

Adobe® Premiere® Pro CS3

Using Adobe Premiere Pro with Sony XDCAM content

Adobe Premiere Pro CS3 software provides native support for Sony XDCAM cameras with no transcoding, real-time editing, and flexible delivery options. This document describes the workflow benefits of using Adobe Premiere Pro with Sony XDCAM content.

A new generation of video cameras records to tapeless media instead of videotape, offering the potential of making production and post-production more efficient. However, an efficient tapeless workflow requires not only cameras, but also nonlinear editing software that natively supports the media created by those cameras.

The Sony XDCAM family of professional cameras and decks records standard and high-definition video to optical disc and flash memory. Disc-based XDCAM cameras use half-inch or two-thirds-inch CCD imaging chips to record to high-capacity, blue laser discs. The handheld Sony PMW-EX1 XDCAM EX camcorder uses half-inch CMOS imaging chips to record high-definition video to solid-state memory cards. All XDCAM cameras and decks share core benefits: high-quality images, random-access media with long record times, and high transfer rates.

Adobe Premiere Pro utilizes these XDCAM benefits to accelerate post-production, replacing real-time tape capture with file ingest that is faster than real time, while preserving image quality through native support for XDCAM content.



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Advantages of using Adobe Premiere Pro

Adobe Premiere Pro provides multiple benefits that make working with XDCAM media easier and more efficient.

Native editing

By working with XDCAM content in its original form, Adobe Premiere Pro helps avoid image-degrading and time-consuming file transcoding. After rapid import of XDCAM content, editors can start editing immediately using the Adobe Premiere Pro toolset.

Broad XDCAM format support

Adobe Premiere Pro natively supports content from XDCAM cameras, both optical disc and solid state, from standard definition to 1080p.

Sony XDCAM optical disc cameras record formats ranging from standard-definition DVCAM and IMX to high-definition MPEG-2 onto 23GB or 50GB optical Professional Disc media. The HD cameras capture 1080i or 1080p images as MPEG-2 at 18Mbps, 25Mbps, and 35Mbps. A camera set for April 2008 release adds a 50Mbps high-definition MPEG-2 codec. Adobe Premiere Pro supports DVCAM recorded on XDCAM cameras, as well as XDCAM HD 1080i and 1080p images recorded at 18Mbps, 25Mbps, and 35Mbps. IMX and 50Mbps HD recording modes are not currently supported.

XDCAM EX records high-definition MPEG-2 images to solid-state memory cards at three resolutions, seven frame rates, and two bit rates. The camcorder's three one-half-inch CMOS sensors capture 720p, 1080i, and 1080p images at 25Mbps and 35Mbps onto 8GB and 16GB solid-state SxS cards. Adobe Premiere Pro supports all permutations, except the legacy Standard Play 1440x1080/23.98p mode at 25Mbps.

“Anyone who wants to create projects with unprecedented mobility, speed, ease, and outstanding picture quality should be looking at the combination of Adobe Premiere Pro CS3 and Sony XDCAM EX.”

Jeff Patrick
Owner, Current Communications, LLC

Mix formats in the timeline

Users can create content from a wide range of sources without complex format conversion. In the Adobe Premiere Pro timeline, editors can freely mix any supported format. For example, a single sequence could hold XDCAM EX, DV, HDV, DVCPRO HD, and other formats. Most mixed-format timelines can be edited in real time, with the additional formats only requiring rendering before final output.

Wide variety of output options

Adobe Premiere Pro software lets users distribute their content to the widest possible audience. XDCAM content can be output in the full range of format options available in Adobe Premiere Pro. Options include DVD, Blu-ray Disc, FLV (video for Adobe Flash® Player software), HDV, QuickTime, mobile devices, and more. Even DVCPRO HD.

Editing workflow

Adobe Premiere Pro software provides a straightforward, flexible, and comprehensive means of editing and delivering content created on Sony XDCAM cameras. Once XDCAM content is in Adobe Premiere Pro, users edit it with the same ease and power that Adobe Premiere Pro delivers for other compatible video content.

Select a project preset

When starting a new project, the user first chooses the Adobe Premiere Pro project preset that matches the source XDCAM content (for example, XDCAM EX 1080 24p (HQ)). The Project Preset helps ensure that the output render settings match the source content, and that the content appears in the Adobe Premiere Pro timeline without a red “render bar” above it. A red bar indicates content that does not match the current project settings and must be rendered before final output.

However, most content that does not match current project settings (for example, DVCPRO HD content in a XDCAM project) can still be edited in real time with Adobe Premiere Pro.

Import clips

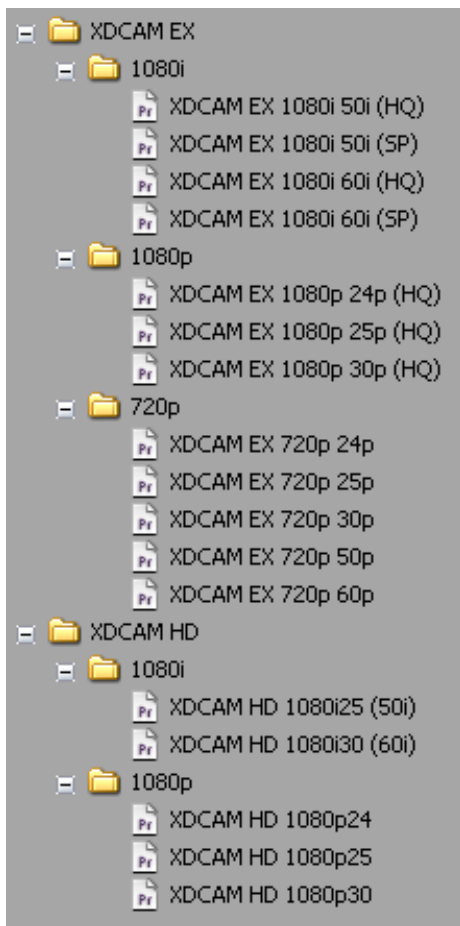
Native support for XDCAM content in Adobe Premiere Pro helps enable several different clip import and workflow options to best match the needs of the project. Adobe Premiere Pro software natively supports most XDCAM formats, so there is no need to convert files before importing. Compatible XDCAM files are accessed through the standard Adobe Premiere Pro File Import dialog box.

To take full advantage of the real-time editing features of Adobe Premiere Pro, content on XDCAM Professional Disc optical media must be transferred to an editing system’s hard drive. Sony Professional Disc optical media is inserted into a XDCAM camera or deck and connected to the computer via a IEEE 1394 (i.LINK) or USB 2.0 cable.

SxS media cards holding XDCAM EX content can be inserted directly into the standard ExpressCard slot found on many recent laptop computers. Computers with built-in ExpressCard slots can access SxS content by installing the free Sony XDCAM EX SxS Card Drivers software, available on sony.com/xdcamex. Computers without ExpressCard slots can access SxS cards through a USB 2.0 cable connected to a XDCAM EX camera or to a compatible card reader, such as the Sony SBAC-US10 USB Reader/Writer.

On both Mac OS and Windows® operating systems, Adobe Premiere Pro sees XDCAM optical and SxS media as standard removable storage volumes.

Next, a user navigates through the Adobe Premiere Pro File Import dialog box to the mounted XDCAM media, or to a copy of the media on the editing system’s hard drive. The paths to XDCAM HD and EX differ slightly. Both formats record high-definition video as 4:2:0 MPEG-2 and audio as uncompressed linear PCM (pulse-code modulation). But each format packages the video and audio in a different file wrapper and folder structure.



Adobe Premiere Pro 3.2 software provides project presets—and native support—for 17 XDCAM HD and XDCAM EX format variations.

XDCAM HD wraps its high-definition MPEG-2 video and PCM audio as MXF (Material eXchange Format) files on Professional Disc optical media. Standard-definition XDCAM does the same with DVCAM and IMX. XDCAM EX wraps its high-definition MPEG-2 video and PCM as MP4 (MPEG-4 Part 14) files on SxS memory cards. In both cases, the video clips, along with several metadata files, reside in nested folders.

For optical disc XDCAM and XDCAM HD, users navigate to the Clip folder. The Clip folder can hold one or several MXF content files. In the File Import dialog box, the user selects the MXF files, and clicks Open. With XDCAM EX, users navigate to the CLPR folder. The CLPR folder holds a different subfolder for each video clip. The user opens the appropriate subfolder, selects the MP4 file, and clicks Open. XDCAM folders have a specific structure and naming convention, but visually navigating XDCAM media folders through the Adobe Premiere Pro File Import dialog box is straightforward.

Users can also import entire folders of XDCAM content in a single step. Adobe Premiere Pro imports all the MXF or MP4 files it needs in the subfolders, and disregards the files it does not need. Importing an entire folder of XDCAM content generates a warning dialog listing the additional files that are part of the XDCAM file structure but that are not used by Adobe Premiere Pro. The warning is benign and can be ignored.

XDCAM files transfer faster than real time. Sony XDCAM equipment can transfer from Professional Disc optical media at speeds up to 120Mbps for 23GB single-layer discs, and 172Mbps for 50GB dual-layer discs. Transfers from SxS memory cards approach 800Mbps. Five minutes of high-definition XDCAM content can transfer from a SxS card into Adobe Premiere Pro in under 20 seconds. Importing XDCAM content already copied to a local hard drive ranges from essentially instantaneous for folders under 10GB, to a few seconds for larger folders. Importing XDCAM into Adobe Premiere Pro projects is easy and fast.

Adobe Premiere Pro can also edit XDCAM EX content directly from SxS memory cards without first moving the content to a hard drive. For projects with tight deadlines where every minute counts, this ability frees more time for editing and delivery.

Once XDCAM content has been imported into an Adobe Premiere Pro project, each video file appears in the Adobe Premiere Pro Project panel as a clip with the thumbnail, duration, and file information (resolution, frame rate, resolution, creation date). Clips can be renamed and reorganized, as can any media file in Adobe Premiere Pro. Renaming clips affects just the Adobe Premiere Pro asset reference, not the actual XDCAM file on the hard disk.

Edit in the timeline

After the XDCAM clips are imported, they can be edited with the same comprehensive Adobe Premiere Pro toolset available to any video format.

As with every Adobe Premiere Pro project, content in other formats (for example, HDV, DV, and DVCPRO HD from tape or P2) can be added to XDCAM projects and edited in the XDCAM timelines. Adobe Premiere Pro provides flexible tools that let users numerically and visually scale mixed content to match the resolution, aspect ratio, and other aspects of a project's master format.

Most mixed-format timelines play back in real time during editing, with only the content that does not match the project render settings requiring rendering for final output.

Deliver virtually everywhere

XDCAM EX content can be output in a wide range of formats, including tape, DVD, Blu-ray Disc, FLV, QuickTime, mobile devices, and more.

Example workflows

Tapeless workflows can greatly speed up post-production, allowing editors and producers to spend less time capturing content and more time shaping that content into compelling stories. Long-format projects with dozens or hundreds of hours of material can save significant time through efficient file ingest. Just as important are the minutes saved on fast-turnaround projects, such as news, where all the source content fits on a single SxS card, and every minute counts.

Different projects and environments require different workflows, but these two examples describe the key advantages of editing XDCAM content in Adobe Premiere Pro.

Post-production

Working together, Sony XDCAM and Adobe Premiere Pro can eliminate time-consuming content capture. Both individual files and the contents of an entire XDCAM optical disc or memory card can be quickly imported into Adobe Premiere Pro, with each shot appearing as a separate clip in the Project panel. The Project panel can display a thumbnail of each clip's contents, along with other information, such as creation date and clip duration. Users do not have to log media before capturing content. Instead, they can log and organize media at the time and place that best fits their own workflow.

The high-speed ingest of XDCAM into Adobe Premiere Pro also helps enable efficient media capture while still on location. Beyond simply reviewing shots, a producer or editor can quickly and easily execute simple or complex edits and color corrections to help ensure that sequences cut together well, that shots from different days match, and that production is getting the shots it needs. When shooting with XDCAM EX, high-speed ingest on location means valuable SxS cards get put back to work rather than put into storage.

Because Adobe Premiere Pro imports XDCAM content natively, the initial ingest captures finishing-quality images. When moving from a rough cut to the finished color-corrected edit, virtually no time gets spent conforming media. Instead, more time is available to improve story, color, and finish.

When the edit is completed, tools included with Adobe Premiere Pro support delivery to the widest possible audience. For example, Adobe Media Encoder can output content for the web and mobile devices. And Adobe Encore® software, included with Adobe Premiere Pro, outputs to Blu-ray Disc and DVD.



Adobe Premiere Pro tools support a variety of delivery options: web, mobile devices, DVD, Blu-ray Disc, and more.

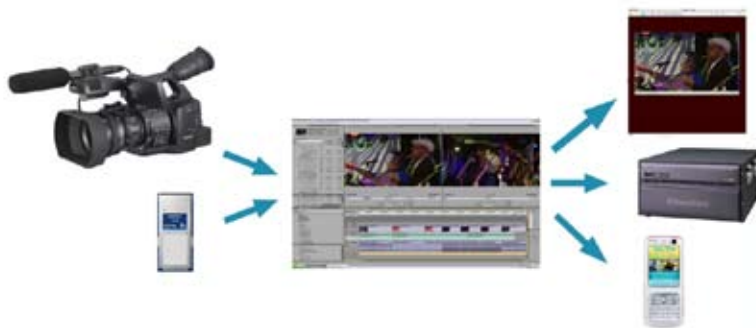
Direct editing from camera for faster turnaround

Adobe Premiere Pro can edit XDCAM EX content while that content is still on a SxS memory card in a XDCAM EX camera. That ability, together with the real-time editing tools in Adobe Premiere Pro, helps enable a workflow for meeting extremely tight deadlines.

A single SxS card holds from 25 to 70 minutes of high-definition XDCAM EX material, depending on the card size and content bit rate. That is more than enough for the A-roll and B-roll in a short news package, webcast, or quick corporate piece.

With an SxS memory card still in the XDCAM EX camera or inserted into a computer's ExpressCard slot, Adobe Premiere Pro sees the card as a removable storage device. Without transferring files to a hard drive, users can set each file on the card to appear in the Project panel as a separate clip with thumbnail.

All the standard Adobe Premiere Pro organization and editing tools can immediately work with the content. After editing is complete, the project can be output for the web, mobile devices, or played from the Adobe Premiere Pro timeline to a playback server.



Content can be edited while still in the camera and then output to a variety of devices.

Summary

With native support for XDCAM HD and XDCAM EX content, Adobe Premiere Pro provides rapid file ingest through the standard Import dialog box, virtually eliminates transcoding, and preserves image quality. That native support, together with strong real-time editing tools and comprehensive output options, puts Adobe Premiere Pro at the center of efficient and flexible XDCAM workflows.

Appendix: XDCAM technology overview

The Sony XDCAM series of standard-definition and high-definition cameras and decks offers tapeless recording with high data-transfer rates and long record times. XDCAM and XDCAM HD cameras and decks record to blue laser optical discs. XDCAM EX records to solid-state memory cards.

Optical disc recording: XDCAM and XDCAM HD

Both standard-definition XDCAM and high-definition XDCAM HD cameras record to 23GB and 50GB blue laser Professional Disc optical media. The 12-cm rewritable discs are enclosed in dust-resistant cartridges. The 50GB discs can hold over four hours of 18Mbps HD content.

Standard-definition XDCAM cameras record 4:1:1 DVCAM at 25Mbps and/or 4:2:2 MPEG IMX at 30Mbps, 40Mbps, and 50Mbps. XDCAM HD cameras record 1080-line high-definition 4:2:0 MPEG-2 video at 18Mbps, 25Mbps, and 35Mbps. The high-definition video runs at 23.98p, 25p, 29.97p, 50i, and 59.94i. In April 2008, Sony is scheduled to ship a camera and deck that encode high-definition 1080i and 720p video with MPEG HD422, a 4:2:2 50 Mbps MPEG-2 codec (MPEG-2 4:2:2P@HL).

Adobe Premiere Pro offers native support for optical disc XDCAM content recorded as standard-definition DVCAM, and for all high-definition XDCAM HD formats recorded at 18Mbps, 25Mbps, and 35Mbps. Adobe Premiere Pro does not currently provide native support for standard-definition IMX and the new high-definition MPEG HD422 50Mbps codec. However, content in those formats can be played in a XDCAM or XDCAM HD player with SDI or HD-SDI I/O and brought into Adobe Premiere Pro through a compatible third-party capture card.

Solid-state recording: XDCAM EX

Sony XDCAM EX records high-definition 4:2:0 MPEG-2 video and uncompressed PCM audio as MP4 files stored on solid-state SxS memory cards. SxS cards look like common ExpressCard/34 cards and fit in the standard ExpressCard slots found in many laptop computers made since 2006, including models from Apple, Dell, and Hewlett-Packard. But SxS cards use a PCIe interface instead of the slower USB 2.0 interface found on low-cost ExpressCard cards. The PCIe interface supports transfer rates around 800Mbps; most one gigabyte files transfer in about 10 seconds. The first available XDCAM EX product is the handheld PMW-EX1 camcorder. Adobe Premiere Pro supports every XDCAM EX format variation, except 1440x1080/23.98p SP mode with 3:2 pulldown. As an alternative, 1920x1080/23.98 HQ is natively supported.

XDCAM EX format details

| Recording mode | | HQ (high quality) | | SP (standard play) |
|--|---------------|---|----------------------------|--|
| Video codec | | MPEG-2 long GOP MPEG-2 MP@HL | | MPEG-2 long GOP MPEG-2 MP@H14 |
| Audio codec | | 16-bit 48kHz linear PCM (uncompressed) | | 16-bit 48kHz linear PCM (uncompressed) |
| Bit rate | | 35Mbps VBR (variable bit rate) | | 25Mbps CBR (constant bit rate) |
| Image resolution | | 1920x1080 | 1280x720 | 1440x1080 |
| Frame rates | NTSC setting | 59.94i 29.97p 23.98p | 59.94p 29.97p 23.98p | 59.94i 23.98p/59.94i with 3:2 pulldown |
| | PAL setting | 50i 25p | 50p 25p | 50i |
| Recording time Note: The PMW-EX1 camera holds two SxS cards. | 8GB SxS card | Approx. 25 minutes | | Approx. 35 minutes |
| | 16GB SxS card | Approx. 50 minutes | | Approx. 70 minutes |

For more information

For more details about
Adobe Premiere Pro CS3,
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