Ad Format Guidelines for Digital Video and CTV

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Please email support@iabtechlab.com for public comments and questions.

Introduction

With the surge of growth in Connected Television (CTV) new formats have surfaced specific to the channel. In 2024, Tech Lab launched Ad Format Hero, to gain market insights on the most widely adopted formats, ripe for standardization. In 2025, the taskforce assembled to define the user experience for these formats, and will continue work in determining how they are bought and sold in the programmatic ecosystem.

Key updates include:

- New CTV Ad Formats Included
- Best Practices for Interoperable Interactivity
- Removed non-linear submission guidelines
- Removed legacy references to Instream, and redirected to established standards in OpenRTB
- Updated Ready to Serve formats to four instead of three option, with a focus on CTV/HD as it's own column

About This Document

The IAB Tech Lab Digital Video & CTV Ad Format Guidelines was developed by the Ad Format Hero Taskforce, with inputs from Advanced TV Working Group and Advanced TV Commit Group.

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About IAB Tech Lab

The IAB Technology Laboratory is a nonprofit research and development consortium charged with producing and helping companies implement global industry technical standards and solutions. The goal of the Tech Lab is to reduce friction associated with the digital advertising and marketing supply chain while contributing to the safe growth of an industry. The IAB Tech Lab spearheads the development of technical standards, creates and maintains a code library to assist in rapid, cost-effective implementation of IAB standards, and establishes a test platform for companies to evaluate the compatibility of their technology solutions with IAB standards, which for 18 years have been the foundation for interoperability and profitable growth in the digital advertising supply chain. Further details about the IAB Technology Lab can be found at https://iabtechlab.com.

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Executive Summary

Originally intended to establish a baseline for in-stream video ad formats and creative submission requirements, the 2008 Guidelines helped digital video establish a foothold in the marketplace. In an update in 2015, consideration was given to the increasing need for high-quality video, especially as high definition screens of all sizes and capabilities enter the marketplace. The 2022 update accommodated high-quality video needs for cross-screen video advertising in mobile, desktop, and connected TV (CTV). File submission recommendations detail “ready-to-serve” files for streaming, progressive download, and adaptive bitrate streaming formats. Providing the high quality source, or mezzanine file is also vital in CTV so that the publisher may transcode the file best suited to the environment into which it will serve.

This 2025 update establishes six new CTV creative formats. It describes the consumer experience, file types, sizes, and interactivity best practices. These guidelines are intended to help the market scale these new ad formats through standardization.

Audience

Publishers should use these guidelines as a resource for providing creative submission requirements for video ads.

Video Ad developers should use this document as a reference for baseline ad development specifications.

Creative agencies, studios and video ad technologists, as well as video ad-serving partners should use this document as a reference for digital video ad specifications.

Linear, Nonlinear & Companion Ads

We break digital video ads down into two different formats: linear and nonlinear. Either format may include a “companion” ad that displays outside the player, less common in mobile and CTV while fairly typical in web.

Linear video ads are video formatted ads that interrupt streaming video content much like a TV commercial. They can play before (pre-roll), during (mid-roll), or after (post-roll) the streaming content. Linear ad formats can be accompanied by a companion ad, or they can include an interactive component.

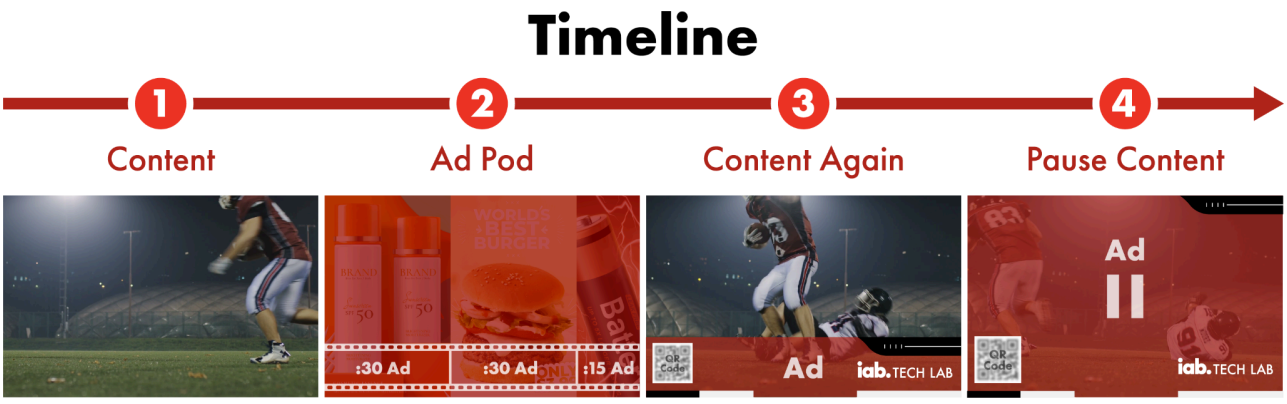
Nonlinear video ads are typically served on top of (overlay) the video content. Traditionally, these ads are simple images but increasingly, especially in CTV, they can be a video or animated media. The ad runs concurrently with the streaming content so the user sees the ad while also viewing the content without interruption. Ideally, the nonlinear video ad is small enough to allow a relatively unobstructed view of the content.

Nonlinear video ads can be delivered as text, static images, interactive rich media, or as video overlays. Typically, a nonlinear video ad developer can take advantage of the medium and use the small overlay as an invitation for consumers to further engage with a more robust set of interactions. As with Linear ads, nonlinear ads can be served with companion ads where applicable.

Companion ads are ads that are served along with linear or nonlinear ads in the form of text, static image display ads, rich media, or skins that wrap around the video experience. These ads come in a number of sizes and shapes and typically run alongside, or surrounding, the video player. The primary purpose of the companion ad is to offer sustained visibility of the sponsor throughout the streaming video experience. Digital video companion ads are always served with a master ad, which is either the linear or nonlinear ad. Companion ads, that are not served as end cards, are not available on CTV.

Recently, there has been an increase in newer formats that allow minimal disruption to content. Unlike linear ads, these formats do not interrupt content, allowing for a more seamless user experience.

The following image illustrates where these ads might fit along the timeline of the streaming video content.



Digital Video Placement Types

When considering the consumer experiences for digital video, the inventory is categorized into placement types that are enumerated in the OpenRTB specification. The ‘plcmt’ attribute is sent as a part of the video object in OpenRTB. The details of the ‘plcmt’ types are enumerated in AdCOM . Detailed examples of the implementations can be found in the Implementation Guide.

CTV Ad Portfolio

The ad formats that follow are part of the CTV Ad Portfolio. While these ads can be served to web video and mobile, the descriptions focus on ad service to a connected TV.

- Linear Ad
- Pause Ad
- Menu Ad
- Squeezeback
- Overlay
- In Scene Ads
- Screensaver Ad

It is understood that this list is not comprehensive of all CTV experiences. Specifically, it does not further define the linear ad format guidelines, meaning, executions that involve a slot in a pod in-stream. Many unique experiences can be done within a slot in an adbreak, and the details of submission guidelines are well-known for these video assets.

The new additions, Pause, Menu, Squeezeback, Overlay, In Scene, and Screensaver are those which happen outside of the traditional commercial break, where more detailed standardization is needed for growth.

Linear Ad Format Guidelines

The following linear ad format guidelines outline the minimum considerations for linear ad development. Publishers may offer other ad formats and specifications that extend these recommendations. Please check with the publisher for specific requirements.

Linear Ad Property	Guidelines
Insertion Point	Pre-roll, mid-roll, post-roll
Maximum ad display duration *Duration should be exact, but the transcoding process may produce slight variations within no more than 1 second.*	Ad duration should be one of the following: ● 6 seconds ● 15 seconds ● 20 seconds ● 30 seconds Interactive ads should be 15-30 seconds for the compulsory portion of the ad, but may continue indefinitely upon viewer interaction. Other durations commonly accepted: ● Short-form creative (aka “bumper”, 3-10 seconds in length) ● 60 second spots (ran sparingly and usually as post-roll or during extended mid-roll ad slots)
Long “info-mercial” ad	Duration can range from 1-5 minutes, or longer depending on placement, skip options, and objective. Considerations for info-mercial ads: ● Skip option recommended (check with publisher) ● Controls for ffw, rw, pause, etc. recommended, especially if skip option omitted (check with publisher on technical feasibility)
Engagement Event	Both the video window and companion ad may offer interaction controls with links to the advertiser site. For interactive ads, engagement controls may extend ad duration, initiate interactive ad, or take the user to the advertiser’s site. Technology: check with publisher, ad serving platform on tech used to manage interactions. ● Mobile: click might be a gesture such as a swipe ● CTV: click happens with remote or game system controller. Check with the publisher on limited “clickability.”

Linear Ad Property	Guidelines
Controls	Options for player controls to be available during ad play should be negotiated prior to campaign start (for example: no fast forward during ad play). If the ad is skippable, skip controls and time delay should be negotiated prior to campaign start. For interactive ads, call to action should be clearly labeled. Viewer-initiated portion must provide a close control to allow the viewer to exit at any time. If the extended portion of the ad includes any expandable media, a collapse button must also be provided. Check with the publisher on the technological handling of these controls.
Dimensions	Preferred aspect ratio is 16:9 (formatted for HD screens) Ultra-wide aspect ratio 21:9 is less common but may increase as more TVs and monitors of this size enter the market. Viewer-initiated portion may fill the video viewing pane or may extend beyond viewing pane if publisher allows.

Pause Ad

A pause ad is a TV ad experience initiated when the viewer uses a remote to pause the content being watched.

Initiation	Viewer Initiated: program is paused by viewer
Creative type	• Display / Static • Video / Animated
Creative Size	Fullscreen: 1920 x 1080 Partial Screen: 600 x 600
Aspect Ratio	Fullscreen: 16:9 Partial Screen: 1:1

Ad Submission Requirements	See Video Format Submission Guidelines for options based on ready to serve standards vs mezzanine file. If Display/Static, the file weight should be under 350kB.
Sound	The default execution does not require audio.
Placement	This execution could be full Screen or partial screen in the pause experience.
Interactive Components	Optional interactive support may include QR codes and or interactivity via the controls on the tv remote. See more details on standards for interactivity in the Interactivity section below.
Duration & Exit	The ad experience may end under any of the following: ● Viewer Initiated: ○ Dismiss message ○ Resume content ○ Power off TV ○ App exited ● Device Initiated: ○ Screen Saver kicks in ○ Device timing out/shutting off Some pause ads may refresh, or the same ad may remain on screen for the duration of the experience. Videos may autoplay. The seller would signal any refresh rates or autoplay behavior in the bid request.

Menu Ad

A menu ad is an ad unit that appears within the user interface (UI) of the TV or streaming platform. These are typically ads integrated into the home screen or in the content navigation menu, rather than during video playback.

Initiation	The ad may load when the smart TV is turned on, or when the user navigates to the specific menu where the ad is hosted.

Creative type	• Display / Static • Video / Animated
Creative Size	The size is variable, we've provided aspect ratios for scalability.
Aspect Ratio	• Headline Banner 2:3, 6:5, 16:9 • In Menu Tile 16:9 or 3:9
Ad Submission Requirements	See Video Format Submission Guidelines for options based on ready to serve standards vs mezzanine file. If Display/Static, the file weight should be under 350kB.
Sound	The default execution does not require audio.
Placement	**Headline Banner -** These are featured across an entire horizontal row, often the top of the navigation, but in some cases in between rows of tiles. **In Menu Tiles** - These can appear anywhere within the navigational UI.
Interactive Components	Optional interactive support may include QR codes and or interactivity via the controls on the tv remote. See more details on standards for interactivity in the Interactivity section below.

Duration & Exit	The duration of time the creative is on screen can depend on viewer or device behaviors.
	
	The ad experience may end under any of the following:
	
	• Viewer Initiated:
	  ○ Navigate away from menu
	  ○ Power off TV
	  ○ App exited
	• Device Initiated:
	  ○ Screen Saver kicks in
	  ○ Device timing out/shutting off
	Some menu ads are part of navigable slides that a user scrolls through. Some may have fixed duration and/or refresh rates. Additionally, videos may autoplay, or may require additional engagement. These features would be described by the seller in the bid request.

Squeezeback

Ads Alongside or Adjacent to Content, also known as L-Shape Ads & Double Box, are ads that occur during program content and outside of the traditional ad break. The program content is resized to allow for placement of an ad on the screen. In a squeezeback, none of the content is covered by the ad, instead it shares screen space with the ad. This is the major distinction between squeezeback and overlay.

Initiation	These ads are not user initiated, they appear around the content while it continues to play. The size of the content is reduced from full screen to accommodate space for the ad. The content reduction should take between 1 and 2 seconds.
Creative type	• Display / Static • Video / Animated For scale, it's assumed that the squeezeback assets are provided in an underlay format. This means that the full screen 1920 x 1080 branded advertisement is provided with a cutout for the content placement.
Creative Size	**L-Shape** - The content will take up 60% of the 1920 x 1080 screen. The content squeezes to the upper left or upper right, and the ad experience is across the bottom of the screen and vertical right bar. **Frame** - The content will take up 60% of the 1920 x 1080 screen. The content squeezes into the center the ad experience surrounds the content. **Double Box Video** - Each box (the content and the ad) will take up 25% of the 1920 x 1080 screen. The content squeezes back to the center left, and the ad squeezes to the center right. **Double Box Video + Background** : Each box (content and the ad) will take up 25% of the 1920 x 1080 screen. The content squeezes back to the center left, and the ad squeezes to the center right. The advertiser also brands/takes over the background between the double boxes of video.
Aspect Ratio	16:9
Ad Submission Requirements	See Video Format Submission Guidelines for options based on ready to serve standards vs mezzanine file. If Display/Static, the file weight should be under 350kB.
Sound	The default execution does not require audio. The publisher will signal in the bid request if audio is required for example audio is usually requested when there is a lull in sports content and the squeeze back becomes the user's

	focus.
Placement	**L Shape -** This format generally takes an “L” shape around the outside of the content. The content squeezes to the upper left or upper right and the ad experience is across the bottom of the screen and the vertical right bar. **Frame -** This format squeezes the content to the center of the frame and the ad experience surrounds it. **Double Box Video -** The content squeezes back to the left, a second matching size box is presented on the right. **Double Box Video + Background -** The content squeezes back to the left, a second matching size box is presented on the right. The advertiser also brands/takes over the background between the double boxes of video.
Interactive Components	Optional interactive support may include QR codes and or interactivity via the controls on the tv remote. See more details on standards for interactivity in the Interactivity section below.
Duration & Exit	When the ad ends, the content returns to full screen. These ads can be variable in length. The minimum duration is 10 seconds. Duration will be signaled in the bid request.

Overlay

Overlay Ads over content are non-linear ads occurring during program content and outside of the traditional ad break. The ad format places ad creatives over top of the program content, often as a banner or picture in picture execution. Overlay Ads may have user interaction with the remote control or scanning a QR code that is part of the ad creative.

Initiation	These ads are not user initiated and they appear over the content while it continues to play. The size of the content is not reduced, the ad covers some portion of the programming.
Creative type	• Display / Static • Video / Animated

Creative Size	**Corner Overlay -** The creative takes up 25% of a 1920 x 1080 screen. It is generally presented in one of the four corners of the screen, over content as it continues to play. It is possible for the creative to appear to cover less than 25% of the screen, and not adhere to a square shape if formatted for transparency. **Lower Third Overlay** - The creative takes up 30% of the bottom of a 1920 x 1080 screen. It appears over content as it continues to play. It is possible for the creative to appear to cover less than 30% of the screen, and not adhere to a square shape if formatted for transparency.
Aspect Ratio	16:9
Ad Submission Requirements	See Video Format Submission Guidelines for options based on ready to serve standards vs mezzanine file. If Display/Static, the file weight should be under 350kB.
Sound	The default execution does not require audio.
Placement	Over content while the content continues to play on the majority of the screen.
Interactive Components	Optional interactive support may include QR codes and or interactivity via the controls on the tv remote. See more details on standards for interactivity in the Interactivity section below.
Duration & Exit	When the ad ends, the ad creative is no longer visible over the content. These ads can be variable in length, minimum duration is 10 seconds. Duration will be signaled in the bid request.

In Scene Ads

In Scene Ads are a form of advertising that integrates branded elements directly within the content itself, rather than appearing as separate pre-roll, mid-roll, overlay, or display formats. In Scene Advertising is composited into the video content and blends the brand naturally into the scene, environment, or storyline, ensuring contextual relevance and viewer immersion without interrupting the user experience. In-scene ads typically consist of product placements or virtual out of home insertions. At this time, the standardization focuses on the out of home insertions.

Initiation	These ads are not user initiated and they appear within the content while it continues to play. The size of the content is not reduced, the ad is composited within the programming, but it appears to the user as if it were naturally within the scene. The brand asset is composited into the environment so that the viewing experience remains uninterrupted.
Creative type	• Static Image (jpg, png, gif) *3D / CGI Asset is supported by some partners, but requires direct communication for assets.*
Creative Size	9:16 – 1080 x 1920 4:3 – 1280 x 960 16:9 – 1920 x 1080 Poster – 840 x 400 Bulletin – 1400 x 400
Aspect Ratio	9:16 – 1080 x 1920 4:3 – 1280 x 960 16:9 – 1920 x 1080 Poster – 840 x 400 Bulletin – 1400 x 400
Ad Submission Requirements	See Video Format Submission Guidelines for options based on ready to serve standards vs mezzanine file. If Display/Static, the file weight should be under 350kB.
Sound	None
Placement	These ads are usually billboards in the scene content (e.g. a car is driving down the road and sees a billboard in the city). The billboard is filled with the branded content.
Interactive Components	No interactivity, as this type of ad is closer to a brand placement. It's meant to not appear to the viewer as an ad.
Duration & Exit	When the ad ends, the ad creative is no longer visible within the content. These ads can be variable in length, minimum duration is 3 seconds for Brand Exposure Duration.

Screen Saver Ad

Screen Saver Ads are similar to Pause Ads but where Pause Ads are viewer-initiated ad experiences, Screen Saver Ads are OS/App initiated ad experiences.

Initiation	This ad format begins after a defined period of inactivity on the smart TV.
Creative type	● Display / Static ● Video / Animated
Creative Size	1920 x 1080
Aspect Ratio	16:9
Ad Submission Requirements	See Video Format Submission Guidelines for options based on ready to serve standards vs mezzanine file. If Display/Static, the file weight should be under 350kB.
Sound	The default execution does not require audio.
Placement	Full screen ad
Interactive Components	Optional interactive support may include QR codes and or interactivity via the controls on the tv remote. See more details on standards for interactivity in the Interactivity section below.
Duration & Exit	The ad experience may end under any of the following: ● Viewer Initiated: ○ Dismiss message ○ Resume content ○ Power off TV ○ App exited ● Device Initiated: ○ Device timing out/shutting off Some screen saver ads may refresh. Videos may autoplay. The seller would signal any refresh rates or autoplay behavior in the bid request.

Interactivity

Most CTV formats above have optional capabilities for interactivity. Some examples of interactivity include: shoppable ads, “choose your advertisement” experiences, interactive polling within the ad, full screen expansions, autoplay videos/gifs, and more.

Secure Interactive Media Interface Definition (SIMID) is a standard for providing rich interactivity in the context of streaming audio and video (media) ads - yet in a secure manner, unlike the old VPAID standard which SIMID replaces. While the Video Ad Serving Template (VAST) standard addresses how publishers discover various metadata assets related to an ad campaign, SIMID addresses how the publisher’s media player should communicate and interface with a rich interactive layer and vice versa.

Additionally, IAB’s VMAP standard enables video content owners to overlay advertising onto content when they don’t control the video player or the content distribution outlet. This can include interactive ads if the inserted ad is SIMID-based (VAST 4.2 or above).

To take advantage of robust interactivity features without the need for installing and supporting proprietary software from each individual ad vendor, we recommend the use of SIMID.

In July 2024, the IAB published its VAST Addendum which makes it easy for publishers to upgrade their VAST2 or VAST3 environments to support the current version of VAST, including SIMID for interactivity, ACIF for ad IDs, and other benefits. See https://iabtechlab.com/vast-ctv-addendum-2024-ready-for-implementation/

QR Codes

QR codes are a common form of interactivity in CTV ads. There are generally two ways that the QR code ends up on the screen:

1. The advertiser burns the QR code into their existing creative. This means that the QR code is pre-embedded within the full video creative prior to being trafficked. The sellers receiving said file would play the .mp4 as received.
2. The sell-side manages the QR code generation dynamically. In this case, the advertiser has already selected where the QR code will go on their creative, but they haven’t done the generation and inserted it into the creative. When this is handled by the sell-side, it allows for sell-side application of tracking parameters over various dimensions. When assembly is done this way, the advertiser must send a scan url with the video file.

QR codes can also be made dynamic in a SIMID-based interactive environment. For example a different QR code can appear in the ad depending on the location of the consumer (e.g. to direct them specifically to a local car dealer website). In addition, the URL embedded in the QR code

can be changed dynamically in real time, for example to append info to the URL identifying where the scan came from (e.g. the device ID, session ID, geolocation, etc.) - and therefore enable the advertiser to associate the scan with the specific ad.

Video Ad Submission Guidelines

The following guidelines facilitate ad portability and development for ad creative files. Beginning with VAST 4.0, support was added for multiple "ready-to-serve" files along with a "mezzanine" source file. Ready-to-serve files can be, for example, four independent files with separate quality specifications for progressive download, or as a single adaptive streaming file using four specified quality levels.

Details on the file submission guidelines in the following sections are designed as a starting point to improve cross-industry workflows. However, quality specifications may differ from publisher to publisher. Be sure to check with publishers on specific submission requirements for ad creative.

Encoding Ready-to-Serve Files

Offering three ready-to-serve video files at varying bitrates for linear ads gives the player some flexibility for serving the best ad for the viewer's environment. Appropriate bitrates depend on the resolution of the environment where the video ad plays. In general, the higher the resolution for the ad play environment, the higher the bitrate should be for quality playback.

Using a video bits per pixel (VBPP) calculation, you can calculate the target bit rate (bits per second) for the given screen width and height where the video ad will play. For the H.264 codec, a good rule of thumb is to use a VBPP within the range of .05 to 0.1; however, a video file with more movement (such as a sports ad) may require a higher VBPP and therefore a higher target bitrate.

Target Bitrates

Using lighter assets especially video or audio — is essential to make digital advertising more sustainable. Smaller file sizes reduce data transfer during ad delivery and lowers the energy required for servers, networks, and user devices. This approach can also improve user experience by enabling faster loading times and smoother playback.

Bitrate is a key factor in optimizing the weight of video assets because it determines how much data is processed each second of playback. A higher bitrate means better image quality but also a heavier file, while a lower bitrate reduces quality but lightens the video's overall size. Since bitrate applies per second, a long video with a high bitrate will consume far more data than a short one — even if both share the same resolution. For example, a 30-second ad encoded at 5 Mbps (megabits per second) will weigh around 19 MB, whereas lowering the bitrate to 1.2 Mbps reduces

it to about 4.5 MB, with little noticeable loss in quality on most devices and platforms. Adjusting bitrate according to video duration and usage context (e.g., mobile vs. desktop) is therefore one of the effective ways to balance visual impact and environmental efficiency.

The following formula can be used to calculate the appropriate bitrate for a particular resolution:

Target bitrate (bits per second) = width x height x frame rate x VBPP

Creative bitrate may exceed the specified ranges depending on the content of the ad and publisher requirements. A file will end up being approximately 1.5 MB per 15 seconds at 1000 kbps bitrate, but this may vary depending on ad content.

Note: Check with the publisher on tolerance levels. Tolerance should be allowed for Audio (AAC) bitrate to allow for variances in encoder rate control and measurement. For example, measured bitrates of 95.5KHz should be within tolerable levels when the target rate is 96kbps, though the publisher will have to make that call.

When you submit a video ad for linear placement, you should provide three ready-to-serve versions at quality levels for high, medium, and low as indicated in the following table (along with a mezzanine file described in the next section). These files can be compiled into an adaptive streaming file or referenced from an interactive file such as SIMID. Additional files may be included in addition to these recommendations to support other file formats such as WebM and VP8.

The right unit for your bitrate

The terms kbps and kBps both measure data transfer rates, but they represent different units. kbps stands for *kilobits per second*, while kBps (or sometimes KB/s) stands for *kilobytes per second*. Since one byte equals eight bits, 1 kBps equals 8 kbps. In other words, if a file downloads at 800 kbps, that's the same as 100 kBps. This distinction is important because internet bandwidth is usually expressed in bits per second (kbps, Mbps), whereas file sizes and storage are expressed in bytes (kB, MB, GB). Mixing them up can cause confusion when assessing download speeds, video bitrates, or media file sizes — and may result in unnecessary data transfer, ultimately increasing the greenhouse gas emissions associated with your campaign.

Codecs play a key role in optimizing both the bitrate and the environmental impact of video assets. They define how efficiently a video is compressed and how much data is needed to maintain a given level of visual quality. More advanced codecs, such as **H.265/HEV, VP9 or AV1**, can achieve the same image quality as older formats like **H.264** while using 30% to 50% less data. This means lighter files to store, transfer, and stream — directly reducing energy use and emissions throughout the distribution chain. However, it's also important to consider the **electrical performance of decoding**: some newer codecs require more processing power on end-user devices, which can increase local energy consumption. Selecting the right codec therefore

involves balancing compression efficiency, compatibility, and decoding energy, to optimize both performance and sustainability.

General Video Settings

Video Setting	Specification
Progressive Download Format	MPEG-4 (MP4) for progressive download. Produce high, medium and low versions of each asset, allowing the publisher or player to select the appropriate version for the environment. When encoding an MP4 for progressive streaming, use the "web-optimized" setting. This improves streaming performance by placing the MOOV atom at the start of the file.
Adaptive Streaming Format	HLS (M3U8) or MPEG-DASH for adaptive bitrate streaming. Use the high, medium, and low file recommendations in this table to create the adaptive bitrate file fragments. For more information on HTTP Live Streaming (HLS), visit Apple's resource page: https://developer.apple.com/streaming/
Video Codec	H.265/HEV, VP9 or AV1 where possible, else H.264
Aspect Ratio	When creating content, a 16:9 aspect ratio is preferred. As more ultrawide screens enter the market, a 21:9 aspect ratio may be accepted. Avoid mixing aspect ratios and provide aspect ratios that match the environment where ads will be served. Avoid horizontal letter-boxing, vertical pillar-boxing, and anamorphic scaling (skewing/stretching). Modern video players are capable of adapting.

Ready-To-Serve Video Ads

While the mezzanine file is used for encoding video to fit programming needs, the encoding process takes time. Providing at least three smaller files that are ready to serve in appropriate resolutions for the playback environment enables the ad to serve while the mezzanine is prepared for custom environments, or when the ad is delivered on web players.

When a **VAST tag** delivers multiple media files of different resolutions and bitrates, the **video player** should intelligently select the most appropriate version based on the viewer's screen size, device, and connection. Choosing the **highest bitrate by default** is unnecessary and wasteful, as it increases data transfer and energy use without improving perceived quality on smaller screens. By adapting playback dynamically — for example, using a lower bitrate on mobile devices — advertisers can **maintain a consistent user experience** while significantly **reducing bandwidth consumption**. Smart delivery decisions at the player level are therefore a key lever for more sustainable digital advertising.

Resolution	Low resolution	Medium resolution (Standard Definition)	High resolution	High Definition/Ultra HD
Square aspect ratio	360p or less Typical resolution: 360x360	Greater than 360p and up to 576p Typical resolutions: • 480x480 (ATSC) • 576x576	Greater than 576p and up to 720p Typical resolutions are: • 720x720 for 720p •	Greater than 1080p Typical resolutions are: • 1080x1080 for 1080p
21:9 Wide screen	360p or less Typical resolution: 840x360	Greater than 360p and up to 576p Typical resolutions: • 1120x480 (ATSC) • 1344x576	Greater than 576p and up to 720p Typical resolutions are: • 1280x720 for 720p	Greater than 1080p. Typical resolutions are: • 1920x1080 for 1080p • 4096x2160 (DCI 4K)
16:9 Aspect Ratio	360p or less Typical resolution: 640x360	Greater than 360p and up to 576p • Typical resolutions are: 854x480 (ATSC) • 1024x576 for (PAL)	Greater than 576p and up to 720p* Typical resolutions are: • 1280x720 for 720p	Greater than 1080p. Typical resolutions are: • 1920x1080 for 1080p • 3840x2160 (4K)
Video Target Bitrate *See bitrate formula earlier in section*	500-700 kbps	700-1300 kbps	1300-2000 kbps	2000-3500 kbps
Video Target Bitrate for CTV	Not applicable	Not applicable	Not applicable	CTV vendors can ask for much higher bitrates (on the order of 10k to 30k). Check with publishers on what their ask is.
H.264 Profile/Level	Baseline profile, level 3.0	Baseline profile, level 3.0	High profile, level 3.1	High profile, level 4.0

Video Frame Rate	Maintain the frame rate of the original content unless a publisher has a particular limitation. Avoid frame rate conversion, transrating, telecine, and 3:2 pulldown wherever possible. The source frame rate for progressive content is likely to be one of the following: • 29.970 fps for NTSC countries, commonly referred to as 30 fps • 25 fps for PAL countries • 23.976 fps for film-look content, commonly referred to as 24 fps
Video Color Space	4:2:0 YUV Chroma Subsampling
Video Interlacing	Progressive scanning, (non-interlaced). No intra-field motion (blended frames) or interlacing
Leaders (Slate)	No leaders or slate (blank screen) before or after ad content
Audio Codec	AAC-LC or HE-AACv1
Audio Bitrate	128-192 kbps for AAC-LC 64-128 kbps for HE-AACv1
Audio Channel	2 channel stereo mix In CTV, surround sound channeling may be used but check with publisher on whether it can be handled and consider what to do in environments where not available.
Audio Sample Rate	44.1 kHz or 48 kHz as per source material
Audio Levels	-24 LKFS (+/- 2.0 dB) in the US as per ATSC A/85 -23 LUFS (+/- 1.0) in the EU as per EBU R128 Note: Peak levels should not exceed -6 db true peak

The Mezzanine File

With CTV in the mix for digital video, higher quality video files are necessary for displaying on ultra high definition (UHD) TVs. These large screens come with 4K and 8K resolutions and the streaming services need video ads that match the quality of the content being served.

The mezzanine file is a raw source file of the highest possible quality. The file is too big to serve to most device environments, but contains the quality necessary to encode the appropriate versions for different environments, which may be on desktop, in mobile, or at the highest quality in CTV. For server-side ad insertion (SSAI) platforms commonly used for dynamic ad placement in CTV, the mezzanine file is vital to producing the best quality video codec.

Video and audio specifications for the mezzanine file are defined in the following two tables.

Video Setting	Specification	Notes
Bit Rate	50Mbps VBR or 15-30 CBR	50 Mbps for original source (preferred)
Aspect Ratio	16:9 (HD)	16:9 is preferred "letter-boxing" (black bars) should be avoided
Resolution (1x1 pixels)	For aspect ratio 16:9 • HD = 1920x1080 or 1280x720	No burned in pillar boxing or letterboxing Future support for 4k
Color Space	4:2:0 or 4:2:2 YUV	
Frame rate	Depending on region, use one of the following frame rates: • PAL (25 fps) • 24p (23.98 fps) • NTSC Video (29.97 fps)	Native frame rate preferred
Codec	• MPEG2, H.264/AAC • H.264 or Apple ProRes • H.265 /HEVC	Apple ProRes preferred but may exceed file size threshold for some vendors HEVC may not yet be widely accepted
Format	• .mov • .mp4	

Scan type	Progressive	No intra-field motion (blended frames)
Leaders (slate)	Video creative should be submitted without leaders (slate) before ad content.	
Configuration	• Picture to Picture (P2P) • No slate • No countdown leader • No bars • No tone	

Video Setting	Specification	Notes
Audio Format	AAC	PCM is allowed for the mezzanine file but should not be used in any transcoded files used to serve the ad. Check with publisher on tolerance levels.
Audio Bitrate	192 kbps (AAC)	
Audio Channel	2 channel stereo mix L&R	5.1 Dolby audio configuration may be added (see EMA Mezzanine File Creation and Specification pg. 13) http://www.entmerch.org/digitalema/committeescouncils/ema-mezzanine-file-specific.pdf
Audio Sample rate	48kHz	
Audio Levels	DB - 12 (average)	

Linear Ad File Format Recommendations

In the interest of reducing ad development and delivery overhead, recommendations for file formats should help linear ads scale across screens for desktop, mobile, and beyond.

Cross-Screen Portability with MP4

The file submission guidelines in this document recommend using an MPEG-4 (MP4) format with H.264 codec because this file format is more widely supported across devices. Using a

Baseline profile for the H.264 codec ensures that the file will play on devices and bandwidths that range from a cellular connection on a mobile screen to connected TVs with high-speed cable connection. AAC audio is recommended because most players support AAC audio encoding.

While the MP4/H.264 file format is recommended, other formats, such as WebM and VP8, may be submitted in addition to the minimum recommendations outlined in the section on ready-to-serve files.

Event Tracking: SIMID

Event tracking can be more successful across platforms where SIMID is leveraged for interactions. SIMID is IAB Tech lab's Safe Interactive Media Interface Definition, an SDK that enables the player and ad to communicate the execution of ad interactions. As a replacement for VPAID, which handled both measurement and interactions, SIMID simplifies interaction management by handing off measurement to IAB Tech Lab's Open Measurement initiatives. As SIMID undergoes updates to support CTV, wider adoption will help streamline and standardize interaction management and tracking in CTV.

Video Streaming Protocols

Connectivity in today's devices can change during the course of ad playback. Formatting files for adaptive bitrate enables a smoother viewer experience. M3U8 is a file format for a multimedia playlist. Common streaming protocols include HTTP Live Streaming (HLS) and MPEG-DASH. These protocols work by fragmenting a video into several short segments (2-5 seconds) at different bitrates and indexed in a playlist file. The playlist file most commonly used and increasingly required by many video publishers is M3U8. For the best compatibility across multiple device types and bandwidth, the fragmented files used in an adaptive streaming protocol should follow the guidelines for ready-to-serve files.

Placing the MOOV Atom

Digital media may contain a number of different data objects, called atoms, in their files. The movie atom (MOOV atom) contains data necessary for video execution and should be placed at the front of the media file in order to be executed correctly. In some cases, the video won't even play if the MOOV atom isn't placed at the front of the file. Video encoding software usually places the MOOV atom correctly if you select options that optimize the video for web, but you should check with your encoding software to find out how to manually check for MOOV atom placement.

Video Companion Ad Guidelines

Both linear and nonlinear ads have the option to be served with a companion ad. Companion ads are display ads in the form of text, static image, rich media, or skins that wrap around the video experience. Companion ads come in a number of sizes and may require some coordination for appropriate placement. The primary purpose for the companion ad is to offer sustained visibility of the sponsor throughout the streaming video experience and to leave

behind a reminder after the linear or nonlinear component has been completed.

The following companion ad format guidelines outline the minimum considerations for companion ad development. Publishers may offer other formats and specifications that extend these recommendations. Please check with publisher for specific requirements.

Property	Specification
Content	Since companion ads are displayed with video content and ads, companions should not contain any video or audio.
Dimensions	Companion ad dimensions should fit publisher display placement dimensions, but common sizes offered are: • 300x250 • 468x60 • 300x100 • 728x90 • 300x60
File Size	200 kB for most ads but check IAB Creative Display Guidelines for appropriate file size
Audio	No audio allowed in companion ad unit.

Best practices for HTML Companion assets

Data minimisation in HTML assets is an essential practice for reducing the electricity consumption of digital campaigns. Every extra line of code, unused script, or uncompressed image adds weight to the file and increases the amount of data transferred when a page or banner loads. By optimising HTML structure, compressing resources, and removing redundant tracking or animation scripts, brands can significantly reduce loading times and energy consumption across servers, networks, and user devices. Techniques such as lazy loading, minification, and efficient caching not only improve electricity consumption but also enhance user experience by making pages faster and smoother. In short, a lighter and cleaner HTML codebase supports both performance, electricity consumption and lower greenhouse gas emissions.

Audio Guidelines

A sudden spike in volume during ad playback can interfere with the user experience and negatively affect users' perception of brands. Broadcast networks are required to adhere to the Commercial Advertisement Loudness Mitigation (CALM) act. While this legislation does not yet apply to digital video online, video publishers are likely to protect their brand by setting practices in place to ensure normalized volume across content and ads. Ad agencies can aid the industry in this effort by normalizing ad volume levels to avoid any spikes within the ad.

Some publishers and their SSAI partners won't allow an ad to play until they've ensured that the ad's volume has been normalized. As a best practice, peak levels should not exceed -6 db true peak.

Ad Delivery Notes

The mechanism for ad delivery is out of scope for this document but should be a consideration in the development process. When the ad will be served using an ad server, the most widely accepted delivery mechanism in digital video is the Video Ad Serving Template (VAST). Not as widely adopted in CTV, VAST implementations for CTV support are expected to increase as programmatic buys and cross-screen campaigns continue to grow.

VAST provides details about the ad to the video player in a way that enables ad portability and consistent tracking from system to system. In version 4.x, a single VAST tag identifies all four file versions outlined in this document necessary for smooth ad playback experience. It also enables the delivery of other ad components such as companion ads, ad pods, back-up images, and any interactive elements, including tracking elements that help measure impressions.

In addition to VAST, the Safe Interactive Media Interface Definition (SIMID) may be used. Wrapping an interactive ad in SIMID enables safe and transparent interaction between the ad and the player.

For more dynamic ad portability, verify whether the publishers you work with accept VAST and that your ad server can serve your ads using VAST. When using SIMID for interactive ads, verify which publishers can accept SIMID. In addition to verifying VAST and SIMID support, request publisher requirements that are as specific as possible.