Digital Video In-Stream Ad Format Guidelines

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This document has been developed by the IAB Technology Lab's Digital Video Ad Format Guidelines Working Group for the Digital Video Committee.

The Digital Video Ad Format Guidelines Working Group mission and participation list can be reviewed here.

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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: http://www.iab.com/organizations/iab-tech-lab/

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Executive Summary

The 2015 Digital Video In-Stream Ad Format Guidelines provides guidance on minimum submission recommendations for ads used in digital video streams.

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. But today's marketplace is more complex and diverse. Inventory opportunities are expanding as a result of the growing number of screens, devices, and platforms. The 2015 update to these Guidelines was designed to support the digital video advertising ecosystem, to keep up with market demand, and to maintain a seamless and accessible viewing experience for the end user.

Digital video (streaming, or in-stream) has grown because of advancements in technology, both in performance capabilities and availability of video content across various screens and platforms. Video advertising has been able to expand its scope with the help of ad serving technology and creative technical specifications. Aligning with updates to IAB's Video Suite of technical specifications, this revised set of ad format and creative submission guidelines will further enable cross-screen ad portability.

In this 2015 update, consideration was given to the increasing need for high-quality video, especially as high definition screens of all sizes and capabilities enter the marketplace.

These updated guidelines accommodate high-quality video needs for cross-screen linear advertising in mobile, desktop, and TV online. File submission recommendations detail "ready-to-serve" files for streaming, progressive download, and adaptive bitrate streaming formats. Providing the source mezzanine file is also recommended so that the publisher may transcode the file best suited to the environment into which it will serve.

Following these guidelines for video ad file submission will help streamline ad development and placement operations while providing the best experience possible in the user's device for the bandwidth available.

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.

Resources

In order to improve the interconnectivity of the digital video marketplace, the IAB has published technical specifications, metric definitions, and best practices developed by members with industry expertise.

- **VAST:** The Video Ad Serving Template is an XML response framework that enables a consistent delivery format for ads across streaming video platforms.
- **VPAID:** the Video Player-Ad Interface Definition is a code-agnostic SDK used for two-way communication between an ad and the video player.
- **VMAP:** the Video Multi-Ad Playlist is an XML response framework that defines where to place ads within the video content.
- **Digital Video Ad Metric Definitions:** an industry-defined list of metrics used in linear and nonlinear in-stream video ads.
- **Digital Video Ad Format Guidelines:** (this document) is an industry-defined list of streaming video creative submission specifications.
- **Digital Video Best Practices:** a guide for using IAB digital video specifications and guidelines in digital video advertising.
- **DAA Interest-Based Advertising (IBA) notice for digital video:** Guidelines for implementing the AdChoices program within in-stream ads that are placed using interest-based criteria.

1 Introduction/Overview

In November 2005, the IAB released the first creative guidelines for online video to improve the workflow for creating and buying digital video advertising and to enhance the video viewer experience. As digital video advertising grew, new formats emerged and in 2008, the guidelines were updated to acknowledge the new formats and offer more detail on both the creative and technical aspects of video player and ad development. Definitions for the difference between in-stream video and in-banner or display video were established in the Digital Video Measurement Guidelines, and compliment the in-stream video ad format guidelines in this document today.

In 2015, the digital video marketplace includes platforms that extend to mobile, television, and an array of other technologies and devices, much to the credit of ad serving practices in the IAB VSuite being more widely adopted.

The specifications outlined in this document have been updated to support the growth of the digital video marketplace and the advances in technology that have resulted. With cross-screen ad execution in mind, provisions have been made for varied quality files that improve "intelligent" selection in vendor-served ads (3rd party) and server-side ad stitching practices. Supporting the need for high-quality video files has also been a key focus in this update. In addition, the Video Ad Serving Template (VAST) has been updated simultaneously to account for the updates made in this document.

1.1 Environments: Mobile, Desktop, TV

Consumption of digital video content has moved beyond the desktop screen, and is demanded across mobile and TV platforms, devices and screens. Meeting the demand for viewer flexibility in accessing quality video from any web-connected screen imposes new challenges for publishers, vendors, and advertisers. In-Stream advertising is well established in desktop, but serving the same ads across mobile and TV environments requires additional technological and operational considerations.

For example, video in a smart phone environment requires planning for smaller screens, device operating systems, connection options, real-time shifts in bandwidth capabilities, and execution platform (native video player or web-app player). Meanwhile, video execution in a TV-like environment brings higher expectations in quality to a larger screen. The move of broadcast media to online channels adds to the expectation for quality across an expanding list of device screens.

While cable and simulcast formats are out of scope, this update was designed to address all other IP-connected TV, mobile, and desktop environments.

1.2 Digital Video In-Stream and In-Display Video

The Digital Video In-Stream Ad Format Guidelines are designed to address in-stream ads, but ads in video format served to placements designated for display advertising are often confused with in-stream ads. Because video in-stream ads and in-display video are two ad forms that require different resources and technology, distinguishing the two are important to establishing digital video in-stream ad formats.

1.2.1 In-Display Video Ads

In-display video is any video ad served *outside* of video or in-app streaming content. Various terms have been used to define in-display video, including:

- In-banner video
- In-page video
- Rich media (banner with video)
- Video interstitial
- Incentivized video
- In-feed video

These different forms of in-display video may be served into a display ad placement that may or may not use a player to receive and execute the ad.

The key difference between in-stream and in-display video ads is that in-display video ads leverage the existence of standard display ad units to deliver a video experience as opposed to another static or rich media format. These in-display video ads are not the focus of the page and not rendered in a prominent player.

For example, a site visitor may view an article on a news website. A muted, auto-play video ad may load in a standard display ad unit and then be followed by some video footage. This is an example of "in-display' video because the consumer did not visit this page w/ the intent to view this video unit.

In-display video ads are out of scope for this document.

1.2.2 Digital Video In-Stream Ads

Digital Video in-stream ads are served into and executed within a player. The audience is shown an ad in the context of streaming content in an environment where video or in-app streaming content is the focus of their visit. While previous guidelines offered a recommended minimum size for in-stream video, large sizes may host in-display video while smaller sizes have been known to host truly in-stream video. Buyers and sellers should consider whether a minimum player size is relevant to in-stream ad placement and place buys accordingly.
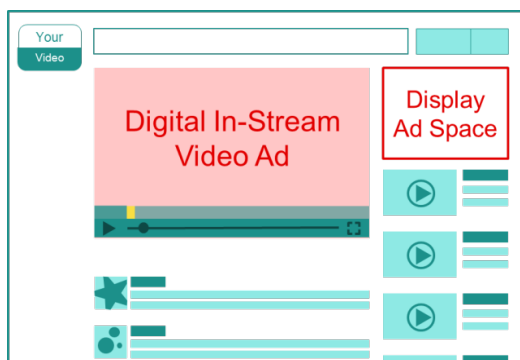
The IAB defines digital video in-stream ads as linear or non-linear ad formats served into a video player:

> "*before, during, and after a variety of content including, but not limited to, streaming video, animation, gaming, and music video content in a player environment. This definition includes Digital Video Ads that appear in live, archived, and downloadable streaming content.*"

While mobile video ads were defined after this definition was conceived, the definition for mobile pre-roll video ads align with the digital video in-stream ad definition.

The distinction between video in-stream and display video ads becomes critically important when looking at digital video in programmatic systems. If in-display video is classified as an in-stream ad, it may not serve properly. It may also cause performance issues for the video publisher and disrupt the viewer experience.

Another important distinction is that in-stream ads are not always in video format. Image overlays or rich media may be served to a streaming environment and executed using an API such as VPAID.

The image to the left illustrates in-stream ad space along with display ad space. Videos may play in the display ad space, but these videos are classified as display video.

Guidelines in this document were designed to address digital video in-stream ads.

1.3 Digital Video Ad Formats Overview

The content in this section is copied from the IAB 2014 version of the Digital Video In-Stream Ad Metric Definitions, section 1.3.

We break digital video ads down into two different formats: linear and nonlinear. Either format may include a "companion" banner ad that displays outside the player. Each format is described below.

Linear video ads are the ads, typically in video format, 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 as images that "overlay" the video content. 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.

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.

The following image illustrates where these ads might fit along the timeline of the streaming video content.
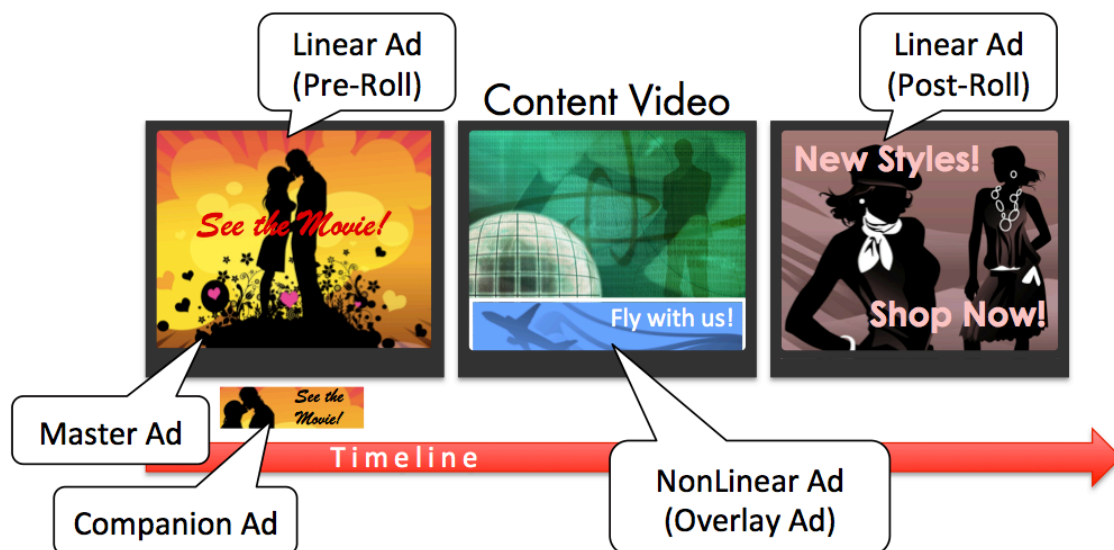
2 Video Ad Formats and Submission Guidelines

The ad formats for digital video in-stream consists of two general classifications: linear and nonlinear. Either ad may be served with a companion banner that displays outside the video player to enhance the advertiser's message. Both may be interactive and even change from one ad type to the other upon viewer interaction.

These video formats are further described in the following sections.

2.1 Linear Ad Format Guidelines

Linear ads are typically in video format that interrupt streaming video content. They can play before (pre-roll), in the middle of (mid-roll), or after (post-roll) the streaming content. In its most basic format, the linear ad plays for a prescribed amount of time before it ends and the player resumes regular operation.

Linear ads may also be interactive. An interactive linear ad plays for a prescribed minimum length of time (usually length of video creative) inviting the viewer to interact. If the viewer engages, ad duration may continue indefinitely until the viewer activates a close control. The extended version of the ad may include video, animation, or images. It may also shift to a nonlinear format where rich engagement opportunities can be made available.

Both linear and interactive linear ads may be served with companion ads as described in section 2.4.

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 publisher for specific requirements.

Linear Ad Property	Guidelines
Insertion Point	Can be placed pre-roll, mid-roll or 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 • 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 video 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)
Click Event	Both the video window and companion ad may be clickable with links to advertiser site. For interactive ads, click or rollover on interactive components may extend ad duration, initiate interactive ad, or take user to advertiser's site.
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.
Dimensions	Preferred aspect ratio is 16:9 (formatted for HD screens) but a ratio of 4:3 may be accepted Viewer-initiated portion may fill video viewing pane or may extend beyond viewing pane if publisher allows.

2.2 Linear Ad File Submission Guidelines

To simplify ad portability and the ad development process for linear ads, "ready-to-serve" ad files should be provided along with the mezzanine source file. Ready-to-serve files can be submitted as either three files at specified quality levels to be used for progressive download or as one adaptive streaming file that uses the three specified quality levels. In either case, the files should be encoded at varied bitrate levels to meet quality standards for resolution and bandwidth in high, medium, and low video environments. In addition, one high-quality mezzanine (source) file should be included to allow publishers to encode at the highest quality possible in select video environments.

Details for each of the four file submission guidelines are outlined in the following sections. While these guidelines are designed to improve file submission workflow, ad developers and technologists should always check with publisher for specific requirements.

2.2.1 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 where the video ad plays. In general, the higher the resolution, 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.

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

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 VPAID. Additional files may be included in addition to these recommendations to support other file formats such as WebM and VP8. See section 2.2.3 for additional notes on linear ad file formats.

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. See section 2.2.3 for more information.
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.264
Aspect Ratio	When creating content, a 16:9 aspect ratio is preferred. Only use a 4:3 aspect ratio when the source material is 4:3. Avoid horizontal letter-boxing, vertical pillar-boxing, and anamorphic scaling (skewing/stretching). Modern video players are capable of adapting.

Video Setting	Specification		
Resolution	Low resolution	Medium resolution (Standard Definition)	High resolution (High Definition)
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 1080p* Typical resolutions are: • 1280x720 for 720p • 1920x1080 for 1080p
4:3 Aspect Ratio	480p or less Typical resolution: • 640x480	Greater than 480p and up to 576p Typical resolution • 640x480 (ATSC) • 768×576 (PAL)	Not applicable
Video Target Bitrate**	500-700 kbps	700-1500 kbps	1500-2500 kbps for 720p 2500-3500 kbps for 1080p
H.264 Profile/Level	Baseline profile, level 3.0	Baseline profile, level 3.0	High profile, level 3.1 (720p) High profile, level 4.0 (1080p)
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, ie non-interlaced. No intra-field motion (blended frames) or interlacing		
Leaders (Slate)	No leaders (slate) 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		
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		

* Ultra High Definition (UHD) 4K and 8K televisions and streaming services are currently available for some publishers. If an agency wishes to include an Ultra High Definition creative as part of a campaign, the agency should agree on a codec and bitrate combination with the publisher.

** Best Practice: The target bitrate recommendations are based on a video bit per pixel (VBPP) within the range of 0.05 to 0.1 using the formula preceding this table. 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.

2.2.2 The Mezzanine File

In a maturing digital video marketplace, broadcast television has moved online. These publishers and the vendors and partners that work with them need to present high quality video ads to meet the same quality standards as their content.

The mezzanine file is a raw source file that publishers can use to encode the ad at the required quality level for the content stream. This original file is too big to serve, but contains the quality necessary to encode the appropriate version for a viewer's environment. The mezzanine file is vital to ad-stitching services commonly used with online television networks. Ad-serving vendors (3rd party) can also use the mezzanine file to transcode all the necessary files to meet varying publisher requirements.

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 Mb for original source (preferred)
Aspect Ratio	16:9 (HD) or 4:3 (SD)	16:9 is preferred "letter-boxing" (black bars) should be avoided
Resolution (1x1 pixels)	For aspect ratio 16:9 • HD = 1920x1080 or 1280x720 For aspect ratio 4:3 • HD = 1440x1080	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.
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)	

2.2.3 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 recommend because most players support AAC audio encoding. (Flash players don't support PCM audio, so MP4 ads encoded with PCM audio will play without sound in a Flash player.)

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 section 2.2.1.

Event Tracking: Moving from Flash to VPAID

Event tracking, often gained using Flash video (FLV) files, can be more successful across platforms using MP4 videos that leverage VPAID for any interactions. VPAID is IAB's Video Player-Ad Interface Definition. It's an SDK that enables the player and ad to communicate ad interactions. Players are unable to listen to FLV events like they can with VPAID.

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) in the US and MPEG-DASH in the EU. 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 in section 2.2.1.

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.

2.3 Nonlinear Ad Format and Submission Guidelines

Nonlinear ads are also known as overlays and are images or rich media that covers a small portion of the content video while the video is playing. A key characteristic of the nonlinear ad is that the ad is watched at the same time that the content plays. If a viewer decides to engage, the ad may pause the video content and play an extended portion of the ad in linear or rich media format. An expanded ad may offer an animated sequence or further engagement opportunities like a mini game, subscription invitation, an interactive map or other application, or social sharing.

The viewer may engage with the expanded portion of a nonlinear ad indefinitely until the user activates a close or collapse control. If the viewer does not engage, the ad may disappear, collapse to a minimized reminder button or a "leave-behind" companion ad, or it may be persistent for entire content play. Some nonlinear ads can be served over linear video ads as well, depending on publisher specifications.

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

Nonlinear Property	Specification
Insertion Point	During video play
Maximum ad display duration	Ad duration may be one of the following: • 5-15 seconds • Persistent
Click Event	Click or rollover on overlay expands to auto-initiated video, interactive ad, or takes user to advertiser's site.
Controls	Persistent close control in upper right corner of the ad unit should allow viewer to exit at any time. Call to action should be clearly labeled. If the extended portion of the ad includes any expandable media, a collapse control must be provided.
Label	Ad unit should be identified as an "Advertisement" with a label that is inside the ad frame or next to the ad.
Dimensions	Initial ad dimensions may be one of: • 300x50 • 450x50 The overlay ad should not be more than 1/5 of the height of the player. For animated overlay ad units, publishers may allow an extra 20 additional vertical pixels (beyond the 1/5 limit) that can be used sparingly by the advertisers to enhance the ad message, such as for drop shadows, flying sparks, etc.
Placement	Common placement is anchored to the bottom of the player, but may be anchored to either side or the top of the player at the publisher's discretion.
Maximum file size	100k for initial portion of the ad; viewer-initiated portion may be any size
Opacity	Text and image – 100% opaque; background – 70% maximum
Audio	No audio allowed in overlay invitation unit; audio in viewer-initiated portion of the ad should be host-initiated

2.4 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.

2.5 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 ad-stitching service providers won't allow an ad to play until they've ensured that the ad's volume has been normalized.

2.6 Ad Delivery Notes

The mechanism for ad delivery is out of scope for this document but should be a consideration in development process. When the ad will be served using an ad server, the most widely accepted delivery mechanism in digital video is the IAB Video Ad Serving Template (VAST).

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 4.0, 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 IAB offers the Video Player-Ad Interface Definition (VPAID). Wrapping an interactive ad in VPAID enables transparent interaction between the ad and

the player. VPAID also enables more robust tracking of ad performance, such as performance and viewability.

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 VPAID for interactive ads, verify which publishers can accept VPAID. In addition to verifying VAST and VPAID support, request publisher requirements that are as specific as possible.

3 Appendix A: Glossary

Ad pod: a group of ads that play in sequence during a commercial break during long-form video content. Specifically, using IAB VAST, an ad pod is a group of sequential ads that can be served in one VAST tag.

Adaptive streaming video: a method of serving a streaming video using a playlist file to contain the video file in several short segments of data encoded at different bitrates for each segment. The video player or other client selects the appropriate segment to play at each interval to match the bandwidth available at each segment.

Bumper Ad: usually refers to a linear video ad with clickable call-to-action; format is usually shorter than full linear ads (i.e. 3-10 seconds) and call-to-action usually can load another video or can bring up a new site while pausing the content.

CALM Act: an acronym for Commercial Advertisement Loudness Mitigation. Congress directed the FCC to develop rules that require commercials to have the same average volume as the programs they accompany in broadcast television and pay TV providers. While not yet applicable to digital online video, publishers and advertisers should comply with these rules as much as possible in order to encourage growth of television programming online. Visit https://www.fcc.gov/encyclopedia/loud-commercials for more information.

Clickthrough: the action of following a hyperlink within an advertisement or editorial content to another Web site or another page or frame within the Web site.

Codec: software that encodes and decodes a digital data stream

Color depth: the number of bits used for each color component of a single pixel.

Color space: a color model that appropriates CMYK colors (used in print) using RGB colors (rendered on a computer monitor). The YIQ color space has been used historically in NTSC analog television and takes human perception into account. It also corresponds closely to the YUV scheme used in PAL. The recommendation put forth in these guidelines for color space is YUV.

Companion Ad: both linear and non-linear video ad products have the option of pairing their core video ad product with what is commonly referred to as companion ads. Commonly text, display ads, rich media, or skins that wrap around the video experience, can run alongside either or both the video or ad content. The primary purpose of the companion ad product is to offer sustained visibility of the sponsor throughout the video content experience. Companion ads may offer clickthrough interactivity and rich media experiences such as expansion of the ad for further engagement opportunities.

Display video: includes in-banner and in-page video ads that fill display ad space and are independent of any video content. Videos that play within a display banner ad or within a display ad placement are considered a property of rich media ads.

Event Trackers: primarily used for clickthrough tracking, but also for companion ad interactions and video session tracking where available.

HLS: an acronym for HTTP Live Streaming is an HTTP-based media streaming communications protocol implemented by Apple Inc. It works by breaking the overall stream into a sequence of small HTTP-based file downloads, each download loading one short chunk of an overall potentially unbounded transport stream. As the stream is played, the client may select from a number of different alternate streams containing the same material encoded at a variety of data rates, allowing the streaming session to adapt to the available data rate. See http://en.wikipedia.org/wiki/HTTP_Live_Streaming for more information.

Incentivized Ads: Ads are opt-in where users are invited to watch a video and earn a reward. The reward is a digital currency or feature that adds value to the user experience.

In-banner video ad: an ad creative in video format that displays as part of or in place of a display (banner) ad.

Incentivized ads: Ads are opt-in where users are invited to watch a video and earn a reward. The reward is a digital currency or feature that adds value to the user experience.

In-feed video ad: a video ad that displays as part of a social feed positioned in place of a post (but clearly labeled as an ad).

In-page video ad: an ad creative in video format that displays within an HTML page just as a display ad (banner) would.

In-Stream Video Ads: played before, during or after the streaming content that the consumer has requested. This format is frequently used to monetize the content that the publisher is delivering. In-Stream ads can accompany short or long form streaming content and are executed in a player environment.

In-Text Video Ads: delivered from highlighted words and phrases within the text of web content. The ads are user activated and delivered only when a user chooses to move their mouse over a relevant word or phrase.

Invitation Unit: a smallish still or animated graphic often overlaid directly onto video content. Typically used as a less-intrusive initial call-to-action. Normally when a viewer clicks or interacts with the invitation graphic, they expand into the ad's full expression, which might be a simple auto-play video or an interactive experience; also commonly referred to as an Overlay Ad.

Key frame: in animation and film production, key frames are used to mark the beginning of a smooth transition. Key frames can be variable, defined by the animation, but placing key frames at regular intervals improves video quality and simplifies transcoding the file to other formats. The recommendation for key frame intervals in this document is one every second.

Linear Video Ads: the ad is experienced in-sequence as part of the linear timeline of the content; the ad can be presented before, in the middle of, or after the video content is viewed. One of the key characteristics of a linear video ad is that the video interrupts the content in full view of the player environment. Users must wait for the ad to play until a skip or close control is made available before they can return to the streaming content.

Long-form video: online video content that is 10 minutes or more in duration.

M3U8: the Unicode version of an M3U file format that contains a multimedia playlist. In adaptive streaming, this file is used to contain the small segments of a video file with each segment encoded at different bitrates. The player or other client selects the appropriate segment to play at each interval depending on the bandwidth available during each segment.

Master ad: in the case where a video ad includes companion banners and/or extended interactive components that initiate upon viewer interaction, the master ad is the initial ad used to get viewer attention.

Metadata: data that is associated with the asset; used to facilitate the understanding, use and management of the asset. Metadata may include standards for business-critical data such as advertiser name, eCPM goal, format, and version information. VAST 4.0 strongly emphasizes the use of unique identifiers encoded in the creative to provide a holistic reporting of that creative distributed across various media and will bring consistency and alignment to TV and Online TV workflows. A common registry for asset IDs in the US is Ad-ID.org, but there are several standardized systems globally.

Mid-roll: a linear video ad spot that appears during a break within the duration of the video content.

Movie (MOOV) atom: a video data object in a media file used to execute the video. The movie atom should be placed at the beginning of a video file to ensure proper execution.

MPEG-4 (MP4): a digital multimedia format used to store video and audio, but may also include features such as subtitles, chapter details, and other data related to the video or audio file. The filename extension for MPEG-4 files is .mp4.

Mezzanine: in video production, the mezzanine file is the high quality source file from which other versions at different quality levels can be transcoded.

Nonlinear Video Ad: also known as an overlay, the nonlinear video ad is an image or animation that plays on top of and concurrently with the video content. A nonlinear ad may

invite the viewer to further engage the ad. If the viewer engages, the nonlinear ad may pause the content video and provide an interactive experience or play a linear component of the ad. Nonlinear video ads can be delivered as text, graphical banners or buttons, or as video overlays.

NTSC: named after the National Television System Committee, NTSC is the analog television system used in the Americas (except for parts of South America, which uses PAL).

Overlay Ad: See nonlinear video ad.

PAL: an acronym for Phase Alternating Line, which is a color encoding system used in analog television in much of the world including Europe, Australia, Southern and Eastern Asia, and parts of Africa and South America.

Playlist: a list of discrete videos (sometimes referred to as "segments" or "clips") presented alongside a video player that affords easy navigation from clip to clip (clicking on a thumbnail in the playlist will start the playback of the respective clip). The playlist can be programmed as a "loop-list" where clips play in sequential order, often with linear ads between the clips.

Post-roll: a linear video ad spot that appears after the video content completes.

Pre-roll: a linear video ad spot that appears before the video content plays.

Quartile Reporting: video ad metrics that identify when a linear video ad has played up to first quartile (25%), midpoint (50%), and (75%).

Rich Media: advertisements with which viewers can interact (as opposed to solely animation) in a web-page format. They may appear in ad formats such as banners and buttons, as well as transitionals (interstitials) and various over-the-page units such as floating ads, page take-overs, and tear-backs. Video that plays as part of a banner or in display ad space is considered rich media. A nonlinear video ad may also include interactive rich media components upon user interaction.

Syndicated Video: content sourced from a professional third party. Examples may include syndicated television shows, news footage, etc., and distributed through a multitude of outlets observing strict ownership rights.

User-Generated Content (Video): video content created by the public at large, generally not professionally edited, and directly uploaded to a site.

VAST: the IAB's Video Ad Serving Template, an XML schema for providing ad file and metadata to a video player.

Video bits per pixel (VBPP): the average number of bits of information stored in a video for each pixel. The amount of bits of information per pixel in a video calculated as (bits per second)/(framerate x resolution)

Video interstitial: a display video ad that displays in between the transition from one HTML or app view to another.

VOD: "Video on Demand" allows users to select and watch video content over a network; usually refers to services offered by cable companies through set-top boxes.

VP8: a video file format that Google acquired with the acquisition of On2 Technologies.

VPAID: the IAB's Video Player-Ad Interface Definition, a protocol that enables an ad creative overlay to interact with a VPAID-compliant player.

WebM: a royalty-free file format that can be used in the HTML5 video tag, as an alternative to MP4.