IAB NEW STANDARD AD UNIT PORTFOLIO

JULY 2017 – VERSION 1.1

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Executive Summary

This document, providing the guidelines for the IAB New Standard Ad Unit Portfolio, has been developed by the IAB Tech Lab Flex Ads Committee after review of all feedback received on the draft for public comment document published in September 2016.

These guidelines are comprehensive recommendations of advertising experiences across diverse digital landscape including websites, mobile apps, social media, communication, and messaging experiences as well as new digital experiences like virtual reality and augmented reality.

The IAB New Standard Ad Unit Portfolio ("IAB New Ad Portfolio") is comprised of display ads, native ads, and new content experiences like emoji ads, 360-degree image and video ads, virtual reality ads, and augmented reality ads.

The display ad guidelines have been updated to incorporate LEAN principles of lightweight, encrypted, AdChoices supported, and non-invasive advertising, within all of its mobile, display, video, and native ad formats. The new ad units recognize consumer's diverse media consumption, especially with touch screen mobile devices, and introduces flexible ad sizing so the ads can adjust to various device screen sizes.

All guidance is based on HTML5 technology and has been derived from industry surveys, user research, and testing, including:
1. Attitudes and Usage Study to determine which of the ad units, in the current portfolio, contribute to the majority of revenue and are sufficient to advertise across multiple screen sizes
2. IAB Ad Blocking Report (http://www.iab.com/insights/ad-blocking-blocks-ads-win-back/)
3. Comprehensive assessment of minimum file weights required to deliver assets of specific sizes to the user device
4. Transition testing to determine how to create flexible size ad container and serve flexible size ads
5. Coalition for Better Ads Initial Ad Standards (https://www.betterads.org/standards/) and related research

The IAB Tech Lab Flex Ads Working Group was led by:
1. Anthony Yam, Chief Product Officer and Co-Founder, Spongecell
2. Buzz Wiggins, Vice President Advertising, Tumblr
3. Nathan McCormick, Director Ad Platforms and Operations, Cox Media Group

The following IAB Tech Lab member companies were part of the working group that created this guidance:

ABC TV Network	Google	PGA TOUR
Adacado	GroupM	ResponsiveAds
Adelphic, Inc.	Gruuv Interactive	RhythmOne
Adform	Happy Punk Panda	Shazam
AdGear Technologies, Inc.	IAB	Sizmek
ADVR	Improve Digital International B.V.	Spongecell
AOL	Index Exchange	Sublime Skinz
AOL Platforms	InMobi	Tapad
AppNexus	IPONWEB Inc	Teads
Baverianvine	Leaf Group	The Media Trust Company
Bloomberg	Mashable	The Mobile Majority
Bonzai	MediaCom	The New York Times Company
Brainient	MGID	The Weather Company, an IBM Business
CBS Interactive	Monotype	Time Inc.
Conversant Media	NBCUniversal	Undertone
Cox Media Group	Neuranet	Unruly
Cyber Communications Inc.	NPR	Vertebrae
Dow Jones & Company (Wall Street Journal)	NYIAX, Inc.	Verve
Flashtalking	PadSquad	Vibrant Media
Flipboard	PageFair	Yahoo
Forbes Media	Parsec Media	Yieldmo

IAB would also like to thank the following companies for volunteering their time: Immersv, Blippar, Makemoji, Trivver, and Virtualsky – as well as over 50 companies in the digital advertising and media industry who took time out to review and provide comments during the public comment period.

Contributions for testing the new ad units

IAB Tech Lab thanks the following companies for participating in the testing of the new ad units

Adverline	Flashtalking	M Publicite
BBC	Flexitive	Main Ad
About.com	GroupM	MBWW
AOL	Gruhner & Jahr	Media Impact
Bloomberg Media	Havas	OMD
Burda Media	Hi-Media	PGAtour
Ciao People	IAB Ireland	Responsive Ads
Core Media	Independent Digital	The Guardian
DMG Media	iq media marketing	United Interned Media
Ekstra Bladet	Irish Mirror	Zodiak
Eniro	Journal Media	

We also want to extend some special thanks to Flexitive, ResponsiveAds, and Flashtalking for providing the creatives for the testing of the new ad units.

Release Notes

The guidelines in this document are comprehensive recommendations of advertising experiences across diverse digital landscape including websites, mobile apps, social media, communication, and messaging experiences as well as new digital experiences like virtual reality and augmented reality.

The IAB New Standard Ad Unit Portfolio ("IAB New Ad Portfolio") is comprised of:
1. Display ads
2. Native ads
3. New content experiences like:
    a. Emoji ads
    b. 360-degree image and video ads
    c. Virtual reality ads
    d. Augmented reality ads

Availability and Adoption
Please be advised that these IAB guidelines represent an industry recommendation. Accordingly, not all publishers, nor all IAB member companies, adopt these guidelines without modification relative to their own unique business offering. *Marketers, creative designers, and media agencies are strongly advised to consult directly with publishers regarding their ad creative requirements.*

Consumer Experience and Performance
The main focus of the new ad portfolio is to improve the consumer's advertising experience and maximize the publisher page load performance. This is delivered by two overarching updates in the new ad portfolio:
1. **LEAN principles**: Lightweight file weight minimizes the ad load during initial page load and non-invasive advertising guidance creates a better user experience
2. **Flexible ad sizing:** Ad units are defined by aspect ratios and minimum and maximum size range so the ad can adjust based on the screen size it is being displayed on

User Experience and Load performance

New guidance is specified for initial load and subload criteria as well as flexible size ad unit specifications. In addition, guidance on minimizing render blocking scripts has been provided. Number of files in initial load is restricted to 10 files and revised shared library guidance is provided with maximum limits.

User Experience and Ad Content

The new ad portfolio emphasizes user respect, choice and control over their advertising experience. Revised guidance has been provided for following:

1. Animations
2. Ad expansions
3. Close Buttons
4. User initiation
5. Interstitials
6. Video and auto-play video e.g. out-stream ads
7. Audio

Non-Disruptive Ad Experiences

The new guidance provides a comprehensive list of common ad experiences that are no longer permitted as well as those that are permitted. It also has revised guidance to define how a particular allowed ad experience may be executed for non-disruptive user experience.

Flexible and LEAN Ads

The IAB New Ad Portfolio emphasizes LEAN (Light, Encrypted, AdChoices supported, and Non-invasive) ad experience and flexible size ad specifications.

LEAN ad experience for digital advertising is based on the following principles:

1. Respect: A consumer's primary objective is consuming publisher content
2. Control: A consumer has control over his/her advertising experience
3. Choice: A consumer decides what content he/she wants to experience and for how long

Accordingly, the LEAN guidance addresses the following:

1. Lightweight user experience to maximize initial page load performance
2. Non-disruptive ad experiences

Flexible Size Ad Specifications are based on the consumer device landscape, operational efficiency for publishers, and the need for creative fidelity:

1. Devices are proliferating in different sizes and with multiple resolutions, especially for mobile devices
2. Publisher content needs to be delivered to multiple screen sizes and requires ads that can respond to multiple sizes
3. Creative design needs to scale to different sizes without losing its original message and impact

Accordingly, flexible size ad specifications define aspect ratio based ad units that maintain their aspect ratio, adjust to the screen size, and can be integrated in responsive website designs.

Every ad in the new ad portfolio is a LEAN ad. Any ad unit can deploy any ad experience as long as it complies with initial and subload file weights, number of file requests and subload start guidance.

Flexible Size Ad Specifications

Ad Type	Ad unit Name	Transition Fixed Size Ad unit (px)*	Aspect Ratio (width:height)	Ad Size**	Size Range		Max. K-Weight (kB)		Static Image Size (dp)
					Min. Size Width x height (dp***)	Max. Size Width x height (dp***)	Initial Load	Subload	
Horizontal	2x1	Half Page	2:1	X Large	900x450	1800x900	250	500	1800x900
	2x1	N/A	2:1	Small	300x150	450x225	100	200	
	4x1	Billboard 970x250	4:1	X Large	900x225	1800x450	250	500	1800x450
	6x1	Smartphone Banner 300x50, 320x50	6:1	X Small	300x50	450x75	50	100	450x75
	8x1	Leaderboard 728x90	8:1	Medium	600x75	1200x150	150	300	1200x150
	10x1	Super Leaderboard/ Pushdown 970x90	10:1	Large	900x90	1800x180	200	400	1800x180
Vertical	1x2	300x600	1:2	Large	300x600	450x900	200	400	450x900
	1x3	Portrait 300x1050	1:3	X Large	300x900	450x1350	250	500	450x1350
	1x4	Skyscraper 160x600	1:4	Medium	160x640	240x960	150	300	240x960
Tiles	1x1	Medium Rectangle 300x250	1:1	Medium	300x300	450x450	150	300	450x450
	2x1	120x60 Financial	2:1	X Small	200x100	300x150	50	100	300x150
	9x16	N/A	9:16	Large	300x540	450x800	200	400	450x800

Ad Type	Ad unit Name	Transition Fixed Size Ad unit (px)*	Aspect Ratio (width:height)	Ad Size**	Size Range		Max. K-Weight (kB)		Static Image Size (dp)
					Min. Size Width x height (dp***)	Max. Size Width x height (dp***)	Initial Load	Subload	
Full Page Portrait			9:16	X Large	600x1067	900x1600	**300**	**600**	900x1600
	10x16	N/A	10:16	X Large	800x1280	1200x1920	**300**	**600**	1200x1920
	2x3	N/A	2:3	Large	300x450	450x675	**200**	**400**	450x675
	3x4	N/A	3:4	X Large	600x800	900x1200	**300**	**600**	900x1200
Full Page Landscape	**16x9**	N/A	16:9	Large	540x300	800x450	**200**	**400**	800x450
			16:9	X Large	1067x600	1600x900	**300**	**600**	1600x900
	16x10	N/A	16:10	X Large	1280x800	1920x1200	**300**	**600**	1920x1200
	3x2	N/A	3:2	Large	450x300	675x450	**200**	**400**	675x450
	4x3	N/A	4:3	X Large	800x600	1200x900	**300**	**600**	1200x900
Feature Phone Sizes	**120x20**	Small Banner	N/A	N/A	N/A	120x20	**5**	**N/A**	N/A
	168x28	Medium Banner	N/A	N/A	N/A	168x28	**5**	**N/A**	N/A
	216x36	Large Banner	N/A	N/A	N/A	216x36	**5**	**N/A**	N/A

* **Transition Fixed Size Ad Units:** These are old fixed size ad units closest in size to the new ad units. Suggested for planning transition to new ad units

** **Ad size:** Ad size is based on how big or small an ad unit is with reference to 1:1 ad unit (Xsmall =0-25%, Small = 25%-75%, Medium = 75%-125%, Large 125%-200%, X Large 200% +)

*****Density-independent pixels (dp):** Devices can have different resolutions. Resolution is defined by number of pixels per inch. Density independent pixels is a way to consistently measure the size of an image on a device independent of screen resolution. 320 dp is approximately 2 inches wide. dp = (width in pixels * 160) / screen density. E.g. for pixel density of 1 i.e. ~160 pixels per inch (iPhone 3) 320dp is 320px (320dp= (Xpx *160)/160). For pixel density of 2 i.e. 320 pixels (iphone 5) 320dp is 640px (320dp= (Xpx *160)/320)
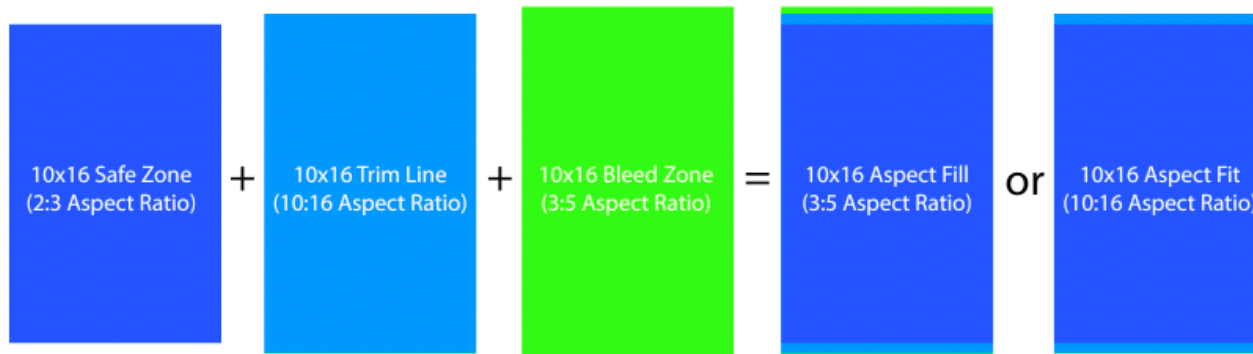
Horizontal ad types are ads with landscape layout i.e. larger width and smaller height aspects. They are expected to fit edge to edge of screen width or margin to margin of content layout width. Typical placements are top or bottom of the screen and sometimes in middle of page sections

Vertical ad types are ads with portrait layout i.e. larger height and smaller width aspects. They are expected to fit edge to edge from top to bottom or margin to margin vertically between page layout elements. Typical placements are on the right or left edges of the screen or page layout

Tiles are usually rectangles or squares with very closely measured height and width aspects. Typical placements are tiles in grid layouts. Usually they are small to medium sized ad units

Full page ads cover full device screen and are defined based on popular device screen height and width aspects. Typical placements are on mobile phones, tablets, and other devices for interstitials and expanded experience of rich media ads. Although full page ads are defined by the device aspect ratios, full screen may not be always available for display or the device may not be exact aspect ratio. To address this, print industry practices can be followed to ensure the main creative is always viewable on the screen

Print Industry Best Practice	How the Best Practice Works	Solution for Full Page Design	Recommended Aspect Ratio for each approach for Full Page aspect ratios			
			9:16	10:16	2:3	3:4
Safe Zone	Ensures that all text and graphics within a creative are unobstructed by overlaid UI elements	Aspect ratio safe zones can ensure no critical message of the creative is cut off in the margins	3:5	2:3	3:4	4:5
Trim Line (Aspect Fit)	The main creative to be displayed if the bleed zone is removed	Full Page ads are currently designed to be Aspect Ratio Fit	9:16	10:16	2:3	3:4
Bleed Zone (Aspect Fill)	Enables responsive design to, eliminate letterboxing when container aspect ratio is a non-standard size	Aspect ratio bleed zones can ensure that the creative always fills the full screen, as many devices aren't always perfect aspect ratios	9:17	9:16	10:16	2:3

10x16 Safe Zone (2:3 Aspect Ratio) + 10x16 Trim Line (10:16 Aspect Ratio) + 10x16 Bleed Zone (3:5 Aspect Ratio) = 10x16 Aspect Fill (3:5 Aspect Ratio) or 10x16 Aspect Fit (10:16 Aspect Ratio)

General Ad Requirements (apply to all ads)

- **Interest-Based Advertising (IBA):** Include IBA self-regulation controls for ads using behavioral targeting (5kB max file size).

- **Audio:** Audio in ads should be muted. To allow for audio initiation in ads, a control may be included for the user to initiate audio. See the LEAN user experience and ad content guidance for more on audio in ads.

- **Defining ad space:** Ad unit content must be clearly distinguishable from publisher or unpaid content on the page (for example an ad unit may have clearly defined borders so it is not confused with normal page content).

- **CPU Load**: Ads should be developed to perform smoothly and not interfere with site or app performance. 30% CPU load max (based on the average CPU of the user base) per active ad. Please review the LEAN guidance for more details on CPU load.

- **Maximum number of host-initiated file requests:** Ad must not exceed ten file requests during initial file load. Additional files can be loaded as necessary during host initiated subload and user initiated loads.

General Notes

- **Initial file load:** Includes all assets and files necessary for completing first visual display of the ad and requested before `load` event dispatched by the `window` object.

- **Host-initiated subload (subload):** This is the additional file weight an ad can load in addition to initial load. Ad file subload may begin after the `load` event has been dispatched by the `window` object. The ad should listen for the `load` event dispatched by the window object of the host page. When communication with the host page is not possible, then it is acceptable to listen for the `load` event dispatched by the window object of the ad iframe.

- **File weight calculation:** For calculating ad file weight, all files for the ad, including those shared libraries not exempt by the publisher or ad server, must be included as part of the maximum file weight calculation. File weights are calculated after files have been compressed into gzip format.

`Initial Load K-Weight`= All ad files **+** Non-exempt shared libraries **+** max 50 kB for all exempt Shared Libraries
`Subload K-Weight` = All ad files **+** all non-exempt shared libraries

See the LEAN user experience and load performance guidance for details on initial load, subload, and shared libraries

- **User-initiated file size:** Unlimited file size load is allowed after user-initiated interaction. Ad should be responsible for bandwidth and device capabilities while doing so. User initiation is the willful act of a user to engage with an ad. User interaction is the discrete user action with the ad or its elements, e.g. click or tap or other complete and discrete gesture.

- **Static file weight and static image size:** Use Initial Max K-Weight guidance for static image only ads or backup file requirements.

- **Slow internet connection:** For 3G (1.5 Mbps download speeds) or slower connections, the file weights should be 30% less than recommended.

File sizes in this specification are defined for the creative assets and files required for creative rendering and management of the ad. Ad server files or other non-creative services files like measurement or verification must not be counted against ad K-weight.

Flexible Ad Sizing Grid

The sizing grid is a LEAN standard based range of k-weights for an ad of given pixel size. This will allow self-determination of ad specification for innovative and custom ad formats that may not be part of IAB Ad Portfolio.

Size Group (x1000 pixels)	Example of Previous IAB Fixed Sizes	Max Initial K-weight (kB)	Max subload K-weight (kB)	Static Image (e.g. .jpg .png or .gif) kB
Less than 180	320x50, 300x50	50	100	50
120-180	N/A	75	150	75
180-300	728x90	100	200	100
300 - 500	970x90, 160x600,300x250	150	300	150
500-700	Full Page (Small Phones <4.5" screen)	200	400	200
700-900	300x600, 970x250	250	500	250
700-1m	Full Page (Large phones > 4.5" screen)	300	600	300
1m +	Full page (Large devices > 7 " screen)	350	700	350

Sizes for fixed size ad units are calculated based on double density (or 2x) resolution.
E.g. 728x90 size will be 728*90*4= 262080 pixels.
For flexible size ad units, the sizes are calculated using midpoint of the size height and width at 2x resolution. E.g. 8:1 ad unit recommended size is 900*112.5*4 pixels which is in the 300k- 500k pixel range.
Transition fixed size ad units in the flexible size specification grid will follow the size determined by the corresponding aspect ratio ad unit

LEAN: User Experience and Load Performance

The new guidance creates a positive user experience of advertising by way of maximizing page load performance. The ad must:

1. Use light weight file loads during initial load of the page
2. Eliminate or minimize render blocking scripts like CSS, JavaScripts during initial load
3. Use subload for rendering ad experiences that require heavy file weights
4. Minimize number of files requested during initial load
5. Make user initiation required for ad functionality that needs large file downloads

Initial vs. Subload vs. User Initiated Load

For the purpose of defining initial load and subload, the `load` event dispatched by the publisher page's `window` object is considered as the event to separate the initial load from the subload of the ad content. Subload must not start prior to this `load` event is dispatched. When an ad is nested in an iframe that does not allow the ad document to capture the `load` event of the publisher page, then it can use the `load` event of the ad document's iframe.
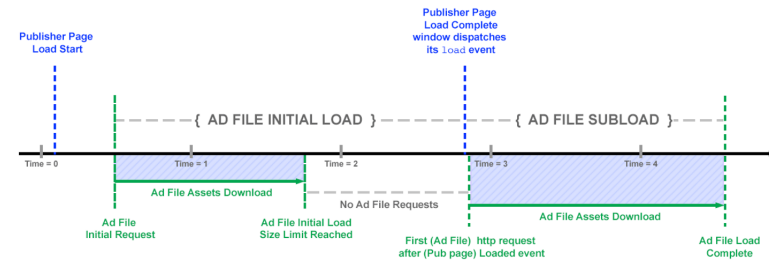
Initial Load is defined as all files requested by the ad to render the creative when the page starts loading. It includes all files sent by the ad server to the page (image, HTML5, JS, CSS, Sprite sheets, Video files) and any other files requested by the ad for creative rendering and management before the `load` event is dispatched by the `window` object.

Subload is defined as all files requested by the ad after the `load` event is dispatched by the `window` object. It includes all files requested by the ad (auto initiated without any user interaction) to the page (image, HTML5, JS, CSS, Sprite sheets, Video files) for the purpose of creative rendering and management.
Subload must start after the `load` event has been dispatched by the `window` object of the page or the ad iframe.

User Initiated Load is the file weight of all assets loaded when a user initiates interaction with the ad. Unlimited gzipped file load is allowed for any creative assets loaded after user-initiated ad interaction, like expansion or clicks.

While no limit has been placed on user initiated load, ad developers should consider user experience and load performance as part of their ad design.

The assets for user initiated ads should be optimized for load performance, and only necessary assets should be loaded.

File Requests

The maximum number of Initial Load **file requests allowed is 10.**

HTML5 ads are like mini web pages and the number of requests made to fetch files has a big impact on load performance of the ad as well as on the page.

This file request limit only applies to the initial load. No file request limit has been placed on subsequent file loads.

HTTP2 standard allows multiple requests per connection.

This will negate the need for this standard in the future when HTTP2 adoption is at acceptable levels. Currently, most browsers support it (http://caniuse.com/#search=http2), but content and ad server adoption is low at ~10%. More information on HTTP2 is available here: https://http2.github.io/faq/. And more data on adoption is available here: https://w3techs.com/technologies/details/ce-http2/all/all

Managing CPU Load

High CPU load generated by uninitiated functions should be minimized. CPU load generated by animation should stop once animation is complete. Higher CPU load is allowed for user-initiated functions (animation, interactivity, etc.) as long as the page or app continues to function smoothly.

Poor performance of an ad in an isolated instance can indicate that it will negatively affect performance of a site or app when the ad is loaded into a live environment.

Optimize those features that generate high CPU load. For example, if high CPU load is exhibited during animation, try to optimize animation by reducing the number of elements animated at one time.

Avoid using `setTimeout` and `setInterval` in animation scripts, etc. Animation scripts should not be executed when the ad is not in view.

In-page banners must delay initiating animation until the `load` event is dispatched by the `window` object

What is gzip?

All assets for HTML5 ads must be packaged together for delivery. To optimize the file size for delivery to a browser, all assets should be delivered in compressed format. The common method for compressing files in transition over the Internet is the gzip utility, which is free to use and supported by all modern browsers. Ad servers compress ad files they serve as part of their general process.

Shared Libraries and Resources

Browser caching capabilities benefit all parties by eliminating the need to download previously requested resources that already exist on the user's device. Advertisers (Creative developers) are encouraged to take advantage of browser caching functionality by linking to shared libraries hosted on the Ad Serving party's (Publisher ad server or third-party ad server) domain that are used across campaigns.

*Please refer to the IAB HTML5 Resources wiki (*https://wiki.iab.com/index.php/HTML5_for_Digital_Advertising_Resources*) for commonly used shared libraries and check with the ad serving party for the ones that are hosted.*

Publishers and first-party ad servers should specify the shared library name(s) and originating CDN url(s) that are exempt and can be excluded from file weight calculations in their ad specifications and guidance to advertisers. They must provide reasonable notice for the advertiser to update creative.

Shared libraries that are exempt are allowed a combined maximum of 50 kB file weight (gzipped) as part of initial load. No limit is imposed during subload. Any shared library and CDN NOT specified in publisher or ad server guidance must be counted in file weight calculations submitted by advertisers.

Other shared resources for which the publishers and ad servers are encouraged to take advantage of browser caching functionality are Web Fonts, DAA provided AdChoices insertion, and CSS packages

Render Blocking Elements

JavaScript is a render blocking script that blocks the DOM construction and delays page content rendering.

It is recommended that all JavaScript be executed as asynchronous and executed inside a sandboxed i-frame. CSS also blocks rendering. Styles to HTML5 elements can be implemented in three ways:
1. External CSS: These are CSS files external to the ad HTML and are referred to by the ad when it wants to apply a style.
2. Internal CSS: These are CSS definitions that are inside the ad HTML document
3. Inline Style: In this method, the ad does not call a CSS element from another file, but each element has its style defined in the element definition itself

Inline style method is the most efficient of the above methods and it is recommended to use inline style method to minimize load time. Embedded styles may also be used. Since ads are usually not multi-page websites, using external CSS for ads does not offer the typical advantages of external CSS and may add file weight and number of files to the ad load.

*The IAB Tech Lab HTML5 Ad Validator (*https://html5.iabtechlab.com/*) can be used to determine initial load, subload, file requests, shared libraries, and all ad files.*

LEAN: User Experience and Ad Content

The new ad portfolio emphasizes user respect, choice, and control in advertising experience. The new guidance addresses the features and functions that will help create the right user experience. These experiences can be used in any of the ad units as long as the ad complies with initial load, subload, and number of file requests per the guidance in the specification of that ad unit.

Rich Media

Rich media is defined as interactive features that engage the user and initiate new content experiences. Interactive features could be animation or elements that trigger ad expansion or video play or other interactive experiences. Rich media experiences that require files or creative assets in addition to initial load and subload limits should be user initiated.

Animation

Animation is moving images or other rich experience, usually without the use of video files like mp4. They may use small video files to enhance the animation effects as long as the total file weights are within the allowed limits of initial load and subload.

1. Length of animation must not exceed **15 seconds**. No looping beyond 15 seconds.
2. Animation is recommended to be part of subload.
3. JavaScript used for animation must be executed as asynchronous load and CSS used must be inline.
4. Animation may be host initiated, i.e. user action is not required to play animation.
5. Animation is recommended to start when the ad is within view.
6. Flashing, high contrast, fast moving and bright color animation are not recommended.

Ad Expansion

Ad expansion is when an ad initiates a new experience and expands to a size bigger than its original size.

1. Ad expansion must be user initiated.
2. On expansion, it is recommended that the ad takes over the full screen and the expanded ad creative is placed in the center of the screen.
3. The action for ad expansion must be a complete discrete user action, e.g. Click and Tap are the most common and recognized user actions. Swipe or, depending on device or app's user experience to navigate from one content item to the next, another discrete, completed touch or gesture may be considered user action.
4. Hover or Rollover must not be used as actions for ad expansion.

5. Expanded ad must have a clear and discrete cancel or close button to allow user to dismiss the ad when desired.

When is auto expansion allowed?
Auto expansion while scrolling: Inline within the page expansion while user scrolls on the page is allowed with the following guidance:
1. The ad must not overlay content and must not disrupt (push down or block) the placement of content while expanding.
2. The ad must have a close button from the start of the advertisement to be able to close the ad.
3. If the ad auto collapse/close, it must not impact or move the content up or down. The alternate option is to not auto collapse.

Although auto expansion while scrolling is allowed, it is recommended to use inline ads that appear as a user scrolls down for a better user experience.

Interstitials

Interstitials are defined as ads that are before, in between, or after the primary content experience
1. Ads that overlay or cover the content after a user has started viewing content are not interstitials. They are considered Pop Up Ads.

2. For serving interstitial ads there should be a break in content experience – User navigating to and/or away from content.
3. All interstitial ads must have a close button as defined by this guidance.
4. Ads must not present a forced countdown before allowing user to dismiss an interstitial ad.

Close Buttons

Close buttons must be present for all ad experiences or ad units that interrupt or partially obstruct the publisher content experience, e.g. ad expansions, interstitials, anchored banner, or adhesion banner. The close button needs to be clear, discrete, and available from the start.
1. The close or cancel button must be on the top right corner of the ad.
2. The cancel or close button must include an "X" image of minimum size 50x50 dp. Additional language to indicate user destination on close, e.g. "Cancel" or "Close" or "Skip to Site" or "Go to Content" may be included in addition to the close button.
3. The close button must be available from the start of the ad experience.

Video

Video creatives are a popular and engaging format in digital advertising. Video files are typically large files usually in the range of 1 Mb or higher for a 15 second spot. This may incur a large cost in terms of bandwidth for the user especially those on metered plans and can also cause delays and latency in page load performance.

The scope for this video guidance covers all video creative placements in non-video environments, e.g. video in display advertisements, video-only creative in between text or image content popularly called out-stream, videos placed in feed or in between content lists. It does not apply to in-stream video advertisements popularly called pre-roll, mid-roll, or post-roll.

Host Initiated Video Auto Play
1. Max duration: 15 seconds.
2. Max File size: 1.1 Mb.
3. File quality: Recommended 24 fps minimum. For lower bandwidth (less than 2 mbps) 18 fps may be used.

15 seconds is currently the predominant video length for video ads. However, shorter-form videos (6-8 second range) are showing promising results - especially on mobile. Although it is too early to conclude whether shorter-form videos satisfy advertisers' needs, this working group will perform more testing in order to revisit this guidance using a data-centric approach.

User Initiated video Play
1. Recommended duration: Unlimited.
2. File quality: Recommended 24 fps minimum. For lower bandwidth (less than 2 mbps) 18 fps may be used.

Additional Video Guidance
To ensure page performance and to avoid unnecessary download of heavy files on user's device, the additional guidance below must be followed for all ads with video creatives:

1. All video ads must have 50% of pixels in view before video play start.
2. Auto play video ads must automatically pause/stop when 50% or more of the ad pixels are no longer in view of the user.
3. All video ads with 100% share of screen must provide Close button from the start of the ad for user to exit the ad experience.
4. Video ads which do not have 100% share of screen must provide user controls to pause/stop the video play or close button.
5. Video file download to user device must start as part of subload as defined in this specification.
6. Video ad placements that need the ad container to expand must follow LEAN expansion guidelines, e.g. no auto expand or overlay on parts of content.
7. Ads that appear or expand as user scrolls must not auto collapse after the video play. This causes the content to be displaced and fall out of user's view.

8. Pre-caching or preloading is a popular practice to resolve latency issues in displaying ads. It is recommended that lighter weight non-video assets like images within LEAN file weight limits be pre-loaded and video assets downloaded only when ad is displayed to the user.

Share of Screen Definition
- Share of screen is 100% when the ad and only the ad is present on the user's screen and there is no other content or media active on the user's device. E.g. a full page interstitial ad on a mobile device will have 100% share of screen whereas a full screen advertisement on a desktop browser can never have 100% share of voice as other tabs and other applications on user machine can be active.
- Anything less than full screen advertisement will not be considered to have 100% share of screen. E.g. ads in between text content or image lists or video lists.
- Ads served in desktop browsers are never 100% share of screen as other tabs may be open and other content may be active on desktop.
- Ads served in mobile browsers can be considered 100% share of screen if ad is the only content on the browser page and no other content is present on that page. E.g. Mobile interstitials will have 100% share of screen

Auto-Play Definition
An ad is considered to be "auto-playing" if it begins to show video frames or send audio signal without user interaction.

User interaction includes clicks or taps or other discrete action by the user to start interacting with the ad as defined in the new ad portfolio guidance.

Audio

All video ads have accompanying audio. In addition, animation and other content can be enhanced with sounds. Yet ads that play audio automatically can be very disruptive to end users under most experiences. Hence it is recommended that sound in the ads must be muted at the start.

However, sound in ad may be played at the start of an ad when the following conditions are met:

1. User has sound on their device turned on.
2. Ad placement has 100% share of screen.

The above two conditions are possible only on mobile devices for full page ads, i.e. mobile interstitials or on mobile devices when user is consuming audio only content.

In all other cases ads must start in muted state. This includes:
1. Ads placed in desktop browsers.
2. Ads placed in mobile browsers or mobile device apps when other content is also present on screen, e.g. in between paragraphs or in between lists of content.

If the ad or the publisher environment does not have the capability to measure the sound volume then it must start the video play in muted state.

LEAN: Non-Disruptive Ad Experience

Disruption of the content consumption by advertising has been a major complaint from users as well as a motivation to use ad blocking tools. This guidance lists current ad experiences and identifies **disruptive ad experiences that MUST NOT** be used as well as provides guidance on **acceptable experiences**:

Ad Experience	Use	Description and Guidance
Pop Up Ads	Not Allowed	Ads that cover or overlay the content or obstruct users from viewing the content. It Includes all ads that pop up on the user's screen and cover the content as well as ads that "float in", "slide in", "fly in" to the screen and obstruct the full view or partial view of the screen's primary content. Any ads that automatically take user to an interstitial or overlay ad without user initiation or user action to navigate content.
Auto Expansion	Not Allowed	Ads that expand from their original size to a bigger size without user initiation MUST NOT be used. Expansion while scrolling is allowed. Please see LEAN Guidance for details.
Hover or Rollover Expansion	Not Allowed	Hover MUST NOT be considered a substitute for a click, for the purpose of ad expansion. On hover, no ad function that changes the form or size of the ad from its original size is allowed, e.g. expansion.
Sideways Ad Expand that Overlays Content	Not Allowed	No directional or sideways expansion of an ad is allowed. All ads must expand to cover full screen. If expanded creative size is not full screen, it must be placed in center of screen.
Auto Play Video with Audio	Not Allowed	Auto play defines automatic initiation of media by the ad. These ads auto play audio on desktop and mobile devices. Video play is defined as the execution of specific files, e.g. mp4, that are used to play video. Audio is allowed to auto play only under specific conditions. Please see video under LEAN user experience and ad content guidance for details.
Forced Countdown	Not Allowed	Forced countdowns to dismiss or skip ads e.g. interstitials or expanded part of the ad MUST NOT be used. User should have immediate option to "Close" or "Dismiss" the ad from the beginning of the ad experience.
Pages with High Ad Density	Not Allowed	Pages that have ad covering more than 30% of pixels are considered high ad density pages. Pages should have less than 30% ad density. Sometimes an ad may have more than 30% of pixels of user's viewport but not more than 30% of pixels on the page. Such ads are allowed under the following guidance:

Ad Experience	Use	Description and Guidance
		1. An ad is allowed to occupy more than 30% of the viewport at a time, e.g. a 1:1 ad on mobile phone, BUT overall on the page (as user scrolls down) the combined ads must not have more than 30% of pixels on page. 2. If an ad that has more than 30% ad density of the viewport is to be shown it must start with partial viewability (no more than 30% of height screen) on screen and gain full viewability as user scrolls through the page.
Scroll Over or Scrolling Overlay	Not Allowed	Ads that appear while scrolling and auto expand to cover the content or screen. Ads that do not expand inline but overlay the content. Ads that expand against the user scroll direction.
Flashing Animation	Not Allowed	Flashing animation is described as having one or more of below content types: 1. High contrast colors. 2. Very bright colors. 3. Fast moving images or content.
Adhesion or Sticky Ads	Allowed	Ads that are anchored to the bottom or top of the screen. They are allowed under the following guidance: 1. Ad height MUST be less than 25% of the screen height. 2. The ad MUST have a clear boundary to separate it from the content. 3. The ad MUST cover the full width of the screen edge to edge. 4. The ad MUST have a 'close button' above top right corner of the ad as defined in LEAN User Experience and Ad Content.
Expand while Scrolling	Allowed	The expansion MUST be inline on the page. Expansion MUST not overlay or cover any part of the content on the page. When out of view the ad MUST NOT auto collapse – that causes the page content to move and disrupt user experience.
Underlays Ads	Allowed	Underlay ads appear to be under the page content and reveal ad content in between page content while scrolling. The content MUST appear scrolling over the ad. The ad MUST not cover or overlay any part of the content.

Delisted and "In Transition" Ad Formats

The following ad experiences or ad formats are either 'in transition' or have been delisted from the IAB New Ad Portfolio.

Ad Unit / Experience	Delist / In Transition*	Guidance
Rising Stars	In Transition	All ads must follow the LEAN guidance. Rising Stars are under evaluation and will be delisted soon
Mobile Rising Stars	In Transition	All ads must follow the LEAN guidance. Rising Stars are under evaluation and will be delisted soon
Pop Up Ads/ Floating Ads	Delist	The ad format is no longer part of the IAB Ad Unit Portfolio
Auto Expand Ad Functionality	Delist	Expansion without user initiation is not allowed. Please see the LEAN guidance for ad expansion
UAP (Universal Ad Package)	Delist	All ads are now LEAN ads so no need for separate UAP
Rich Media	Delist	All ads are now LEAN ad so no need for separate Rich Media ad units
300x50 or 320x50	In Transition	To be replaced by 6x1 horizontal banner
970x250	In Transition	To be replaced by 4x1 horizontal banner
970x90	Delist	The ad format is no longer part of the IAB Ad Unit Portfolio
728x90	In Transition	To be replaced by 8x1 horizontal banner
300x1050	In Transition	To be replaced by 1x3 vertical portrait
300x600	In Transition	To be replaced by 1x2 vertical portrait
300x250	In Transition	To be replaced by 1x1 vertical portrait
160x600	In Transition	To be replaced by 1x4 vertical portrait
Full Page Flex Square	In Transition	To be replaced by Full Page 9x16, 10x16, 2x3, and 4x3 aspect ratios
180X150	Delist	The ad format is no longer part of the IAB Ad Unit Portfolio
120x60	In Transition	To be replaced by 2x1 small size ad
88x31	Delist	The ad format is no longer part of the IAB Ad Unit Portfolio

*__In Transition:__ The ad format is allowed for now, but will be replaced by the ad format provided in guidance
*__Delist:__ The ad format or the specification is no longer part of the IAB Ad Unit Portfolio

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Z-Index Guidelines

Z-Index Definition
The z-index property specifies the stack order of an element of content on a web page. Consideration of the z-index in page content design such as navigation, imagery, and ads is important for providing a seamless experience when page content overlaps (i.e. an expanding ad with a z-index that is lower [on the z-index scale] than navigational elements may give the appearance that page navigational elements are showing through the expanded portions of the ad).

Z-Index Range	Content Type	Details
< 0	Background Elements	None
0 - 4,999	Main Content, Standard Ads	Standard ad tags in place with regular content. Includes IBA Self-Regulation Message (CLEAR Ad Notice)
5,000 - 1,999,999	Expanding Advertising	The entire expandable ad unit should be set within this range
5,000,000 - 5,999,999	Expanding Site Navigation Elements	Drop down navigation, site warnings, etc. Only the expanding portion of navigation elements should be included on this level.

Note: Publishers should declare their specific z-index guidelines

Z-Index Range Use Recommendations
The z-index represents layers of elements on a webpage. When ad elements and other page elements are layered incorrectly, proper display of either page content or ad content (or both) may be compromised. The accidental "collision" of competing elements on a webpage that share the same z-index value leads to a poor consumer experience, in the form of distorted or mangled images and text. Accordingly, the establishment of an industry accepted z-index hierarchy and associated numerical range is crucial to solving the occurrence of collisions. Creative designers are advised to consult directly with publishers for their individual z-index guidelines.

Native Ads

Native ad units are ad units that are integrated in the user's content experience and usually take the form of the content on the page. Typically, four types of native ad units are used, namely Story Ad, Video Ad, Product Ad, and App Install Ad. More details on Native Ad units and placements can be found in IAB Native Advertising Playbook (http://www.iab.com/wp-content/uploads/2015/06/IAB-Native-Advertising-Playbook2.pdf) and IAB Deep Dive on In-Feed Ad Units (http://www.iab.net/media/file/IAB_Deep_Dive_on_InFeed_Ad_Units.pdf). Further details and specifications are available in the OpenRTB Dynamic Native Ads API (http://www.iab.com/wp-content/uploads/2016/03/OpenRTB-Native-Ads-Specification-1-1_2016.pdf).

In this document, we outline the ad formats and specification for asset requirements for Native Ads.

Ad Unit

Format of the native ad unit will depend on the placement type. But in general, the assets required for native ads are similar. Any native ad unit may include a data asset, image asset, animation, and/or video.

Placement Types

1. In the feed of content, - i.e. as an item inside the organic feed/grid/listing/carousel
2. In the atomic unit of the content - i.e. in the article page or single image page
3. Outside the core content - i.e. in the ads section on the right rail, as a banner- style placement near the content
4. Recommendation widget, most commonly presented below the article content

Native Image Assets

Image Asset Type	Image Asset Aspect Ratio	Min Height (dp**)	Min Width (dp**)	Recommended File Weight (kB)
Icon	1:1	50 (max 300)	50 (max 300)	10
Main-Small	1:1	200	200	30
	4:3	200	267	30
	1.91:1	200	382	30
Main-Large	1:1	627	627	90
	4:3	627	836	100
	1.91:1	627	1198	150

Density-independent pixels (dp) where 320 dp is approximately 2 inches wide. dp = (width in pixels * 160) / screen density
E.g. for pixel density of 1, i.e. 160 pixels per inch (iPhone 3) 320dp is 320px (320 dp= (Xpx *160)/160).
For pixel density of 2, i.e. 320 pixels (iPhone 5) 320dp is 640px (320 dp= (Xpx *160)/320)

Native Ads Data Assets

Data assets for native ads are components of the ad that are transmitted along with the ad file. For example, a native ad may be a product that includes customer review ratings and would include a number for the "rating" asset. A data asset that identifies the brand name of the sponsor ("sponsored by") is required.

Asset Type	Description	Format	Restrictions	Requirement
title	A title for the ad	text	25, 90, or 140-character limit	Recommended
sponsored	Name of the sponsoring brand	text	25-character limit	Required

Asset Type	Description	Format	Restrictions	Requirement
desc	Descriptive text associated with the product or service being advertised. Longer length of text in response may be truncated or eclipsed by the exchange	text	140-character limit	Recommended
ratings	Rating of the product being offered to the user. For example, an app's rating in an app store from 0-5	number formatted as a string	0-5	Optional
likes	Number of social ratings or "likes" of the product being offered to the user	number formatted as a string		Optional
downloads	Number of downloads/installs of this product	number formatted as a string		Optional
price	Price for product/app/in-app purchase. Value should include the currency symbol in localized format	number formatted as a string		Optional
saleprice	Sale price that can be used together with price to indicate a discounted price compared to a regular price. Value should include currency symbol in localized format	number formatted as a string		Optional
phone	Phone number	formatted string		Optional
address	Address	text		Optional
desc2	Additional descriptive text associated with the product or service being advertised	text		Optional
displayurl	Display URL for the ad. To be used when sponsoring entity doesn't own the content, i.e. sponsored by BRAND on SITE (where SITE is transmitted in this field). This applies to cases where the site to which user is taken on click-through is not the same as the brand in 'sponsored by'. E.g. sponsored by is "brand A" but the site is "xyz.com" and does not have brand A in the URL	text		Optional
ctatext	CTA description - descriptive text describing a 'call to action' button for the destination URL	text	15-character limit	Optional
custom	Additional ad components required or offered by the publisher.	custom		Optional

New Media Experiences

Developers and publishers have created new engaging digital media experiences using mobile devices, augmented reality, and immersive virtual reality hardware. New media experiences' ad specifications address these new experiences where users are already spending considerable time or that are growing in popularity among users.

Emoji and Sticker Content

An emoji or sticker content is typically used in social communication and messaging environments. Selecting an icon that represents the brand may initiate a branding message, call to action, or special offer.

Ad Type	Ad Unit	Aspect Ratio	Recommended Dimensions (dp)**	Max File Weight (kB)	Notes
Emoji Branded emoji used in social communication and messaging environments that may offer a function such as order a cab or watch a video.	**1x1**	1:1	20x20	10	200dp x 200dp "stickers" of 50 kB max k-weight also allowed. Emoji ads should differentiate from regular content emojis. An example is to use very light pulsating outline for the ad emoji. It must not be rapid moving or high contrast colors to avoid disrupting the user's attention

Density-independent pixels (dp) where 320 dp is approximately 2 inches wide. dp = (width in pixels * 160) / screen density

Vertical Video Ads

As more phones are used in a vertical position to record video and check social feeds and other sites or apps, videos in vertical orientation becomes more relevant.

Full screen portrait aspect ads run in IAB Full Page ad units in the vertical (portrait) format. They may also run as a component of an augmented reality ad or virtual reality ad.

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Ad Type	Ad Unit	Min. Frames per Second (fps)	Duration	Static Image Size	Notes
Vertical Video Video-formatted display ads that play in a vertical (portrait) orientation rather than the typical horizontal (landscape) orientation.	**IAB Full Page Ad Units** **9x16** **10x16** **4x3** **2x3**	24	8-12 seconds recommended, allowed up to 30 seconds	See IAB Full Page Ad units	Brand engagement increases dramatically when text overlays communicate the message without audio. Ads should default to play muted (without audio) using text overlays to communicate the brand message. This format is RECOMMENDED for full screen videos on mobile devices. Ad expansion is discouraged.

360-Degree Images and Videos

The 360-degree image and video formats are gaining popularity as a medium, allowing consumers to share their experiences. These create immersive and vivid content that can increase user engagement with the advertisement. We are still in the early stages for the content and these are initial specifications of required assets and maximum initial weights as well as recommended interactions.

Ad Type	Ad Unit	Max Initial K-weight (kB)	Max Subload (kB)	Static Image (kB)	Notes
360-Degree Image These ads use vivid and immersive content from 360-degree images. The ads are image based and 360-degree	Full Page Ad Units	200	400	150	360-degree image ads require full 360 degree captured images. Advertisers should submit the assets to their creative technology provider with a
	2x1	200	400	150	

Ad Type	Ad Unit	Max Initial K-weight (kB)	Max Subload (kB)	Static Image (kB)	Notes
viewing can be initiated by user action. Clicking + dragging in mouse based user interface control OR swiping or shaking the phone/device in touch and accelerometer based user interface controls. They can be served in display ad units in non-VR experiences or as interstitials in VR experiences	4x1 Large	150	400	150	range of 1280x640 dp minimum and up to 2048x1024 dp max. The file weights required to deliver 360-degree images are heavy. If the file weights required to deliver the ad are higher than the maximum allowed initial load limits, advertisers should consider 360-degree images on user initiated action, e.g. in the expanded part of the rich media ad after the user expands the ad or downloaded / initiated on touch or other discrete gesture like tap, shaking / moving device using accelerometer to capture the user initiation. Allowed File Types: .jpg, .png, .gif

Ad Type	Ad Unit	Duration	Max File Weight(MB)	Min. Frames per Second (fps)	Notes
360-Degree Video These ads use vivid and immersive content from 360-degree videos. The ad content is a 360-degree video and the 360-degree viewing can be initiated by user action. Click and drag in mouse based user interface control OR swiping or shaking the phone / device in touch and accelerometer based user interface controls. They can be served in display ad units in non-VR experiences	**360-degree Video**	**8 seconds**	2	30	High Quality Equirectangular or Cube Map Video File of 720p or higher quality MUST be provided Video MUST be user initiated Video MUST provide user controls to pause, play, stop, and mute audio See General Notes for other video instructions to be followed for adaptive bitrate streaming, codec, and format 360-degree video can be delivered in 16x9 landscape or 9x16 vertical video format. See full page flex 9x16 definition for size of the ad
		30-90 seconds	10	30	

Virtual Reality (VR)

Virtual reality or VR content is a fast-growing medium that ranges from basic stereoscopic apps that let users watch content in 360-degree view and motion to sophisticated headsets that let users immerse in full virtual reality (VR) experience with controllers and sophisticated eye gaze controls. Virtual reality ads are ads that display in a virtual space just as they might display in the real world – both two-dimensional and three-dimensional ad formats can be used in VR experiences. For example, a Full Flex display with a 16:9 aspect ratio could display in a roadside billboard of a highway scene in a video game. A video ad might display in a television of a virtual living room. Many of the display ads developed for traditional display may already work in a virtual setting.

Virtual reality ads also offer innovative new formats for digital advertising. For example, a restaurant might sponsor the menu design for a virtual restaurant in a game, or a key object used to embellish a virtual scene may be focused on to draw up a tray in the app that the user can then interact with to learn more. A brand may be able to sponsor a virtual room experience or a brand may sponsor to supplement or complement an object in VR scene with a similar size brand object, e.g. replace a soda can with branded soda can or place a branded potato chips package to go along with a soda drink.

Ad Type	Ad Unit	Content	File Type /Size /Quality	Notes
Virtual Reality Ads Ads that display in a 3D or virtual reality environment, either in a designated ad space (such as a street side billboard), as a video (that might play in a virtual home TV or virtual movie theater), or as an object (such as a branded bag of potato chips on the table). Fully branded 3D scenes can also be created as 'Virtual Rooms'	2D Images	Any display ad format appropriate for the scene MUST NOT be overlay banner, MUST be part of the experience, e.g. a billboard in the scene with ad banner or a picture or wall hanging in a scene that is filled in with a banner ad of the right aspect ratio and size.	Image (jpg, png, gif, etc.)	Ad image should be in the VR scene and within the camera projection or field of view
	2D Video	Use guidelines for linear ads provided in IAB Digital Video Ad Format Guidelines (https://iabtechlab.com/specifications-guidelines/iab-digital-video-in-stream-ad-format-guidelines/) as a baseline and discuss further details as required by the publisher. Video MUST NOT be an overlay or pop up video. Video should not break immersion in the VR environment or require the user to remove headsets in order to properly view the ad.	Video (mp4, mov, etc.)	Ad video should be in the VR scene and within the camera projection or field of view

Ad Type	Ad Unit	Content	File Type /Size /Quality	Notes
		User can be offered to opt-in to an action that may require the user to remove the headset.		
	3D 360-Degree Video	360-degree video placed as an interstitial ad between different VR scenes. 360-degree video MUST completely fill the VR scene with video ad. Video should not break immersion in the VR environment or require the user to remove headsets in order to properly view the ad. User can be offered to opt-in to an action that may require the user to remove the headset.	15-120 seconds duration 30 - 60 fps, Up to 200 MB max file size	• High Quality Equirectangular or Cube Map Video File of 720p or higher quality MUST be provided • Video MUST be user initiated • Video must provide a skip functionality to allow the user to return to the core experience
	Interactive Object	Irregular three-dimensional shape made by joining a number of digital polygons together, typically of something that represents an everyday object like a shoe, soda can, couch, car, etc. Publishers/Developers define the minimum and maximum polygon count for each 3D branded object along with the number of 3D objects for each brand category. This prerequisite ensures that the object blends appropriately with the environment without overloading the system. Lower polygon count objects look out of place and object with a higher polygon count slow down load time.	object	Viewability depends on scale of the interactive object. A soda can may not need to fill as much of the screen to be viewable as a vehicle would need.

Ad Type	Ad Unit	Content	File Type /Size /Quality	Notes
	Virtual Room	Virtual Room is a VR scene that is accessed from the publisher/developer content experience which is devoted solely to the display of sponsored advertising content. Virtual Rooms contain the following elements: **Entry Point:** An object, spatial UI or other means the user interacts with to enter into the Virtual Room **Close Scene/Exit:** Virtual Rooms MUST have a "close button" to allow users to easily exit back to content. Users should be returned to the story/game at the exact place they left off **Scene Environment:** The 360° world the users see in the room **Ad Objects:** Interactive 3D, 2D and 360 video ads, audio tracks, or combinations thereof represented in the room **Interactions:** The method(s) and results of user interactions with the ad objects. An interaction may produce a transition to another part of the scene or introduce new visual or interactive element in the scene. Users can interact with ad objects multiple ways depending on the hardware being used and methods allowed by the scene developer. E.g. **Gaze Event:** users look at object within the camera view for a specified amount of time to activate **Tap Event:** Users look at an object within the camera view and tap the HDM (High Definition Media) or game controller to activate **Voice Control:** Users voice commands that are translated into activations **Physical Interaction/Gestures:** Users move their hands or body to activate		

Augmented Reality (AR)

Augmented reality or AR experiences are a new way to create context and add experiences over real physical world objects and attributes like location or recognized image or object.

Ad Type	Components	Options	Description
Augmented Reality There are two ways to present AR ads: 1. Ads that use a marker in the real world, such as a QR code or an AI-learned concept like a "dog," to trigger the display of brand content. 2. The ad can also place a brand object in the immediate real-world environment using the device camera. Displayed brand content may be dynamically generated based on data available in the given environment (time, location, etc.) and may move with the scanned or recognized object (tracked to object). Displayed brand content may also be	**Ad Initiation or 'Trigger'**	Marker from database	An image, often printed, that a scanning system is programmed to recognize. Examples of traditional markers are QR (Quick Response) codes or bar codes, but a clearly defined image, such as a specific outline of a dinosaur, may also be used. A marker can also be context like location.
		Artificial intelligence-driven recognition	A generalized concept that an artificial intelligence (AI) system has been "taught" to recognize. For example, a brand may choose to associate a product or service with dogs. When the AI system on a device "sees" a dog using the device lens, the AI system can associate the familiar concept with the previously known concept of a "dog." The unknown visual of a dog that the AI system scans may be either an image of a dog or the three-dimensional animal. Once recognized, the system can trigger the display of brand content.
	Display	Not tracked to object	Once triggered, the ad content that displays remains static on the screen regardless of what happens to the scanned marker or recognized object.
		Tracked to object	Once triggered, the ad content that displays moves on the screen along with the object that triggered the ad for as long as the object remains in view.
	Content	Static	Any IAB Full Page display ad unit that, once triggered, offers content that doesn't change regardless of what data is available in the given environment.
		Dynamic	Any IAB Full Page display ad unit that, once triggered, offers content that may change based on data that is available in the given environment. For example, time, location, weather, user data, or other data may be used to offer content that is unique to the given environment.

Ad Type	Components	Options	Description
uniquely generated based on the environment scanned (immersive).		Immersive	A custom ad experience of any combination of display ad formats, including animation or video, that generates content specific to the object or environment that triggered the brand content. Once triggered, the generated immersive brand content may be static (content that doesn't change) or dynamic (content that changes based on available data or real objects around the user). The ad content may also place a brand image or video in the immediate environment of the user by using the device camera

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