



# Apple ProRes Workflows

## Quickly and Securely Process High-Resolution ProRes Files in the Cloud

Apple ProRes is a codec technology developed for high-quality, high-performance editing in Final Cut Pro X. The codec makes it possible and affordable to edit and playout full-frame, 10-bit, 4:2:2 and 4:4:4:4 video content at resolutions up to 8K, including features, commercials, Blu-ray and streaming video programs.

Encoding.com is the only cloud vendor licensed by Apple to encode and decode these files using the 64-bit Linux Apple ProRes library, allowing ProRes users to take full advantage of powerful cloud media processing for the first time. We support all versions of the codec, from 422 up to 4444, including 4444 XQ with PQ and HLG HDR metadata. By integrating ProRes codec encoding into the Encoding.com 64-bit Linux-based platform, we provide unmatched flexibility for our cloud-encoding customers.

Apple ProRes codecs combine multistream, real-time editing performance and impressive image quality with reduced storage rates. The codecs employ multicore processing and feature fast, reduced resolution decoding modes. All frame sizes (including SD, HD, 2K, 4K, 5K and larger) are supported at full resolution. The data rates vary based on codec type, image content, frame size and frame rate.

As a variable bit rate (VBR) codec technology, ProRes uses fewer bits on simple frames that would not benefit from encoding at a higher data rate.

All ProRes codecs are frame-independent (or “intra-frame”), meaning that each frame is encoded and decoded independently of any other frame, a technique that provides the greatest editing performance and flexibility.

Final Cut Pro 10.3 or later can process color in wide color gamut and output ProRes files in the Rec. 2020, DCI-P3 or D65-P3 color spaces. This results in deeper colors and more detail, with richer red and green areas of the image. You can export ProRes files inside an MXF metadata wrapper instead of exporting .mov to ensure that the exported video files are compatible with the wide range of playback systems that rely on the MXF standard for broadcast and archiving.

### Simple Integration

Encoding.com offers the most mature, well-documented and feature-rich cloud encoding API on the market, simplifying the ability to move your ABR processing to the cloud. We can integrate with your CMS, MAM or post-production application, and offer XML templates for all popular devices. To further simplify the integration process, our API Builder helps generate properly formatted XML files to test your JSON or XML requests before writing a single line of code.



Easily move your ProRes workflows with the Encoding.com API



Automate the customizing of ProRes files at scale for faster, more efficient workflows



Package two or 2,000 ProRes files simultaneously in a fraction of realtime



Access Encoding.com’s complete suite of VOD-focused microservices

## Content Security

One of the highest priorities for enterprise M&E organizations is data security. To address this concern, Encoding.com takes multiple steps to ensure the safe-keeping of your content throughout the processing workflow. This emphasis on security is why industry leaders rely on us for processing their most precious assets.

Among the measures we employ are:

- Providing SSL-encrypted API calls and platform notifications
- Enabling AWS Secret Key or S3 Canonical ID account access control, with support for AWS S3 ACL permissions
- Containing both EC2 processing and S3 storage within AWS datacenters aligned with MPAA security guidelines
- Supporting accelerated and encrypted ingest and delivery with Aspera FASP technology

```

XML  JSON
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  <userid><id></userid>
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    <output>apple_prores</output>
    <!-- Common output parameters -->
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    <size>[Size]</size>
    <frameRate>[FrameRate]</frameRate>
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    <matrix_coefficients>[MatrixCoefficientsIndex]</matrix_coefficients>
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    <audio_stream>
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    </audio_stream>
    <!-- Multiple audio streams -->
  </format>
</query>

```

The Encoding.com API makes it easy to process ProRes files in the cloud.

## Supported ProRes Codecs

Codec	Visible Difference (First Generation)	Description
4444 XQ	Virtually never	Highest-quality, preserving detail in PQ and HLG HDR video for multi-generation finishing and camera originals
4444	Virtually never	Mastering-quality, with full-resolution, RGBA color and visual fidelity for storing and exchanging motion graphics and composites
422 HQ	Virtually never	Visually lossless, for the highest-quality HD-SDI post-production workflows
422	Virtually rare	High-quality compressed, for multi-stream, real-time editing
422 LT	Rare	Highly compressed, for environments where storage capacity and data rate are at a premium
422 Proxy	Subtle for high-detail images	Even more highly compressed, for use in offline workflows that require low data rates but full-resolution

