

ADOBE® PREMIERE® PRO CS3

USING ADOBE PREMIERE PRO WITH PANASONIC P2 CONTENT

Adobe® Premiere® Pro 3.1 software introduces support for Panasonic P2 cameras. This means that native ingest, editing and output of content are all possible. This document describes the workflow and advantages of using Adobe Premiere Pro with Panasonic P2 content.



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File-based workflows in content production are changing how content is created, shared, stored and distributed. A camcorder that captures to a hard disk or solid state media can eliminate the need to capture content from videotape, replacing it with a file “ingest” step, where digital files are transferred from the acquisition media to the NLE workstation’s hard drives. Additionally, the formats captured are already metadata-rich prior to ingest, with globally unique identifiers and other data that was recorded at the time of the shoot. Some of this metadata has existed in digital tape-based formats, but never has it been so thorough and so extensible.

Panasonic P2 is a range of professional video equipment based on solid-state memory cards for video storage. Video can be recorded and stored in DV, DVCPRO, DVCPRO50 and DVCPROHD formats.

Native P2 editing with Adobe Premiere Pro

Adobe Premiere Pro 3.1 has a number of advantages that make editing P2 content efficient, flexible, and fast.

Native editing

Adobe Premiere Pro imports Panasonic P2 content natively. Clips are imported directly from P2 media or from hard disk, without needing to rewrap the content to a different format like QuickTime. From there, the content is freely editable within Adobe Premiere Pro. This approach saves time by allowing editors to start work immediately.

Direct editing from P2 media

Edit directly from the P2 media without transferring the content first. For simple editing, this process is the fastest way to get from raw content to finished output.

All frame rates and resolutions supported

Adobe Premiere Pro 3.1 works with all the frame rates and resolutions provided by P2, including 720/50p and 60p, and up to 1080 resolution.

Metadata-rich workflow

Metadata is imported and preserved, making it easier to find, sort and track content during production.

Export to P2

At the end of production, content can be exported in P2 format (either to a card or to a hard drive) for further use in a P2-based workflow. There are many uses for this feature, including direct playout from P2 equipment to air, media exchange using P2 cards, and archiving.

The workflow in detail

The P2 editing workflow in Adobe® Premiere® Pro 3.1 software is streamlined and simple, yet powerful and comprehensive.

Presets and supported formats

An appropriate project setting is chosen for DV, DVCPRO, DVCPRO50 or DVCPROHD. By matching the project setting to the type of footage recorded on the P2 card, Adobe Premiere Pro will edit these compatible files in the timeline without the red render bar appearing for raw footage.

The table below shows the different project presets that are available. In general, Adobe Premiere Pro supports all the P2 variants.

Preset	Description
DVCPRO50 NTSC Standard	For editing 4:3 NTSC DVCPRO50 MXF material recorded with a Panasonic P2 camcorder. Interlaced Rendering.
DVCPRO50 NTSC Widescreen	For editing 16:9 NTSC DVCPRO50 MXF material recorded with a Panasonic P2 camcorder. Interlaced Rendering.
DVCPRO50 24p Standard	For editing 4:3 DVCPRO50 MXF material recorded in 24p or 24pA modes with a Panasonic P2 camcorder. Progressive Rendering.
DVCPRO50 24p Widescreen	For editing 16:9 DVCPRO50 MXF material recorded in 24p or 24pA modes with a Panasonic P2 camcorder. Progressive Rendering.
DVCPRO50 PAL Standard	For editing 4:3 PAL MXF material recorded with a Panasonic P2 camcorder. Interlaced Rendering.
DVCPRO50 PAL Widescreen	For editing 16:9 PAL MXF material recorded with a Panasonic P2 camcorder. Interlaced Rendering.
DVCPROHD 1080i 60i	For editing 1080i MXF material recorded with a 60Hz Panasonic P2 camcorder. Interlaced Rendering.
DVCPROHD 1080i 50i	For editing 1080i MXF material recorded with a 50Hz Panasonic P2 camcorder. Interlaced Rendering.
DVCPROHD 1080i 24p @ 60Hz	For editing MXF material recorded in 1080i/24p or 1080i/24pA mode with a 60Hz Panasonic P2 camcorder. Progressive Rendering.
DVCPROHD 720p 24p @ 60Hz	For editing MXF material recorded in 720p/24pN modes with a 60Hz Panasonic P2 camcorder. Material recorded using Variable Frame Rates will be treated as 23.976fps. Progressive Rendering.
DVCPROHD 720p 50p	For editing MXF material recorded in 720p/50p mode with a Panasonic P2 camcorder. Progressive Rendering.
DVCPROHD 720p 60p	For editing MXF material recorded in 720p/50p mode with a Panasonic P2 camcorder. Progressive Rendering.

For resolution / frame rate combinations that the default presets do not cover, it is possible to create custom presets. Although we have not tested custom combinations thoroughly, in general they appear to work reliably.

Importing clips

Because Adobe® Premiere® Pro software imports P2 files natively, with no rewrapping required, P2 files are imported using the standard File Import dialog. The user navigates to a P2 file structure (either on a mounted P2 card or copied to the system hard drive) and selects one or more MXF files from the VIDEO subfolder. Adobe Premiere Pro also finds and imports the sync sound audio files and clip metadata.

The file import process is essentially instantaneous. Adobe Premiere Pro then shows the files in the project panel, retaining key pieces of information to enhance the workflow:

- Each clip's thumbnail setting is converted to poster frame information, helping to make it easy to find clips visually in the project panel.
- The clip name is shown instead of the 6-character P2 filename, helping to make it easy to find clips by name in the project panel.
- The original recording date, stored in the P2 metadata, is converted to the Recorded Date information in the project panel, helping to make it easy to sort clips by time of acquisition.

From this point, the imported clips behave like video clips in any other format. They are edited using the comprehensive editing tools that Adobe Premiere Pro provides.

Note: Spanned clips (i.e. Those that exceed 4GB in size.) that extend over multiple cards are imported as independent clips. The Creation Date column in the Project panel helps to establish the order of spanned clips within a shot. Spanned clips that are on the same card are imported as a single clip.

Useful feature: To import audio only from an audio + video recording, simply select the MXF file from the AUDIO subfolder. The audio file will be imported as a single mono audio clip without the associated video file.

Mixing formats in the timeline

As always with Adobe Premiere Pro, content in other formats (DV, HDV, uncompressed, etc.) may also be imported and used in the timeline freely. Adobe Premiere Pro helps make it easy to adjust the size of clips to match the project resolution, either parametrically or via direct manipulation.

Since content in these formats does not match the project settings, it will be marked by the red render bar in the timeline and will require rendering for final output. It is important to note that the red render bar is related to final rendering before output; it does not indicate that the content must be rendered in order to play back in real time.

Viewing metadata

As described in part earlier, Adobe Premiere Pro reads much of the metadata that is stored in the P2 file structure, and some of it is displayed in the Project panel. This information is preserved in the editing process for more efficient content management.

```
MXF File details:
UserClipName: 720p59.94 23.98p
DataSource: SHOOTING

Access:
  CreationDate: 2006-07-30T13:20:46-08:00
  LastUpdatePerson: Mike Jennings <mjennin>
  LastUpdateDate: 2006-07-31T16:18:21-08:00

Device:
  Manufacturer: Panasonic
  SerialNo.: F6TC00832
  ModelName: AG-HVX200P

Shoot:
  Shooter: Mike Jennings
  StartDate: 2006-07-30T13:20:47-08:00
  EndDate: 2006-07-30T13:21:46-08:00

Scenario:
  ProgramName: San Jose Grand Prix 2006

News:
  Reporter: Greyson Jennings
  Purpose: Testing
  Object: Race Cars

Thumbnail:
  FrameOffset: 0
  ThumbnailFormat: BMP
  Width: 80
  Height: 60
```

The properties panel shows additional metadata for P2 clips, some of which may not be visible in the project panel, and dynamically adjusts to display all the metadata that is available in the XML's Clip Metadata Tag.

Export

Adobe® Premiere® Pro software includes a wide variety of output options that allow users to export to DVD, Blu-ray Disc, FLV (video for Adobe Flash® Player software), QuickTime, Windows Media, mobile devices, and more.

In addition, some users wish to export content to a P2-compliant MXF file structure. This allows content to be exchanged with any other application or system that understands the P2 format, effectively using it as an interchange format. Export to P2 makes a large number of workflows possible, and Adobe Premiere Pro supports this process.

From a technical standpoint, choosing to export to Panasonic P2 format outputs a valid P2 MXF file structure to the folder of the user's choice, and creates a six-letter filename root based on the randomly-generated UMID and a random number (per P2 specification). The result is compatible with P2 devices and can be used for the applications described above.

Example workflows

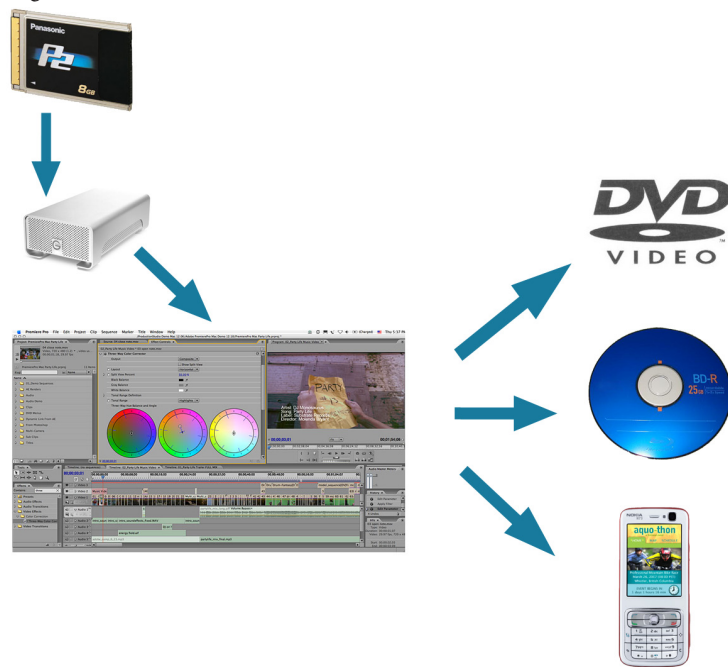
Moving to a tapeless workflow opens up a number of new possibilities for production, in general speeding up the process and offering greater flexibility. This section describes two workflows that are made possible by the new features in Adobe Premiere Pro. It should be noted that these are examples and there are many more possibilities.

Post production workflow

In post production, using P2 eliminates the tape logging and capture process.

Because Adobe Premiere Pro can import P2 content natively, there is no need to log content before bringing it into the application. Simply copy the contents of the P2 card to the editing system's attached storage, and import the clips directly into the project panel in Adobe Premiere Pro.

Adobe Premiere Pro reads a subset of the clips' metadata and converts it to information that is displayed in the project panel, allowing fast identification and organization of content. From there, editing follows the standard process of marking clips in the source monitor and adding them to the timeline.



When editing is complete, content can be exported to a wide variety of delivery formats using the tools included with Adobe Premiere Pro. Use Encore® software to output to DVD and to Blu-ray and Adobe Media Encoder to output content for mobile devices and the web.

ENG workflow

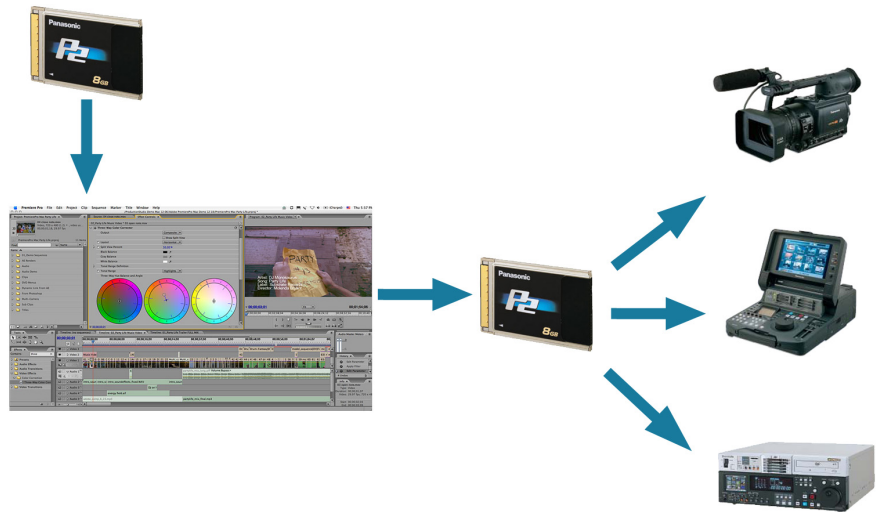
In-field video production for news gathering is extremely deadline-driven. In the tape-based world, log/capture from tape is often the most time-consuming process because the editing complexity is relatively low. Tapeless workflows offer the promise of a faster workflow because the tape operations are not required. In addition, the solid state media used in P2 is very reliable and has a high tolerance for environmental factors such as humidity and heat.

Working in the field with Panasonic P2 and Adobe® Premiere® Pro is very efficient because the native P2 editing capabilities in Adobe Premiere Pro allow it to import and edit content directly from a P2 card—without copying the data to the system hard drive first.

Although the P2 storage cards are not designed for multi-stream editing tasks, their bandwidth capabilities are satisfactory for simple editing. Reading data directly from a card via a card reader is significantly faster than reading the data directly from the camera.

After importing the content directly from the P2 card, all the standard organization and editing features are immediately available when you launch Adobe Premiere Pro. When finished, the content is exported directly to a P2 file structure.

The exported P2 files can be read by other P2-compatible equipment, including DAM (Digital Asset Management) systems, transcoders, and other editing workstations. If the files are written directly to a P2 card, that card can then be read by other Panasonic P2 equipment for playout to air and other operations.



This workflow helps save an enormous amount of time because it eliminates the requirement to log and copy content onto the system before editing. At the export stage, the ability to write to P2 means that the finished content can be further used in P2 environments for a number of operations, including playout to air.

Summary

Adobe Premiere Pro 3.1 provides a comprehensive P2 production workflow with some unique benefits that allow fast turnaround of P2 content in the field, on set and in post production. True native import eliminates any rewrapping or transcoding steps, metadata is preserved through production, and the ability to export to P2 opens up a number of interesting workflow possibilities.

Welcome to tapeless workflows in Adobe Premiere Pro!

Appendix 1: P2 technology overview

The P2 card is a PCMCIA card that appears just like a flash memory card on the desktop.

The file system uses FAT32, which has a maximum file size limitation of 4GB. Cards are available in capacities from 4GB to 32GB, with 8 and 16 being the most typical. Panasonic P2 devices support the use of up to five cards, depending on the number of slots available. The devices deposit the MXF data onto the cards in a specific folder structure.

A typical Panasonic P2 file structure contains a folder called “CONTENTS”. Within this folder are subfolders containing the essence (the actual audio and video media) and the metadata. The essence is split into components, each sorted into corresponding subfolders:

- **VIDEO folder:** contains video MXF files.
- **AUDIO folder:** contains up to 16 independent mono audio MXF files for each clip, using the video clip’s filename with the channel number appended.
- **CLIP folder:** contains clip metadata, stored as “[filename].xml.”
- **ICON folder:** contains a thumbnail icon or poster frame, stored as a BMP.
- **PROXY folder:** contains proxy files, stored as .mp4 files and containing quarter-resolution MPEG-4 video at around 200kbits/sec and one mono AAC audio track, along with a BIN file. Adobe Premiere Pro does not support these proxies.
- **VOICE folder:** contains voice annotations added after capture in .wav format.

Appendix 2: Glossary of terms

Term	Definition
Asset	Content and the rights to use it.
Content	Essence and metadata
Essence	The actual video, audio or even time-based arbitrary data in a piece of content.
Ingest	Importing content. Typically implies moving it from the import medium (e.g. P2 card) to a content management system or file server, sometimes in a different format. Also implies a discrete comprehension of the format and its metadata.
Metadata	Data describing the essence in a piece of content, such as timecode, date shot, camera settings, GPS coordinates, name of the project, UMID of the clip, user clip name (separate from file name), name of the camera operator, project, purpose and so on.
MXF	Media eXchange Format, a wrapper around content that is metadata-rich, arbitrarily extensible, and codec-independent.
Spanned clip	When video is recorded beyond the 4GB file size limit, another file is created so recording can continue uninterrupted. Spanning may also occur when multiple P2 cards are available and one card runs out of available memory space. A new file is created and begins recording on the next card with available space. Although spanned clips are actually multiple files, they are designed to be treated as a single clip.
UMID	Universal Media Identifier, a globally unique clip identifier (a very long string of alphanumeric) that associate clip essence elements with one another and the metadata.

For more information

For more details about Adobe Premiere Pro CS3, visit www.adobe.com/premiere.



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