

Duplicate Frames

Video Basics

Frame rate is the number of images displayed in one second of film or video. For example, a video with a video frame rate of 24 frames per second (fps) has 24 images for every second of video.

The most common video frame rates for North America are 23.976 (24) fps, 29.97 (30) fps, and 59.94 (60) fps. Different frame rates yield different viewing experiences.

Native frame rate is the rate at which a video was originally produced before any conversions were applied.

Duplicate Frames Explained

What are duplicate frames?

Duplicate frames are identical copies of a nearby frame.

23.976 (24) fps

Physical film footage is traditionally shot in 24 fps (23.976 for “digital” film), as it was determined to be the minimum speed needed to capture video while still maintaining realistic motion.

29.97 (30) fps

Television broadcasts in North America typically run at 29.97 fps. The reason has to do with television and electricity standards from a long time ago.

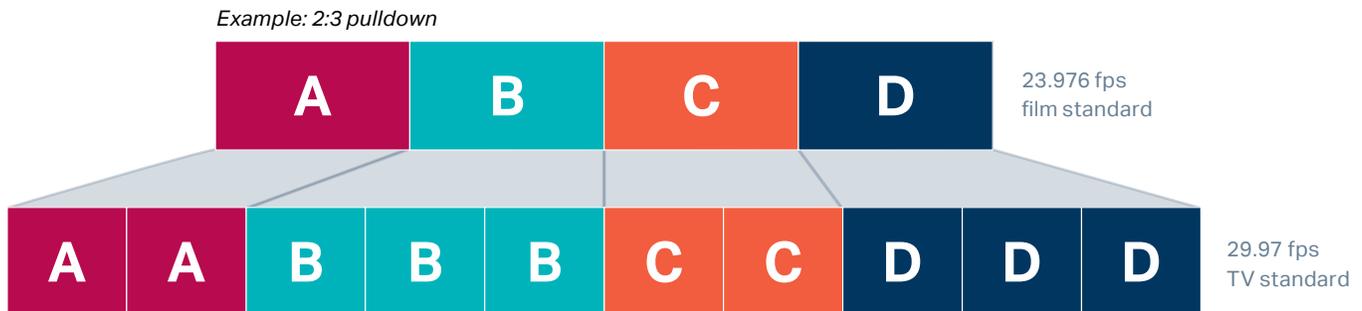
59.94 (60) fps

Anything higher than 30 fps is mainly used to create slow-motion effects, or when content contains lots of motion, such as sporting events.

Why is a 29.97 fps video flagged for duplicate frames?

The most common reason for duplicated frames on a 29.97 fps video is the result of a frame rate conversion.

When an editor converts a video at 23.976 fps (film standard) to 29.97 fps (TV standard) one common method is to duplicate every fourth frame, e.g. 1,2,3,4,4,5,6,7,8,8. Another method is called a 2:3 pulldown, which splits the video into interlaced fields, which are also duplicated in a specific pattern.



Why is a 23.976 fps video being flagged for duplicate frames?

- 1. Creative intent:** Video creatives flagged for irregular cadence patterns may indicate a post effect used on the video such as slow motion, speed changes or similar
- 2. Different frame rates:** Spliced videos with different frame rates mixed in the editing timeline and not interpolated correctly
- 3. Still images:** A logo / URL / or banner remaining on screen for a period of time may be flagged for duplicate frames by QA tools

What's the issue with having duplicate frames?

Some publishers will only accept video files in their native frame rate, as they believe it affects downstream quality, and will reject videos with duplicate frames during their QA process.

Duplicate Frames and ER

If the creative has duplicate frames in the source video file, why wasn't it flagged by Extreme Reach initially?

Not all publishers commit to the same thresholds and tolerances for duplicate frames. ER, does not reject duplicate frames when they are provided on masters unless they pose a technical issue and disrupt the video.

Can ER remove duplicate frames for me?

If a publisher requires a video file in native frame rate, ER uses a reverse telecine filter to remove the repeated frames caused by common frame rate conversion methods, so a 29.97 fps video again has a 23.976 fps video frame rate.

If a video is already in native frame rate (typically 23.976) and contains duplicates due to slow motion effects or mixed cadences, it is not possible for ER to remove the frames.

Best way to prevent duplicate frames?

Have your creative team produce in 23.976 fps, anything shot on camera or computer animated should start at this frame rate. Shoot for slow-motion at higher frame rates. Use advanced motion-compensated standard converters (Teranex, Alchemist, not nearest-frame method) for anything you have to import from another production that isn't already 23.976 fps. Export and upload to ER in 23.976 fps, and it will be delivered at the same frame rate.

What options are available when a creative with a 23.976 fps frame rate is flagged for duplicate frames?

- If duplicate frames are a result of creative intent, sometimes a publisher may make an exception and pass the creative as is, possibly excluding from certain endpoints with stricter duplicate frame requirements.
- If multiple creatives are in rotation for a tag, removing a flagged creatives and leaving the others may allow the tag to pass a publisher's QA process.
- Contact the post house to see if they have another version of the creative without duplicate frames baked into the master video file.
- Contact the post house to see if editing is possible to remove the video effect (like slow motion) or a flagged still image - however this may impact timing / audio for the ad and may incur additional production fees.

Questions? Contact us at support@extimereach.com

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