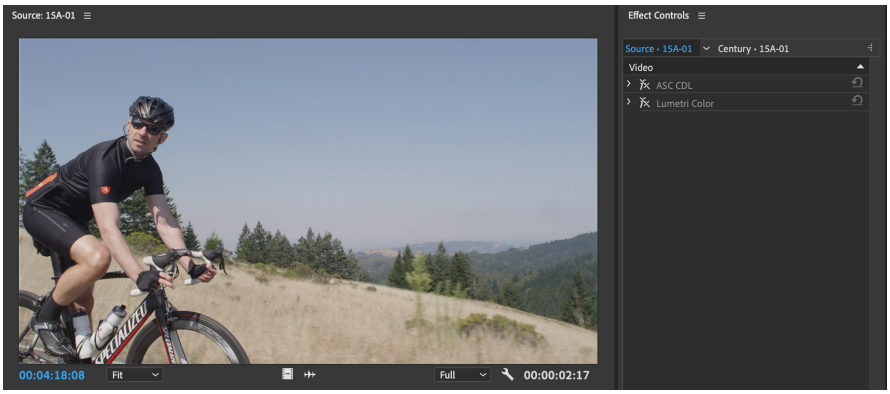
Source Clip Effects are found under the Source tab in both Lumetri Color panel and in the Effect Controls panel.



This clip has an Alexa LUT applied as a Source Clip Effect.

To disable Source Clip Effects, select clips in the Project panel and right click. Choose *Disable Source Clip Effects*.

https://helpx.adobe.com/no/premiere-pro/using/master-clip-effects.html



Source Clip Effects disabled. Footage courtesy of Michael Burton, Pretty Moving Pictures, LLC.

Dailies Workflow

Before you start a project there are a few things that the whole team needs to agree upon about dailies.

How will the dailies be created?

Most productions will get the dailies delivered as a service. If you need to create the dailies in editorial, the Proxies chapter shows how to do it in Premiere Pro.

Will your dailies be provided as a service or created locally in the cutting room?

Typically, dailies are done as a service from either a facility or a freelancer specializing in this type of work. One of the biggest changes to dailies ushered in with digital acquisition is the ability to provide dailies on set, near the set on location, or even in the cutting room.

The type of dailies service is up to the production, post supervisor, and budgets allocated. Anyone providing dailies is doing so as a service to the requirements of editorial and preferences of the editor, assistant editor, post supervisor, etc. Make sure these are understood and agreed upon to eliminate any surprises later in post-production. Run a camera test through the entire dailies process to identify any unexpected issues.

How will the dailies be delivered?

Hard Drive

A hard drive is always used as one form of backup on set and can also be used to deliver dailies to the cutting room. Hard drives are typically used when the cutting room is within walking or driving distance to the shooting location, or when shooting in a location where fast Internet speeds are unavailable or cost prohibitive.

Factors like amount of footage, size of files, etc can make shipping hard drives more cost effective than digital Internet transfers. These types of decisions are usually made by the post supervisor.

Internet Transfer

With the speed of Internet services going up and costs going down, digital transfer is commonplace – especially when the cutting room is far from the shooting location. The dailies are done on set, then transferred to the cutting room using a variety of accelerated secure services.

Editorial vs Viewing Dailies

As previously mentioned, the definition of dailies has expanded due to digital formats, the Internet, and long-distance based productions and post locations. **This document will cover editorial dailies which are the assets that will be used by the editing team**.

Other types of dailies deliverables are sometimes referred to as "viewing dailies" because stakeholders are not in the editing room and are either on set, in-transit, etc. Those types of services usually have a different set of requirements than those used for editorial although some of the individual requirements may be the same (such as file naming for example).

There are several solutions on the market that cater to dailies viewing or review and approval such as PIX, CLEAR, and Frame.io.

DIT Best Practices

The definition and role of the DIT (Digital Imaging Technician) has evolved over the years. Initially the DIT worked with the Director of Photography to ensure image quality and consistency. It has come to include what was once referred to as the *Data Wrangler* and is all now one role.

When working with both post-production and the Director of Photography, the following is a common set of tasks that will be performed:

- Camera image set up, color space, LUT creation, and receiving the camera's recorded output as well as any camera reports.
- Receive the production audio and reports.
- Receive any output from the Script Supervisor if their work is to be included in the dailies process.
- Manage backup and archive of all materials. Minimum requirements are two hard drives backup and an LTO (maybe two) stored at different locations.

Dailies documentation

When working with Editorial, it is best to get their requirements in a written document to ensure everyone is on the same page as to what will be delivered. This will include requirements such as:

- Proxy codec to be used in editorial including resolution.
- Deciding how the dailies frame size will relate to the original frame size and how that will affect the conform process.
    - Pass along a framing chart if available.
- Any frame rate manipulation if needed, such as high-speed recording for slow motion playback. Often this will mean receiving a set of dailies in both frame rates.
- Color balanced dailies versus color corrected dailies
    - Color balancing is a quick one pass basic color balance including shadows and highlight to be uniform across takes.
    - Color correction can be a more involved process with exact color correction, mattes, etc.
- Color workflow—LUTs, ASC CDL, or LUTs + ASC CDL.
    - Will this be baked into the dailies and tracked as metadata or are they to be applied in editorial?
- Burn-in windows—Premiere Pro can overlay metadata into the clip as needed if not burned in. If metadata is to be burned into the camera proxy files, then:
    - What metadata? Here are some examples:
        - Filename
        - Camera Timecode
        - Sound timecode (for double system workflows)
        - Clip name (such as Scene and Take)
    - Decide where each window is to be placed, including size, font, color, backdrop, opacity, etc.
    - Flash on/off at start and end. If so, how many seconds?
- In double system audio workflows:
    - Sync in dailies or sync in editorial?
    - If syncing in dailies, all tracks (MIX + ISO) or just MIX?
    - Extract BWF/iXML metadata.
- Type of reporting required and in what format.
- Metadata transfer via ALE to editorial.

When creating dailies, the operator should ensure a consistent method and management of the metadata that is available. For original camera files, make sure that the entire original camera filename is preserved and passed along as part of the proxy media being created. This includes:

When you see clips with file names like *AA0922.MXF*, with no random or unique characters, there's a good chance that clips from other camera cards will have duplicate names.

- Use the same filename as the as the source camera files.
  Note: if your camera does not create unique file names, it is important to rename the files before creating dailies or starting to work with them. Talk with members of your post production team to agree upon a way to rename the files that will be appropriate for the entire workflow.
  A common practice is to prefix the name with ***<shoot date>_<card>***. Failing to rename identical files means that all software using these files during post production run the risk of becoming confused due to multiple clips having the same file names.
- Most professional cameras include a Reel or Tape name as metadata in the clips. Make sure this information is also written into the dailies files to ensure a smooth conform.
- Maintain the original source timecode.
  If B cameras are being used that do not have timecode, the files may all start at 00:00:00:00. This is OK as long as the filename is unique. Some cameras will reuse file names, so be sure to have an agreed upon file naming convention in place with the post-production team before the files are transcoded.
- Sync sound as part of dailies.
  As per above, the sync requirements will be defined by editorial on a per production basis. In very general terms, faster turnaround productions like television will sync during the dailies process while theatrical productions will choose to sync in editorial. In all cases, the production audio metadata must be maintained to ensure anyone downstream can return to the original assets if needed.

Budgets will usually dictate how many services are required by the DIT, combined with system capabilities and turnaround time. In some cases, a production may ask for a transcode only service. This can mean different things to different people, but at its most basic, the original camera assets are converted to a proxy format with no other services provides such as color correction or balancing and syncing of audio.

These scenarios usually assume that the audio recorded in camera is good enough or sync will be done by editorial. In these scenarios it is only:

- Preserve original file name in proxy.
- Preserve original timecode in proxy.
- Preserve original frame rate in proxy.
- Define codec type, data rate, and resolution.
- Single LUT or no LUT applied.

Full Dailies with Notes, Color Pass, etc.

As seen in previous sections, the definition of "dailies" can be quite expansive and will be defined based on the editorial team's requirements. The term "Full Dailies" may be mentioned and that too will be up to editorial requirements and capabilities of the dailies systems being used. For example, the dedicated dailies systems offer various reporting methods, whereas tools like DaVinci Resolve do not output reporting but can be used in a transcode process. In all cases, from all systems, an ALE of the relevant metadata can be exported.

Full Dailies can therefore include color correction, color management, double system audio sync, viewing dailies, reporting and delivery of reports to key stakeholders, upload and delivery of both viewing and editorial dailies, backup and archive and any other related special requests particular to a production.

Are Dailies Baked with LUT or Nondestructive Grade?

One such request that will be determined by production is whether any of the color-managed processes used in the production pipeline are to be "baked" into the editorial proxies. There are pluses and minuses to each method. At a high level:

Baked In

Look of dailies is defined on set and baked in to ensure no changes can occur downstream from the initial intent. This ensures the DP's intent from the get-go. It also eliminates some additional processing on the part of the editing system.

Even when the CDL and LUT are baked into the dailies, the metadata describing the CDL and LUT should be passed along via ALE so it is kept with the clips and passed along for conform and final color grade.

Nondestructive

In this scenario, the camera originals are transcoded in their original color space, usually a LOG format of some kind. When using RAW formats, a color space is chosen to maximize the full possibilities of the image but is not color corrected in any way to be pleasing to the eye. A LUT may have been defined, or they are using ASC CDL workflows, or a combination of the two. All this is metadata only, and not baked into the editorial proxies, but these values are applied and played back in Premiere Pro.

This allows for flexibility in the editorial process to update and change the look and feel of the images as needed – instead of sending over new media and relinking, the values can be tweaked directly or via an updated ALE that is merged. This also offers the ability to transmit any changes done in editorial to others downstream to reflect new intent.

Using ALE (Avid Log Exchange)

Avid's ALE format is the de facto metadata standard for feature film and episodic productions, providing metadata about each clip. It's a spreadsheet format with Tab Separated Values (TSV), which means it can easily be edited in spreadsheet applications.

Using an ALE file in a dailies workflow makes it much easier to track and modify all the associated metadata with each shot. For example, a producer using a spreadsheet app could add comments to a set of dailies, and in one quick step, those comments can be added to dozens of clips in Premiere Pro. Premiere Pro can also export a new ALE file if necessary to document changes made to the metadata within the NLE.

The structure of an ALE file

The ALE file can include a lot of metadata—even additional custom metadata that is not supported. The format is broken into 3 segments: Heading, Column, and Data.

Part of an ALE file, showing Heading, Column and Data.

Heading					
FIELD_DELIM	TABS				
VIDEO_FORMAT	1080				
AUDIO_FORMAT	48kHz				
FPS	23.976				
Column					
Name	Tape	Start	End	Duration	Filepath
Data					
12A-01	C048_C018_0101DL	00:08:46:21	00:08:52:19	00:00:05:22	/Users/matt/Test Media/Demo Assets/NA
12A-02	C048_C009_01018D	00:14:07:07	00:14:08:07	00:00:01:00	/Users/matt/Test Media/Demo Assets/NA
12A-03	C048_C007_0101WC	00:12:42:00	00:12:47:05	00:00:05:05	/Users/matt/Test Media/Demo Assets/NA
12B-01	C048_C004_0101XR	00:08:34:03	00:08:35:12	00:00:01:09	/Users/matt/Test Media/Demo Assets/NA
12C-01	A097_C025_03026Q	13:53:18:15	13:53:20:09	00:00:01:18	/Users/matt/Test Media/Demo Assets/NA
12C-02	A097_C012_0302AD	13:41:51:05	13:41:57:01	00:00:05:20	/Users/matt/Test Media/Demo Assets/NA
12D-01	A097_C006_0302KS	13:35:18:18	13:35:20:13	00:00:01:19	/Users/matt/Test Media/Demo Assets/NA
12D-02	A001_C017_01019I	13:45:39:22	13:45:41:20	00:00:01:22	/Users/matt/Test Media/Demo Assets/NA

Heading

The header was a result of early systems needs, but for the most part it has been deprecated with newer editing systems.

Name	Example Value(s)	Description
FIELD_DELIM	TABS	Type of separator used in the file.
VIDEO_FORMAT	NTSC PAL 720 1080 Custom	Defines content resolution and used by some systems to ensure content matches project type. "Custom" defined any format 2K or higher.
AUDIO_FORMAT	48kHz	Used by some systems to match project settings.
FPS	23.976	Overall frame rate of items in the list. This can be overridden by values on a per clip level in the body of the ALE.

Column

This section declares the field names of the metadata values to follow in the "Data" section of the file.

Column info emphasized with gray.

Heading					
FIELD_DELIM	TABS				
VIDEO_FORMAT	1080				
AUDIO_FORMAT	48kHz				
FPS	23.976				
Column					
Name	Tape	Start	End	Duration	Filepath
Data					
12A-01	C048_C018_0101DL	00:08:46:21	00:08:52:19	00:00:05:22	/Users/matt/Test Media/Demo Assets/NAB /
12A-02	C048_C009_01018D	00:14:07:07	00:14:08:07	00:00:01:00	/Users/matt/Test Media/Demo Assets/NAB /
12A-03	C048_C007_0101WC	00:12:42:00	00:12:47:05	00:00:05:05	/Users/matt/Test Media/Demo Assets/NAB /
12B-01	C048_C004_0101XR	00:08:34:03	00:08:35:12	00:00:01:09	/Users/matt/Test Media/Demo Assets/NAB /
12C-01	A097_C025_03026Q	13:53:18:15	13:53:20:09	00:00:01:18	/Users/matt/Test Media/Demo Assets/NAB /
12C-02	A097_C012_0302AD	13:41:51:05	13:41:57:01	00:00:05:20	/Users/matt/Test Media/Demo Assets/NAB /
12D-01	A097_C006_0302KS	13:35:18:18	13:35:20:13	00:00:01:19	/Users/matt/Test Media/Demo Assets/NAB /
12D-02	A001_C017_01019I	13:45:39:22	13:45:41:20	00:00:01:22	/Users/matt/Test Media/Demo Assets/NAB /

ALE can contain a lot of metadata fields, but Premiere Pro will only support a set of defined columns. The table on the next page shows all the supported ALE fields and which Premiere Pro fields they are mapped to.

ALE Fields Supported in Premiere Pro

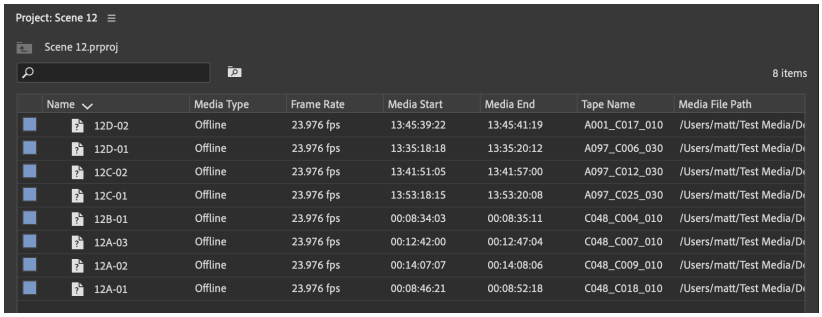
This table shows all the supported ALE fields and which Premiere Pro fields they are mapped to.

Column	Import	Export	Example Data	Premiere Pro mapping	Description	Alt import name recognized
Name	Yes	Yes	26-1(A)	**Name**	Name of clip, usually entered based on script notes	
Filepath	Yes	Yes	/folder/folder/filename.extension	**Media File Path**	Path to file in dailies system	
Tape	Yes	Yes	L10264556	**Tape Name**	Name of tape or reel	
Start	Yes	Yes	02:06:04:21	**Media Start**	First frame in SMPTE timecode	
End	Yes	Yes	02:07:10:22	**Media End**	Last frame in SMPTE timecode	
Duration	Yes	Yes	00:01:06:01	**Media Duration**	File duration in SMPTE timecode	
Daily Roll	Yes	Yes	A001	**Daily Roll**	Alternative Tape Name	
Labroll	Yes	Yes	L10264556	**Lab Roll**	Alternative Tape Name	
Camroll	Yes	Yes	A149	**Camera Roll**	Alternative Tape Name	
TC 24	No	Yes*	02:06:04:21	**N/A**	Ignored on input, * always writes "TEMP TC 24"	
Tracks	No	Yes*	VA1A2A3A4	**N/A**	Ignored on input, * always writes "VA1"	
Soundroll	Yes	Yes	SR_27	**Sound Roll**	Tape Name but from the sound recorder	
Sound TC	Yes	Yes	21:46:38:23	**Sound Timecode**	Alternate SMPTE timecode	
Scene	Yes	Yes	26	**Scene**	Script scene number	
Take	Yes	Yes	1	**Shot**	Script take number	
DESCRIPT	Yes	Yes	Car pulls up	**Description**	Arbitrary text from script notes	
Comments	Yes	Yes	dog	**Comment**	Arbitrary text from script notes	Comment
Notes	Yes	Yes	helicopter	**Log Note**	Arbitrary text from script notes	
Circled	Yes	Yes	Y	**Good**	Circle take; Premiere will write N if not checked	Good Take
ASC_SOP	Yes	Yes	(1.1167 1.1360 1.1553) (-0.1140 -0.1745 -0.1226) (0.7934 0.6427 0.9789)	**ASC_SOP**	CDL values for Slope, Offset, and Power each in RGB	
ASC_SAT	Yes	Yes	1	**ASC_SAT**	CDL value for Saturation	
Lut	Yes	Yes	LutName	**Lut**	Arbitrary LUT name	
Lut1	Yes	Yes	LutName	**Lut1**	Arbitrary LUT name, usually for input transform	Input LUT
Lut2	Yes	Yes	LutName	**Lut2**	Arbitrary LUT name, usually for output transform	Output LUT
ImageFileName	Yes	Yes	A001_C006_0817A6_001.R3D	**Original Video File**	Camera Original File	
AudioFileName	Yes	Yes	26-1.WAV	**Original Audio File**	Audio Original File	
Frame_width	Yes	No	1920	**Video Info**	Width of video frame (in pixels), overriden after media is linked	
Frame_height	Yes	No	1080	**Video Info**	Height of video frame (in pixels), overriden after media is linked	

Importing the ALE

Using an ALE requires starting by importing the ALE first. This creates placeholder, offline Source clips with all the metadata.

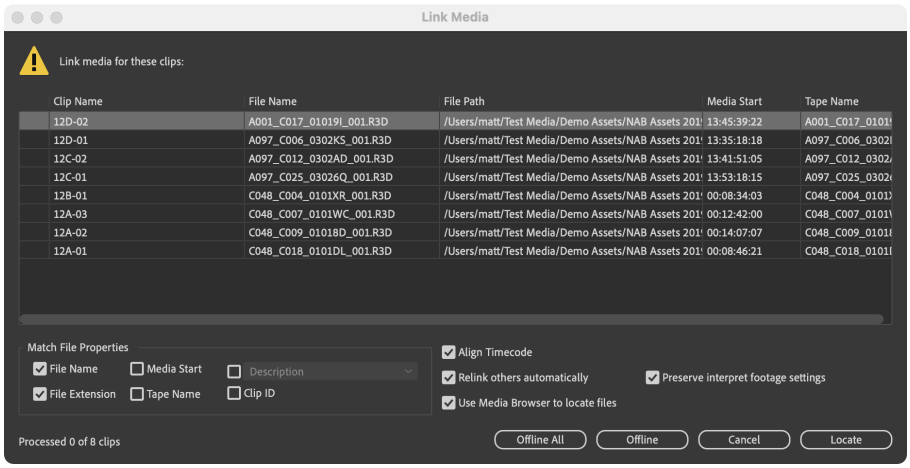
All the media files are offline, so you need to relink the media.



Linking the media

With all the clips selected, right-click one of them and choose **Link Media** or click **File > Link Media**. This brings up the Link Media dialog.

The first file in the list is the one you need to point Premiere Pro to.

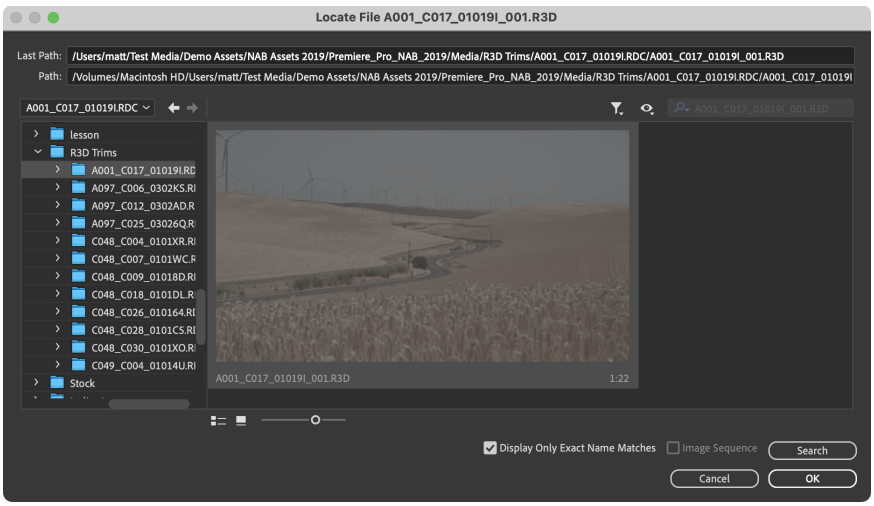


Click *Locate* and navigate to the location of the first file. If you're not sure which subfolder it's in, you can ask Premiere Pro to find it by clicking the *Search* button. You typically only need to link one file, and the rest will be found automatically.

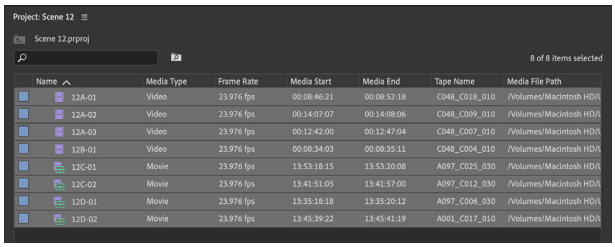
The Display Only Exact Name Matches checkbox enables a clutter free search.

Turn this off if no matches are found and you need to use other criteria than the file name to locate the media.

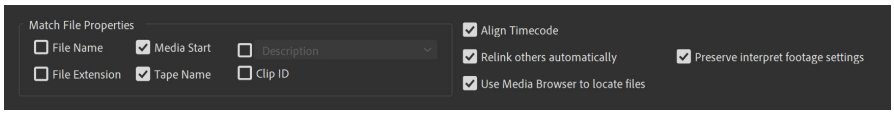
Footage courtesy of Michael Burton, Pretty Moving Pictures, LLC.



Premiere Pro found the other files automatically.



If files have been moved to other folders, or if their file names were changed after the ALE file was made, there will be some files that are not found automatically. In those cases, you can use the *Match File Properties* checkboxes at the bottom of the *Link Media* dialog box to help Premiere Pro find the files.



If you know that you have multiple clips with the same file name in the project, un-check *Relink Others Automatically.*

Depending on your network configuration you may not want to use the Media Browser to locate the files. If you want to use Finder (macOS) or Explorer (Windows) to locate the files, uncheck the *Use Media Browser to Locate Files* checkbox.

Dealing with missing file names

Premiere Pro looks for clip file names in ALE columns with either the name ***Filepath*** or the name ***Source File Path***. ALE files don't always have this info in these columns, and Premiere Pro will fail to recognize it. If both columns are missing from the ALE, then the file name will not show in the Link Media dialogue, and it will be a manual process to link each file.

The file path does not have to be a valid path to relink. Premiere Pro will just pull the name off the end of the file path and know to look for that.

For the relinking in Premiere Pro to work, either of these two metadata columns in the ALE file must contain just the file name, or point to some kind of original file path, like D:\clips\A002C001_160508_R1JC.mov.

In somecases, the necessary data will be in another column in the ALE file, like *Tape Name* or *UNC*. You can open the ALE in a text editor or a spreadsheet program, and rename the column header to *Filepath* or *Source File Path*.

Updating metadata from an ALE file

If the ALE file had missing or corrected metadata, you can ask for an updated ALE, then select all the clips in the Project panel, then click **Clip > Update Metadata** and choose the new ALE to get the missing metadata.

Note that the Update Metadata function replaces **all** the metadata in the files. There is no merging of information, so any metadata you've added in Premiere Pro will be gone.

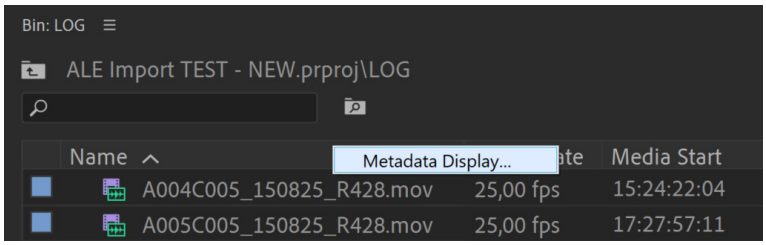
This feature makes it possible to have one main source of truth, and correct errors in metadata at the same time as adding additional information. There are 3rd-party tools and scripts that can merge multiple spreadsheets together into a single document. So, in any cases where there are multiple ALE files, it's possible to merge them together.

If there's new metadata in Premiere Pro that needs to be added to the main ALE file, you will need to export an ALE file from Premiere Pro, then merge that metadata with the original file, and use Update Metadata to add the merged info into the clips.

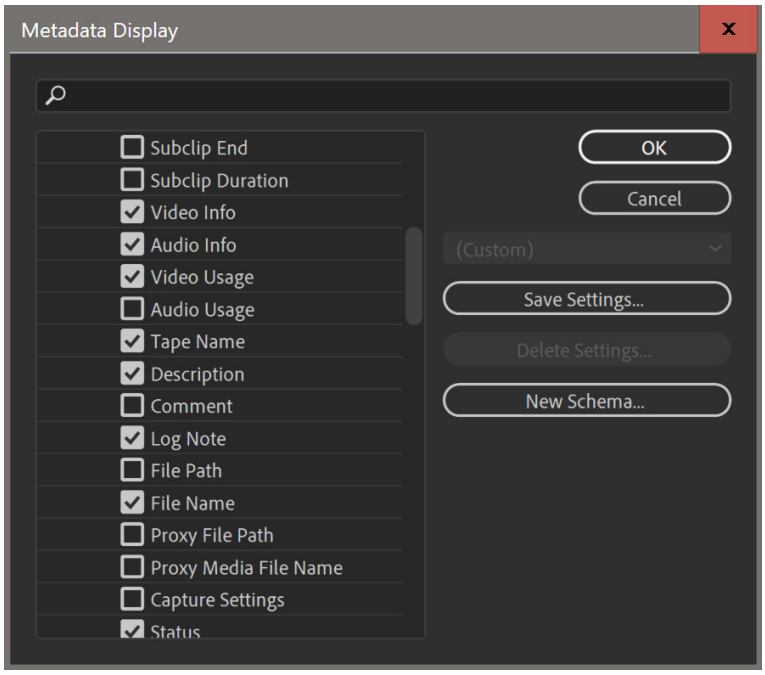
Display the metadata you need

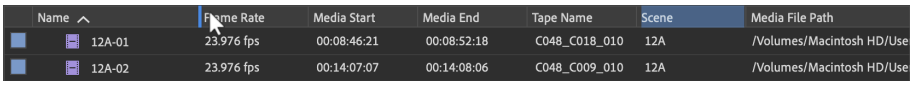
You can customize which metadata columns are showing and in what order.

Right-click an existing column name and choose *Metadata Display*.



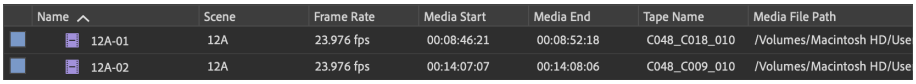
Un-check the ones you don't want to see and choose the ones you do want to see.





You can move the columns around to show them in any order you want. Above, the Scene column is being dragged to the left, next to the Frame Rate column.

The result of column reordering.

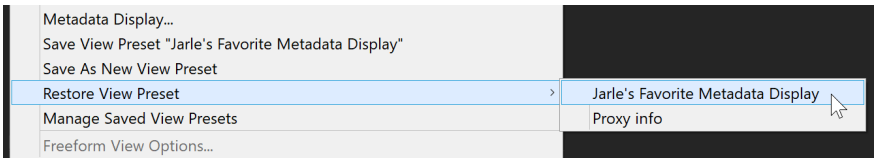


Note that the settings you've done here, like choosing which columns to show and the order of the chosen columns in the Project panel, are saved into your Workspace.

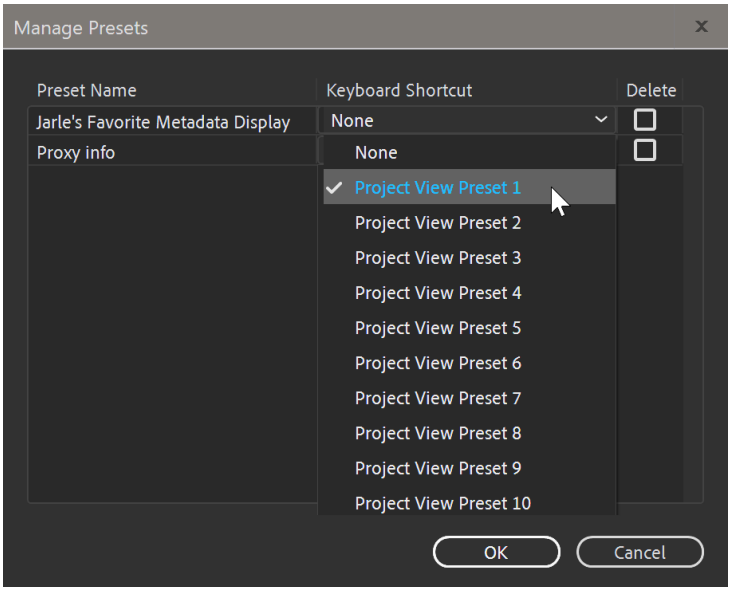
Using Metadata Views

To make sure you can easily restore the metadata view you set up, choose **Save as New View Preset** in the panel menu of the Project panel or bin, and give it a descriptive name.

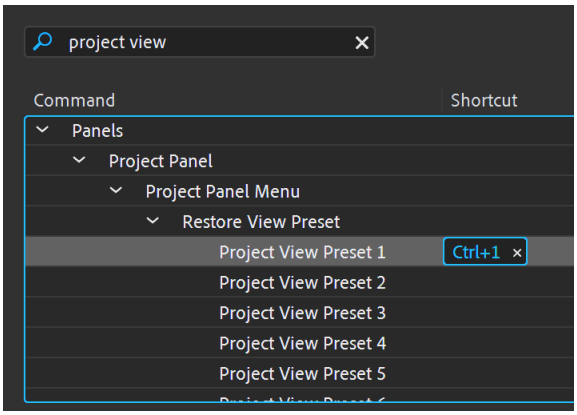
This creates a new .pvpreset file in the Project View Presets folder in the user settings folder, which means it will be available in all projects—and you can use Sync Settings to make it available on other systems. You can also restore and manage the views in the same panel menu.



Save your workspaces with your custom view active, so you don't lose the metadata view when switching workspaces. You can also assign keyboard shortcuts to 10 of your favorite views, which lets you switch between views very fast. Choose **Manage Saved View Presets** in the panel menu in the bin and assign the shortcuts.



Now open the Keyboard Shortcuts panel by clicking **Edit > Keyboard Shortcuts** (Windows), or **Premiere Pro > Keyboard Shortcuts** (macOS) and search for "project view". Key combinations that include numbers work well and are easy to remember.



Now you can easily restore your favorite views no matter how messy you've made your bin.

Working with Color metadata

As mentioned in the section on DIT Best Practices (page 27), there are 2 different ways of handling color in an offline workflow: baking it in or working non-destructively.

With a baked dailies workflow, the color effects are applied when the dailies are rendered—there are no "live" effects inside Premiere Pro applying the color. In this workflow, it's still important to keep track of the metadata so that the colorist knows what the editor and director were seeing and use that as a reference for the final color grade.

W*orking non-destructively means that the dailies are ungraded*, and live effects such as Lumetri (for LUTs) or ASC CDL are applied in a particular order to build out the desired "look" for the clips. With this workflow comes added flexibility in modifying or adjusting the look of a shot, and using the Global FX toggle, the director can instantly see what the original shot looked like ("flat"). This can be useful if trying to see if a highlight still has detail, for example, when it looks blown out with the overall look applied.

Baking dailies is the most common workflow today, as it eliminates the need for multiple effects applied to each clip during editorial, reducing CPU/GPU load on the systems. However, as GPUs and computers continue to grow in power, it's expected more users will take advantage of what the non-destructive workflow can offer.

In either workflow, it's typical to use a combination of LUTs and CDL values to achieve each scene's overall "look". These are usually stacked in a particular order. For example, with the CDL values applied first, then a "Scene LUT" for the particular location, and finally an overall "show LUT" that does the adjustment for the editing color space. It's common to refer to this package of transformations as the overall look.

The order does matter. In cases of a non-destructive workflow, it's best to run proper tests ahead of time to ensure that the overall look in editorial is what the cinematographer intended.

There are two ways to store color metadata for dailies: LUT reference, or CDL values.

LUTs

When working with an ALE file, it may refer to different LUT names, but typically, no LUT files are included. A LUT reference in an ALE is just a metadata field, so the Color Metadata is just passed through.

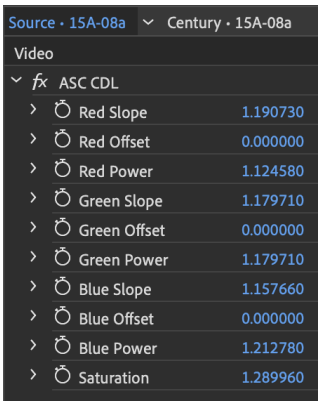
In a Baked Dailies workflow, these names are included for later use by the colorist during conform and finishing. Since the color has already been applied, it can be ignored during editorial.

In a non-destructive workflow, it's important to locate the LUTs listed in the metadata columns, and manually add them to the footage. Depending on the combination of LUTs used, this can be done with Source Clip Effects or adjustment layers. Lumetri, applied as a Source Clip Effect, has a menu in the Basic portion for a Transform LUT (called *Input LUT*), and another menu in the Creative portion to apply a Scene LUT (called *Look*).

For certain cameras, like ARRI or RED, it's important to test out the LUTs being applied automatically, and make sure they are the actual LUTs used by the cinematographer in the correct order.

CDLs

In a nondestructive workflow, having the CDL values listed in the ALE file is helpful, as Premiere Pro will automatically apply a special, lightweight Source Clip Effect (**ASC CDL**) to each file during ingest. This ASC CDL effect will apply the CDL values and modify the color accordingly.



If the CDL that you apply manually in Premiere Pro values won't automatically fill in the metadata columns—it'll need to be added there as well.

If you make changes in CDL values, they will be changed when you output a new ALE from Premiere Pro.

If the CDL values come in with the ALE file, it'll be necessary to disable the Source Clip Effects to prevent the values from being applied a second time.

In a Baked Dailies workflow, the CDL color correction is already in the file. It may be necessary to have the metadata in the files as well, but it's important to not apply the CDL values twice.

CDL metadata in the ALE

ALE files can contain color correction info from a CDL or a LUT. CDL metadata is stored in the *ASC_SOP* and *ACS_SAT* columns. The ASC_SOP column stores Slope, Offset and Power settings for each color channel, and the ASC_SAT column stores the Saturation setting.

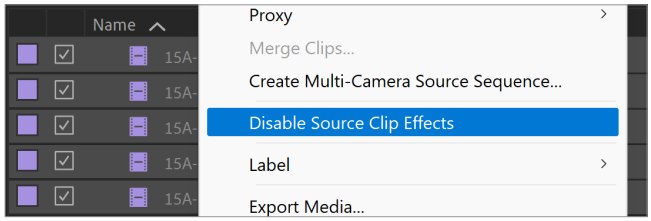
These clips have no LUT applied, but there is CDL metadata.

Name	Lut	ASC_SAT	ASC_SOP
15A-08a		1.28996682167	(1.1907386779785156, 1.179713249206543, 1.1576626300811768)(0, 1.490116
15A-06a		1.32304298877	(1.3009922504425049, 1.2568908929824829, 1.2899668216705322)(0, 1.49011
15A-03a		1.37816977500	(1.2348401546478271, 1.1686880588531494, 1.2458655834197998)(0, 1.49011
15A-07a		1.37816977500	(1.2568908929824829, 1.1245865821838379, 1.1686880588531494)(0, 1.49011
15A-01a		1.40000009536	(1.2084592580795288, 1.1782476902008057, 1.1899313926696777)(0, 1.49011
15A-02a		1.42227125167	(1.2238147258758545, 1.2238147258758545, 1.2238147258758545)(0, 1.49011
15A-04a		1.48842334747	(1.2238147258758545, 1.1576626300811768, 1.2238147258758545)(0, 1.49011
15A-05a		1.48842334747	(1.2789416313171387, 1.091510534286499, 1.1135611534118652)(0, 1.490116

When one of these columns has data, the clip gets the ASC CDL effect applied as a Source Clip Effect. The CDL effect is very light compared to Lumetri, but if you want to turn it off for all clips you can easily do so. Select all clips, right-click on one, and choose **Disable Source Clip Effects**.

Note that this does not delete the effect, it's just turned off.

The YouTube playlist "Inside Hollywood's Cutting Rooms" has a video tutorial on Working with ALE Workflows in Premiere Pro.



Chapter 5

Proxy Workflows

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Proxy Workflows

In video post-production the term "proxy" refers to a media file that is a copy of a source camera file that has been transcoded to be easier to edit with, a smaller file size, or both. In the context of Premiere Pro there are two general ways to use proxy media files:

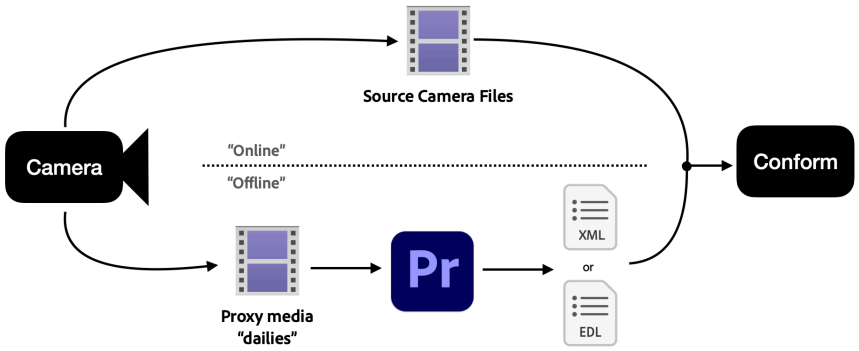
1. **A traditional offline/online workflow where Premiere Pro never sees the source camera files and works with proxies the entire time.**
2. **Premiere Pro imports the source camera files, creating and managing the proxy media.**

Read the following two sections and decide which workflow is appropriate for your production.

Traditional Offline/Online Workflow

This method has survived since the very beginning of digital non-linear editing because while computer processing speed has increased by orders of magnitude, the size and complexity of camera files has matched, if not exceeded, that increase. Picture editors always favor smooth playback and timeline performance to craft their art, so most high-end productions will prefer to use this tried and true workflow.

The offline/online workflow starts with proxy media (often called dailies) being made before any media is imported into Premiere Pro. This can be done on set, by a DIT, or handled by a specialized dailies facility. The "offline" media is so-called because it is not the source camera media and is only used for the edit process. Later the edit will be conformed against the source media and brought "online" for color grading, sound mixing, visual effects, and finishing.



In this workflow Premiere Pro is usually only ever aware of the offline or proxy media. While it is possible to relink your project to the source camera files in Premiere Pro, this is typically done in dedicated conform or color grading software. If your project is using this workflow, you can stop reading here. The rest of this document will detail how to use proxies inside of Premiere Pro.

Proxies Inside Premiere Pro

If your editorial team is starting with the source camera files, using proxies inside Premiere Pro enables many of the same benefits of the above offline/online workflow with the added advantage of being able to access the source camera files with the click of a button. Premiere Pro imports the source camera files, understanding them to be full resolution, then creates and manages its own low resolution proxy media.

It is important to understand that once you have created or attached proxies, each source clip in the Project panel will be connected to two files on disk: one for the full resolution and one for the proxy. You don't have to worry about managing the files or changing the scale if you switch between using one or the other.



In a standalone single project file you can create proxy media whenever you like.

If you are working in a Production, create your proxy media before starting to edit with those clips.

This workflow offers additional flexibility in the creation of proxy media. You can enable proxy creation via Ingest Settings so that all media that is imported automatically has proxies created in the background using Adobe Media Encoder.

Alternatively, you could import your media and only create proxies for clips that are difficult to play back smoothly on your computer. It's also possible to attach proxies made by a third party panel or MAM system that integrates with Premiere Pro.

Some features of Premiere Pro can affect your ability to use proxies. See "Additional Considerations When Using Proxies in Premiere Pro" on page 55.

Creating or Attaching Proxies

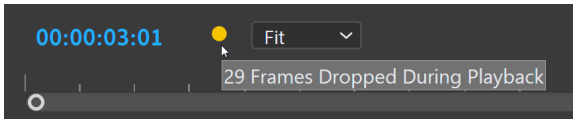
The primary reason to create and use proxies in Premiere Pro is to improve playback and editing performance. Depending on the types of footage and power of your computer, some projects may call for creating proxies for *all* clips while others may only need certain batches of clips to have proxies.

Many modern systems are powerful enough to not need proxies at all. If you're not sure if you need proxies, try editing with some of your source camera footage and see how your computer performs.

The Dropped Frame Indicator can help you determine if you need proxies or not. If your system is not able to keep up with playing back your footage or timeline, Premiere Pro will skip or "drop" frames to keep the playhead moving in real time.

Choose **Show Dropped Frame Indicator** in the wrench menu of the Program Monitor. When the indicator is green, no frames have been dropped. If it changes to yellow during playback, some frames have been dropped. Hover the pointer over the yellow dot to show how many frames were dropped.

If the Dropped Frame Indicator turns yellow, you are dropping frames.



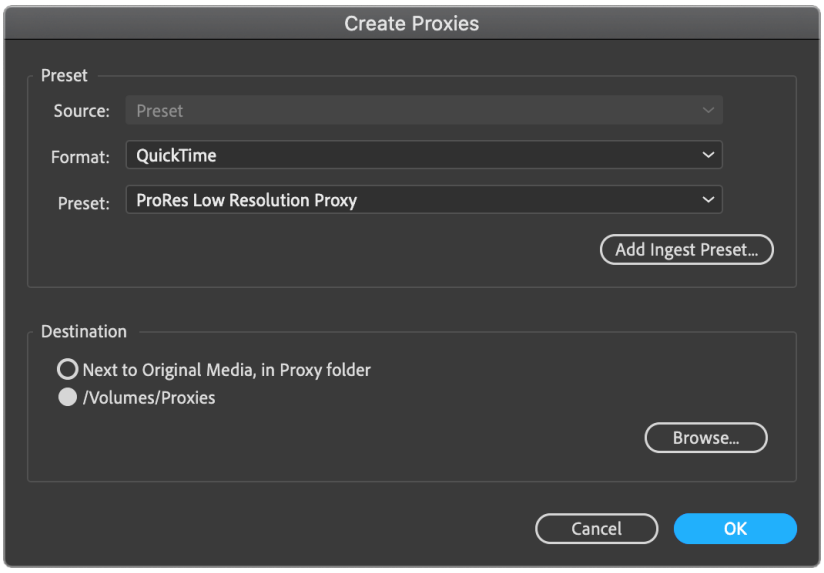
When you create proxies in Premiere Pro using the default proxy presets, audio channels will automatically match the source.

If you opt to create your own preset or create proxies outside of Premiere Pro, it is crucial that the proxy media audio channelization matches that of the source camera files. Failure to match them can lead to workflow-halting issues trying to relink them.

The following three sections describe three methods of creating proxies. Most workflows should use the first method.

Creating Proxies Inside Premiere Pro – Simple

Recent versions of Premiere Pro include a simplified proxy creation workflow. Select one or more clips, then right-click and choose **Proxy > Create Proxies...**



Choose Proxy Format

The Format drop-down menu can be set to either QuickTime or H.264.

- **Use QuickTime to create MOV files with presets for ProRes, Cineform, or DNxHR VR**.
  These files may be larger than your source media, but are easy for the computer to play and edit. Choose one of these presets if you have a good amount of working storage space and are mainly concerned about editing performance.
  This is also the best option if you have source camera files with multichannel audio.

Choose QuickTime if your source files have multi-channel audio. The H.264 option only supports mono, stereo and 5.1.

- **Use H.264 to create MP4 files with presets for Low, Medium, and High resolution.**
  These files will generally be small but may not play back well on older or underpowered computers. Ensure that your system supports hardware accelerated decoding before using H.264 proxies.
  The MP4 format only supports Mono, Stereo, and 5.1 audio channelization. If your source camera files have a different channelization, use QuickTime.

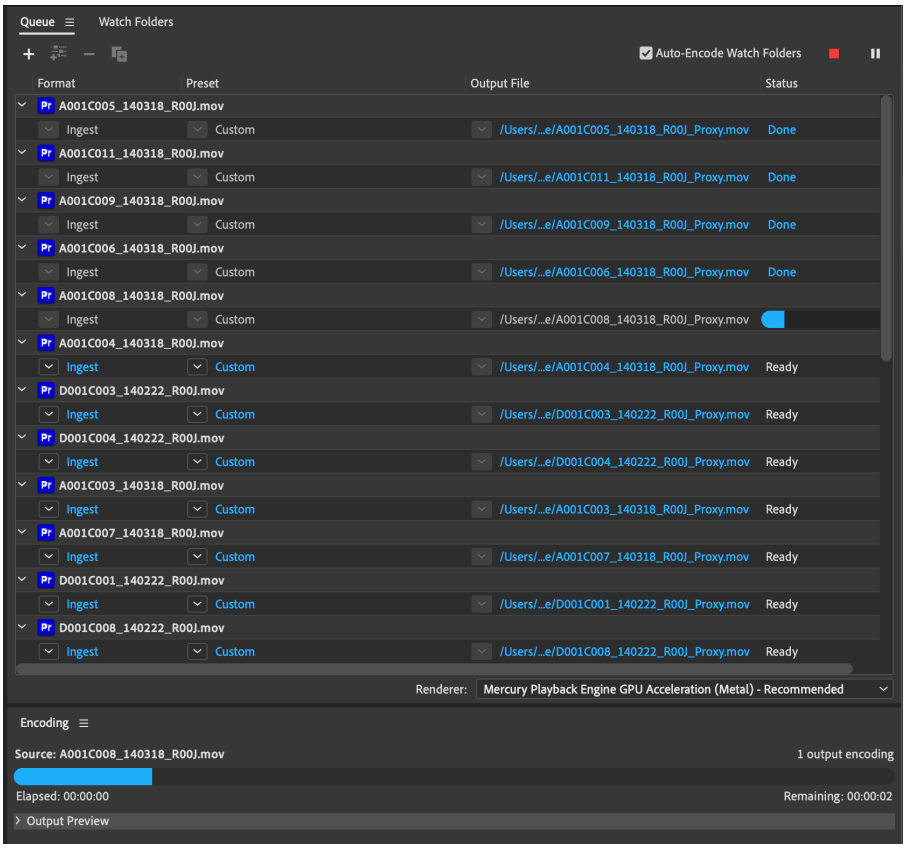
Choose Proxy Destination

Every project will have a different preference as to the location where the proxies are created. It can be useful to use the second option to keep all your proxy media in one location (like a separate drive) to easily facilitate taking just the smaller proxies with you on a portable drive when working remotely.

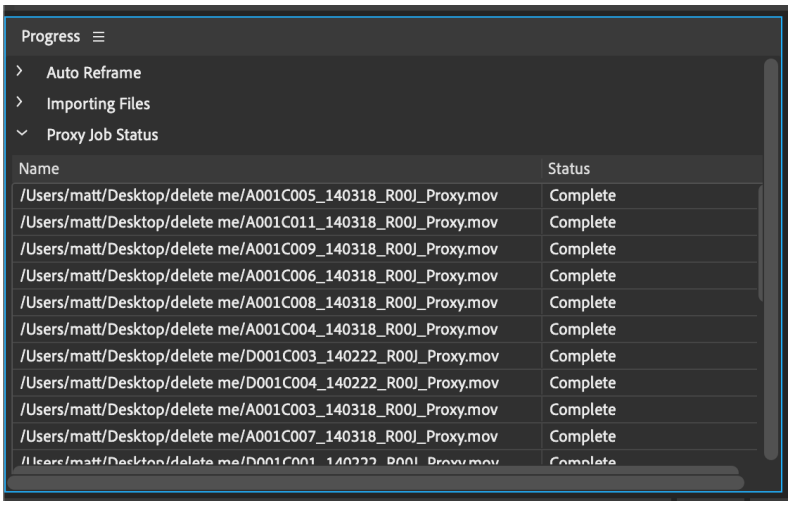
When you click OK to create the proxies, Adobe Media Encoder launches and queues a transcoding job for each clip. Once that job is created, your project will mark the source camera clip as having a proxy.

You can continue to work in Premiere Pro and Media Encoder will continue to create the proxies. As soon as the proxy file is created in the file path that your project expects, the proxy is considered online and Premiere Pro will be able to use it.

One job per clip is created in Adobe Media Encoder, and transcoding starts.



The Progress panel in Premiere Pro shows the Proxy creation progress.



Creating Proxies Inside Premiere Pro – Advanced

Create an Encoding + Ingest Preset pair for each group of clips with a different frame rate, frame aspect ratio, or audio channelization.

Premiere Pro supports a more complex but more powerful method for proxy creation that enables control over how the proxies look. Using this method requires some discipline and organization, and is only recommended if your needs extend beyond the previous method.

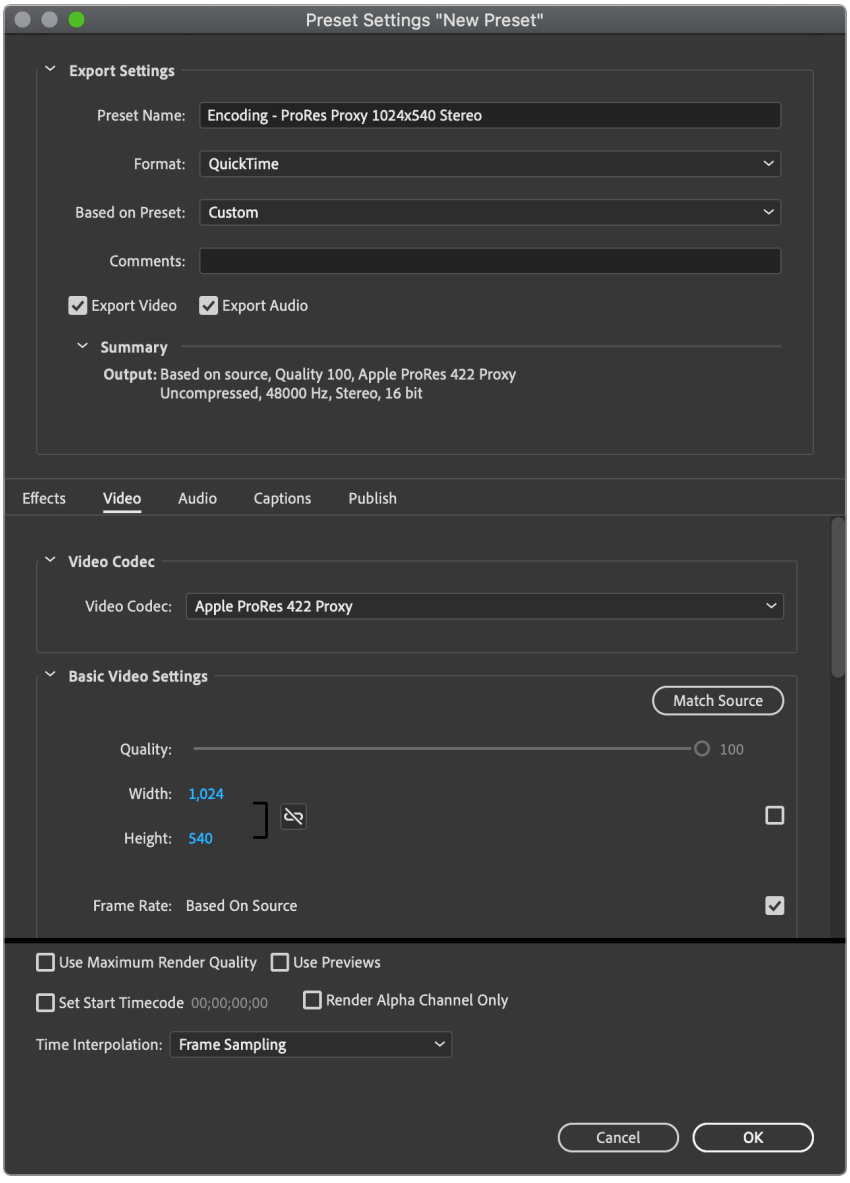
Step 1: Create an Encoding Preset

Use Adobe Media Encoder to create your Encoding Preset. In the Preset Browser click the + button and choose *"Create Encoding Preset…"* Give the preset a name. It can be helpful to use the term *"Encoding"* to easily identify it later.

a. Choose a Format for your proxies. QuickTime is a common choice that supports a wide array of video codecs and audio channelizations.

b. In the Video tab, start by clicking the *Match Source* button so the video properties will match the source media.

Start by creating an Encoding Preset in Adobe Media Encoder.



⚠ The frame size is specific to each preset you make. Create a preset for each different frame size your footage uses.

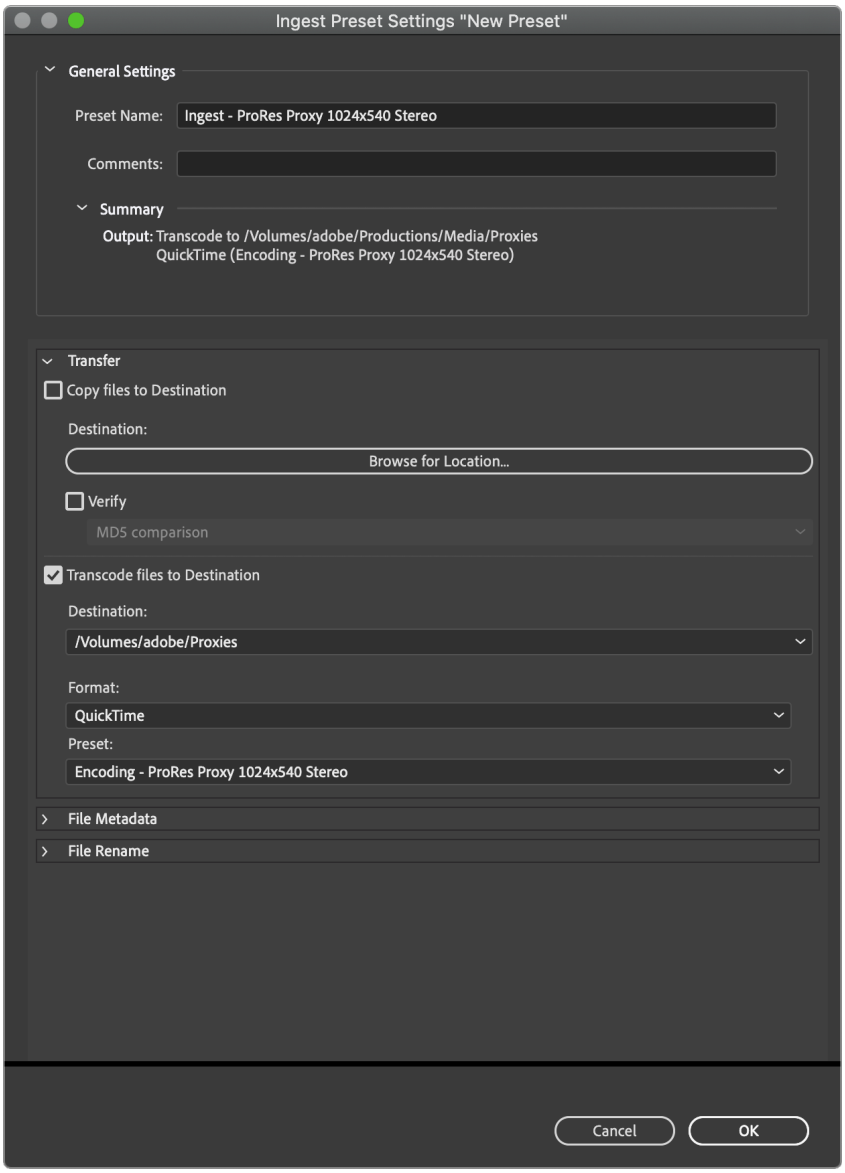
c. Uncheck the box for Width and Height, then change them to your desired proxy size. Proxies are commonly made at fractional resolutions like ½ or ¼. Divide your source camera width and height by 2 or 4 to calculate your new proxy frame size.
Example: If you want ¼ resolution proxy files for 4K (4096x2160) media:
Width = 4096/4 = 1024 pixels
Height = 2160/4 = 540 pixels

d. In the Audio tab make sure the audio channelization matches your source camera files.

e. Click OK to create the Encoding Preset and see it added to the Preset Browser.

Step 2: Create an Ingest Preset

In the Preset Browser of Media Encoder, click the + button and choose *"Create Ingest Preset..."* Give the preset a name. It can be helpful to use the term *"Ingest"* to easily identify it later.



The Destination setting only applies when using the Ingest Preset in Premiere Pro's Ingest settings. If using the Create Proxies dialog, the location preference in that dialog will override the Destination in your Ingest Preset.

a. In the Transfer section, check the box for "Transcode files to Destination".

b. Set the destination where you want the proxy media to be created.

c. In the Format drop-down menu, choose the same Format you chose for your Encoding preset.

d. In the Preset drop-down menu, choose your Encoding Preset from *"Step 1: Create an Encoding Preset"*.

e. Click OK to create the Ingest Preset and see it added to the Preset Browser.

f. Right click on your new Ingest Preset in the Preset Browser and choose *"Export Presets..."*

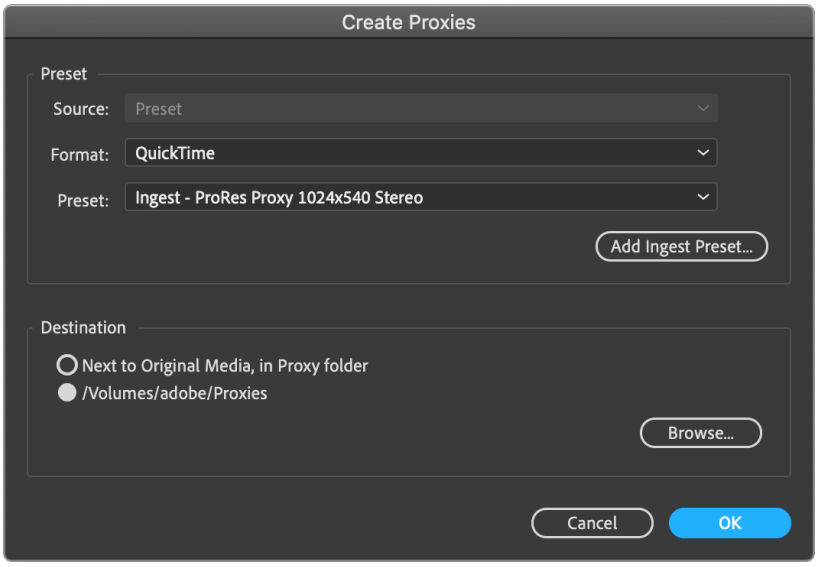
g. Save the Ingest Preset file somewhere you can easily find it later.

Step 3: Create Proxies in Premiere Pro Using Your Ingest Preset

a. Select one or more clips, then right-click and choose *Proxy* > *Create Proxies...*

b. Click *"Add Ingest Preset..."* and navigate to the Ingest Preset file you saved at the end of *"Step 2: Create an Ingest Preset"*.

Choose the Ingest Preset from step 2.



c. Choose one of the Destination options

d. Click OK

e. Media Encoder launches and queues up the proxy creation job.

You can also use your Ingest Preset to automatically create proxies when media is imported by choosing **File > Project Settings > Ingest Settings**. Check the box to enable Ingest, then choose *"Create Proxies"* from the drop-down menu and add your Ingest Preset if it isn't listed in the Preset drop-down menu.

Creating Proxies Outside Premiere Pro

While most workflows benefit from creating proxies using Premiere Pro and Media Encoder as described above, some advanced users prefer to create proxy media using another application. Premiere Pro supports this using the *"Attach Proxies"* command.

When creating proxies outside Premiere Pro, it is recommended to test your workflow with one or two clips from each camera first:

It is essential when using *"Attach Proxies"* that the frame aspect ratio, frame rate, audio channelization, and fielding match the source media already imported into Premiere Pro.

1. Import the test source media files into Premiere Pro
2. Create the test proxy media in the outside application
3. Right click on the test clips in Premiere Pro and choose **Proxy > Attach Proxies...**
4. Use the *Attach* button and the browsing interface (similar to Relink) to point to the proxy media files
5. If no warning or error dialog appears, confirm in the Project panel List View that the *"Proxy"* column shows the proxy as *"Attached"*

Using Proxies in Premiere Pro

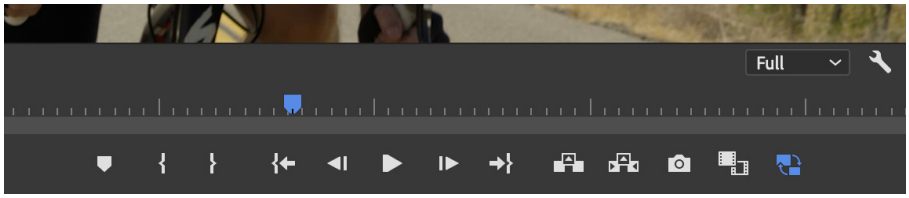
When proxies have been created and attached—regardless of which method was used—you can switch between proxies and the original media files in three different ways.

Enabling Proxies in Preferences > Media

Open **Preferences > Media** and check the box called *"Enable proxies"*. This will tell Premiere Pro to use proxy media, if available, in any projects that are opened. If proxy media has not been created for a clip, or the proxy media files are missing, Premiere Pro will fall back to using the full resolution media.

Enabling Proxies in the Source or Program Monitor

A *"Toggle Proxies"* button is available in the Source and Program Monitor panels. Click the + button in the bottom right of either panel to access the Button Editor. Drag the *Toggle Proxies* button to the panel's button bar, then click OK. Toggling this button is the equivalent of opening the Media Preferences and toggling the checkbox for *"Enable Proxies"*. When the button is blue Premiere Pro will be using proxy media, if available.



The Toggle Proxies button in the Program Monitor is blue here, showing that Proxies are enabled.

Enabling Proxies with a Keyboard Shortcut

The *"Toggle Proxies"* command is not mapped to a default keyboard shortcut, but can easily be assigned to a key in the Keyboard Shortcut Editor.

Proxy Status in the Project Panel

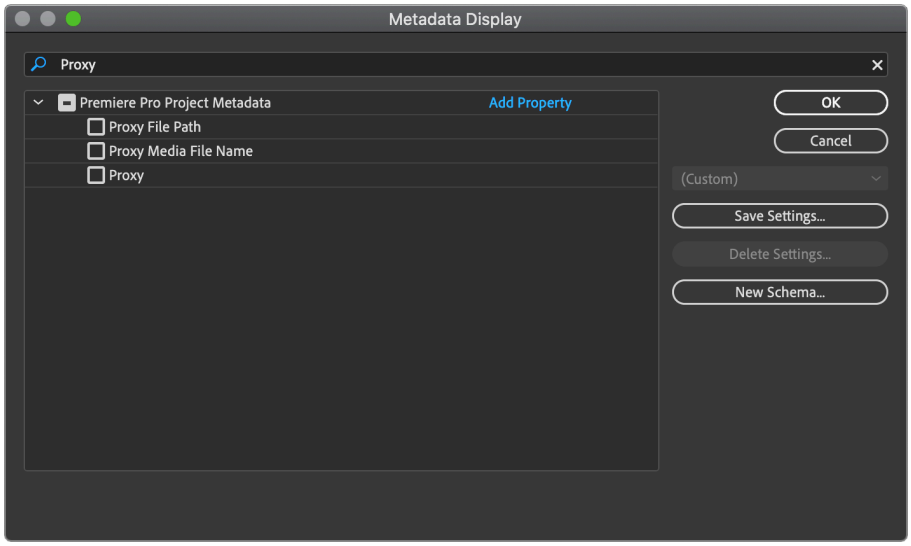
Premiere Pro's Project panel supports three metadata columns that display information about proxy media. To enable them, right click on a column header while in List View and choose *"Metadata Display..."*. Search for *"proxy"* and enable the fields you want to display.

Proxy: Displays the current status (Attached or Offline).
If empty, no proxy has been created or attached

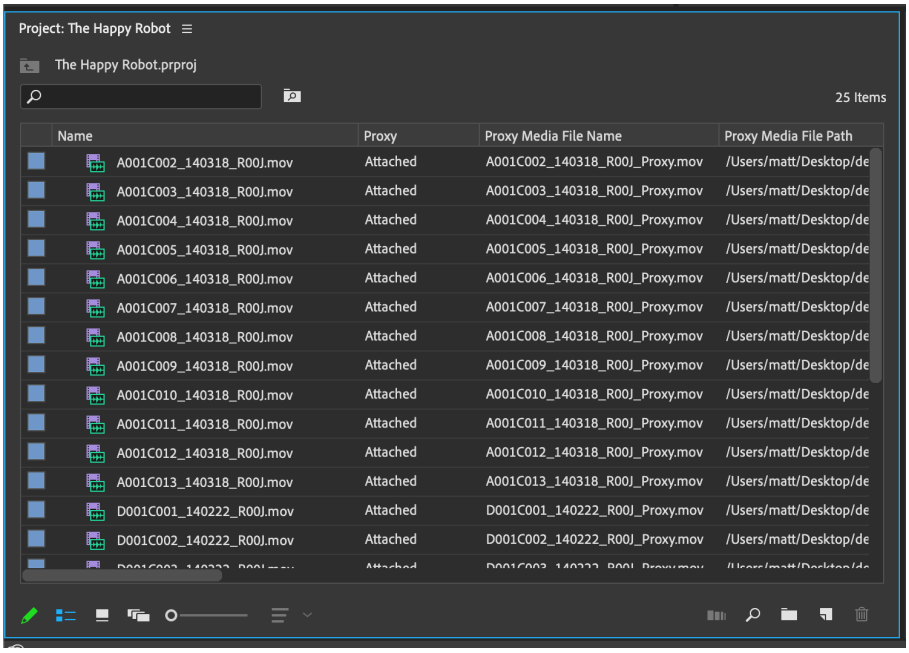
Proxy File Path: The full path to the proxy media file.
Analogous to File Path field for the full resolution media

Proxy File Name: The file name of the proxy media.
Analogous to the File Name field for the full resolution media

Search for "Proxy" in the Metadata Display dialog to show the available proxy fields.



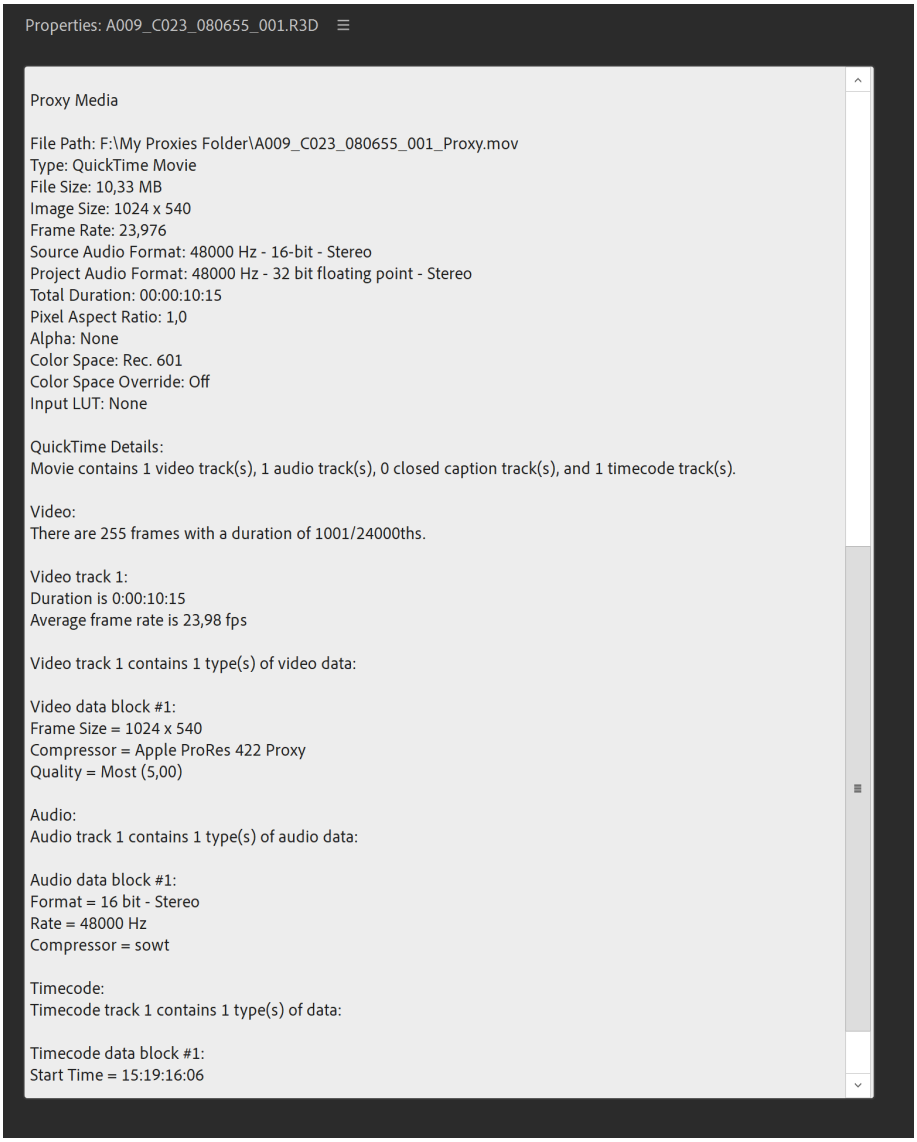
The Proxy column in the Project panel List View shows attached proxies. Proxy media file name and path are also shown here.



Proxy Info in the Properties Panel

The Properties panel shows information for both the original clip and the attached proxy file. You may need to scroll down to see the Proxy information.

The Properties panel describes the Proxy media below the original media.



Scaling and Transform when Frame Sizes Differ

As the goal of using proxy media is to improve performance, the frame size of the proxy media is usually smaller than that of the full resolution media. Imagine a scenario where the full resolution media is UHD (3840x2160) while the proxy media was created as HD (1920x1080).

Premiere Pro will continue to consider the clip as a UHD frame size, even if proxies are toggled on. You will not have to adjust any scaling, transform, masking, or effect parameters as you toggle back and forth between proxy and full resolution media. The smaller frame of the proxy media is automatically stretched to fill the UHD clip size.

Effects and Proxies

Some effects perform best when they have access to the full pixel data and will always use the full resolution media if it is available. These effects include:

These effects use the full resolution media if available.

- Warp Stabilizer
- Rolling Shutter Repair
- Morph Cut
- Compound Arithmetic

Rendering Video Previews

When rendering video previews in your timeline, full resolution media is always used if available.

Export with Proxies

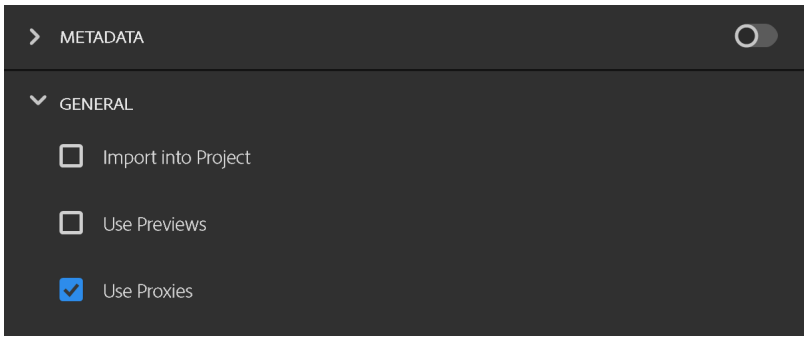
Exporting requires using either the full resolution or proxy media. This section describes the options when exporting.

Media Export

By default, Premiere Pro will use full resolution media when exporting, even if proxies have been enabled in Media Preferences or by using the Toggle Proxies button. This is to avoid unintentionally exporting at a lower resolution.

If your export doesn't require the full resolution media and you would prefer to export more quickly, you can check the *"Use Proxies"* checkbox in the Export Settings dialog.

The Use Proxies checkbox lets you export using proxies instead of the original media.



Interchange Format Export

Timeline interchange formats like XML, AAF, and EDL will always refer to the full resolution media, if available.

Detach Proxies

To remove proxies you no longer need, you can use the *"Detach Proxies"* command. Select your clips in the Project panel, right click, then choose **Proxy > Detach Proxies**. The proxy media files will remain on disk; this command simply returns the source clip to a proxy-less state.

Working Remotely with Only Proxies

A common technique to facilitate editors working remotely is to organize the project and media such that it is easy to take just the proxy media and leave behind the full resolution media. Follow these steps:

1. When creating the proxy media, choose a destination separate from the original media. This can be a dedicated folder, or for the smoothest relinking use a separate drive or volume on your shared storage.
2. Give the editor a copy of the proxy media on an external drive and a copy of the project. Match the name of the external drive with the name of the drive or volume containing the proxy media. On Windows, make sure the drive is mapped to the same drive letter.
3. On the editor's remote system open the project. If the proxy drive name matches, Premiere Pro should only ask to relink the full resolution media. Choose Cancel in the Relink dialog to leave the full resolution offline and continue working with only proxy media.
   If the drive name and paths of the proxy media do not match, make sure to relink the proxy files in the Relink dialog and avoid relinking any of the full resolution files.
4. The editor can now work with only the proxy media.

Additional Considerations When Using Proxies in Premiere Pro

Modifying Clips (Audio Channels, Interpret Footage, etc.)

If your workflow relies on modifying the source clips using any of the following commands, do not use proxies in Premiere Pro. Doing so will result in unexpected behavior:

Modify > Audio Channels

Modify > Interpret Footages

Modify > Timecode

Modify > Captions

Merge Clips

Do not use Merge Clips if using proxies inside Premiere Pro. Use the Multicam workflow, even if only syncing one video clip to one audio clip.

Source Settings

Some formats like RED have Source Settings that allow you to change parameters from the camera, like ISO. You can create proxies from these kinds of formats, but the proxies will always use the default settings from the camera metadata. Any changes you make to the Source Settings will not be used when creating proxies.

Relinking

Full resolution media and proxy media will both appear in the Link Media dialog, if they are offline. Take care when relinking to avoid accidentally pointing your proxy media to the full resolution, or vice versa.

Render and Replace

Using the Render and Replace command will create a new source clip in your project. This new source clip will not have a proxy attached even if the original source clip did.

Captions

The proxy workflow in Premiere Pro is not designed to work with clips that include embedded captions.

Chapter 6

Working with Productions

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Productions

Productions in Premiere Pro provides a new framework for organizing multi-project workflows and collaboration using shared local storage. Productions represents the culmination of our Shared Projects approach to local collaboration.

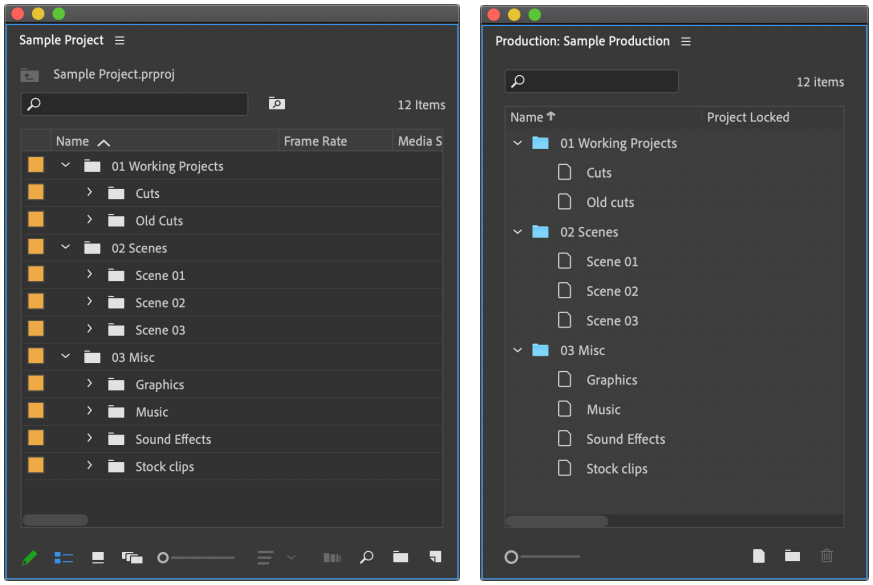
What is a Production?

A Production is a collection of Premiere Pro project files inside a folder that can be thought of as a cohesive unit. While the goal of Productions is to be flexible and not prescribe how editors use them, a good starting point is to think about a Production as an evolution of a project file.

What used to be a single .prproj file is now a Production folder and what used to be a bin inside the .prproj file is now a component project inside the Production folder.

Left: A standard Premiere Pro Project, where all the assets, bins and sequences live in one large project.

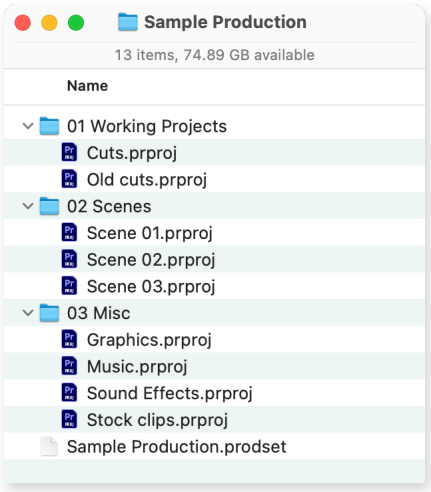
Right: A Premiere Pro Production, where multiple project files live together.



The File System on the disk has the exact same structure as the Premiere Pro Production.

The .prodset file is the settings for the Production.

⚠ Do not open, move or rename this file.



Productions and the file system

A Production is a folder on disk that has unique behaviors compared to a traditional project file.

Actions performed in the new Production panel are reflected in the file system and vice versa, forming the backbone of the powerful new collaboration possibilities available to editors working in a Production.

Comparing Productions and Team Projects

Team Projects is Adobe's cloud-native collaboration system for Premiere Pro and After Effects. A Team Project lives in Creative Cloud and allows teams to collaborate no matter where they are located, provided they have an internet connection.

Productions don't need an internet connection, and work with any Creative Cloud license.

Alternatively, Productions live on a local or shared storage and do not require an internet connection or specific Creative Cloud license to function. A Team Project can be converted to a standalone project file and added to a Production.

Benefits of a Production Workflow

While Productions are a natural fit for large, complex projects like those found in film & TV, Premiere Pro editors working on projects of any size can benefit from working with Productions.

Break up large projects for speed and organization

In a Production only the clips and sequences that are open are using system memory and processing power. By breaking up clips, sequences, and other project items into smaller component projects inside a Production any editor can benefit from faster open and save times. No more waiting for the entirety of your large project to load before being able to work on the one section you need.

Avoid duplicate clips

Before Productions, Premiere Pro required every clip in a sequence to have a corresponding Source Clip somewhere in the same project. This meant that when sharing sequences back and forth between editors it was common to accumulate duplicate clips.

In a Production, clips in a sequence can refer back to the Source Clips in the project they originated in. Performing edits across projects or moving sequences between projects no longer generates duplicate clips.

Easily reuse projects

The project files inside a Production can be treated as reusable components. Instead of importing thousands of sound effects into your edit project to audition them, for example, import and organize them in a sound effects project that you add to all of your Productions for easy access.

Collaboration

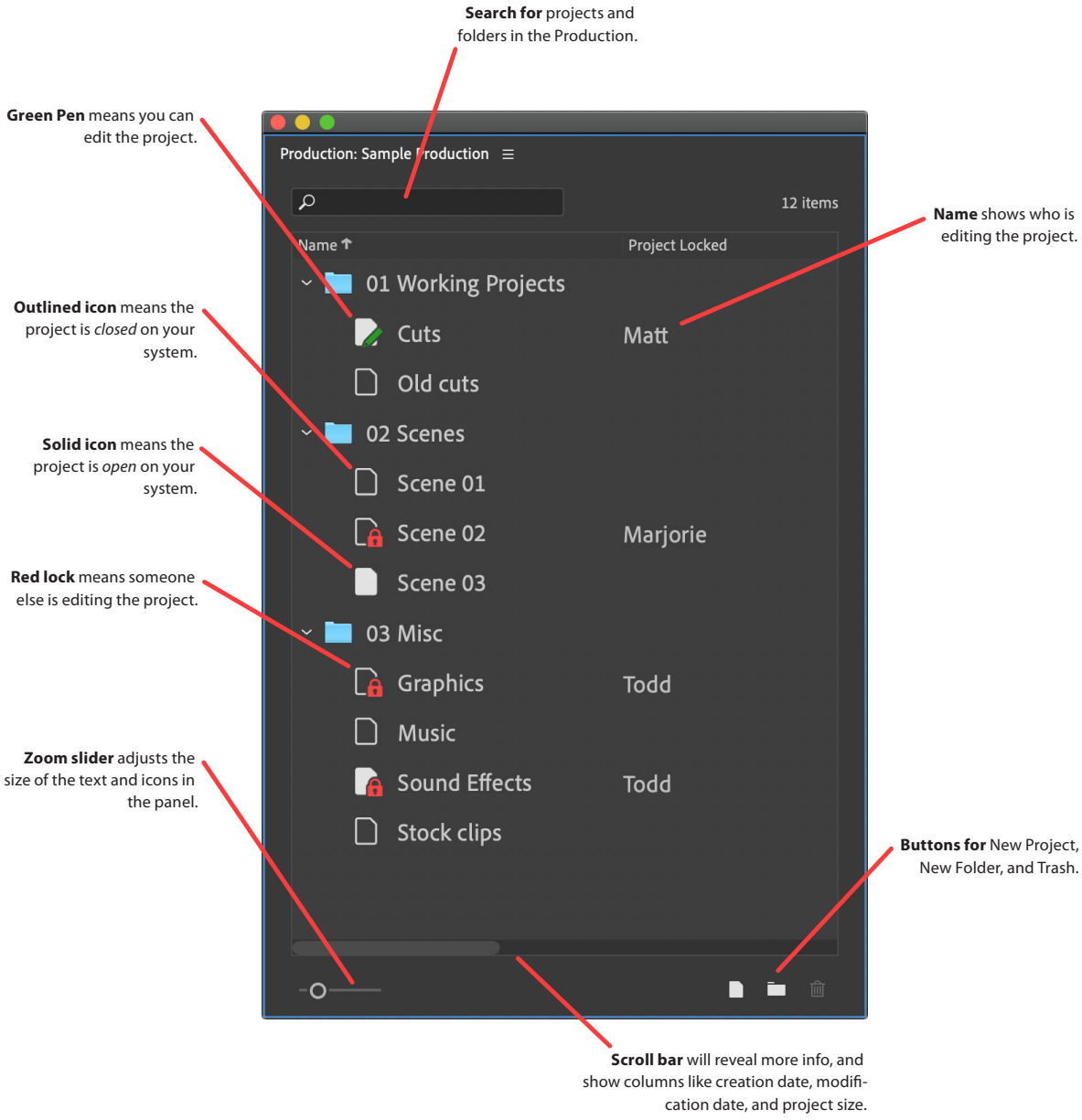
Individual editors can use Productions on their local storage and get all of the above benefits. Editorial teams working with Productions on shared storage systems unlock a new workflow designed to keep everyone organized and efficient while also preventing conflicts.

The first editor to open a project in a Production gets a "lock" on it that other editors can see in their Production panel. Anyone can open a locked project to play a sequence, export, or copy elements out, but no changes can be made unless the editor has the lock.

The Production Panel Interface

The Production panel gives you a bird's eye view of all your projects and shows you who is working on what so you and your team can track your progress.

Here's an overview of the Production Panel and the icons, buttons and other user interface elements you will see when working with a Premiere Pro Production.



Project Locking

Projects displayed in the Production panel can be in one of three states:



Open, Read/Write: Projects in this state have a solid icon with a green pen indicating that only you are able to edit the project. Other editors may have your project open but they can only view it, not make changes. The User Name you entered in **Preferences > Collaboration** is shown next to this project in the *Project Locked* column. You can move or rename this project in the Production Panel.



Open, Read Only: Projects in this state have a solid icon and may have a red lock. In either case you are not able to modify the project, only view it. If a red lock is present it means another editor has the project open Read/Write and their name will appear next to the project.

Any open Timeline or Project panels from these projects will have a lock icon in the panel tab. You cannot move or rename projects in this state. Holding Cmd/Ctrl while double clicking a project will open it in Read Only mode.



Closed: Projects in this state have an outlined icon and may have a red lock. This indicates the project is closed on your system and not using any memory or processing power. If a red lock is present the name of the editor working in the project appears next to the project.

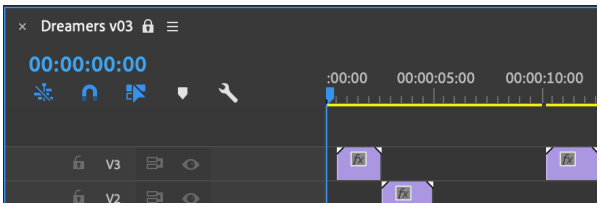
You can move or rename closed projects only if they do not have a red lock icon.

Working in a Read Only project

Although you can't do any editing in a Read Only project, a variety of tasks can still be performed without changing the project:

- Load clips and sequences into the Source Monitor
- Set In/Out points and perform edits from the Source Monitor
- Play sequences in the Timeline and Program Monitor
- Export media, XML, AAF, EDL, etc.
- Copy project items into a project that is open Read/Write

Lock icon next to sequence name indicates no changes can be made.



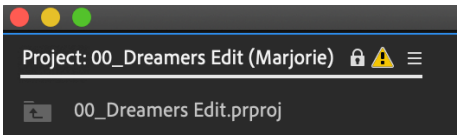
Refresh Notifications

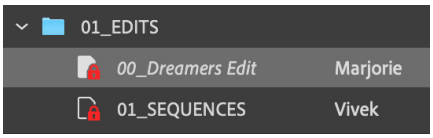
While working in a Read Only project, if the user who is editing the project saves new changes Premiere Pro will show a notification. The notification is not an error but simply information that you are no longer looking at the most current version of the project. When this happens the Project panel will show a small yellow alert triangle. ⚠

The Production panel will also italicize the name of the project with changes.

Left: Notification in Project panel. Alert triangle means that the project has been changed.

Right: Italicized project in Production panel.





To see the new changes, use *Refresh Project* in the panel menu of the Project panel, or **File > Refresh All Projects**. You can assign keyboard shortcuts to both of them of course. The *Refresh* command is also found in the context menu if you right-click on a project in the Production panel.

Shared Storage Systems

Productions can be saved anywhere you already work with a single project file, however a networked shared storage system is required for a team of editors to collaborate in a Production.

Productions in Premiere Pro are flexible and designed to work on a wide range of available storage solutions. Because Productions can work on many systems it is not possible for Adobe to validate compatibility for specific storage systems.

Before purchasing or renting a shared storage solution, ask if it has been tested to work with Productions in Premiere Pro. In general, here are some best practices for using Productions on shared storage:

- **Network Attached Storage** (NAS) systems usually offer multiple ways to connect.
  When choosing between options like SMB, AFP, or NFS always prefer connecting with SMB.
- **Premiere Pro can handle translating path differences** between macOS and Windows. For best results on macOS make sure the same volume name is used on all systems. On Windows make sure to map the share to a drive letter that is the same on all systems.
- **Other types of shared storage systems** that use proprietary file systems or client applications to connect can work with Productions assuming they provide updates to the file system in a way Premiere Pro can understand.
  Check with the storage provider to see if they support Productions.
- **Scratch disks** (Auto Save, Preview Files, etc) are safe to put on shared storage.
  Productions will set the scratch disks next to the Production folder by default and the location can be configured in Production Settings.
- **Media Cache Files** and Media Cache Database are recommended to stay either in their default location on the system boot drive or on a separate fast SSD directly attached to each workstation.
  Adobe does not recommend and cannot support configurations where Media Cache files are placed on shared storage.
- **Like with traditional hard drives**, a faster connection will generally yield better performance.
  A 1 Gbps connection speed per workstation is the minimum for working in a Production.
  For greater than HD frame sizes and larger Productions a faster connection like 10 Gbps is recommended.
  The more users working simultaneously in a Production, the faster the storage system and network need to be.
- **While it is safe to store a production in a consumer file syncing service** (Dropbox, Google Drive, etc), doing so is not recommended to simulate a shared storage system. **Collaboration with Productions is not designed to work with these services.** See the section titled "Decentralized Collaboration with Productions" for an example of how to share Productions without a shared storage system.

A note on server time

The editing system time must match the storage server's time.

Core parts of collaborating with Productions rely on the timestamps of files as reported by the file system. With shared storage systems there is usually a configurable date & time setting.

Always check that your editing system time matches the storage server's time.

The easiest way to ensure this is to set the server to communicate with a NTP time server. If this is not an option, manually setting the time as close as possible will work. Make a note to check the server time every so often to make sure it has not drifted. More than a few minutes drift in either direction can lead to unexpected behavior.

Creating a Production

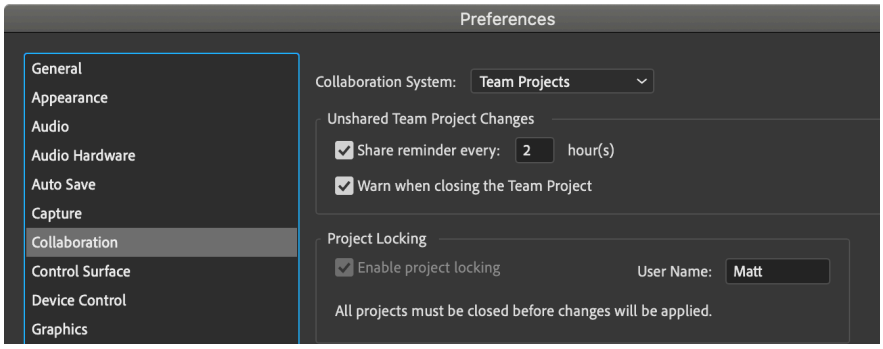
A few settings in Premiere Pro are recommended when working in a Production:

Turn XMP ID off when working from shared media.

If the ID is modified, or the clocks are not in sync, Premiere Pro may start re-generating waveforms etc.

- In **Preferences > Media**, ***uncheck*** the following:
  - Write XMP ID to Files on Import
  - Write Clip Markers to XMP
- In **Preferences > Collaboration**
  - Make sure *Enable Project Locking* is ***checked.***
  - Enter a *User Name* that others will see when you open a project.
- Choose **Window > Workspaces** and ***uncheck*** *Import Workspaces from Projects.* This avoids having your workspace change when opening projects used by other editors.

Project Locking settings in the Collaboration preferences.



What is XMP?

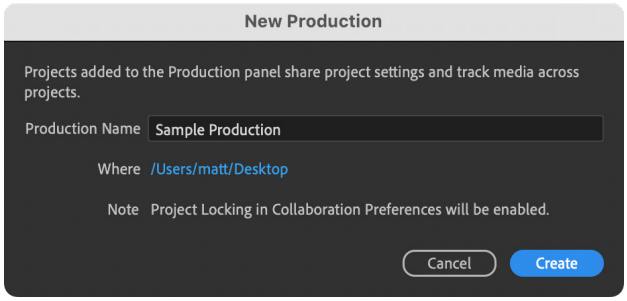
Adobe's *Extensible Metadata Platform* (XMP) is a file labeling technology that lets you embed metadata into files themselves during the content creation process. Premiere Pro can use XMP to track separate media files that may have similar attributes like video files with the same file name from the camera.

Most solo editors are not affected by these settings, but they can negatively impact collaborative teams working on a shared storage system. See *"Decentralized Collaboration with Productions"* for an example of a workflow that benefits from turning on these features.

Steps to create a Production

1. Choose **File > New > Production...**
2. Give your Production a name. This will also be the name of the folder on disk.
3. Click the blue path text to select a location to save the Production folder. For collaboration, make sure to save the Production on your shared storage.
4. Click *Create.*
5. The Production panel is opened and your first project is created for you.

The New Production dialog box.



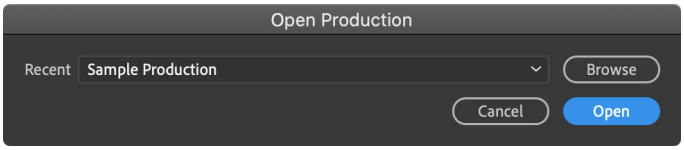
After creating your Production, choose **File > Production Settings** to configure the settings for your Production. These settings apply to all users who open the Production. See the section on "Production Settings" for more information.

Opening an Existing Production

Opening a project that is part of a production will also open the production. Editors used to opening their project from Finder/Explorer or the Home screen recent list can continue to do so.

1. From the Home screen or with a standalone project open choose **File > Open Production**
2. Select a recently used Production from the dropdown menu and click *Open,* **or** click *Browse* and navigate to an existing Production folder and choose it.

The Open Production dialog box.



Opening Productions

When an existing production is first opened and none of the projects are opened, only the Production panel will be visible.

Opening a project will also open the rest of the Premiere Pro interface.

Unlike standalone project files, only one Production can be open at a time. Projects that live outside a Production can be opened while a Production is open. Premiere Pro's Home screen will show a list of most recently used projects, including projects that are part of a Production.

Opening a project that is part of a Production (via that list or a double click on disk) will also open the Production.

To import an existing project into your Production, see *"Add Project to Production"* below.

Building Out a Production

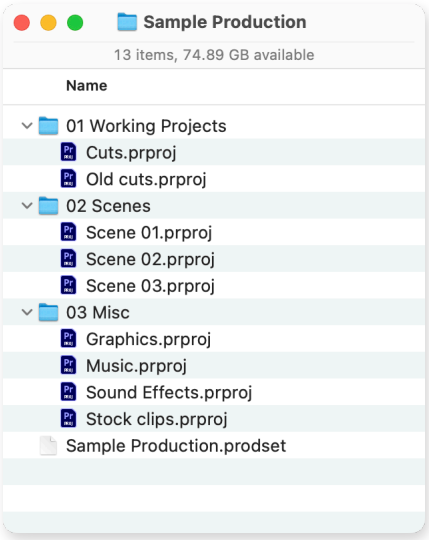
Productions are designed to be flexible to allow for any number of workflows. How you organize your projects and folders is completely up to your needs. If you're not sure where to start, consider the example structure in the image in "*What is a Production*" above.

What would have been a bin in a single project is now a project inside the Production.

For collaboration, keeping projects small means you are less likely to have two editors needing to both be working in the same project at the same time.

NOTE: The production folder is designed to only contain Premiere Pro project files.

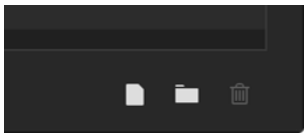
⚠ Do not store media or other files in your production folder!



New project

Click the *New Project* button or choose *New Project* from the context menu. Give the project a name and click OK. When in a Production, **File > New Project** will create a new project in the Production panel as opposed to a standalone project.

The left icon is the New Project button.



New folder

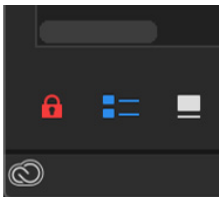
Click the *New Folder* button or choose *New Folder* from the context menu. Give the new folder a name and click OK.

Moving and renaming projects and folders

Projects can be moved or renamed if you have them open read/write (green pen icon) or if they are closed with no red lock. Folders can be moved or renamed if all of the projects inside are in one of these states.

Project panel lock icons.





Changing project lock status

A project that is open read/write (green pen icon) can be changed to read only without closing the project so that others can then open and modify the project while you keep viewing it. Click the green pen button in the Project panel or right-click on the project in the Production panel and choose *Read-Only Mode*.

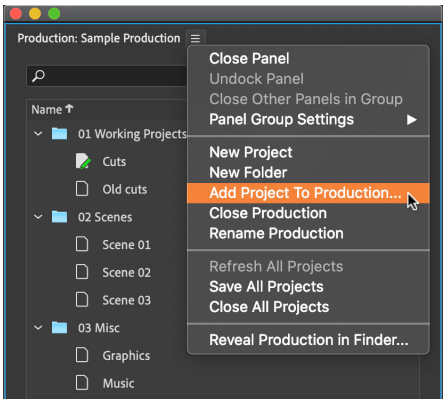
A project that is open in read only mode (solid icon, no lock or pen) can be changed to read/write mode if no other editor has it open in read/write mode. Click the red lock icon in the Project panel or right-click on the project in the Production panel and choose *Read-Write Mode*.

Adding an existing project to a Production

To incorporate existing project files into your Production, use the *Add Project To Production* command.

The Add Project To Production command upgrades the project version if necessary. It also ensures the project isn't a duplicate.

Right-click in the Production panel or use the Production panel menu to choose *Add Project To Production* and then choose a project on disk.



Premiere Pro will make a copy of the project inside the Production. The process will also upgrade the project version if necessary and ensure it is not a duplicate.

While it is possible to add project files to your Production via the file system directly, avoid doing so unless you are certain the project comes from the same version of Premiere Pro and is not a duplicate of an existing project in your Production.

If you're not sure, use the Add Project To Production command.

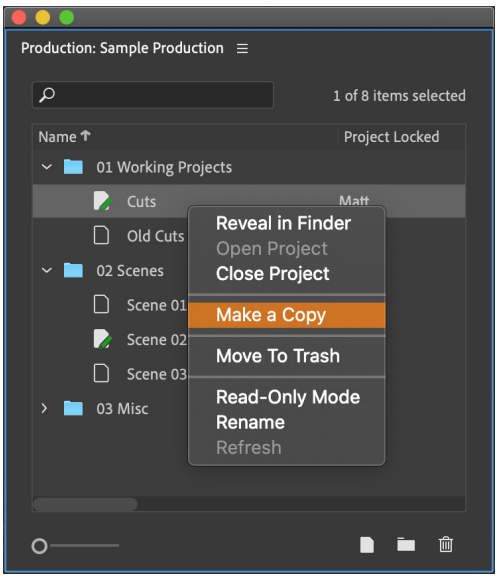
Make a Copy of a project

If you need to make an exact copy of an existing project file, right-click on it in the Production panel and choose *Make a Copy*. Doing this from inside the Production panel allows Premiere to make sure that the unique ID inside the project file is not duplicated. Avoid making duplicates directly in the file system, Finder, or Explorer.

See "A note on duplicate projects" below.

Make a copy of a project using the *Make a Copy* command.

⚠ **Do not** make copies directly in your file system. Do not use *Save As* or *Save a Copy* into the production folder.



Using a template project or production

Building out a production that can then be used as a template for future productions is a great way to ensure consistency. After you have set up a production to your liking, copy it to a new location, making sure the folder name isn't changed. Open the production and use the Rename Production command found in the Production panel menu to give it a new name.

If you have a template project file you like to use instead, make sure that you add it to your new productions using the Add Project to Production command found in the Production panel menu.

Using the trash

When a project or folder in the Production panel is no longer needed it can be sent to the trash. Select the project(s) or folder(s) and click the trash button. Projects and folders can also be dragged to the trash. The trash will not appear in the main Production panel list until a project or folder has been sent to the trash.

Emptying the trash

⚠ **Careful** when emptying the trash.

Right-click on the trash in the main Production panel list and choose *Reveal in Finder/Explorer*. From within Finder or Explorer delete any items you are sure you no longer need.

Remember that deleting items on network storage cannot be undone.

A note on duplicate projects

⚠ **Avoid duplicating** projects in Finder or Explorer. This will create exact duplicates, and you'll have two projects with the same ID.

Every project file has a unique ID inside of it that Premiere Pro uses to keep track of clips as they move across projects inside a Production. It is important that no two projects in a Production folder have the same ID. **Avoid duplicating projects in Finder or Explorer.**

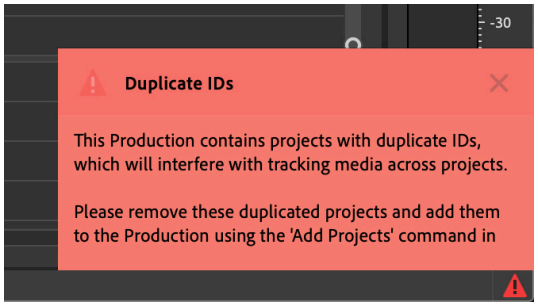
Always use the *Add Project To Production* command when bringing a project into your Production. Use the *Make a Copy* command if you want an exact copy of an existing project.

If projects with duplicate IDs are found in the Production folder Premiere Pro will show an alert event notification in the bottom right corner of the screen.

If you see an alert about Duplicate IDs

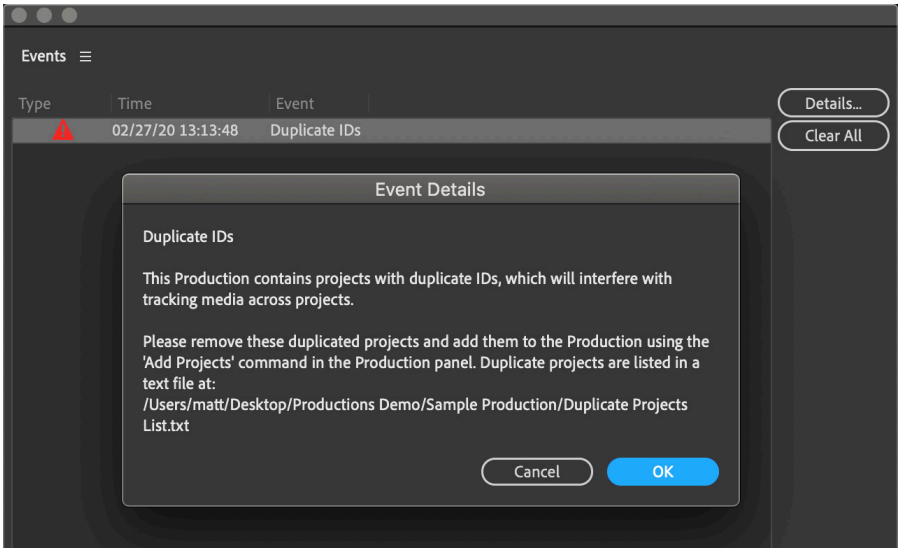
If two projects in the Production share the same ID, functions like *Reveal in Project* and others can be negatively impacted. Premiere Pro displays a warning to let you know that one or more projects in the Production folder share the same ID.

When duplicate Project IDs are detected, Premiere Pro throws an alert.



Click the red alert icon to open the Events panel where you will get more information about the problem—plus a guide for solving the problem.

Opening the Events panel explains how to resolve the issue.



When Premiere Pro detects duplicate project IDs in the Production folder, a text file is also created in the root of the Production folder that lists the duplicate projects so you can easily find and remove them. You can use the *Reveal Production in Finder/Explorer* command in the Production panel menu to quickly open the Production folder.

Look for a text file called *Duplicate Projects List.txt*. This text file will disappear when there are no more duplicates in the Production.

If you need both copies of a duplicated project, move one outside the Production folder and then add it back using the *Add Project to Production* command found in the Production panel menu.

Production Settings

Similar to project settings in a standalone project file, each Production has settings that are applied to the entire Production. When collaborating inside a Production every editor will see the same shared settings for the Production. Choose **File > Production Settings** to find the settings as described below.

General settings

The renderer setting applies to all systems that are working in the Production. For situations where a system isn't able to match the exact renderer specified in the Production settings Premiere Pro will choose the closest available.

Scratch disk settings

Preview files rendered by one editor can be available for all editors who use that project.

A Production's scratch disks default to *Same as Production* which means the folder that contains your Production folder will also contain your scratch disk folders. For editorial teams collaborating on shared storage it is important that the scratch disk folders be set to a shared location that all edit systems will be able to access.

Media referenced using Motion Graphics Templates or Creative Cloud Libraries will only be available to all edit systems if the scratch disk setting is set to a shared location.

Auto Save

If you need to recover a file from Auto Save, navigate to the scratch disk location for Auto Save and locate the project file that matches the name of the project you are looking for. There will always be one copy of the project with no user name or timestamp in the file name – this will always be the most recent Auto Save.

Older copies of the project will have a timestamp and the user name appended in the format ***ProjectName-YYYY-MM-DD_HH-MM-SS-UserName.prproj***

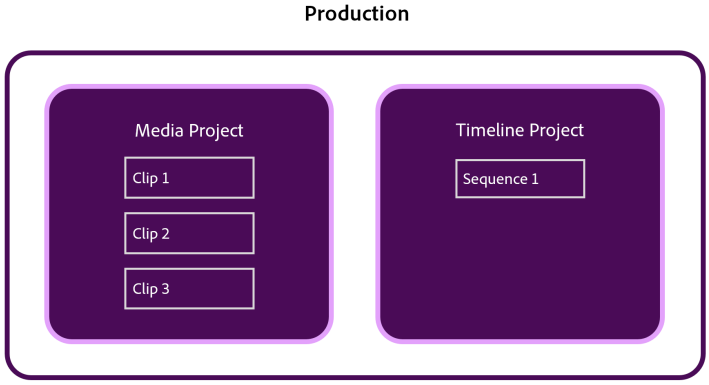
Ingest settings

Ingest settings are disabled for Productions. Proxy files can still be created by selecting clips and choosing **Proxy > Create Proxies** or **Attach Proxies** from the context menu. See "Frequently Asked Questions" on page 76 for more information on ingest settings.

Understanding Clips in a Production

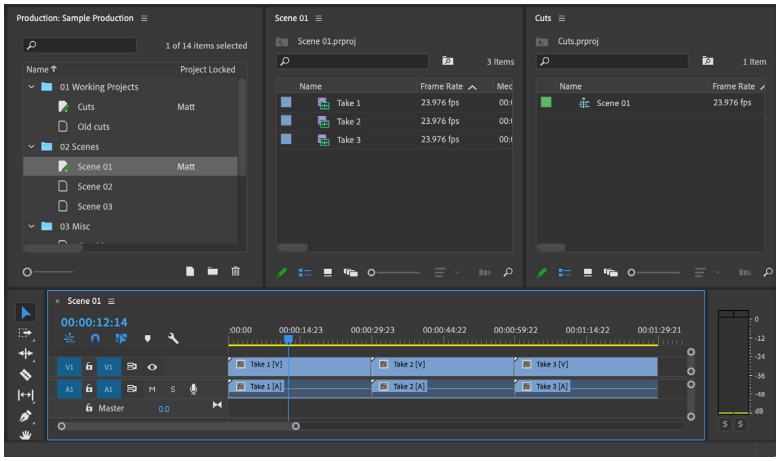
Before Productions, if a clip existed in a sequence it would always have a corresponding Source Clip in the same project as the sequence. Moving sequences across projects resulted in all the dependent clips coming across as well, often meaning projects contained duplicate Source Clips.

Productions in Premiere Pro bring a new model of clip referencing. While it may seem like a small technical detail, *this new model is arguably the most important part of how productions work*. To understand this new model of clip referencing imagine a production simplified down to two projects: a **media project** containing clips and a **timeline project** containing a sequence with those clips in it:



In a production, as clips are edited from the media project into the sequence in the timeline project, no new Source Clips appear in the timeline project. If the media project has 100 clips and all of them are cut into the sequence, the timeline project will still only have 1 item: the sequence. The clips in the sequence instead refer back to the original Source Clips in the media project. As sequences are moved between projects in a production, no duplicate clips are created in the projects!

Clips in the Scene 01 project exist in the sequence in the Cuts project without duplicates.



For workflows requiring duplicate clips to be created, using the Duplicate command or Copy/Paste or holding Cmd/Ctrl and dragging will create duplicate items.

This new clip referencing model only applies when working inside a production. If two standalone projects are open like in the above scenario, you will see the same behavior Premiere has always had: a clip in a sequence requires a corresponding Source Clip somewhere in the project.

There is no preference to turn on this referencing model outside of a production nor is there a way to turn it off if working inside a production; it is a fundamental feature to working with productions. This new clip referencing model also changes the default behavior when dragging items (clips, sequences, etc) between projects in a production. Outside of productions this operation would be the equivalent of a copy and paste: both projects would end up with copies of the items. In a production, the default behavior is a move. The items leave the origin project and land in the destination project.

Assign a keyboard shortcut to Reveal in Project.

Reveal in Project

Right-clicking on a clip in a sequence and choosing *Reveal in Project* will bring forward the appropriate project containing the original Source Clip and select the clip in question. If the project file is not currently open it will be opened. If the project is opened but the original Source Clip is no longer in the project, Premiere will offer to scan any other open projects to attempt to locate the clips.

In the rare case that doesn't work, see the *Reassociate Source Clips* command below.

Generate Source Clips for Media

This command in the Edit menu applies to a selection of clips in a timeline. When used, any selected clips in the active timeline will lose their links back to the original Source Clips and have new Source Clips created for them in the same project as the sequence.

This is useful, for example, if you receive a project file from a Production containing only a sequence and wish to restore it to a standalone state with Source Clips.

Another use for *Generate Source Clips* is to prepare a sequence for turnovers. Duplicate the sequence into an empty project, then select all the clips in the sequence and choose **Edit > Generate Source Clips for Media**. The project is now self contained and ready to send.

Reassociate Source Clips

This command in the Edit menu applies to a selection of clips in a timeline. When run you will be asked to select a .prproj file to search for Source Clips matching any of the selected clips and "reassociate" them. This can be necessary in some cases where Source Clips that were cut into a timeline have been moved from the project they were in at the time of the edit.

This command, while powerful, is not intended to be a common part of Production workflows but rather to help in rare cases when projects have been reorganized or disrupted.

Clip Markers

Premiere Pro's clip marker paradigm does not change when working in a Production. However, because Source Clips can live in projects separate from sequences where they are used there are some things to keep in mind:

- If a project with Source Clips and a project with a sequence containing those clips are both open in read/write mode then adding a clip level marker to either clip instance will cause the marker to appear on the other clip instance.
- If a clip marker is added in a sequence but the project containing the Source Clip is not open in read/write mode, the marker will exist only in the sequence. The next time both projects "see" each other (meaning they are both open read/write) the marker will appear on the Source Clip and vice versa

Clip Name & Label color

Clips cut into a sequence take the same name and label color of the Source Clip. From that point on, the name and label color are unique to that instance of the clip. This is useful for workflows where editors want to modify the name or label color in their sequence, but not update other sequences that use the same clips.

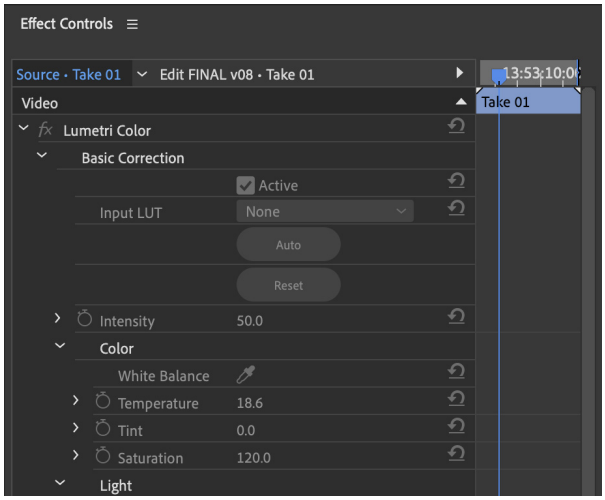
Click the wrench button in the Timeline panel and choose **Show Source Clip Name and Label** to show the name and label color of the original Source Clip. With this preference on, changes made to the name or label color will update the original Source Clip.

Nested Sequences

In a production, sequences do not link across projects like clips do. If you have a nested sequence inside a container sequence and move or copy the container sequence across projects, a copy of the nested sequence travels with the container sequence.

Source Clip effects

Adding, modifying, or removing Source Clip effects in a Production requires opening the original Source Clip project in a read/write state. If you select a clip in a sequence and view the *Source* tab in the Effects Control panel, any Source Clip effects will be displayed but not able to be modified.



Source Clip effect parameters can't be edited from timeline clip instance.

The visual results of Source Clip effects will still always be shown in the Program Monitor. Using the *Global FX Mute* will bypass Source Clip effects in the timeline.

Right-click on a clip in the timeline and choose *Reveal in Project* to find the Source Clip and add, modify, or remove Source Clip effects.

Multi-Camera Source Sequences

Multi-Camera Source Sequences (multicams) are handled like ordinary Source Clips from the perspective of Productions. Like with Source Clip effects, opening a multicam to modify the positions of the clips inside requires having the project containing the multicam to be open in a read/write state.

Cmd/Ctrl + double click on a multicam clip will open the project that contains the multicam and open it in the Timeline panel for you.

Additional Useful Commands in a Production

Save All

This command saves all open, writeable projects with unsaved changes. It is useful to assign an easy to remember keyboard shortcut—or even re-mapping Cmd/Ctrl+S so that every save will save all projects.

Close All Projects

This command will close all open projects and is located in the Production panel menu or the File menu.

Refresh All Projects

This command will refresh any projects open in a Read Only mode that have updates to be shown.

Reveal in Finder/Explorer

Right-click on any project or folder in the Production panel to show it in Finder or Explorer.

Reveal Production in Finder/Explorer

This command is located in the panel menu of the Production panel and will open the root level of the Production folder in Finder or Explorer.

Migrating an Existing Project to a Production

Traditional Premiere Pro projects that exist inside a single .prproj file can be easily transitioned into a Production using the following steps.

If your work uses a single project file

1. Create a new Production.
   A new *Untitled* project is created and can be used as one of the projects in Step 4.
2. Use the *Add Project to Production* command to bring the existing standalone project into the Production.
3. Open the added project and with the Project panel selected, choose **Edit > Consolidate Duplicates**.
4. Create a new project for each bin, then move the contents of each bin into a corresponding project in the Production. Leave all the projects open while doing this step.
5. When the original project file is empty it can be renamed to be used later or put in the trash.

Make sure to drag the clips across projects to move them. Do not Copy and Paste.

If your work uses the earlier Shared Projects workflow

Shared Projects are now called "Project Shortcuts".

While Productions do replace the existing Shared Projects workflow, there are enough differences between them that it is recommended to finish any existing work using Shared Projects rather than attempt to migrate them into a Production.

If you *must* move to using Productions, combine all the media and sequences across your various projects into a single project file. Then use the **Edit > Consolidate Duplicates** command and use that new single project file to break it apart into a Production using the above steps.

If your work uses Team Projects

1. Open your Team Project.
2. Choose **Edit > Team Project > Convert Team Project to Project...**
3. Save the project file to your disk.
4. Follow the steps above to break the single project apart into a Production.

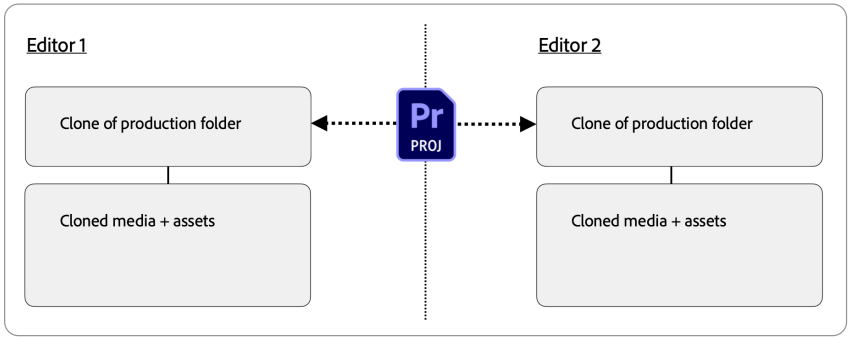
Decentralized Collaboration with Productions

A common workflow today involves multiple editors and assistants in separate locations editing with copies of the same project file linking to identical copies of the same media. Editors share project files and import new sequences to stay up to date with each other.

Team Projects is an excellent fit for many of these situations but isn't appropriate for all. For those cases Productions can be used similarly to the existing single project workflow. In fact, the concept is essentially identical but allows for key improvements:

- Rather than sending your entire copy of the project file to another editor you can put your sequence into an empty project file, send it, and the receiving editor will use the Add to Production command to bring the project file into their copy of the Production
- When receiving new sequences via the above method the clips in the sequence will automatically point to the Source Clips in the receiver's Production
- No duplicate clips will be created via this process

Decentralized collaboration using project files to share sequences.



Building a decentralized offline workflow

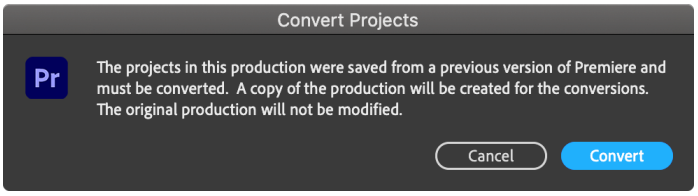
1. The bulk of media should be ingested by one editor in one Production
2. In *Preferences* > *Media* enable *"Write XMP ID to files on import"*
3. Once initial media is imported and organized in a Production, clone the media and Production to the other locations
   a. While Premiere Pro can relink and remember multiple recent paths for media if the paths are different in each location, it is best if the media is cloned in such a way that the paths are identical on each system
4. Each editor works in their copy of the Production
5. To share sequences or other elements move them into a new project
6. Send that new project file to the other editor
7. The receiving editor uses the *Add Projec*t command to bring the project into their Production

Updating or Renaming a Production

Before updating or renaming a Production make sure that all other users have closed Premiere Pro. Update or rename is done by a single instance of Premiere Pro.

Updating a Production

When opening a Production from an older version of Premiere Pro the Production may need to be converted.



Clicking *Convert* will make a copy of the Production folder and not touch the original. The new copy will have the new version number appended to the end of the Production folder name. All of the project files inside the Production will be converted and the newly converted Production will be opened.

Renaming a Production

1. Make sure any other editors in the Production have closed Premiere Pro.
2. Choose **File > Close All Projects.**
3. In the Production panel menu choose *Rename Production*.
4. Enter a new name and click OK.

Using the Project Manager with a Production

The Project Manager continues to operate on one project file at a time and can be used on any project inside a Production. If a project contains one or more sequences but the Source Clips are in other projects, the resulting project after using Project Manager will not have new Source Clips created.

Use the *Generate Source Clips* command in the resulting project file to create new Source Clips.

After Effects & Dynamic Link in Productions

Productions retain the full use of Dynamic Linking to After Effects compositions. Store any After Effects project files outside of the production folder; the Production panel will not show .aep files, only Premiere Pro projects.

Importing After Effects projects using Dynamic Link or using the *Replace With After Effects Composition* command from the Timeline panel work as expected in a production.

Frequently Asked Questions

Is Creative Cloud for Teams required to use Productions?
No. Every user with Premiere Pro can take advantage of Productions. Collaborating with multiple editors requires a networked shared storage solution.

Are Productions replacing single project files or Team Projects?
No. While solo editors can use Productions and benefit from some of the features, it is up to each editor whether they prefer to work in a single project file, a Production, or a Team Project.

Can I upload my Production to Team Projects?
No. A Team Project can be saved as a standalone project file and then added to a Production, but not the other way around.

Has Shared Projects been removed from Premiere Pro?
Productions replace Shared Projects, but the functionality remains in Premiere Pro with the concept of a *Project Shortcut*. With a Project panel active, choose **File > New > Project Shortcut**.

Project Shortcuts can be useful for editors working in a single project but still wanting to link to commonly used projects. Project Shortcuts can be created inside projects in a Production, though most workflows would benefit more from using the *Add Project* command to bring the project inside the Production.

Do I need a server or shared storage to use Productions?
No. Individual editors can use Productions while storing them anywhere they would normally keep a single project file. A networked shared storage solution is only required for collaborating with other editors in the same Production.

Is there a difference between a standalone project file and a project file created inside a Production?
At a basic level, no. Project files created inside a Production have the same .prproj extension and are fully complete Premiere Pro project files. They can be moved outside of a Production and opened as a standalone project.

Note in that scenario that if clips in a sequence link to Source Clips in a different project, you will not see those Source Clips when the project is opened outside of the Production. Use the *Generate Source Clips* command if you want the project to exist as a standalone project.

Can I add a project saved in an older version of Premiere Pro to my Production?
Yes. Use the *Add Project* command to add your project file to your Production. During this process Premiere Pro will update the project file if necessary.

Do Productions support macOS and Windows systems collaborating inside the same Production?
Yes. In the same way that a standalone project file can be opened on either macOS or Windows, Productions support both systems at the same time. The first time opening a Production on a new platform you may be asked to confirm the scratch disk location.

Make sure to set it to the same location on the server and Premiere can handle the translation of drive mounting between the two operating systems.

If the Renderer chosen in **File > Production Settings > General** is not available on one of the systems, Premiere will choose the next best renderer automatically. For example if a Production is created on Windows with the CUDA renderer chosen, when it is opened on macOS, Metal will be used automatically.

Can I work in multiple Productions?
Only one Production can be open at a time, but there is no limit to the number of Productions you can create or use. Choose **File > Open Production** to see a drop down menu of recently opened Productions or select recent Productions from the list of recent items on the welcome screen.

What is the .prodset file that lives inside a Production folder?
This file is used by Premiere Pro to store Production settings and other information. Do not move or modify this file.

Is there a limit to how many projects I can have in my Production?
No. Productions have been tested with large numbers of projects and performance generally scales well depending on factors such as storage bandwidth and number of simultaneous users. For better performance working in the Production panel it is advised to keep projects organized in folders of a reasonable size and to avoid a monolithic folder containing every project.

Can I use Ingest Settings with a Production?
Ingest settings are disabled in the *Production Settings* dialog because they are designed to apply to a single computer at a time. To use Ingest Settings first close your Production and create a standalone project that is saved outside of the Production folder. Set your desired Ingest Settings and import your media.

After all ingest operations have finished, save your project and close it. Open your Production and use the *Add Project* command to bring the project file into your Production. From there you can use the ingested clips normally.

Can I save other media or files in my Production folder?
Do not store any other files or media inside your Production folder. While the Production panel will only show folders and project files, any other files placed in the Production folder do have to be scanned by Premiere Pro and therefore could cause performance issues.

Can I do all my Production organization in Finder or Explorer?
For best results it is recommended to do organizational work inside the Production panel. While it is true that operations done on disk (moving files, renaming, etc) are reflected in the Production panel, doing those operations inside Premiere avoids some potential pitfalls.

For example Finder or Explorer may let you rename a project file in an instance where Premiere Pro would not due to another editor working in it. **Always avoid duplicating project files in Finder or Explorer.**

Can I take a Production home with me to continue editing and then integrate my changes to the Production living on shared storage at work?
Yes. Assuming you have a copy of the media on your laptop or external drive, you should take a copy of your whole Production folder with you. To keep things simple, do your home editing in as few projects as possible.

For best results, create a new project that contains only the sequences you are editing at home. When you return to work, open the original Production on shared storage and use the Add Project command to bring the home project or projects into your original Production.

See the section "Decentralized Collaboration with Productions" on page 74.

Chapter 7

Multi-Camera Editing

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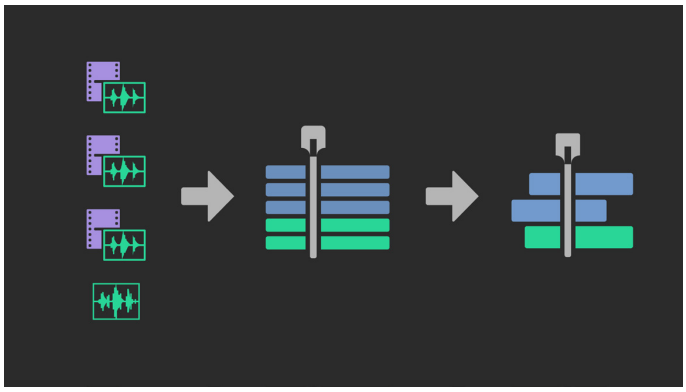
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Multi-Camera Editing

A Multicam is a special kind of sequence that holds synced video and audio clips. The Multicam allows you to insert these into your editing sequence as one single clip. A Multicam can be very simple, like an interview with just one video clip and an audio clip, or more complex, containing multiple camera angles and audio channels.

When editing, the Multi-Camera View in the Program Monitor lets you see every camera angle and switch between them.

Source files are synced into a Multicam, and the Multicam is edited into your edit sequence.

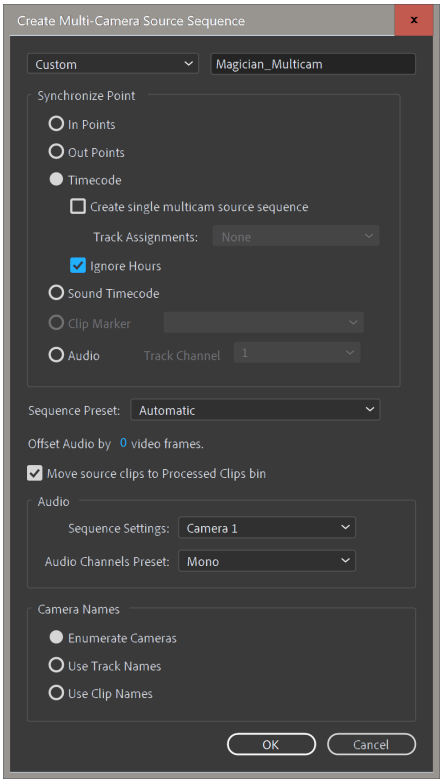


The official term used in the software is a *Multicamera Source Sequence*, but in this chapter, we'll use the term *Multicam* for short.

Multicams are essential to syncing picture and sound for any turnover-based workflow, even if only a single camera and an audio recorder is used. Multicams will preserve metadata of the source clip when exporting for turnover. For this reason, you should use Multicams to sync even just one video angle with one audio clip, instead of using Merge Clips.

Creating Multicams

Multicams require a minimum of one video clip. It's important that you select only video and audio files. If somethings else, like image files or bins, are part of the selection, the option will be grayed out.



When creating a Multicam you must choose a syncing method. But you'll also make choices that affect the sequence settings, including the audio output, of your Multicam. These settings will determine how the Multicam behaves when you cut it into your editing sequence.

It is important to get these settings right when you create a Multicam, because they cannot be changed easily after the fact.

To start creating a Multicam, select the audio and video clips in the bin, right-click, and choose *Create Multicamera Source Sequence*. You can also choose **Clip > Create Multicamera Source Sequence** or make a custom keyboard shortcut. This will open a dialog box where you can tell Premiere Pro exactly how you want it to create the Multicam.

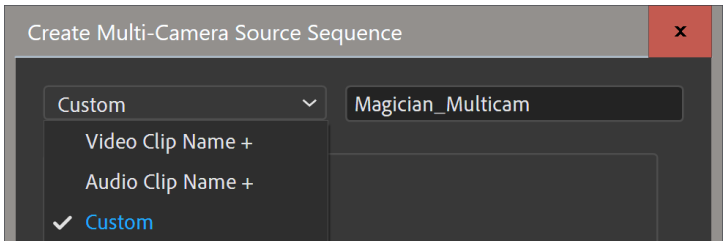
The order in which you select the clips in the bin will affect the order of the tracks in the Multicam.

The first clip you select will be Camera 1. If instead you select an entire bin, alphabetical order will be used.

Choose a Name for the Multicam

You can tell Premiere Pro to name the new Multicam based on the video or audio clip names followed by your custom text – or choose *Custom* to ignore the clip names.

Name section of the panel.



If you choose to use the video or audio clips names, the selection order before choosing *Create Multi-Camera Source Sequence* is important. The Multicam will use the name of the first video or audio clip you selected. If the syncing results in more than one Multicam, the same principle applies to each of them. Pay attention to the selection order when you create your Multicams.

Choose the Syncing Method

Now you can decide how the audio and video will be synced together. The most common methods are timecode and audio waveforms.

The preferred method is timecode, provided the video and audio clips have matching timecode embedded. In professional multicamera shoots, each camera or recording device gets the same timecode, either from a timecode generator, or by jam syncing them. Premiere Pro will read the timecode and align the files, and this happens almost instantaneously.

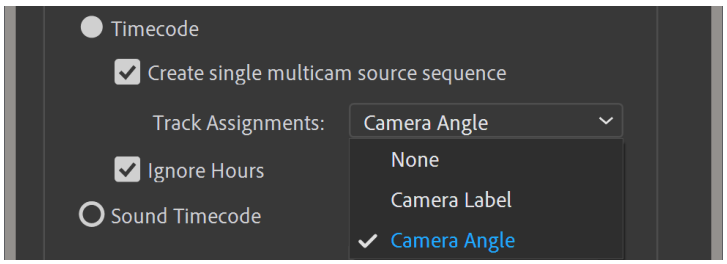
Like syncing with timecode, syncing by audio can be done in a batch. The matching will be done by comparing waveforms, so all sources must have usable audio. Syncing by audio is a good option if the sources don't have matching timecode. For long recordings it will be slower than timecode sync.

It's also possible to sync based on clip markers or In/Out points that you've set manually, but these methods require you to create each Multicam individually. After the points are set, this kind of syncing is also almost instantaneous.

Syncing by Timecode

When syncing by timecode you have a few options that are unique to timecode syncing. The *Create single multicam source sequence* option will do exactly that: put all the synced clips in one single sequence—even if there are gaps in the timecode where no camera was running.

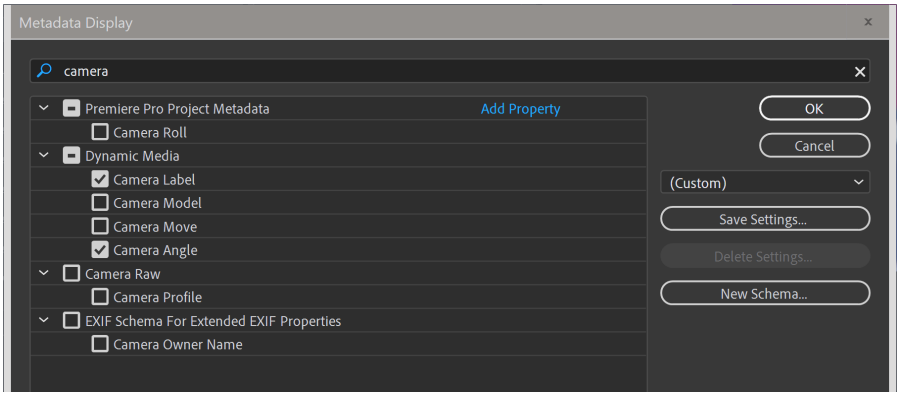
Timecode section of the panel.



To properly sync clips and create Multicams the Timecode option in *Preferences > Media* should be set to *Use Media Source*.

Reality TV shows often choose to record with *Time of Day* timecode, and not all cameras are necessarily recording at the same time. If *Create single multicam source sequence* is *not* enabled, Premiere Pro will create a new Multicam every time it encounters a timecode gap.

You can assign a **Camera Label** or **Camera Angle** to groups of clips to let Premiere Pro know which camera clips are from. These metadata categories are not shown by default in your project window and must be enabled in the metadata display panel. Right-click a column header in the Project panel or use the panel menu, and choose *Metadata Display*, then enter *camera* in the search field, and choose the column you need.

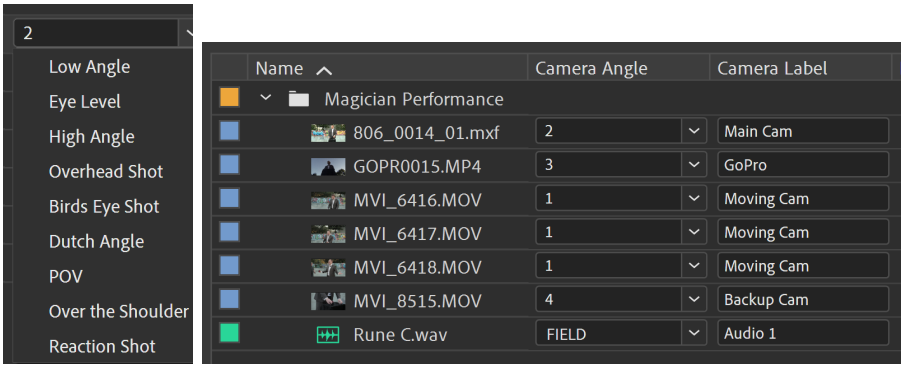


Camera Label and Camera Angle metadata fields can be found by searching for *camera*.

You may want to create a new View preset, for quick access to these metadata columns later.

Choose *Save as New View Preset* in the Project panel menu.

Move the header in the Project panel to place the column further to the left if you want. Even though the Camera Angle column has a drop-down menu, you can override it by typing in numbers or words.



Left: Camera Angle drop-down menu.

Right: Bin with Camera Label and Camera Angle columns populated.

If no camera angle or camera label is assigned, Premiere Pro does not know which clips come from what camera. If a camera has been stopped during a shoot, resulting in multiple clips, these will be interpreted as different cameras in your multicam.

Each video track in a Multicam shows as a camera angle in Multicamera View, so you can think of Track Assignment as camera assignment.

When you add info to Camera Label or Camera Angle and choose it under *Track Assignments*, Premiere Pro will place all clips with matching metadata on the same track. Field audio will be placed on the first audio tracks. Premiere Pro only uses Track Assignment when syncing by Timecode.

Another option when syncing by timecode is *Ignore Hours.* It's common practice to use the hours part of timecode to indicate the camera angle. A clip with timecode starting with 01 would be camera 1, a clip starting with 02 would be camera 2, and so on.

01:02:13:11	Camera 1
02:02:04:09	Camera 2
06:02:23:14	Camera 6

If Premiere Pro would try to sync these using the whole timecode, it would fail, because there is no common timecode. When *Ignore Hours* is checked, Premiere Pro will read these as 02:13:11, 02:04:09, and 02:23:14, and will be able to sync them.

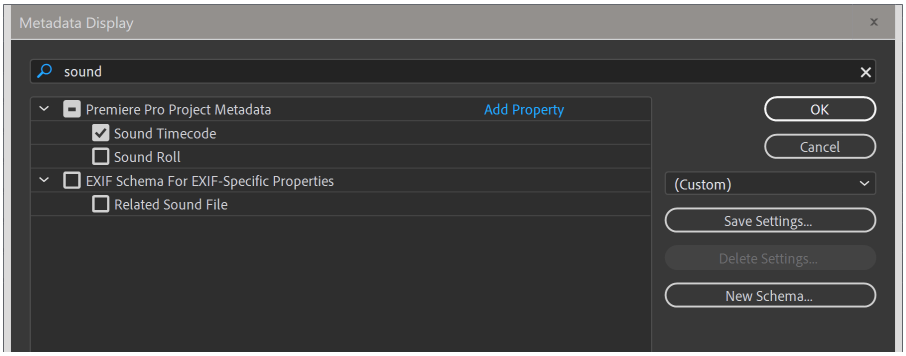
If the timecode from one source is off, open the clip in the Source Monitor and find the sync point. Most often this will be a clapper. Click **Clip > Modify > Timecode**. Choose *Current Frame* and enter the correct timecode that matches the other clips.

Syncing by Sound Timecode

In order to use Sound Timecode for syncing, the video clips need to have values in the *Sound Timecode* metadata field. The Sound Timecode value corresponds to the value of timecode in the sound roll that matches the first frame of the video clip.

The most common way to bring this in is via an ALE, but it's also possible to add this manually.

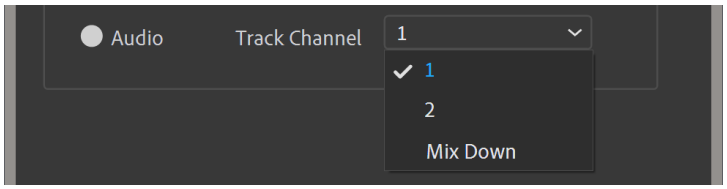
Sound Timecode can be found by searching for *sound*.



Syncing by Audio

If your clips don't have a common timecode, you can sync by audio waveforms—provided that all the clips have decent audio. If you know which track has the best audio, choose it in the Track Channel drop-down menu. If the audio is on different tracks on different sources, choose Mix Down.

Choose the channel with the best audio.



When you sync by audio, Premiere Pro will create multiple Multicams if it finds groups of clips with similar waveforms. This means you can batch sync multiple takes or scenes, which will create multiple Multicam clips.

Syncing by In Point, Out Point, or Markers

If you choose to sync using In points, Out points or Markers you must enter these manually for every clip you need to sync. You could add markers or In/Out points where a slate is snapped, where hands are clapped, or when something easily identifiable happens, like a door slam.

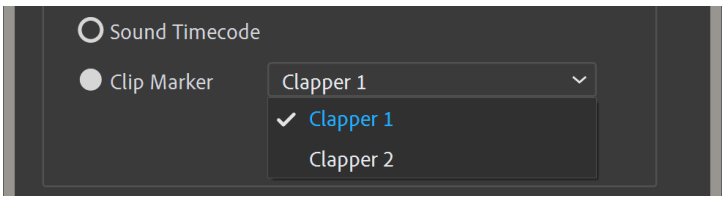
The benefit of using Markers instead of In points is that the part of the clips before the sync point will be available. Out point syncing is useful when an *end clapper* has been used.

When syncing by Clip Markers or In/out Points, each Multicam must be set up manually, which is of course very time-consuming, compared to batch syncing with timecode or audio waveforms

If you do not name the markers *(Unnamed Marker 1)* will show in the drop-down menu.

If the clips have multiple identical markers, they will show in the drop-down menu.

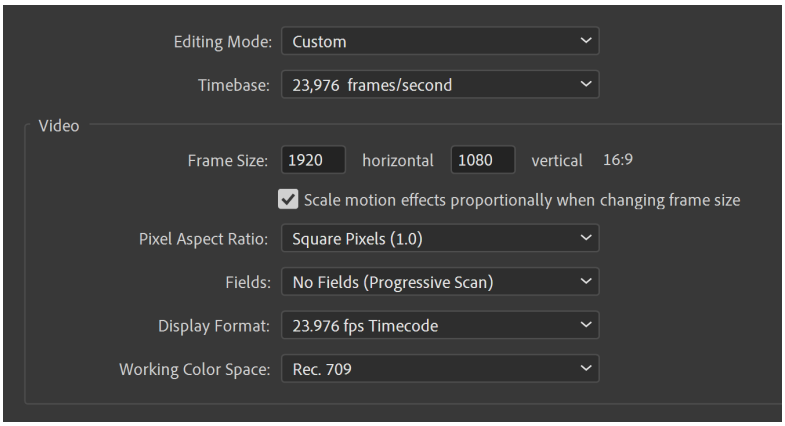
If one or more clips don't have matching markers, Clip Marker sync will not be available.



Choosing a Sequence Preset

No matter what syncing method you've chosen, the next step is to choose a Sequence preset for the Multicam. This sets the video parameters for the multicam sequence, meaning frame size, frame rate, fields, pixel aspect ratio and working color space.

The Video options in the resulting Sequence are affected by the sequence preset you choose.



Video settings in a sequence can be changed at any time, so you don't have to re-sync your clips if the Multicam is created with a wrong size or frame rate.

Just open the Mulitcam in the Timeline panel and choose *Sequence > Sequence Settings* and make the necessary changes.

It's recommended that you always choose Automatic.

Choose Automatic for Sequence Preset.

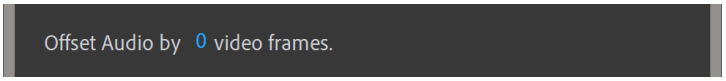


When you select *Automatic*, the video preset is based on the video format of the first video clip you selected before you chose *Create Multi-Camera Source Sequence*.

To make clips automatically scale up or down to the frame size of the sequence, set *Default Media Scaling* to *Set to Frame Size* in *Preferences > Media*.

The Offset Audio option is used when the audio recording is slightly out of sync with the video. This can happen when the camera is far away from the microphone, when there will be a delay in the audio that's recorded on the camera, even though the timecode matches. Some cameras, notably some DSLR cameras, also notoriously record audio one or more frames out of sync.

Offset Audio section of the panel.



Creating a Processed Clips Bin

The *Move source clips to Processed Clips bin* choice is useful for seeing what did or didn't sync up. This will create a *Processed Clips* bin and move all clips that synced successfully to the new folder. Any clips that do not match another asset will remain in the original location, and must be synced using a different method.

Audio Related Settings When Creating a Multicam

Productions have different needs when it comes to audio. If you're editing a conversation where three people were recorded on their respective cameras, you may want audio to follow video, at least when you're doing your rough cut. If it's a Reality Show, you will probably want to keep all the audio tracks, with immediate access to all the microphones. If it's a performance piece, you will want to use audio from just one camera or from a separate audio recorder.

Your Multicam has an audio output—most likely either stereo or multichannel. The audio tracks in the Multicam are also routed to different outputs, and the different tracks may or may not be muted, and they may or may not be linked to clips in video tracks. All these things are controlled by your choices in the *Audio Sequence Settings* and the Audio *Channel Presets*.

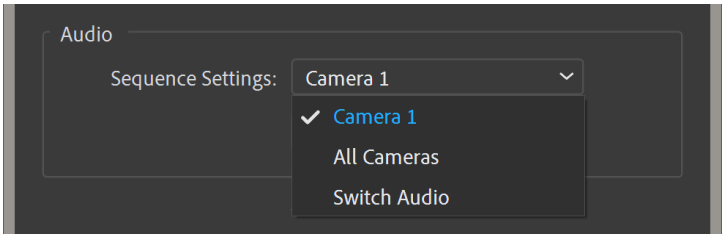
Multicam audio is more complex than Multicam video. If you experience issues like missing waveforms, wrong camera order, wrong panning, too many or too few audio tracks, etc—it's likely because a wrong choice was made in one of the two audio related settings in the Create Multi-Camera Source Sequence dialog.

A solid understanding of the audio features and handling is the key to effective Multicam workflows.

Audio Sequence Settings

These settings determine how the audio tracks in the source sequence are populated, how the panning and channel assignments are set, and which tracks are muted. You have three choices: *Camera 1, All Cameras, and Switch Audio.*

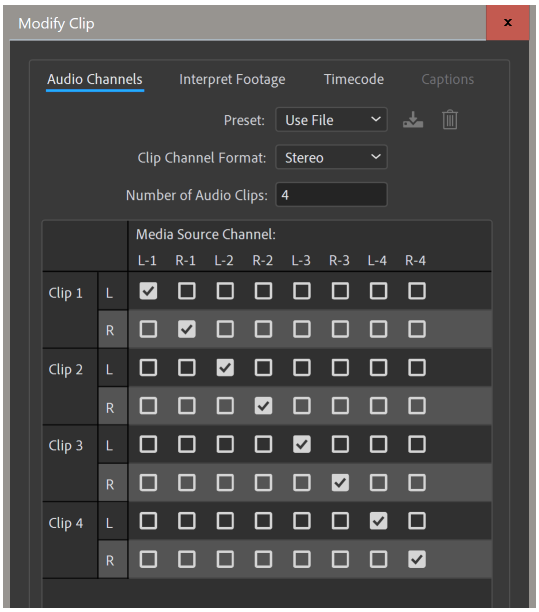
Audio Sequence settings.



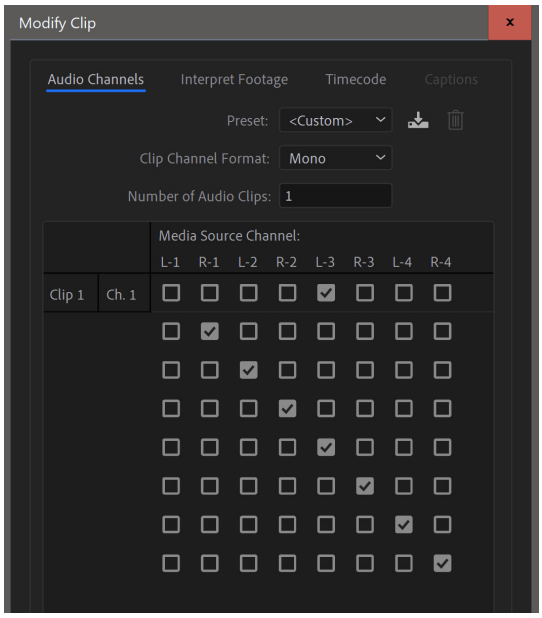
A Multicam has multiple sources and can end up having a lot of audio tracks. If your source clips have empty audio tracks, or tracks that will not be used in the final mix, disable these in the **Clip > Modify > Audio Channels** dialog (**Shift+G**) *before* creating the Multicam.

Original source has four stereo tracks.

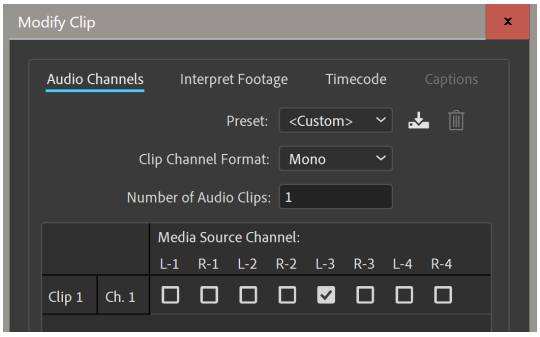
Make sure you delete empty tracks before creating a Multicam.



The editor decides to use only one of the existing tracks (L-3) as a mono track.



Re-opening the clip in the *Modify Clip* > *Audio Channels* dialog shows it's now got only one mono track.



Camera 1

When you choose *Camera 1* in Audio Sequence Settings, Premiere Pro mutes audio from all cameras other than the first video clip in your selection. The audio from that clip will be panned left/right to achieve separate outputs for every source channel.

If you have audio-only clips among the selected files, these will be used instead, and the audio from all the cameras will be muted. **This is well-suited for most dailies workflows.**

With this setting, only the video portion of the source sequence is Multicam enabled.

All Cameras

Choose All Cameras in the Audio Sequence Settings drop-down if you want your Multicam to include all the audio from your selected clips.

This will put all audio tracks from all cameras and audio recorders into the Multicam. Audio-only clips will be placed first in the track order.

All audio tracks are unmuted—up to 32 channels. If you have more than 32 channels, track 33 and above will be muted by default. You can mute and unmute tracks manually, but no more than 32 tracks can be unmuted. The number of unmuted channels of source audio determines the number of active output channels of the sequence.

With this setting, only the video portion of the source sequence is Multicam enabled.

Switch Audio

The Switch Audio option will create one adaptive audio track per camera, so that audio and video can be switched together. The number of outputs will be determined by the source clip that has the most audio tracks.

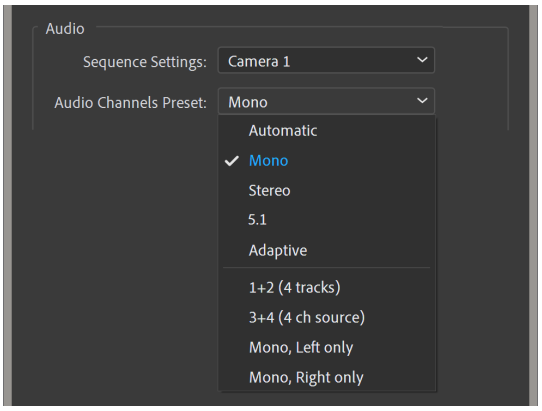
Audio-only clips will be placed last in the track order, and they will be linked to empty video tracks. One empty camera/track will be created for every audio only clip.

With this setting, both the video and the audio portion of the source sequence is Multicam enabled. Enable *Multi-Camera Audio Follows Video* in the editing sequence or in the Multi-Camera Monitor for this to work.

Audio Channels Preset

The Audio Channels preset determines how the audio is grouped and mapped within the Multicam, which again affects the type and number of audio tracks that are dropped when the source sequence is nested into the editing sequence.

Custom presets you've made in the *Modify* > *Audio Channels* panel will also show in the list.



- Automatic reads the audio type of the first clip and uses this mapping. This may not be what you want.
- Mono maps to as many mono channels as there are output channels in the Multicam.
- The other choices map to Stereo, 5.1 or Adaptive tracks based on the number of output channels in the Multicam.

The preset you choose must have as many, or more, tracks than the source clips to avoid tracks being mixed together.

In most cases for scripted workflows, the audio clips will be mono, and Mono should be selected here. This will ensure that the Multicam is set up properly to pass through all the channels from the sound roll.

The mix track type cannot be changed later. Avoid choosing Stereo for most workflows.

Choosing *Mono* or *Automatic* will make a Multichannel mix track, where you can change the number of tracks if necessary.

Selecting Mono will create an equal number of mono tracks to the sound roll files, and will create a Multichannel sequence with an equal number of output channels. The tracks will be routed 1:1 with the output, so that Track 1 will go out Channel 1, and so on. In other words, this will route those channels out directly, so that the multicam has access to all the audio channels when cut in.

For most workflows, the following procedure will yield a good result:

- Modify Audio for all clips to mono *before* creating the Multicam
- Use mono for Audio Channel Preset in the Multicam creation dialog

Setting Camera Names

When creating a Multicam, you can choose between displaying camera numbers, clip names or track names from the Multicam. These labels appear in the Multi-camera View and in the monitor overlays.

Enumerate Cameras.
Footage courtesy of Jarle Leirpoll.



Use Clip Names.



Use Track Names.
(track names have been changed manually).



Result After Syncing

After clicking OK you will get one or more Multicams depending on timecode breaks. If no camera or audio recorder was running at a certain point in time, a new sequence will be made for the later clips—unless you're syncing with timecode, and Create single multicam source sequence is selected.

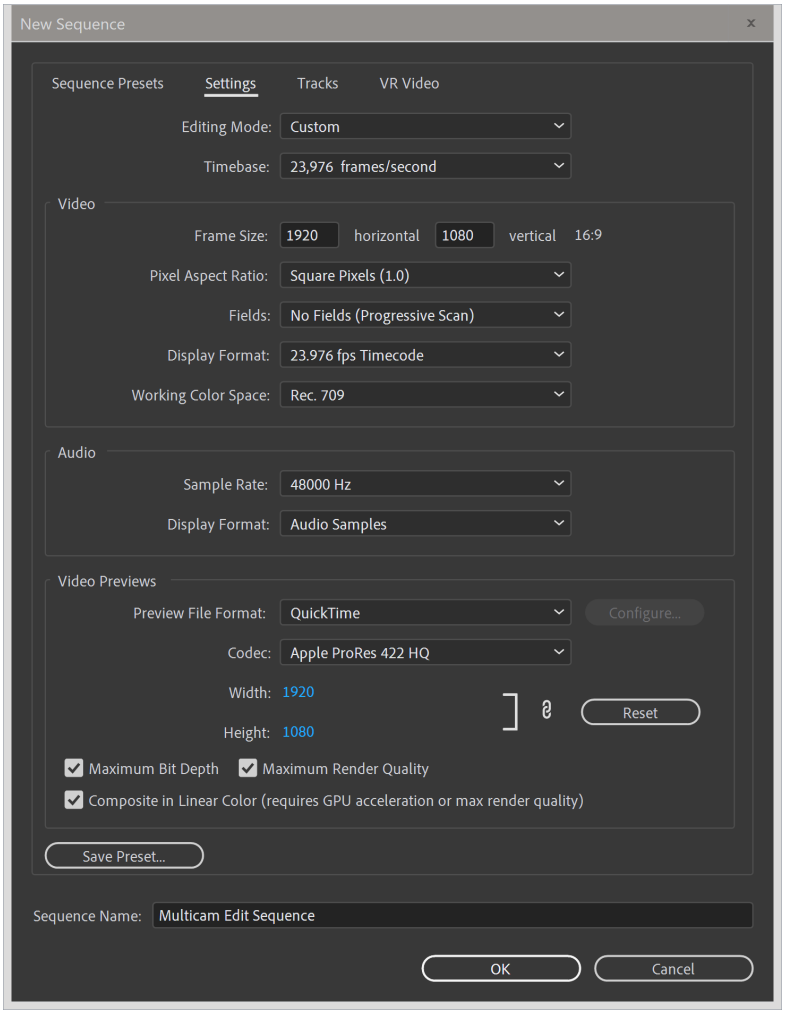
Editing With Multicams

To ensure a good experience when cutting Multicams in Premiere Pro, it's a good idea to create your edit sequence manually, and to check some settings in the Program Monitor, in preferences, and in the edit sequence.

When using Multicams with multichannel audio it's recommended that you create a standard editing sequence manually, and not based on the Multicam. If you use the *New Sequence from Clip* feature in a bin, or drag the Multicam to the *New Item* icon, you will get an edit sequence with audio configured ways you most likely don't want, like all clips being panned to the left.

Create your edit sequence manually to avoid audio problems.

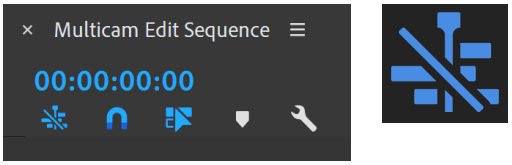
Use the keyboard shortcut **Ctrl/Cmd+N** to create a new sequence.



Set your sequence's Mix format in the Tracks tab to match your audio monitoring environment.

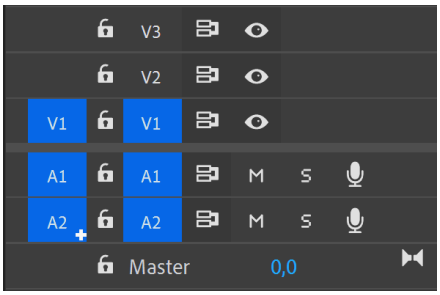
When you put the Multi-Camera Source Sequence into your editing sequence, make sure the Nest-or-Not button (*Insert and Overwrite Sequences as nests or individual clips*) is highlighted in blue to enable nesting, which is required for Multi-camera cutting.

Make sure that the Nest-or-Not button is blue.



If your Multicam has more audio outputs than the number of tracks in your edit sequence, a small + sign will appear when you select the Multicam in a bin, telling you that Premiere Pro will add the necessary tracks when you add the Multicam to the edit sequence. You can also click the + icon to add the tracks before you do the edit.

Notice the + sign in the Source Patching area.



You can read more on audio related Multicam settings in the section "Advanced Multi-camera Workflows" on page 92.

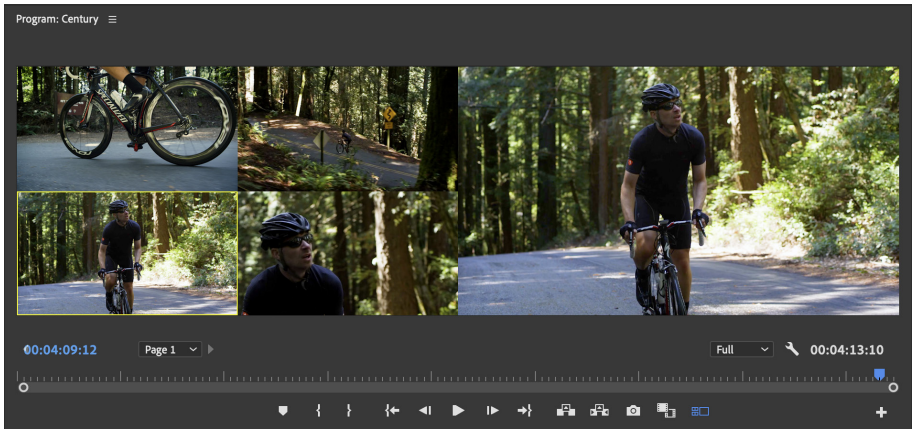
Using the Multicam Monitor

The Program Monitor can show Multi-camera View, where you can preview all cameras and cut between them. You can also choose what to show on a monitor through Transmit, improve playback performance, and tell Premiere Pro to switch audio when you switch video.

To add the Toggle Multi-Camera View button to your Program Monitor button row, use the Button Editor.

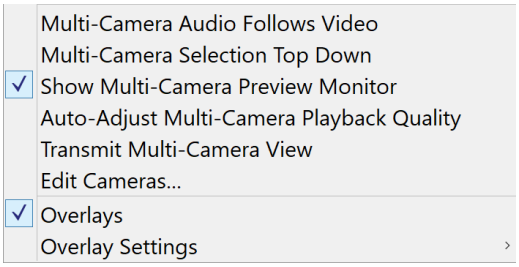
Click the + sign in the lower right corner of the Program Monitor and drag the button to where you want it.

Footage courtesy of Michael Burton, Pretty Moving Pictures, LLC.



To enable and disable the Multi-camera View, click the *Toggle Multi-Camera View* button in the Program Monitor, or use the keyboard shortcut **Shift+0**. You can also choose *Multi-Camera* from the settings menu in the Program Monitor.

Multicamera related settings in Program Monitor Setting menu.



Multi-Camera *Audio Follows Video* and *Multi-Camera Selection Top Down* can also be found in the panel menu of the edit sequence.

You can choose *Multi-Camera Audio Follows Video* here. To make audio switch with video you also need to enable *Switch Audio* in the Create Multi-Camera Source Sequence dialog. This is the only option where the audio clips are multicam-enabled, therefore the *Multi-Camera Audio Follows Video* option only work as expected for Multicams created with this setting.

Switching Cameras

You can cut Multi-Camera at any playback speed you want.

So if you encounter a tricky edit, slow down the playback. Need to get the edit done before dinner? Play at double speed.

Hit *Play* to start cutting between cameras by clicking the camera previews in the Multi-camera View, or by using keyboard shortcuts. The default keyboard shortcuts for cutting to camera 1-9 is numbers **1-9** on the main keyboard, not on the numeric keypad.

If you cut to the wrong camera, just stop, go back to where you need another camera to show, and click the preview image of the camera you need.

If you're not in Multi-Camera View, you can also change camera while parked by clicking **Clip > Multi-Camera** and choosing the correct camera. You'll find the same choices in the right-click menu.

Flattening Multicams

When you're done editing a Multicam, you can choose to flatten it, replacing the Multicam clips with just the active angle. It's a good idea to duplicate the sequence before you do this, in case you want to go back to the Multi-Camera editing mode later.

To flatten Multicam clips, select them and choose **Multi-Camera > Flatten** in the right-click menu—or create a custom keyboard shortcut. For simplicity you can select all clips in your sequence, even if they aren't all Multicams, and still use **Multi-Camera > Flatten** to flatten just the Multicams.

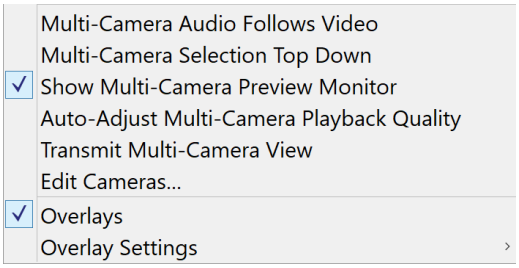
When exporting to AAF, Premiere Pro will automatically flatten any Multicams.

Advanced Multi-camera Workflows

Sometimes, Multicam edits will be more complex than what you've seen in the previous sections in this chapter. You may have a lot of cameras in a Multicam, and even multiple Multicams in your edit sequence—or you may have specific needs for the audio. This section offers a thorough walkthrough of the more advanced aspects of Multicam editing.

Multi-Camera Settings in the Program Monitor

We covered *Multi-Camera Audio Follows Video* in the section on Editing with Multicams. When this is enabled, this will switch audio and video together—but only for Multicams created with the *Switch Audio* choice under Audio Sequence Settings. This setting is mirrored in the edit sequence panel menu.



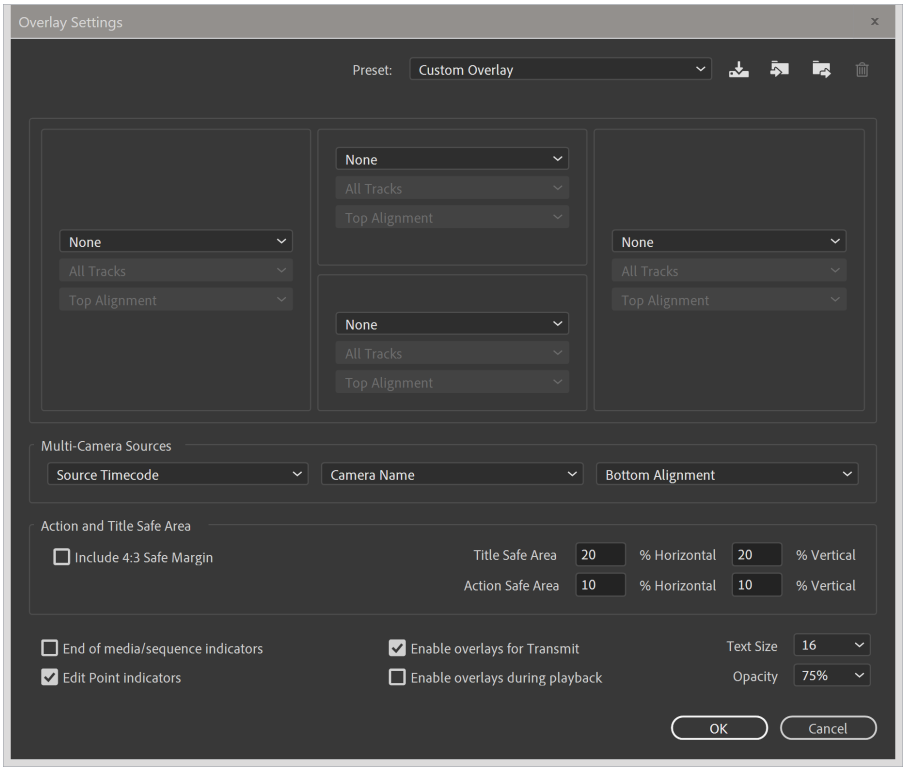
Multi-Camera related choices in the Program Monitor settings menu.

If you have an external monitor showing the output preview, you don't need to see it in the Program Monitor. Deselect *Show Multi-Camera Preview Monitor* to only show the camera angles in the Program Monitor, possibly giving you larger previews.

Choose *Auto-Adjust Multi-Camera Playback Quality* in the Program Monitor settings menu to automatically use fractional playback resolutions if the system struggles to play back all sources.

Enable *Transmit Multi-Camera View* in the Program Monitor settings menu to show all the cameras plus the output preview on an external monitor via Transmit.

You can turn Overlays on and off by choosing *Overlays* in the Program Monitor settings menu. To choose what kind of metadata to show in overlays, choose *Overlays Settings* > *Settings* in the same menu – or select a preset.



The Overlay Settings panel has a section for Multi-Camera Sources, and a choice for overlays via Transmit.

When you have done your choices, you can click the *Save Preset* button in the top right corner of the panel to save the settings as a preset for quick and easy access later.

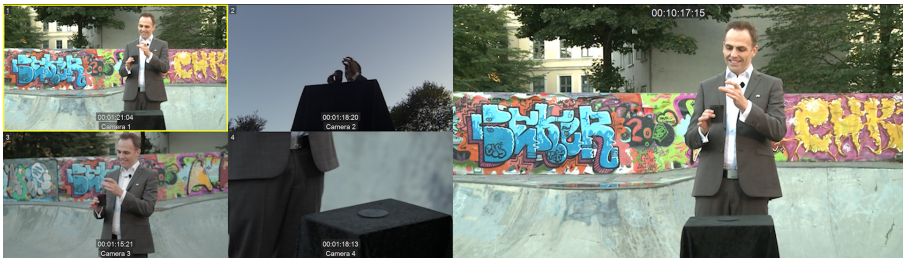
In the same panel you'll find a choice to *Enable Overlays for Transmit*. Switch this on to show the same overlays on an external monitor through Transmit.

You can reach the same settings from the Source Monitor settings menu.



External monitor without overlays.

Footage courtesy of Jarle Leirpoll.



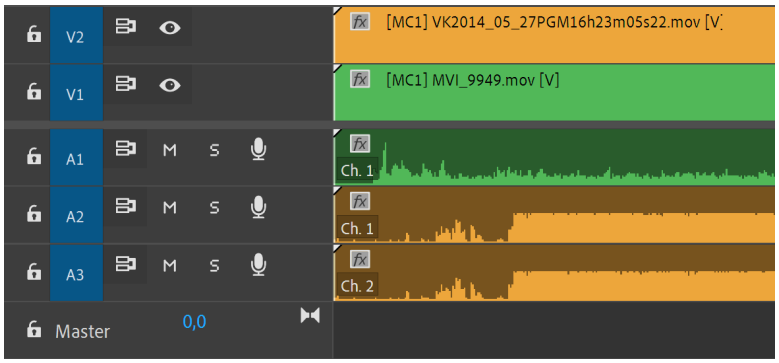
External monitor with overlays for Transmit activated.

Here, sequence time-code is also shown in the output preview.

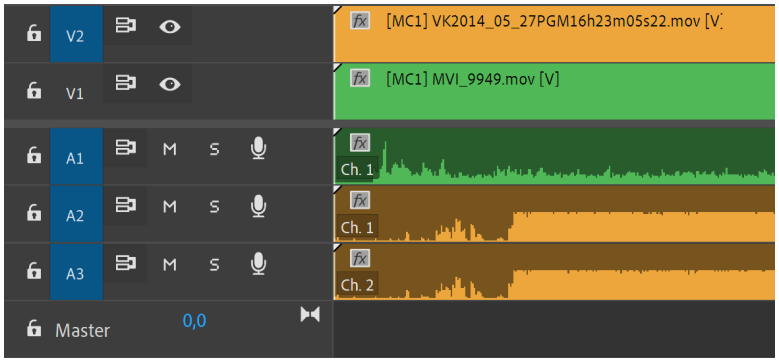
Footage courtesy of Jarle Leirpoll.

Using Track Targeting to control Multicam Visibility

When you have multiple Multicams in an edit sequence, track targeting affects which Multicam you see in Multi-Camera View in the Program Monitor. By default, the Multi-Camera View always shows the Multicam on the lowest targeted track.

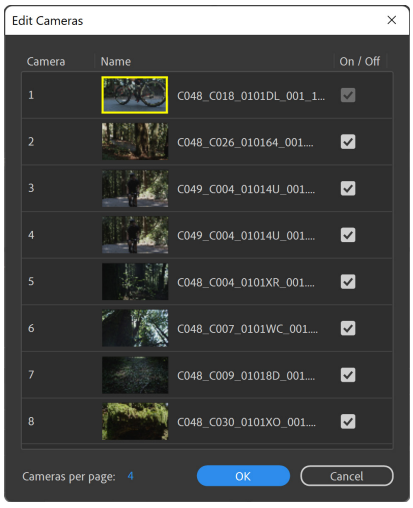


The lowest targeted track is V1, and the Multicam on V1 (green) will show in the Multi-Camera View.



The lowest targeted track is V2, and the Multicam on V2 (mango colored) will show in the Multi-Camera View.

Enabling *Multi-Camera Selection Top-Down* in the Program Monitor settings menu *reverses* the default setting, making the Multicam on the top-most targeted track show in Multi-Camera View. That means you can target V2 while making your edits without having to un-target V1. This can be helpful when you have many cameras spread between multiple Multicams. This setting is also found in the panel menu of the edit sequence.



The Edit Cameras dialog lets you rearrange and enable/disable cameras.

You can also organize them in Pages.

Footage courtesy of Michael Burton, Pretty Moving Pictures, LLC.

Organizing Camera Angles Using Edit Cameras

You can organize and select the angles to view in the Source Monitor and the Program Monitor Multi-Camera View via the *Edit Cameras* choice in the settings menu in either monitor.

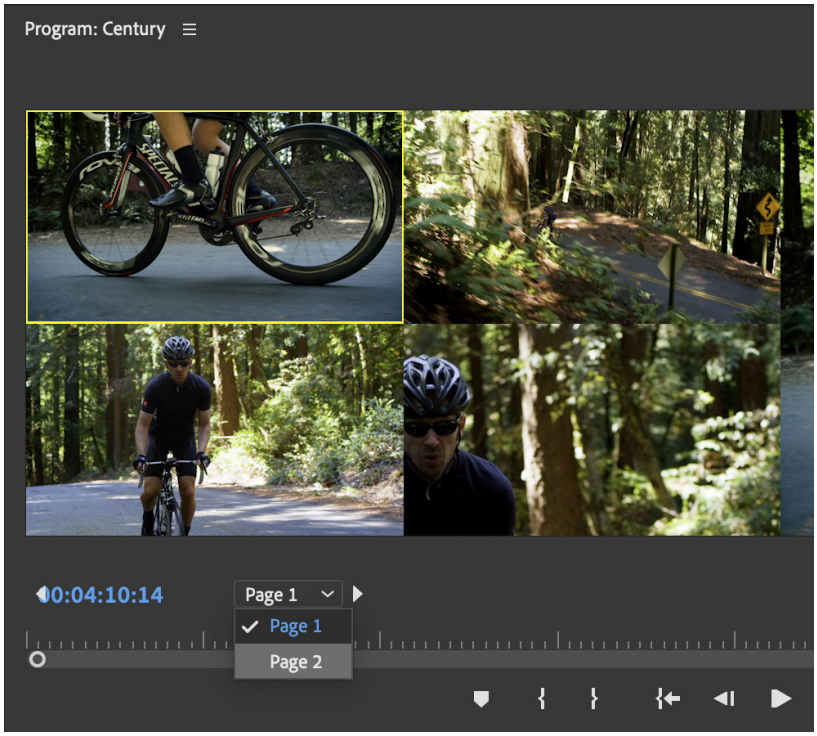
The settings are unique to each monitor, so you can have different settings in each monitor.

In the Edit Cameras dialog box, the clips are listed in the order that they were arranged in the sequence tracks. You can drag-and-drop the clips to change the order.

You can also enable or disable camera angles by selecting or deselecting them.

A disabled camera angle in the Edit Cameras dialog box is still using system resources. To improve performance of large Multicam setups, open the Multicam sequence in the timeline and mute video tracks to avoid using system resources for those camera angles.

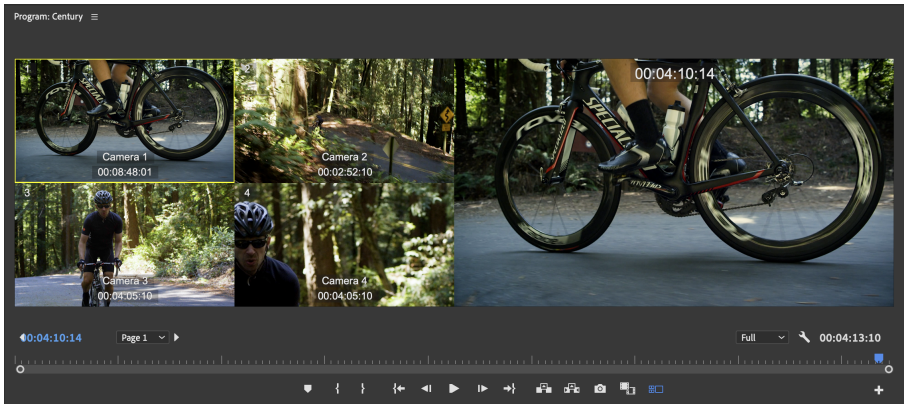
When you have many camera angles, it makes sense to organize cameras across multiple pages. You can set the number of camera sources to show per page, and navigate between pages as needed. When you change the order of cameras, the pages reorder accordingly.



The Pages controls in Multi-Camera View Showing Page 1 of 3.

Footage courtesy of Michael Burton, Pretty Moving Pictures, LLC.

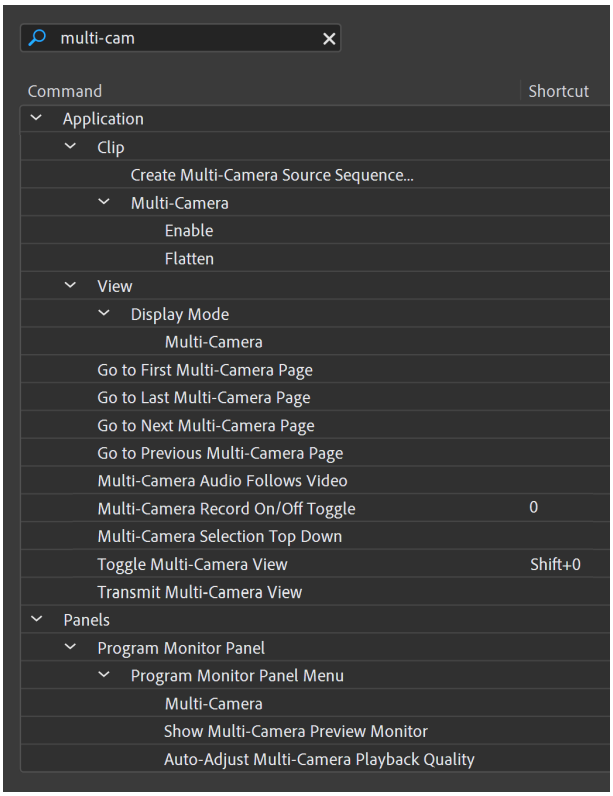
In the Program Monitor, you can browse through the Multicam pages using the controls in the lower left of the panel—or by using custom keyboard shortcuts.



Multi-camera View showing Camera name and Source timecode, plus Sequence timecode.

Footage courtesy of Michael Burton, Pretty Moving Pictures, LLC.

Keyboard Shortcuts for Multi-Camera Editing



Search field in Keyboard Shortcuts dialog.

Premiere Pro has many commands for Multicam editing. Some of them are mapped by default, while others must be created by you. The online Premiere Pro User Guide has an overview of useful keyboard shortcuts for Multi-camera editing.

You will find more mappable commands if you search for *multi-cam* (remember to type the hyphen) in the Keyboard Shortcuts editor.

Viewing Multicams in the Source Monitor

You can view Multicams in the Source Monitor if you want to select which camera angle and audio tracks to use from it before inserting it in the timeline. You can also add markers and In and Out points. Double-click the Multicam in a bin or use the keyboard shortcut **Shift+O** to open it in the Source Monitor.

You can also select the Multicam in a timeline and use Match Frame (**F**) to achieve this.

In the *View* menu, under *Display Mode*, you can choose between *Multi-Camera view* and *Composite Video*.

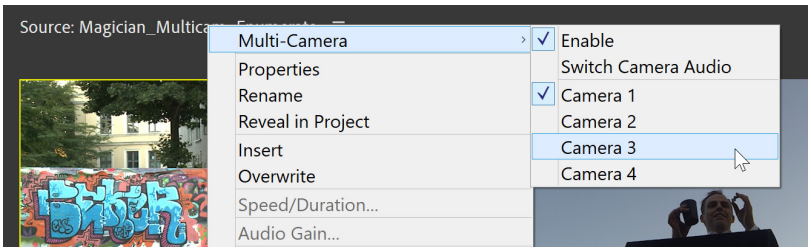
Source Monitor in Multi-Camera View and Composite view.
Footage courtesy of Jarle Leirpoll.

The Source Monitor has the same Overlay Settings as the Program Monitor. Changing them in either monitor will affect overlays in both monitors.



Both in Composite Video and in Multi-Camera view, you can select different camera angles by choosing them in the Multi-Camera submenu in the right-click menu—or by using the keyboard shortcuts (number keys 1-9). In Multi-Camera view you can also click the camera angles directly.

Multi-Camera section of the right-click menu.

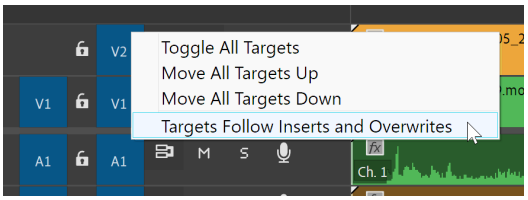


When you use the *Insert* or *Overwrite* buttons in the Source Monitor, or the **Comma** and **Period** keys, and the *Insert and overwrite sequences as nests or individual clips* button in the timeline is enabled, the chosen camera in the Source Monitor is used, and the source patching in the timeline controls which video track it lands on.

When the *Insert and overwrite sequences as nests or individual clips* button in the timeline is disabled, it doesn't matter which camera angle you've chosen in the Source Monitor. You are bypassing the Multi-Camera features, and Premiere Pro sees the Multicam as a normal sequence. That means only the Source patching in the timeline affects what camera angles and audio tracks you're inserting.

When inserting Multicams from the Source Monitor you may want to enable *Targets Follow Inserts and Overwrites*.

Right-click menu showing *Targets Follow Inserts and Overwrites*.



This makes the Track Targeting buttons match the Source Patching buttons immediately after you've done an insert or overwrite edit—making the newly edited tracks ready for adding transitions etc.

Right-click on one of the Track Targeting buttons in the timeline to enable it.

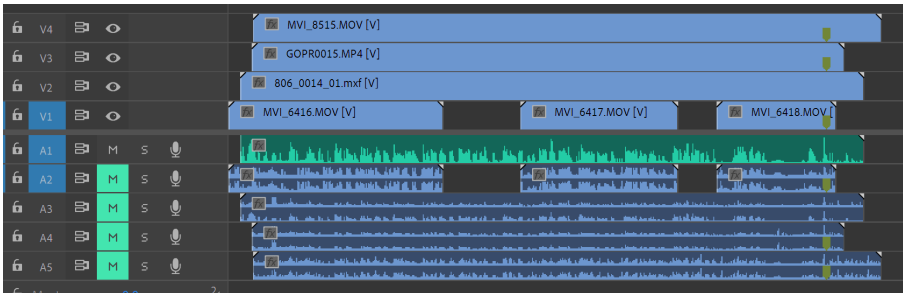
Opening a Multicam in Timeline Mode

Since a Multicam is in fact a sequence, you can open it in a timeline to move clips, name tracks, change audio routing, add clips etc.

Please note that if you change anything inside of a Multicam, it affects all the instances where that Multicam has been edited into a sequence—so it should only be done when you need to fix problems or mistakes.

To open a Multicam in Timeline Mode, right-click it in a bin and choose *Open in Timeline*, or double-click it while holding **Ctrl** on Windows or **Cmd** on macOS. You can also assign a custom keyboard shortcut.

When you sync the clips using timecode, you have the option to add Camera Angle or Camera Label metadata. When you do this, all clips from the same camera should end up in the same track.

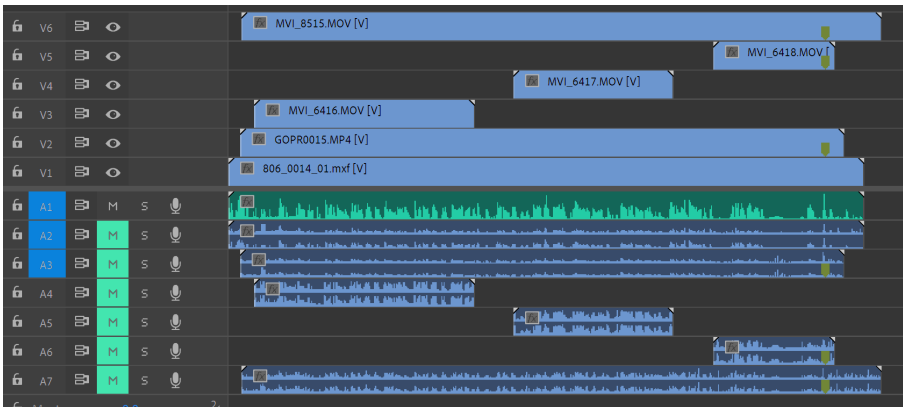


Result from syncing with timecode and camera metadata.

Note the Mix Track is a Multi-channel mix, with matching number of channels.

Some audio tracks may be muted depending on what audio settings were used to create the Multicam

When you sync using markers or audio, Premiere Pro doesn't know that some clips come from the same camera, and puts them on different tracks. You must move them to the same track manually by dragging or using keyboard shortcuts.



Result from syncing same clips with audio

Move clips to other tracks by **Alt/Option**-clicking them and then pressing **Up Arrow** or **Down Arrow** while still holding **Alt/Option**. You can lock other tracks first, to avoid over-writing existing angles.

Every track in the Multicam ends up being a camera angle in the Multi-Camera View. Empty tracks result in more angles, which again causes smaller previews. It's a good idea to delete any empty tracks in the sequence after re-ordering the clips.

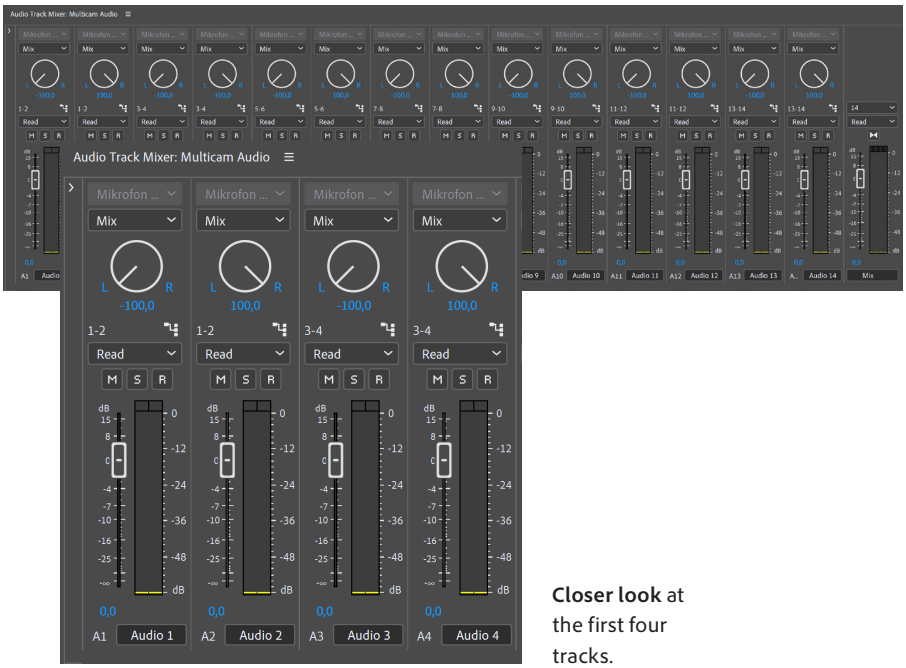
Correcting sync inside a Multicam will update the sync in all sequences where that Multicam is used.

If any clips are out of sync for some reason, you can slide them and nudge them around to manually get them into sync. Choose *Show Audio Time Units* in the panel menu of the sequence to zoom in all the way to sample level for exact waveform matching.

When the Multicam is opened in a timeline you can also open the Audio Track Mixer to see the panning and routing. You can change the routing and panning if necessary, and the number of channels in the multichannel mix track. If you made the right choices when you created the Multicam, that will not be necessary.

Audio Track Mixer showing panning, routing and mix track.

Notice that every track is mapped to a separate output.



Closer look at the first four tracks.

Changing the Audio Output of the Multicam

You can tell Premiere Pro to interpret the audio output from a Multicam differently when it's put in an edit sequence. You do this in the same way you would modify the audio channels from a video or audio clip. This is especially useful when the Multicam has lots of tracks, and you only need audio from a few of them.

Keeping the number of tracks down will keep the edit sequence tidier, and if you use this method, you don't have to deselect lots of tracks with Source Patching while editing.

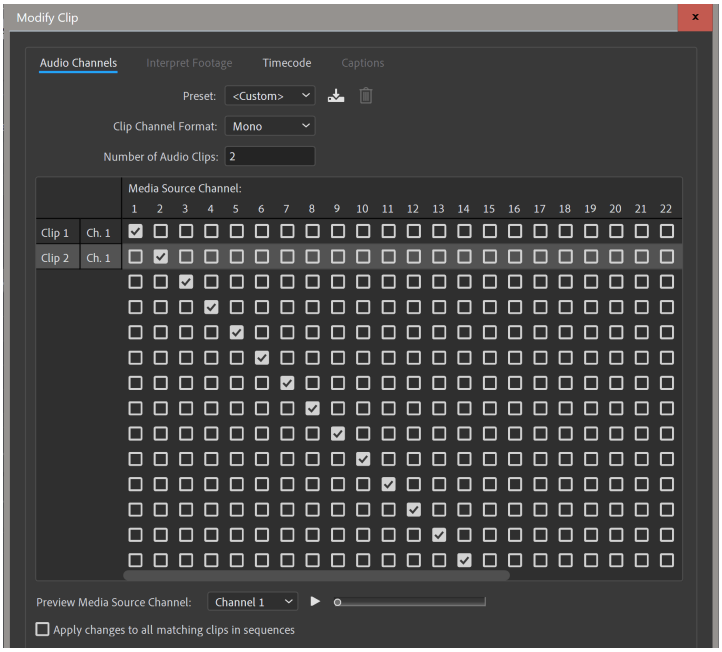
Select one or more Multicams in a bin and choose **Clip > Modify > Audio Channels** or use the keyboard shortcut **Shift+G**, and change the number of audio channels to 1, 2 or 4 etc. and decide what source channels to include.

Multicam clip modified to use only tracks 1 and 2.

You can Modify Audio Channels on multiple Multicams at the same time.

The *Apply changes to all matching clips in sequence* option will affect *all* the instances of the Multicam in *all* sequences**.**

Make sure you really want this before you click OK. If you're not sure, disable it.



Preserving Waveforms in Multicam Clips

Premiere Pro only shows waveforms against audio files that exist on disk. This means that if your Multicam is configured such that audio channels are being combined in any way, the resulting mix does not exist on disk and therefore will not have a waveform displayed, even though the audio will play correctly.

A typical example of this is having 4-8 mono mics, and using a Stereo mix track. The mono tracks are mixed together into a stereo track, and a waveform is not displayed. The correct way to do this is with mono tracks and a Multichannel mix track in the Multicam sequence. You can check this by opening the Multicam in a timeline.

The Multicam must pass across all the individual channels contained into the editing sequence. This means using a Multichannel Mix audio track, and panning each audio track to a discrete output.

See https://premierepro.net/multicam for tips on how to create a *Multichannel "Direct Out"* Sequence Preset that will always show audio waveforms.

Selective Audio Editing with Multicam

You can watch a video tutorial by Adobe's Karl Soule about Selective Audio Editing with Multicam here: https://youtu.be/FW2yLx7-r7w.

Audio files delivered in dailies may include multiple audio channels. You may get a stereo mix on two tracks and the ISO mics on separate tracks. To keep the timeline tidy, you may want to keep the number of tracks to a minimum and work with the main mix most of the time, but you need access to the ISO mics. You can match-frame back to the ISO tracks.

You can set the multicam to show only audio track 1, or maybe track 1 and 2, and still have easy access to the other tracks when you need them. This also prevents the auto-addition of audio tracks that may otherwise occur.

If the audio track you need is not currently available in the edit timeline, you can still access and use all the source channels:

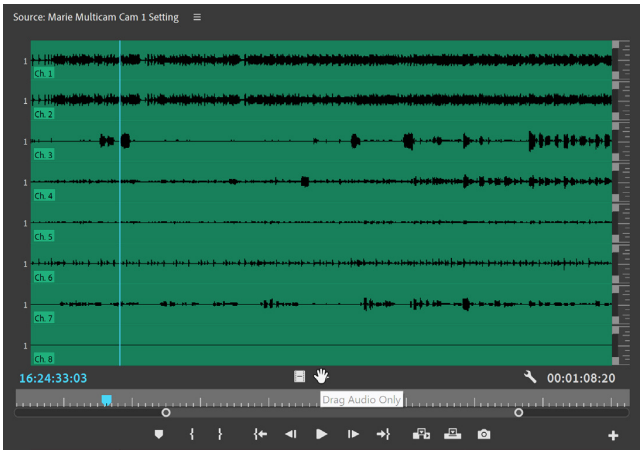
If the source audio track you need is not available you can re-modify the source clip by pressing **Shift+G** from the Source Monitor, and then increase the number of tracks and add the track you want.

The easiest way to access these extra audio channels is via the right-click menu in the timeline. Right-click on a clip in the timeline, choose *Audio Channels*, and switch to any other channel. You can also use the keyboard shortcut **Shift+G**. If you need to add additional channels to the edit, use option-drag to drag the existing clip up/down to duplicate it, and then use Audio Channels to change the channel on the duplicate.

If you prefer to load all the audio channels into the Source monitor, to have more precise insert/overwrite capability, there is a method of doing this. With the playhead parked over the Multicam where you want the new audio clip, press **Alt/Option** and click on the audio waveform to select it, then hold **Cmd/Ctrl** and double-click it. This takes you inside the Multicam.

Select the audio clip you want and hit **F** to do a Match Frame. Set In and Out points in the Source Monitor, go back to edit sequence. Here you can patch the audio to a suitable track, and press *Overwrite* (**Period key**). The new audio clip will be in sync.

You can also use the *Drag Audio Only* button in the Source Monitor to drag the audio into the timeline.

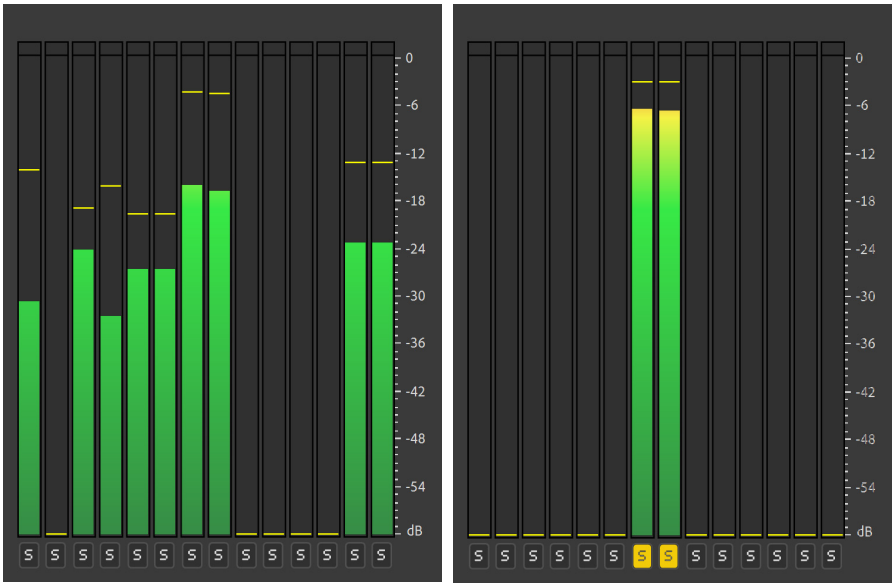


If you're unsure what audio track you need when you've done the match frame, click the *Drag Audio Only* button in the Source Monitor to see the waveforms.

The waveforms will often give you an indication of what kind of audio the tracks have.

If you're still not sure, play the multicam and solo individual tracks in the Audio Meters by clicking the Solo buttons until you hear the audio you need. This tells you what source patching you need to do before adding the clip to your edit sequence, but you must find your in-point again.

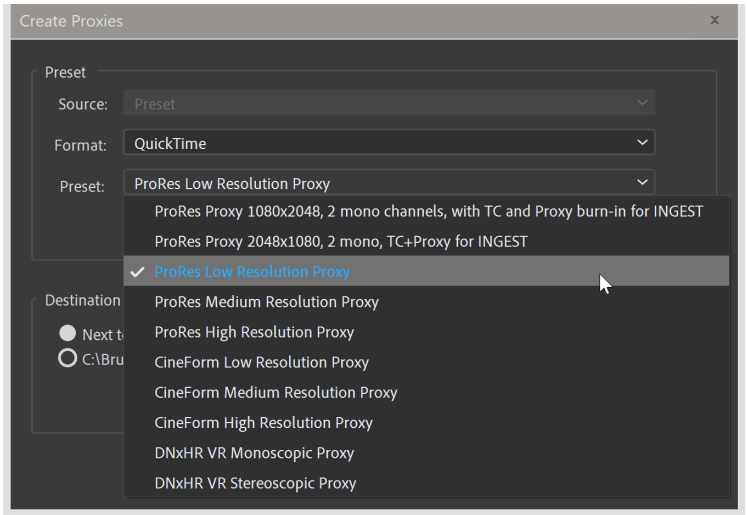
Left: Audio Meters showing all source tracks.
Right: Two tracks have been soloed.



Proxies in a Multicam Workflow

If you are cutting multiple high-res sources in a Multicam and your system struggles, use the proxy workflow so you can cut without lagging. Make sure you use QuickTime proxies, since H.264 proxies do not support multichannel audio—and your proxies must match the audio channels of the original files.

QuickTime ProRes proxies support all frame sizes and up to 32 audio channels.



Use the *Toggle Proxies* button in the Program Monitor to easily switch between proxies and the originals. See the chapter "Proxy Workflows" on page 39.

Chapter 8

Dynamic Link with After Effects

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What is Dynamic Link?

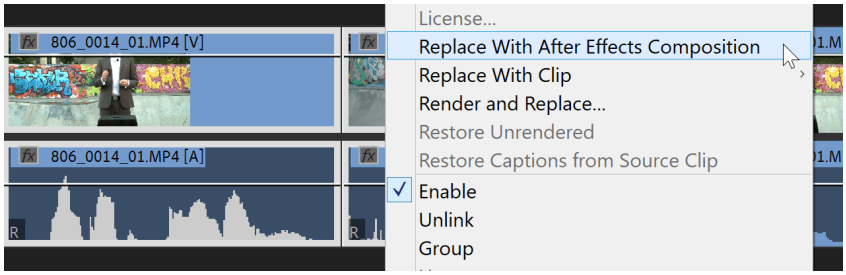
Dynamic Link is an Adobe technology that allows for unrendered frames to pass between After Effects and Premiere Pro. Rather than having to render frames of your After Effects composition to disk and then import them into Premiere Pro, you can instead view the frames After Effects creates directly in your Premiere Pro sequence without rendering. This can save hours of rendering passes, simplify management of render files, and save storage space by eliminating multiple iterative exports.

There are situations where it may make sense to use the traditional method of exporting from After Effects and importing into Premiere Pro. A rendered video file will always play more smoothly in Premiere Pro than an After Effects Dynamic Link. If your After Effects composition relies on plug-ins that are not installed on other Premiere Pro systems, you will be better served exporting the video from After Effects.

Dynamic Link Workflow between Premiere Pro and After Effects

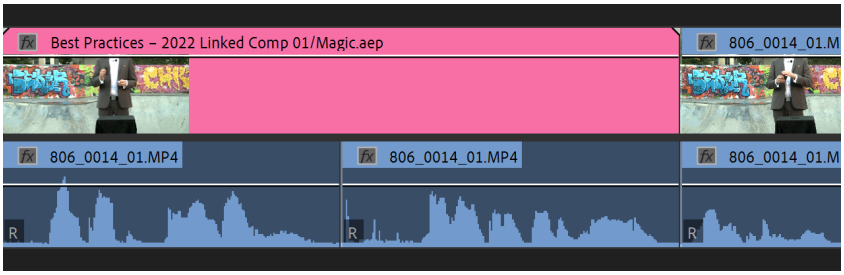
There are many ways to establish a Dynamic Link between After Effects and Premiere Pro. In Premiere Pro, you can click **File > Adobe Dynamic Link > New After Effects Composition**. Or you can import an existing After Effects Composition with **File > Adobe Dynamic Link > Import After Effects Composition**, or by dragging a composition from the Project panel in After Effects to the Project panel in Premiere Pro.

The most common method is to select one or more clips in the Premiere Pro timeline, right-click and choose *Replace With After Effects Composition*. The result is that all the clips you selected are sent to After Effects and are replaced with one single dynamically linked clip. The composition opens automatically in After Effects.



You'll find *Replace With After Effects Composition* in the right-click menu.

Source footage courtesy of Jarle Leirpoll.



The clips that were sent to After Effects via Dynamic Link have been replaced by a Linked Comp in the Premiere Pro Timeline.

Note: When using *Replace With After Effect Composition*, audio in the Premiere Pro timeline is not part of the new composition item.

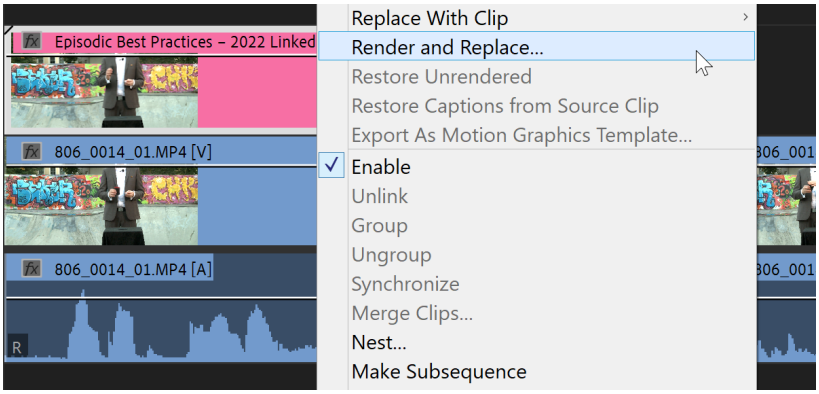
If you already have an open After Effects project, the clips and a new composition (a.k.a. comp) will be added to that project. If you did not have an open After Effects project, you will be prompted to save a new one.

You can keep your Dynamic Link comps in as many or as few After Effects projects as you like. Many editors keep them all in a single project for easier organization.

Render & Replace

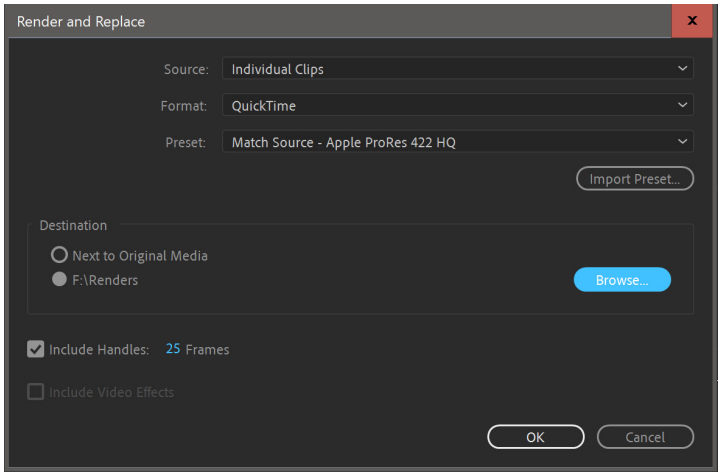
Playing complex After Effects comps in a Premiere Pro timeline can be very taxing to the system, and the result is dropped frames and poor performance. In addition, every Dynamic Link between Premiere Pro and After Effects uses some RAM.

To improve performance, replace the Dynamic Link comps in the timeline with rendered video files. Right-click the clips, choose *Render and Replace*, then choose a high-quality option like ProRes 422 HQ. ProRes 4444 is a good option if you need an alpha channel.



Render & Replace will replace the linked After Effects comp with a rendered video file.

Source footage courtesy of Jarle Leirpoll.



Choose a high-quality codec for your render files.

Render all Dynamic Link Comps

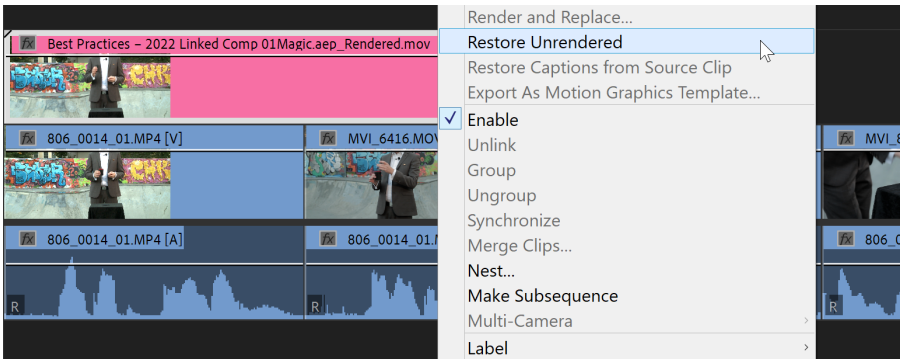
If you have many Dynamic Link comps in your timeline, you can render them all at once. Select all the comps in your sequence by using *Find in Timeline* (**Ctrl+F**/**Cmd+F**). Search for *"DLYM"* and select *Find All*.

This will select all the Dynamic Link comps in the timeline, since *"DLYM"* is what you'll find in the *Video Codec* metadata for Dynamic Link comps. Comps that have already been rendered will not be selected.

Next, right-click on one of the selected clips and choose *Render and Replace* (or use a custom Keyboard Shortcut) to render all of them at once—during lunch, while you're on the phone, or overnight.

Restore Unrendered

Render & Replace is not a one-way street. If you need to make changes after using Render & Replace, right-click and choose *Restore Unrendered* to get the Dynamic Link comp back.



After doing a Render and Replace, you can still get back to the original clips with *Restore Unrendered*.

Source footage courtesy of Jarle Leirpoll.

Create your own keyboard shortcuts for *Render and Replace* and *Restore Unrendered* to speed up the process.

Additional Tips for Dynamic Link

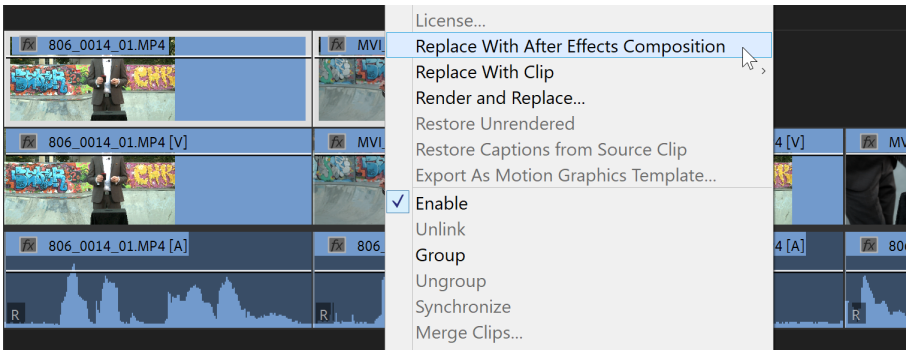
Make a Copy before Dynamic Linking

Creating a Dynamic Link composition will replace the original clip in the timeline, but keeping a copy of the original clip is helpful for when you want to refer back to it later. Duplicate the clip onto a track above, then create a Dynamic Link composition from the duplicate.

Select only the Video part of the clips by pressing Alt/Option when you select them.

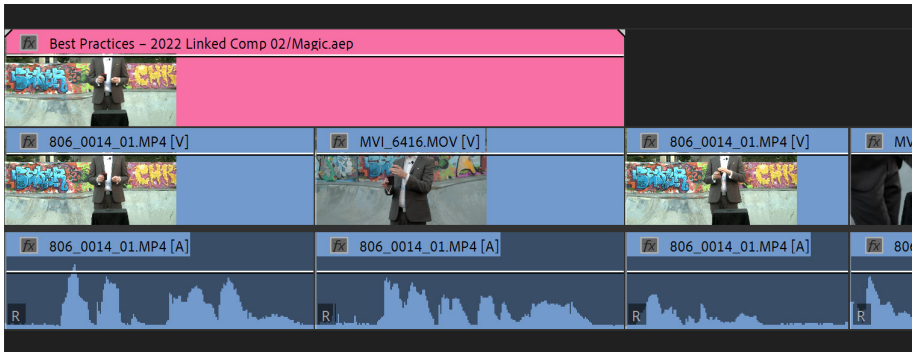
Create copies by continuing to press Alt/Option while moving the clips to a higher track.

Source footage courtesy of Jarle Leirpoll.



If you forgot to make copies, and the clips are lost from your timeline, you can copy and paste the clips from After Effects back to the Premiere Pro timeline.

Because only the copies are sent to the Dynamic Link, you still have the originals in the timeline.



Add Handles before linking

Adding handles to clips before sending them to After Effects can be helpful if the edit may change later. First, drop a marker on the first and last frame of the clip because these markers will be visible in After Effects.

Extend the beginning and end of the shot as desired. Then use *Replace Clip With After Effects Composition*.

If you send the clips via Dynamic Link without handles, there will be no handles available in After Effects.

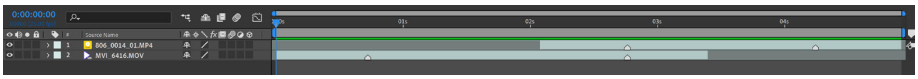
Source footage courtesy of Jarle Leirpoll.



Adding handles gives the After Effects editor some room for further trimming.



The handles carry over to After Effects, along with the clip Markers.



Flatten Multicam clips before creating the Dynamic Link

Dynamic Link will preserve Multi-Camera Source Sequences in After Effects. If you don't want to include all the Multicam angles, right click on the Multicam and choose **Multi-Camera > Flatten** before creating a Dynamic Link.

The result of not flattening the multicam clip before linking. A lot of unnecessary clips are imported, and all the clips have been placed in precomps.

Source footage courtesy of Jarle Leirpoll.



The result of flattening the multicam clip before linking. No extra clips are imported, and no precomps are made.

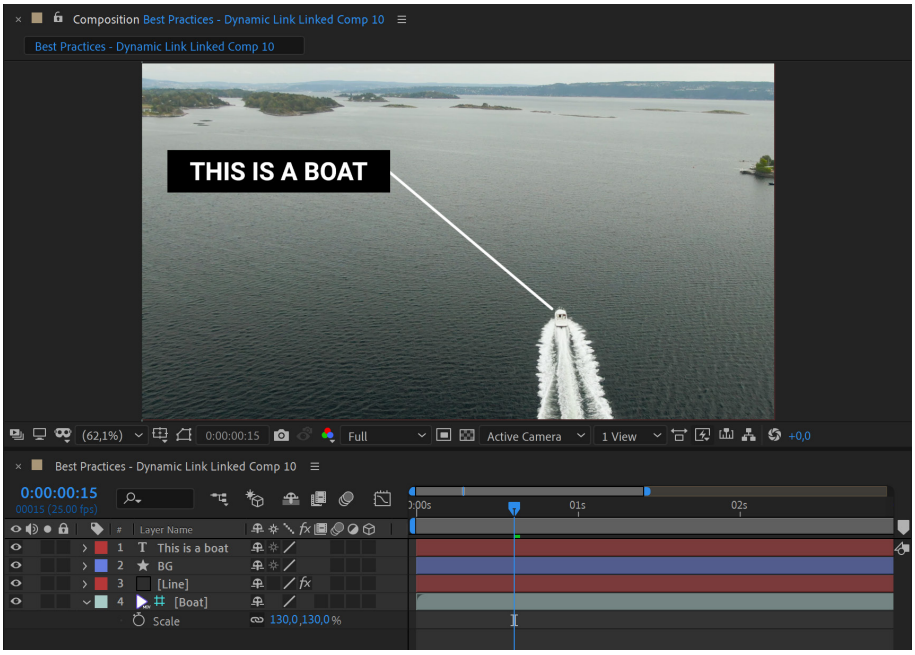


Use a Guide Layer

Sometimes, what you need from After Effects is just an overlay, which does not include the original clip. An example would be a call-out title or a text message effect. In these cases, you need the original clip in After Effects as a guide, so you can place the elements correctly. But you don't need the original clip to be part of the Dynamic Link.

A quick and easy way to achieve this is to send the clip to After Effects using *Replace With After Effects Composition* as usual, but immediately make the clip a Guide Layer in After Effects.

This is done by choosing **Layer > Guide Layer**—or right-clicking on the clip and choosing *Guide Layer.* Guide Layers are not rendered, they're just visible while you're working in After Effects. The Dynamic Link clip in Premiere Pro will only contain the overlay, not the original clip.



The video layer with the boat is not needed in this call-out, because it's already in the Premiere Pro timeline. Making it a Guide Layer makes sure the layer is not rendered.

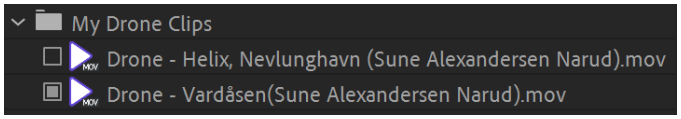
Source footage courtesy of Sune Alexandersen Narud.



The Guide Layer icon shows to the left of the layer name, telling you it's not going to be rendered.

Dynamic Linking and Proxies

If your clips have proxies attached, they will also be available in After Effects. . By default, After Effects will use the original media but you will be able to display the proxy clip instead by toggling the Proxy button to the left of the file name.



Toggle the small button to the left of the layer name in After Effects to switch between proxies and the original media.

After Effects Color Settings

Premiere Pro and After Effects have different color management settings. Understanding how they work will ensure you see the correct colors in both applications. Two key parameters are *pixel bit depth* and *Composite in Linear Color*.

Premiere Pro works in 32-bit float mode if using a GPU Accelerated Renderer, which is on by default. *Composite in Linear Color* is a Sequence Setting, also on by default. In After Effects, both of those settings are found in project settings and are off by default..



In After Effects, the background of this lower third is a black Shape Layer set to 50% Opacity.

The After Effects project is set to 8-bit Non-Linear Rec.709.

Source footage courtesy of Jarle Leirpoll.



When brought into Premiere Pro via Dynamic Link, the background appears lighter than in After Effects.



The same comp, with After Effects Project set to 32-bit Linear Rec.709.

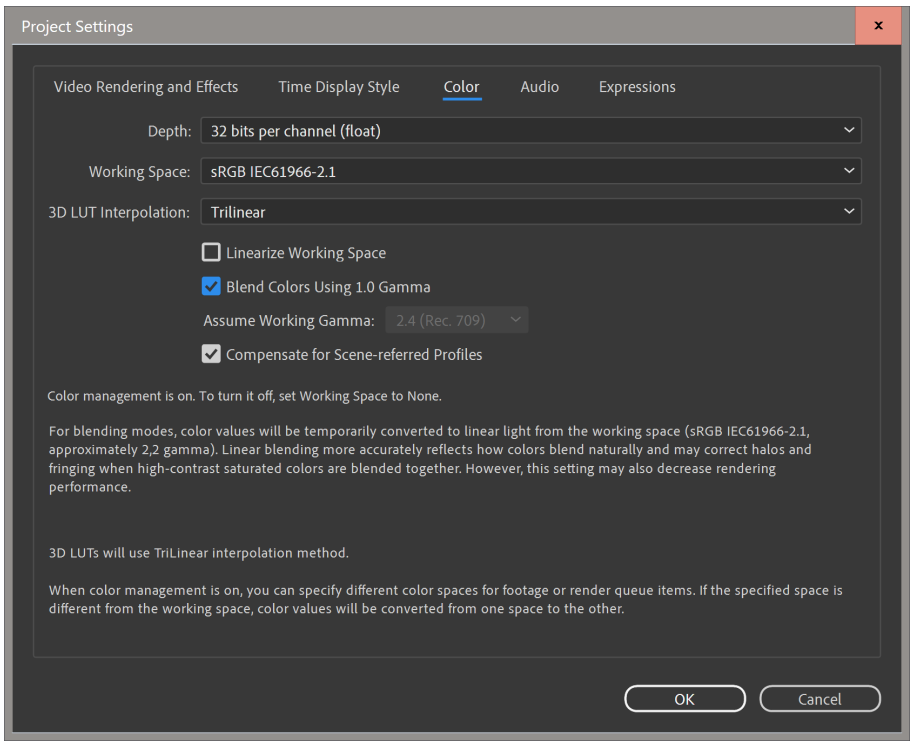
This is much closer to what you see in Premiere Pro.

Choose between GPU and Software Only rendering under *File > Project Settings > Video Rendering and Effects*.

If you want your After Effects comps to look the same in Premiere Pro, it's important to match their blending and color depth settings. Choose **File > Project Settings > Color** in After Effects and set the Depth to *32 bits per channel (float)*, Workings Space to *None*, check *Blend Colors Using 1.0 Gamma*, and set Gamma to *2.4 (Rec 709)*.

Choose GPU Acceleration (CUDA, OpenCL or Metal) in Project Settings for better rendering performance.

These are the recommended color settings in After Effects if you want the closest possible match to what you will see in Premiere Pro.



Open the correct After Effects project from Premiere Pro

When creating a Dynamic Link from Premiere Pro, the resulting comp will be created in the currently open After Effects project. If no After Effects project is open, a new one will be created. Keep your Dynamic Link projects organized by opening or creating the desired After Effects project *before* creating a Dynamic Link from Premiere Pro.

Use the same After Effects project for all the Dynamic Links in each scene/day/sequence etc.—but not for a whole episode or feature film.

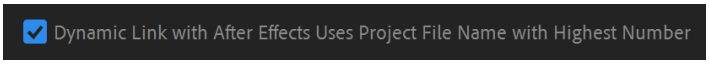
Smaller projects allow for simultaneous work by multiple assistant editors and After Effects artist, since only the project for one scene will be in use by each artist/assistant editor.

Incrementing After Effects Project File Names

If you use **File > Increment and Save** when saving your After Effects projects, it will automatically save a new copy of the project with a version number appended to the filename (i.e. *"The_River_09.aep"*). Premiere Pro will continue to link to the previous version of the project.

Choose **Preferences > General** in After Effects and turn on *Dynamic Link with After Effects Uses Project File Name with Highest Number* to have Premiere Pro always use the highest version number.

This preference in After Effects, makes Premiere Pro assume these are versions of the same project and import the one with highest number.



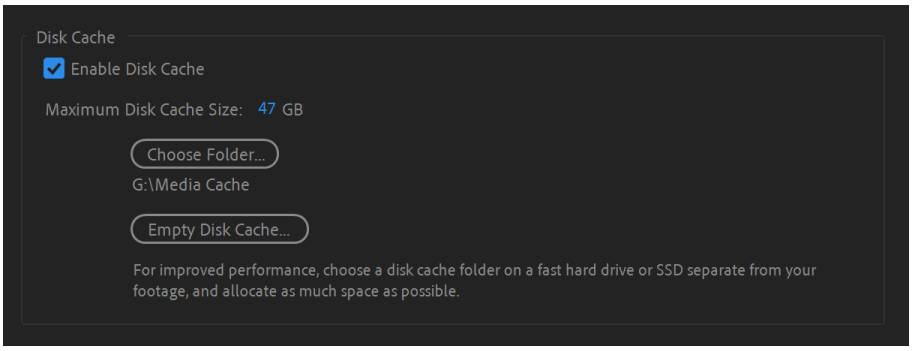
Leave this preference unchecked if you use numbers in your project files that are not an incrementing scheme.

Enable Disk Cache in After Effects

Your Dynamic Linked comps will perform better without rendering if you enable Disk Cache in After Effects. To get to this setting, choose **Edit > Preferences > Media & Disk Cache**. Choose a fast drive for the Disk Cache.

Enabling Disk Cache lets After Effects store RAM Previews and rendered frames on disk.

If you see the wrong portion of a comp is showing in your Premiere Pro timeline, try deleting the render files or your media cache files.



Firewalls and Dynamic Link

Dynamic Link uses a background process to sync between Premiere Pro and After Effects. Some system firewalls can prevent this communication. If you have trouble using Dynamic Link, check your firewall settings.

Using Dynamic Link on a network server with multiple users

When working on a single machine, changes made in After Effects appear in Premiere Pro via Dynamic Link instantaneously—even without saving the After Effects project. When working with multiple machines on a network server, changes do not automatically appear in Premiere Pro. Instead, follow the below steps to trigger Premiere Pro to display the latest After Effects changes.

Example workflow with an **editor** and **effects artist** on different systems:

1. In Premiere Pro, the editor creates a Dynamic Link.
   After Effects opens and a project is created.
2. The editor saves the After Effects project on the network server.
3. The editor then closes the After Effects project and notifies the effects artist that a new comp is ready to be worked on.
4. The effects artist opens composition in After Effects and completes the effects work.
5. The effects artist saves and closes the After Effects project and notifies the editor that the project is ready.
6. The editor opens the After Effects project by right-clicking the Dynamic Link clip in Premiere Pro and choosing *Edit Original*.
   Premiere Pro will refresh the clip to show the work done by the effects artist.

Chapter 9

Turnovers

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Introduction

The term "Turnovers" refers to the process of exporting project data and media from Premiere Pro in a format that can be understood by another application so that another artist or editor can do their work.

The process can be one-way, but for many productions it involves receiving material back to incorporate into the Premiere Pro timeline. If you are doing all your finishing (color, sound mix, and VFX) in Premiere Pro and Adobe tools, you essentially avoid the turnover process altogether and can skip this chapter.

Best Practices

The single best thing you can do to ensure success with turnovers is to communicate early and often with the teams who will be receiving your turnovers. This chapter outlines an ideal, best-case scenario to serve as a guide. The unique details of any given production and workflow may call for different steps or considerations. Proactively asking your finishing teams what they need ahead of time means your turnovers have the best chance of going smoothly.

The second best thing you can do to ensure a successful turnover is to do a test turnover once you have actual footage to work with. Any issues found are usually easy to remedy at the beginning of a production; discovering and fixing them at the end of the process is often costly and time consuming.

Following the best practices laid out in "Working with Dailies" on page 21 will also help ensure a smooth turnover process.

Audio Turnover

An audio turnover to a sound mixer can happen multiple times over the course of a production. Due to the smaller nature of audio files, uncompressed audio media is usually sent with each turnover.

A typical audio turnover consists of the following:

- An interchange file (AAF) describing the sequence, effects, volume, and other parameters
- The audio media used in the sequence, embedded in the AAF or rendered separately
- A reference export of the sequence with burned in timecode
- A change list, if editorial changes have been made since the previous turnover
- Some workflows require an EDL of the dialog tracks to be used to conform against the original audio material that wasn't used in the offline edit. Discuss with your sound mixer.

Using AAF

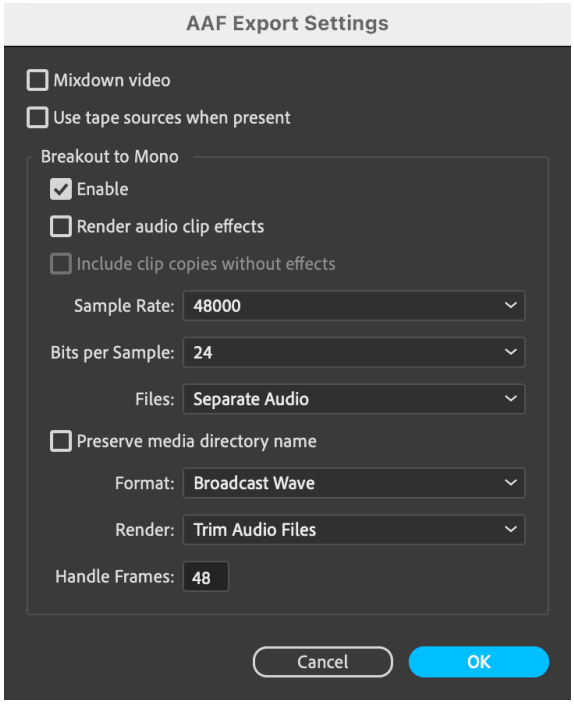
Premiere Pro supports multiple interchange formats that could be used for audio turnovers. AAF (Advanced Authoring Format) is the recommended interchange format to use for most audio software, including Avid Pro Tools. Use the latest version of Premiere Pro and your audio software to ensure the best compatibility with AAF.

When exporting an AAF, new audio media is written to disk. Premiere Pro can write the audio into the AAF file (embedded) or as separate media in a folder next to the AAF file. Using separate audio is the more flexible option and will include more audio metadata than exporting using embedded media.

Audio Turnover Steps

1. **Make a copy of your sequence.** Preparing your sequence for turnovers often involves removing or re-organizing elements, and you will want to have a copy of the original sequence before changing anything. If you are working in a Premiere Pro Production, make a new audio turnover project and work with your copy of the sequence there.
2. **Export a reference video file.** Your sound mixer may have a preferred video format that works best in their audio software. Use the Timecode effect on an adjustment layer over your entire sequence to visually burn in timecode.
3. **Prepare the sequence.** Work with your sound mixer to determine how they would like the sequence organized.
    a. Use **Sequence > Simplify Sequence** to remove any unneeded elements from your audio tracks.
    b. Separate your Dialogue, Music, and Sound Effects clips onto dedicated tracks so that each track has only one type of sound clip.
    c. If you have tracks that have both mono and stereo clips, consider separating them so that your audio tracks only have clips of one type. The resulting AAF will be easier to understand when imported into audio software.
    d. Un-nest any nested sequences so the original audio clips are present. Multicams are automatically flattened for you when exporting to AAF.
4. **Export the AAF.** With your timeline in focus, choose **File > Export > AAF**. Work with your sound mixer to determine the specific settings most appropriate for your project. Refer to the screenshot below for sensible defaults if you're not sure which settings to use.

These settings are a good default when exporting an AAF for sound mixing. Check with your audio post facility for their preferred settings.



Note: If your picture and sound was synced together using Merge Clips, some audio metadata will not translate via AAF. Use Multi-Camera syncing instead of Merge Clips. See the chapter "Before Getting Started" on page 4 for more information.

Change Lists

A change list is a text file that details each change between two versions of a sequence. It is used to update the audio software's version of the sequence if any editorial changes are made after the initial audio turnover. There is no one standard format for a change list, so make sure to work with your sound department to decide on which format and third-party change list software you will use.

While there are many paid tools for generating change lists, you can start with a simple free tool available in the Adobe Marketplace called Change Note Bot. In the Creative Cloud desktop application under Marketplace, search for plug-ins called Change Note Bot and filter by Premiere Pro. After installation you can find this plug-in in Premiere Pro by choosing **Window > Extensions > Change Note Bot**.

Color Turnover

Turning over to your colorist works a bit differently from an audio turnover in that usually the interchange itself does not contain any media. This is because while audio is uncompressed and can be exported without generational quality loss, any exporting of video involves losing some amount of data. Instead, colorists usually start from the OCF (Original Camera Files) to maintain the highest quality.

A typical color turnover consists of the following:

- An interchange file (XML or EDL) describing the sequence
- A reference export of the sequence with burned in timecode
- The original camera media against which the interchange file can link

Which Interchange Format to Use

Premiere Pro supports multiple interchange formats that could be used for a color turnover. In most cases, XML is the best format as it can preserve useful clip information like scale, position, rotation, and more. Work with your colorist to decide which interchange format is appropriate for the workflow and color application your production is using.

Color Turnover Steps

1. **Make a copy of your sequence.** Preparing your sequence for turnovers often involves removing or re-organizing elements, and you will want to have a copy of the original from before you started. If you are working in a Premiere Pro Production, make a new color turnover project and work with your copy of the sequence there.
2. **Export the reference video file.** Your colorist may have a preferred video format that works best in their color software. Use the Timecode effect on an adjustment layer over your entire sequence to visually burn in timecode and other necessary metadata.
3. **Prepare the sequence.** Remove any clips or elements that will not be translated into the color software or that are not intended to be colored.
    a. Use **Sequence > Simplify Sequence** to remove any unneeded elements from your sequence and collapse it to as few video tracks as possible.
    b. Consider removing all audio clips and tracks as most colorists will not use them.
    c. Un-nest any nested sequences and flatten any Multi-Camera Sequences so the original clips are present.
    d. Organize different types of clips (footage, titles, VFX, etc) onto specific tracks.
4. **Export the XML**. With your timeline in focus, **File > Export > Final Cut Pro XML**. If any effects or elements in the sequence can't be translated to XML, an alert will appear and a translation report text file will be placed next to the XML on disk so you can review which clips at which time have any issues.

If your sequence contains color effects (like Lumetri color) when you export the XML, those effects are written into the XML. Other color applications won't understand the effect and they will be ignored. Be aware that if the color software exports a new XML as part of its export process, the new XML may pass along the effects from Premiere Pro.

This means if you import the XML and graded media back into Premiere Pro, you may see the old effect applied on top of the colorist's grade. In this case, select all the clips in the colored timeline and choose Edit > Remove Attributes to remove any unnecessary effects.

Turning Over a High-Resolution Export to Color

In some cases where a timeline is too complex to translate between applications or there is not time for a full conform, color turnover happens by exporting a high-resolution version of the timeline with no color effects enabled so that the colorist can use that export as the media against which to apply their color.

Documenting all the considerations for this kind of workflow is beyond the scope of this chapter. As always it is important to have a conversation with your colorist to agree on how to implement this workflow.

When exporting a high-resolution file for a color turnover, keep the following in mind:

- In **Sequence > Sequence Settings**, turn on Maximum Bit Depth and Maximum Render Quality
- In your Export settings, make sure to turn on Render at Maximum Depth and Use Maximum Render Quality. These options ensure you are exporting at the highest fidelity but will increase export time.
- If exporting to a format that supports it, set the Bit Depth to the highest available in the Export settings
- In your Sequence settings and Export settings make sure the correct color space is selected
- If your sequence contains RAW video media, work with your colorist to make sure the clips are using the settings appropriate for this workflow, which may differ from what looked best while editing
- Make sure there are no visual elements left in the sequence that would interfere with the color grade such as titles or graphics

Your colorist may prefer to receive an EDL or XML of the sequence to help in identifying the cuts and transitions in the high-resolution file you exported.

Visual Effects (VFX) Turnover

Turnovers to visual effects differs from audio and color turnovers in that they are dealing with individual shots rather than an entire sequence. How VFX turnovers are handled varies widely based on the type of production and workflow, so a full description is beyond the scope of this chapter.

A typical VFX turnover includes the following:

- A reference export of the shot including the shot before and after
- An EDL of the shot including handles and markers as well as clip name and clip markers as comments

EDLs base their events on Tape Name (also known as Reel) and Timecode, but Premiere Pro will also write a comment into each EDL event with the clip name as it was shown in the timeline at the time of exporting the EDL. This means you can use the "Show Source Clip Name and Label" option found in the Timeline panel wrench menu to control if the timeline clip name or the Source clip name is visible, and thus which one is written into the EDL.

Clip markers are commonly used to denote the start and end of a shot when handles are present, or to include information for the VFX team. When exporting an EDL from Premiere Pro you can choose "Include Clip Markers" to write the clip markers into the EDL data as a comment. Any markers hidden by filtering in the Markers Panel will not be exported.

See this Netflix reference for VFX Best Practices for more good advice on handling VFX turnovers.

Chapter 10

Remote & Cloud Workflows

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Introduction

Numerous scenarios for remote workflows and collaboration have been in place since the advent of digital production. Bespoke remote solutions, once requiring expensive and proprietary gear (and only available to the highest budget productions) have evolved into a wide variety of easy to use and affordable solutions that meet the most stringent security standards.

"Remote workflows" refer to the process of accessing existing infrastructure, including corporate on-premise storage, networking and workstations, from a remote location. "Cloud workflows" refers to the process of accessing and using a public or private datacenter for media production.

Our guide lists a variety of Premiere Pro remote and cloud-based workflows. Several specialized Adobe Technology Partners are listed below, but there are many others in our broad ecosystem. You can browse Adobe's Technology Partner Solutions in our Partner Finder site: https://adobe-videopartnerportal.com/find-a-partner/

Peer to Peer Screensharing

This technology enables connecting to and viewing the desktop of a remotely located editing machine, controlling it with one's mouse or stylus and keyboard. A typical scenario consists of a group of centrally located workstations attached to a NAS, where editors can log in from anywhere and control their machines from their remote computer. In this case the editing experience is as if the editor were on premise.

CAS = Cloud Access Software
PCoIP = PC-over-IP

HP ZCentral Remote Boost with Teradici CAS and Teradici PCoIPClient
https://www.hp.com/us-en/workstations/zcentral-remote-boost.html

Jump Desktop
https://jumpdesktop.com/

Microsoft Remote Desktop
https://www.microsoft.com/en-us/p/microsoft-remote-desktop/9wzdncrfj3ps

Splashtop Business
http://www.splashtop.com

TeamViewer
https://www.teamviewer.com/

Cloud Storage Solutions

Cloud Storage can be useful when you already have capable workstations with each remote editor but need to have a common storage shared. You can use cloud storage to host your project files (or Premiere Pro Production), acting like a NAS in the cloud. If your editors have a strong, low-latency internet connection (minimum 50 Mbps), some cloud storage solutions can even handle hosting your media files.

Solutions like LucidLink (below) offer intelligent caching on the local machine, requiring only a small amount of dedicated storage. In these scenarios, users can play footage stored in the cloud in real time, with nearly instantaneous synchronization of project metadata. Make sure to consider egress charges if hosting your media in the cloud.

Amazon Web Services S3
https://aws.amazon.com/pm/serv-s3/

Google Cloud Platform
https://cloud.google.com/gcp

LucidLink
https://www.lucidlink.com/

Microsoft Azure Blob
https://azure.microsoft.com/en-us/services/storage/blobs/

OpenDrives Atlas Cloud
https://opendrives.com/products/atlas-cloud/

Qumulo Cloud Studio – Enterprise Cloud Storage running on AWS
https://qumulo.com/wp-content/uploads/2020/07/SB-Q216-072020_Adobe_v4_FINAL.pdf

SNS-EVO
https://www.studionetworksolutions.com/products/

Tiger Technology (Tiger Bridge) [Windows only]
https://www.tiger-technology.com/software/tiger-bridge/

Editing Solutions Enabling Video Review Over the Internet

Remote viewers can watch the editor work in real time, collaborating and commenting with video, voice, text and graphic annotation. These 'over-the-shoulder' scenarios are the closest experience to being present in the actual edit bay.

BirdDog
https://birddog.tv/cloud-overview/

ClearView Flex (Sohonet)
https://www.sohonet.com/

Evercast
https://www.evercast.us/home-c

NDI
https://www.ndi.tv/
see also: https://go.vizrt.com/Cloud-Live-Production_AWS/Demo/OnDemand

Pacific Post Live
https://pacpost.live/

Remote Review and Approval

Editors can securely collaborate with other members of the production team, asynchronously commenting on projects beginning with dailies all the way through delivery of final assets. Frame.io (now part of Adobe) and the others listed below allow users to comment, visually annotate, and keep track of versions with precision timecode accuracy. Mobile devices are also supported in most scenarios.

Frame.io (now part of Adobe)
https://www.frame.io/

Ftrack
https://www.ftrack.com/en/review

Iconik
https://www.iconik.io/collaboration

PIX System
https://pix.online/

Shift.io
https://shift.io/

Wipster
https://wipster.io/

5th Kind
https://www.5thkind.com

Chapter 11

Panels & Integrations

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Extending Professional Workflows with Panels & Integrations

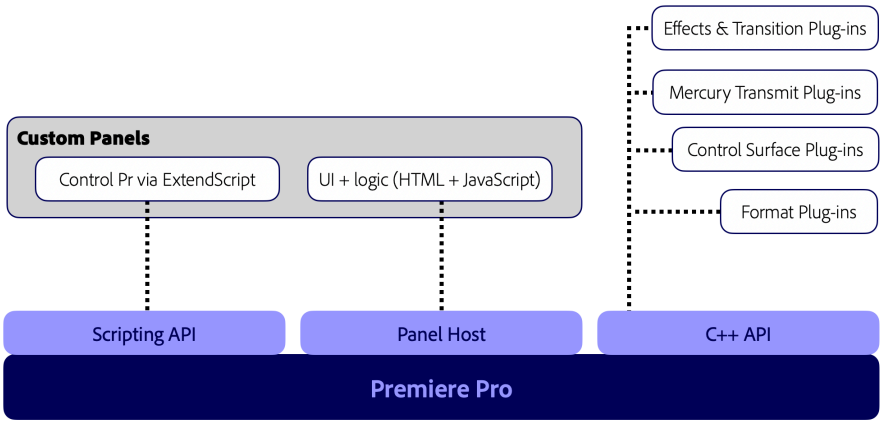
The Adobe Video & Audio applications feature an extensive toolkit that allows developers to integrate with, control, and extend their core functionality. This has created a thriving ecosystem of plug-ins and professional development, but it's also relatively easy for individuals with a technical mindset to get started with their own custom panel in Premiere Pro. Editorial teams often need specific, custom behavior that they can build themselves using the tools described in this chapter.

Extensions, Plug-ins, and Custom Panels

Broadly speaking, an extension is any code that interfaces with Premiere Pro and takes the form of a plug-in or a custom panel. The term *plug-in* can refer to a number of things, but for the purposes of this chapter we are going to focus on custom panels.

Unlike the plug-ins shown below which use the C++ API, a custom panel is essentially a web page serving as a user interface which sends scripting commands to Premiere Pro using ExtendScript.

Extensions in Premiere Pro are either C++ API plug-ins or custom panels.



The user interface of your panel can be as simple as a button to do the one task you need, or as complex as a full web-based UI, complete with configurable options and communicating with a web service. Examples of potential uses for a custom panel include:

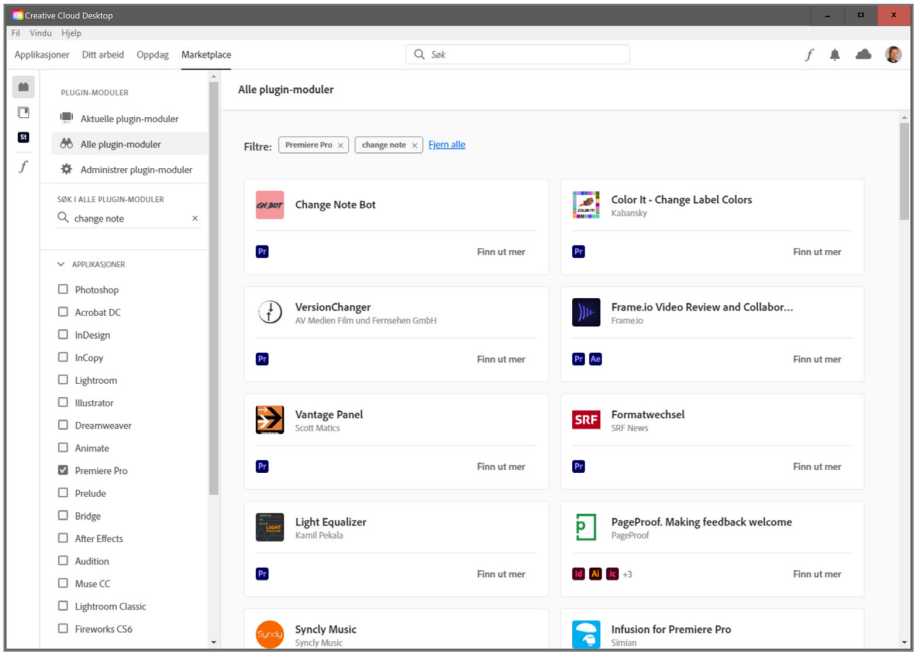
- Combining common actions into one step
- Importing media, XML, and existing projects
- Modifying clip metadata including file paths
- Using scripting commands to build bespoke, new functionality
- Automating VFX pulls and cut-ins
- Exporting sequences, projects, XML, etc
- Sending data to or receiving data from a local or web source
- Media Asset Management.

How to Find Existing Panels

Adobe Exchange & Creative Cloud application

Most panel makers submit their panels to the Adobe Exchange: https://exchange.adobe.com/creativecloud.premiere-pro.html

The Creative Cloud application also has a Marketplace section which is another way to search extensions found on Adobe Exchange.



Change Note Bot, shown here, creates change notes files for audio turnovers.

Installing from Outside Adobe Exchange

Custom panels for Premiere Pro can be sent or hosted like any other file. **You should only install and use custom panels from a trusted source**.

Custom panels are usually distributed as ZXP files. You will need to use an installer tool to install the ZXP:

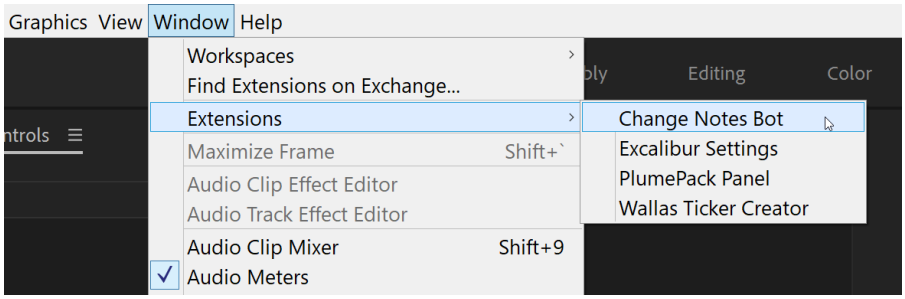
- ZXPInstaller - https://zxpinstaller.com
- Anastasiy's Extension Manager - https://install.anastasiy.com

Both installer tools are endorsed by the Adobe extensibility team.

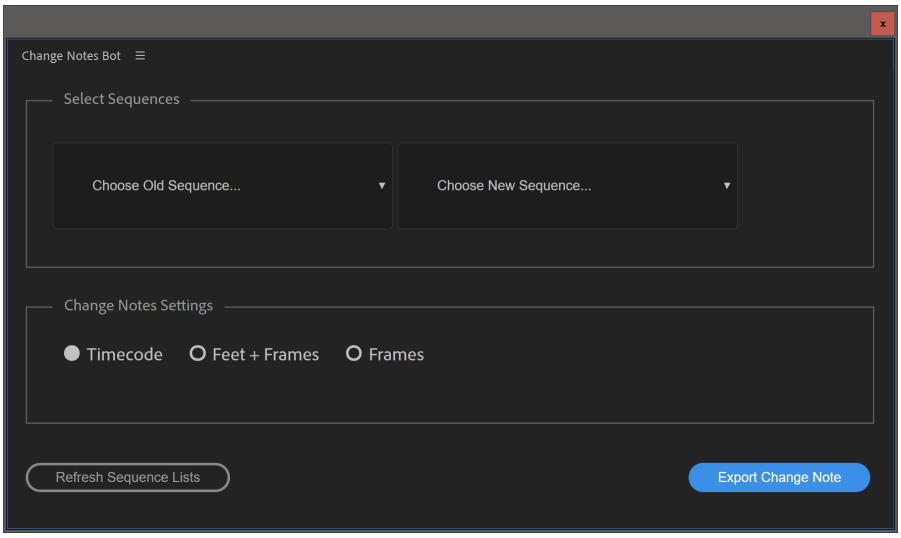
Using Custom Panels in Premiere Pro

Once a custom panel has been installed, you can find it in Premiere Pro under **Window > Extensions.** The panel can be added to your workspace like any of the built-in panels.

Opening Change Notes Bot.



Change Notes Bot panel in Premiere Pro.



Uninstalling Custom Panels

Follow these steps to uninstall a custom panel:

1. Quit Premiere Pro
2. Open this folder:
   - macOS: **/Library/Application Support/Adobe/CEP/extensions**
   - Windows: **C:\Program Files (x86)\Common Files\Adobe\CEP\extensions**
     or: C:\Program Files\Common Files\Adobe\CEP\extensions
3. Inside the extensions folder, locate the custom panel's folder by name and delete it

How to Write a Custom Panel

A full guide to writing a custom panel is beyond the scope of this chapter, but the following information will get you set on the right path. At a high level, these 5 steps will get you started:

1. Install VS Code:
   https://code.visualstudio.com
2. Install ExtendScript debugger for VS Code:
   https://marketplace.visualstudio.com/items?itemName=Adobe.extendscript-debug
3. Download and install the PPro Panel:
   https://github.com/Adobe-CEP/Samples/tree/master/PProPanel
4. Watch this video on debugging ExtendScript and JavaScript:
   https://shared-assets.adobe.com/link/e2f1bde9-4b50-47a6-4878-58883da4b552
5. Modify and build up the PPro Panel to your needs. The PPro Panel is full of examples of how to use the Scripting API so that you can easily modify them.

Additional Useful Links

- ReadMe with thorough steps for set up:
  https://github.com/Adobe-CEP/Samples/blob/master/PProPanel/ReadMe.md
- API Documentation:
  http://ppro.aenhancers.com
- CEP HTML Test Panel, which shows off what's possible at the JavaScript level:
  https://github.com/Adobe-CEP/CEP-Resources/tree/master/CEP_11.x/Samples/CEP_HTML_Test_Extension-10.0
- PPro Sample Panel, with exhaustive examples of scripting API functionality:
  https://github.com/Adobe-CEP/Samples/tree/master/PProPanel
- How to debug JavaScript in VS Code:
  https://shared-assets.adobe.com/link/72f30d2d-77a0-4781-5e8c-2e9731377107
- How to debug ExtendScript in VS Code:
  https://shared-assets.adobe.com/link/d70499f6-a45b-40e2-4443-2624b9ec71ba

Chapter 12

Resources & Tutorials

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Resources & Tutorials

The following is a list of useful resources for Premiere Pro. Please be advised that Adobe is not responsible for the content of third-party websites.

Basic & Advanced Help

Adobe Learn & Support

Free Tutorials on Adobe.com

PremierePro.net

Inside Hollywood's Cutting Rooms

LinkedIn Learning (paid subscription required)

Vashi Visuals

Learn From the Pros in Premiere Pro

Tech with Mike First

Books

The Cool Stuff in Adobe Premiere Pro

Adobe Premiere Pro Classroom in a Book (2021 release)

Using Productions

Introducing Productions in Premiere Pro

Productions in Premiere Pro documentation (Adobe Help)

The Ultimate Guide to Productions (Sofi Marshall)

Jason Levine and Karl Soule Productions Livestream

Video Demo of Productions

How to use Premiere Pro Productions as an Individual Editor

Post-Production

Hollywood Post-Production Master Class with Vashi Nedomansky, ACE

Hollywood Post-Production with David Fincher's Editorial Team

Frame.io Insider Blog

Frame.io Workflow Guide

Mastering MultiCamera Techniques (book)

Hardware & Optimizations

Premiere Pro System Requirements

Premiere Pro Hardware Recommendations

DAV Tech Table

https://www.youtube.com/user/dhelmly/videos

Extension Panels & App Integrations

Adobe Exchange

Premiere Pro Sample Panel

Premiere Pro API Documentation

Customer Support

Fastest way to reach Adobe Care Team for support questions: https://twitter.com/AdobeCare

Phone: (+1) 800-585-0774

Adobe Technology Partners

Video Partner Portal

Credits

Writing & Layout

Jarle Leirpoll – Author and Certified Trainer

Writing & Editing

Matt Christensen

Additional Writing by

Premiere Pro Engineering:

Bruce Bullis
Dan McSweeney
Todd Reeder
Fran Roig
Marjorie Sacks
Mitch Wood

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Van Bedient
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Shara Morishige
Joanne Morton
Margot Nack
Vivek Neelamegam
Ivan Ospina
Linda Paulson
Billy Peake
Jeff Pedersen
Michael Phillips
Eric Philpott
Ismail Rajo
Sarah Regan
Abhijit Singh
Sue Skidmore
Matt Stegner
Kathy Waite
Atsuko Yamagishi



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