InMobi RTB API Specification

Version: 4.0 [based on OpenRTB 2.5]

Changelog

Breaking Changes:

1. Request compression is now required for integrating with the InMobi RTB platform. Response compression is recommended for bidders.
2. Native Markup Request Object has been moved to *bidrequest.imp.native.request* instead of the earlier *bidrequest.imp.native.requestobj* to adhere with OpenRTB. It's recommended that bidders read from both these fields during the transition phase to ensure no downtime or need for release sequencing
3. Mandatory fields in Responses have been updated: bid.crid, bid.iurl, bid.adomain, bid.cat, bid.protocol (for video responses), bid.w (for banner responses), bid.h (for banner responses), bid.api (for mraid responses).
4. nurl, which was earlier treated as a billing url will now be ignored. Please use the burl field instead.

Backward Compatible Changes:

1. Specification has been updated to OpenRTB 2.5
2. Support for APK downloads directly within a publisher's app have been added
3. New Fields:
    a. bidrequest.imp.ext.dplRecommended
    b. bidrequest.imp.ext.adChoiceUrlSupport
    c. bidrequest.imp.ext.apkDownloaderSupport
    d. bidrequest.imp.ext.viewabilityvendors
    e. bidrequest.imp.banner.vcm
    f. bidrequest.imp.banner.format
    g. bidrequest.imp.native.request.plcmtcnt
    h. bidrequest.imp.native.request.assets[].img.ext.ar
    i. bidrequest.imp.native.request.assets[].img.ext.arTolerance
    j. bidrequest.imp.video.skipmin
    k. bidrequest.imp.video.minbitrate
    l. bidrequest.imp.video.playbackend
    m. bidrequest.imp.video.placement
    n. bidrequest.imp.video.ext.rewarded
    o. bidrequest.imp.video.ext.experiences
    p. bidrequest.imp.app.ext.bundle
    q. bidresponse.seatbid[].bid[].burl
    r. bidresponse.seatbid[].bid[].cid
    s. bidresponse.seatbid[].bid[].api
    t. bidresponse.seatbid[].bid[].protocol
    u. bidresponse.seatbid[].bid[].bundle
    v. bidresponse.seatbid[].bid[].ext.video.experience
    w. bidresponse.seatbid[].bid[].ext.viewabilityvendors

4. Deprecated Fields:
    a. bidrequest.allimps
    b. bidrequest.displaymanagerver
    c. bidrequest.imp.video.ext.skip
    d. bidrequest.imp.video.ext.skipdelay
    e. bidrequest.imp.native.requestObj.seq
    f. bidrequest.imp.native.requestObj.adunit
    g. bidrequest.imp.app.ext.store
    h. bidrequest.imp.user.yob
    i. bidresponse.seatbid[].bid[].nurl

Documentation Updates:
1. Added more details about Transport, No/Faulty Bid response conditions
2. Deviations from OpenRTB 2.5 has been strictly called out.
3. Removed unused fields.

1 Welcome to Programmatic Buying

Real-time bidding (RTB) allows entities to buy mobile inventory programmatically through an online auction, where each auction is for a specific ad placement or impression. The InMobi RTB platform follows the standards set by OpenRTB version 2.5.

This document highlights the details required for integrating with InMobi RTB platform.

2 Integration and Testing

Please contact us to register your bidder URL with InMobi RTB platform. Upon registering the bidder with the InMobi RTB platform, InMobi will configure an RTB integration test.

3 Getting Started

3.1 Version

The InMobi RTB platform follows the standards set by OpenRTB Version 2.5. The OpenRTB version will be communicated via the following header

x-openrtb-version: 2.5

3.2 Transport

The base protocol for communication will be HTTP 1.1. Specifically, HTTP POST will be used for bid requests in order to accommodate greater payloads than HTTP GET and to facilitate the use of binary representations. HTTP GET will be used for billing notifications.

3.3 Data Format

The format for bid request and bid response data payloads will be JSON. The bid request will specify this by using the Content-Type HTTP header with the standard mime type for JSON: "application/json". Hence, the format for the bid response must be in JSON.

3.4 Data Encoding

Compressing the data that is sent between exchanges and bidders can be very beneficial. Compression greatly reduces the size of data transferred and thus saves network bandwidth both for the exchanges

and the bidders. To realize these savings fully, compression should be enabled both for the bid request sent by the exchange and the bid response returned by the bidder. The InMobi RTB platform will always send compressed requests to bidders and will expect compressed responses in return.

Compression will be enabled for bid requests/responses using standard HTTP 1.1 mechanisms. Most webservers already support gzip compression of response content. The InMobi RTB platform will always signal that they would like responses to be compressed, by setting the standard HTTP 1.1 Accept-Encoding header with the value "gzip".

Accept-Encoding: gzip

If the bidder server supports this and is correctly configured, it will automatically respond with content that is gzip encoded. This will be indicated using the standard HTTP 1.1 Content-Encoding header.

Content-Encoding: gzip

Compression will always be enabled on the bid request. The exchange will indicate a gzip compressed bid request by setting the HTTP 1.1 Content-Encoding header with the value "gzip".

Content-Encoding: gzip

3.5 Important Updates

- **Multiple bids** are now supported. Buyers can now send multiple bids corresponding to same impression object in the response. In case of Native Markup Request object, where **plcmtcnt** is greater than 1, the multiple bids may be eligible to win a single impression.

- **An ad impression** that can support **multiple ad formats**, will be sent as a separate ad requests, each of them offering a single ad format opportunity to bidders.
    - If the winning bidder has multiple bids, their other bids will not be considered for deciding the second price in the auction.

- **Ad Auditing** and **Quality Requirements:** InMobi reviews the quality of ads served by bidders.
    - Ads that fail to comply with content guidelines and don't adhere to mandatory requirements shared below will be invalidated and not be allowed to compete in the auction.

- o   Buyers must honor ad and category blocks present in the request.
- o   To ensure a higher standard of ad auditing and quality, all buyers are expected to mandatorily send the following parameters in the bid response:

Attribute	Type	Description
crid	string; required	Creative ID to assist with ad quality checking. This must not be longer than 64 characters, otherwise it will be truncated.
iurl	string; required	Sample image URL (without cache busting) for content checking.
adomain	string array; required	Advertiser domain for block list checking (e.g., "ford.com"). This can be a list of domains if there is a rotating creative.
cat	string array; required	IAB content categories of the creative.
protocol	integer; required for Video ads	Video response protocol of the markup if applicable. Required for video ads.
w	Integer; required for Banner ads	Width of the creative in device independent pixels (DIPS). Required for banner ads
h	Integer; required for Banner ads	Height of the creative in device independent pixels (DIPS). Required for banner ads

4 Bid Request

BidRequest provides various forms of information to assist bidders in making targeting and pricing decisions. The following table summarizes the objects in the Bid Request model

4.1 Bid Object Hierarchy

Object	Supported	Extensions

Bid Request (Top level object)	Yes	No
Imp	es	Yes
Metric	es	No
Banner	Yes (Exactly one of Banner/Native/Video will be present)	No
Native	Yes (Exactly one of Banner/Native/Video will be present)	Yes
Video	Yes (Exactly one of Banner/Native/Video will be present)	Yes
Pmp	Yes	No
Deal	Yes	No
Site	Yes (For Mobile Web traffic)	Yes
App	Yes (For App traffic)	Yes
Content	No	No
Publisher	No	No
Producer	No	No
Device	Yes	Yes
Geo	Yes	No
User	Yes	Yes
Data	Yes	No
Segment	Yes	No

Source	No	No
Regs	Yes	No

4.2 Object: Bid Request

Attribute	Type	Description
id	string	Unique ID of the bid request, provided by the exchange.
imp	object array	Array of Imp objects representing the impressions offered. At most and at least, one Imp object will be present.
site	object; conditional	Details via a Site object about the publisher's website. Only applicable for mobile web traffic.
app	object; conditional	Details via an App object about the publisher's app (i.e., non-browser applications). Only applicable for in-app traffic.
device	object	Details via a Device object about the user's device to which the impression will be delivered.
user	object	Details via a User object about the human user of the device; the advertising audience.
at	integer; default 2	Auction type, where 1 = First Price, 2 = Second Price Plus
tmax	integer; conditional	Maximum time in milliseconds the exchange allows for bids to be received including Internet latency to avoid timeout. This value supersedes any a priori guidance from the exchange.
wseat	string array; conditional	White list of buyer seats (e.g., advertisers, agencies) allowed to bid on this impression. IDs of seats and knowledge of the buyer's customers to which they refer will be coordinated with the bidders a priori. Omission implies no seat restrictions. At most, only one of wseat and bseat will be present in the

Attribute	Type	Description
		same request.
bseat	string array; conditional	Block list of buyer seats (e.g., advertisers, agencies) restricted from bidding on this impression. IDs of seats and knowledge of the buyer's customers to which they refer will be coordinated with the bidders a priori. Omission implies no seat restrictions. At most, only one of wseat and bseat will be present in the same request.
cur	string array	Array of allowed currencies for bids on this bid request using ISO-4217 alpha codes. This will be communicated a priori.
bcat	string array; conditional	Blocked advertiser categories using the IAB content categories.
badv	string array; conditional	Block list of advertisers by their domains (e.g., "ford.com").
source	object; conditional	A Source object (Section 4.3) that provides data about the inventory source and which entity makes the final decision.
regs	object	A Regs object (Section 4.4) that specifies any industry, legal, or governmental regulations in force for this request.

4.3 Object: Source

Attribute	Type	Description

fd	integer	Entity responsible for the final impression sale decision, where 0 = exchange, 1 = upstream source.
tid	string	Transaction ID that must be common across all participants in this bid request (e.g., potentially multiple exchanges).
pchain	string	Payment ID chain string containing embedded syntax described in the TAG Payment ID Protocol v1.0.

4.4 Object: Regs

This object contains any legal, governmental, or industry regulations that apply to the request. The COPPA flag signals whether or not the request falls under the United States Federal Trade Commission's regulations for the United States Children's Online Privacy Protection Act ("COPPA"). The United States Federal Trade Commission has changed the compliance rules for the Children's Online Privacy Protection Act ("COPPA"), effective July 1, 2013. The proposal affects websites, and associated services), that have been identified as: (1) directed to users under 13 years of age; or (2) collecting information from users actually known to be under 13 (collectively "Children's Sites").

Attribute	Type	Description
coppa	integer	Flag indicating if this request is subject to the COPPA regulations established by the USA FTC, where 0 = no, 1 = yes.

4.5 Object: Imp

Attribute	Type	Description
id	string	A unique identifier for this impression within the context of the bid request (starts with 1 and increments).

metric	object array	An array of Metric Object (section 4.6)
banner	object; optional	A Banner object; present if this impression is offered as a banner ad opportunity.
video	object; optional	A Video object; present if this impression is offered as a video ad opportunity.
native	object; optional	A Native object; present if this impression is offered as a native ad opportunity.
pmp	object; optional	A PMP object containing any private marketplace deals in effect for this impression.
displaymanager	string; optional	Name of ad mediation partner, SDK technology, or player responsible for rendering ad (typically video or mobile).
instl	integer; default 0	1 = the ad is interstitial or full screen, 0 = not interstitial.
bidfloor	float; default 0	Minimum bid for this impression expressed in CPM.
bidfloorcur	string; default "USD"	Currency specified using ISO-4217 alpha codes.
secure	integer; default 0	Flag to indicate if the impression requires secure HTTPS URL creative assets and markup, where 0 = non-secure, 1 = secure. If omitted, the secure state is unknown, but non-secure HTTP support can be assumed.
ext	object	Please refer to Section 4.5.1 for extension parameters

4.5.1 Object: Imp Extension

The InMobi RTB platform has directly integrated with multiple MRC accredited viewability tracking vendors in order to better serve brand advertisers. This feature is not be enabled for bidders by default.

Attribute	Type	Description
dpl	boolean; optional	Flag that indicates whether the InMobi RTB Platform supports schema based deeplinking on this inventory. Buyers should not respond back with such a url if this parameter is not present or set to false. Due to platform, publisher and/or, integration reasons, it may be possible that the deeplink url may not work, however at least one (or possibly) both of the deeplink or, the fallback landing page will load. InMobi does not guarantee delivery and tracking for the same if the specification is not honored.
dplRecommended	boolean; optional	Flag that indicates whether the inMobi RTB Platform supports schema based deeplinking well on this inventory. This flag indicates a subset of deeplinking enabled supply which enforces a stricter definition of deeplinking: the app will always be opened if it's present (as long as the user chooses to open it), the fallback landing page will never be opened if the app was present, and that there will not be any delay in opening the fallback landing page if the app was not present. InMobi does not guarantee delivery and tracking for the same if the specification is not honored.
adChoiceUrlSupport	boolean; optional	Flag that indicates whether the InMobi RTB platform supports showing of a third party ad choice url. Applicable for native and video formats.
apkDownloaderSupport	boolean; optional	Flag that indicates whether the InMobi RTB platform supports the APK Downloader functionality.
viewabilityvendors	string array; optional	Supported viewability vendor SDKs in app for all ad-formats for this impression. Please refer to Section 8.18 for list of viewability vendors. Example:['integralads.com','moat.com']

4.6 Object: Metric

Attribute	Type	Description
type	string	Type of metric being presented using InMobi RTB Platform curated string names. This will be published to bidders a priori.
value	float	Number representing the value of the metric. Probabilities must be in the range 0.0 – 1.0.
vendor	string; optional	Source of the value using InMobi RTB Platform curated string names which will be published to bidders a priori.

4.7 Object: Banner

Attribute	Type	Description
format	object array; optional	Array of format objects (Section 4.8) representing the banner sizes permitted. If none are specified then use of h and w attributes is recommended.
w	integer	Width in device independent pixels (DIPS)
h	integer	Height in device independent pixels (DIPS)
battr	integer array; optional	Blocked creative attributes. Refer to list 8.1
pos	integer; optional	Ad position on screen. Refer to list 8.2
mimes	string array	Supported MIME types include "image/jpeg", "image/gif", and "image/png".
api	integer array; optional	List of supported API frameworks for this impression. Refer to List 8.3. If an API is not explicitly listed, it is assumed not to be supported.

id	string; optional	Unique identifier for this banner object. Values start at 1 and increase with each object; and will be unique within an impression.
vcm	integer; optional	Relevant only for Banner objects used with a Video object in an array of companion ads. Indicates the companion banner rendering mode relative to the associated video, where 0 = concurrent, 1 = end-card.

4.8 Object: Format

Attribute	Type	Description
w	integer	Width in device independent pixels (DIPS)
h	integer	Height in device independent pixels (DIPS)

4.9 Object: Native

Attribute	Type	Description
request	object	Request payload complying with the Native Ad Specification.
ver	string; default 1	Version of the Native Ad Specification to which the request complies.
api	integer array; optional	List of supported API frameworks for this impression. Refer to List 8.3. If an API is not explicitly listed, it is assumed not to be supported.
battr	integer array; optional	Blocked creative attributes. Refer to List 8.1.

4.9.1 Object: Native Markup Request

Attribute	Type	Description

ver	string; default 1	Version of the Native Markup version in use.
layout	integer	The Layout ID of the native ad unit. See the table of Native Layout IDs in List 8.15
plcmtcnt	integer; default 1	The number of identical placements in this layout.
assets	object array	An array of Asset Objects. Any bid must comply with the array of elements expressed here.

4.9.2 Object: Native Asset

Only one of the {title,img} objects should be present in each asset object. Only one of title, img, and data objects will be present in a single asset object.

Attribute	Type	Description
id	integer	Unique asset ID. Denotes the counter for the array.
required	integer; default 0	Set to 1 if the asset is required (The InMobi RTB Platform will not accept a bid without it)
title	object; optional	Title object for title assets. See Title Object definition below.
img	object; optional	Image object for image assets. See Image Object definition below.
data	object; optional	Data object for ratings, prices etc. See Data Object definition below.

4.9.3 Object: Title

Attribute	Type	Description
len	integer	Maximum length of the text in the title element.

4.9.4 Object: Image

Attribute	Type	Description
type	integer	Type ID of the image element supported by the publisher. The publisher can display this information in an appropriate format. See Image Asset Types Table below for commonly used examples.
wmin	integer	The minimum requested width of the image in pixels.
hmin	integer	The minimum requested height of the image in pixels.
mimes	string array	Supported MIME types include "image/jpeg", "image/gif" and, "image/png".
ext	object	Refer to Section 4.9.4.1 for Image Object Extension

4.9.4.1 Extension: Image Object

Attribute	Type	Description
ar	integer	Expressing size as a ratio (width over height)
arTolerance	float	Acceptable deviations from the aspect ratio in percentage.

4.9.4.2 Image Asset Types

Type ID	Name	Description
1	Icon	Icon Image
2	Logo	Logo image for the brand/app
3	Main	Large image preview for the ad

4.9.5 Object: Data

Attribute	Type	Description
type	integer	Type ID of the element supported by the publisher. The publisher can display this information in an appropriate format. See the Data Asset Types Table below for commonly used examples.
len	integer; optional	Maximum length of the text in the element's response.

4.9.5.1 Data Asset Types

Type ID	Name	Format	Description
2	desc	text	Descriptive text associated with the product or service being advertised.
3	rating	number formatted as string	Rating of the product being offered to the user. For example an app's rating in an app store from 0-5.
5	downloads	number formatted as string	Number downloads/installs of this product
12	cta_text	text	CTA description - descriptive text describing a 'call to action' button for the destination URL.

4.10 Object: Video

InMobi RTB platform support videos that comply with the VAST standard. Companion ads are supported and are recommended. The InMobi RTB platform will signal this by including an array of Banner objects under companionads.

Maximum size of video assets should not be more than 10MB. The InMobi RTB platform has directly integrated with multiple MRC accredited viewability tracking vendors in order to better serve brand advertisers.

Attribute	Type	Description

mimes	string array	Supported MIME types include "video/mp4".
minduration	integer; optional	Minimum video ad duration in seconds.
maxduration	integer	Maximum video ad duration in seconds. Current supported max duration is 30 seconds.
protocols	integer array	Array of supported video protocols. Refer to list 8.5
w	integer	Width of the video player in device independent pixels (DIPS).
h	integer	Height of the video player in device independent pixels (DIPS).
startdelay	integer	Indicates the start delay in seconds for pre-roll, mid-roll, or post-roll ad placements. Refer to list 8.8
placement	integer	Placement type for impression. Please refer to Section 8.11
linearity	integer	Indicates if the impression must be linear, nonlinear, etc. If none specified, assume all are allowed. Refer to list 8.4
skip	integer; default 0	Indicates if the player will allow the video to be skipped, where 0 = no, 1 = yes.
skipmin	integer; default 0	Videos of total duration greater than this number of seconds can be skippable; only applicable if the ad is skippable.
skipafter	integer; default 0	Number of seconds a video must play before skipping is enabled; only applicable if the ad is skippable.
battr	integer array; optional	Blocked creative attributes. Refer to list 8.1
minbitrate	integer	Minimum bitrate in Kbps.
maxbitrate	integer	Maximum bitrate in Kbps.

boxingallowed	integer; optional	Indicates if letter-boxing of 4:3 content into a 16:9 window is allowed, where 0 = no, 1 = yes.
playbackmethod	integer array; optional	Playback methods that may be in use. If none are specified, any method may be used.
playbackend	integer; optional	The event that causes playback to end. Refer to List 8.7.
pos	integer	Ad position on screen. Refer to list 8.2
companionad	object array; optional	Array of Banner objects (Section 4.7) if companion ads are available.
api	integer array; optional	List of supported API frameworks for this impression. If an API is not explicitly listed, it is assumed not to be supported.
companiontype	integer array	Supported VAST companion ad types. Refer to list 8.13.
ext	object	Refer to Section 4.10.1

Here's a brief guide to various types of video requests

Video Experience	Important Attributes
Full screen video, including landscape, portrait, vertical experiences	- bidrequest.imp.instl = 1 - bidrequest.imp.video.placement = 5 (denoting Interstitial/Slider/Floating) - bidrequest.imp.video.ext.experiences = [1,2,3] (Refer to section 8.16 for video experience id mappings. Experiences absent in the experiences array, can be assumed to not be supported. It is mandatory to explicitly call out the experience used/required in the response for portrait/vertical videos to function correctly.
Full screen splash video	Same as the above with the following differences: - bidrequest.imp.video.placement = 501 (denoting Splash Video) - bidrequest.imp.video.maxduration = 6 seconds

In-feed video	- bidrequest.imp.instl = 0 - bidrequest.imp.video.placement = 4 (denoting In-Feed)

4.10.1 Extensions: Video

Value	Type	Description
rewarded	**boolean**	Denotes if the site is a rewarded video site.
experiences	**integer array**	List of video experiences supported. Refer to list 8.16.

4.11 Object: PMP

Attribute	Type	Description
private_auction	integer; default 0	Indicator of auction eligibility, where 0 = all bids are accepted, 1 = bids are restricted to the deals specified and the terms thereof.
deals	object array	Array of Deal objects that convey the specific deals applicable to this impression.

4.12 Object: Deal

Attribute	Type	Description
id	string	A unique identifier for the direct deal.
bidfloor	float; default 0.0	Minimum bid for this deal expressed in CPM.
bidfloorcur	string; default "USD"	Currency of the above floor specified using ISO-4217 alpha codes. This may be different from bid currency.

wseat	string array	Whitelist of buyer seats (e.g., advertisers, agencies) allowed to bid on this deal. IDs of seats and the buyer's customers to which they refer must be coordinated between bidders and the exchange a priori. Omission implies no seat restrictions
wadomain	String array	Array of advertiser domains (e.g., advertiser.com) allowed to bid on this deal. Omission implies no advertiser restrictions
at	integer; default 2	Optional override of the overall auction type of the bid request, where 1 = First Price, 2 = Second Price Plus.

4.13 Object: Site

Attribute	Type	Description
id	string	Exchange-specific site ID
name	string; optional	Site name (may be aliased at the publisher's request).
domain	string; optional	Domain of the site (e.g., "mysite.foo.com").
cat	string array; optional	Array of IAB content categories of the site.
mobile	integer; default 1	Indicates if the site has been programmed to optimize layout when viewed on mobile devices, where 0 = no, 1 = yes.
ext	object	Refer to the next section.

4.13.1 Extension: Site

Attribute	Type	Description
fs	string	Indicates the app rating - Family safe or Performance

4.14 Object: App

Attribute	Type	Description
id	string	Exchange-specific app ID.
name	string; optional	App name (may be aliased at the publisher's request).
bundle	string; optional	A platform-specific application identifier intended to be unique to the app and independent of the exchange. On Android, this should be a bundle or package name (e.g., com.foo.mygame). On iOS, it is a numeric ID.
domain	string; optional	Domain of the app (e.g., "mygame.foo.com").
storeurl	string; optional	App store URL for an installed app; for IQG 2.1 compliance.
cat	string array; optional	Array of IAB content categories of the app.
ext	object	Refer to the next section.

4.14.1 Extension: App

Attribute	Type	Description
fs	string	Indicates the app rating - Family safe or Performance
bundle	string; optional	A platform-specific application identifier intended to be unique to the app and independent of the exchange. This will be a bundle or package name (e.g., com.foo.mygame) for both Android and iOS. Not be confused with app.bundle which actually denotes the market identifier.

4.15 Object: Device

Attribute	Type	Description
ua	string	Browser user agent string.
geo	object	Location of the device assumed to be the user's current location defined by a Geo object.
dnt	integer; optional	Standard "Do Not Track" flag as set in the header by the browser, where 0 = tracking is unrestricted, 1 = do not track. Applicable for Mobile Web traffic.
lmt	integer; optional	"Limit Ad Tracking" signal commercially endorsed (e.g., iOS, Android), where 0 = tracking is unrestricted, 1 = tracking must be limited per commercial guidelines. Applicable for In-App traffic.
ip	string; optional	IPv4 address closest to device.
ipv6	string; optional	IP address closest to device as IPv6.
devicetype	integer	The general type of device. Refer to list 8.9
make	string; optional	Device make (e.g., "Apple").
model	string; optional	Device model (e.g., "iPhone").
os	string	Device operating system (e.g., "iOS")
osv	string	Device operating system version (e.g., "3.1.2").
pxratio	float	The ratio of physical pixels to device independent pixels.
language	string; optional	Browser language using ISO-639-1-alpha-2.
carrier	string; optional	Carrier or ISP (e.g., "VERIZON"). "WIFI" is often used in mobile to indicate high bandwidth (e.g., video friendly vs. cellular).

connectiontype	integer	Network connection type. Refer to list 8.10
ifa	string; optional	ID sanctioned for advertiser use in the clear (i.e., not hashed).
didsha1	string; optional	Hardware device ID (only IMEI); hashed via SHA1.
didmd5	string; optional	Hardware device ID (only IMEI); hashed via MD5
dpidsha1	string; optional	Platform device ID (e.g., Android ID); hashed via SHA1
dpidmd5	string; optional	Platform device ID (e.g., Android ID); hashed via MD5
ext	object	Refer to Section 4.15.1

4.15.1 Extension: Device

Attribute	Type	Description
idfa	string; optional	IDFA of the iOS device.
idfasha1	string; optional	Sha1 hashed privacy aware unique identifier on iOS6 and above. Replacement for UDID.
idfamd5	string; optional	MD5 hashed privacy aware unique identifier on iOS6 and above. Replacement for UDID.
gpid	string; optional	If the device is android, the advertising id is stored here.

4.16 Object: Geo

Attribute	Type	Description
lat	float	Latitude from -90.0 to +90.0, where negative is south.
lon	float	Longitude from -180.0 to +180.0, where negative is west.

Attribute	Type	Description
type	integer	Source of location data; recommended when passing lat/lon. Refer below table.
country	string	Country code using ISO-3166-1-alpha-3.
city	string; optional	InMobi RTB Platform derived city name.

4.17 Object: User

Attribute	Type	Description
id	string; recommended	Exchange-specific ID for the user. At least one of id or buyerid is recommended.
buyerid	string; recommended	Buyer-specific ID for the user as mapped by the exchange for the buyer. At least one of buyerid or id is recommended.
gender	string; optional	Gender, where "M" = male, "F" = female, "O" = known to be other (i.e., omitted is unknown).
data	object array; optional	Additional user data. Each Data object (Section 4.18) represents a different data source.
ext	object	Refer to Section 4.17.1

4.17.1 Extension: User

Attribute	Type	Description
ageId	integer; optional	Exchange-specific ID for the age range. See the reference table 8.19

4.18 Object: Data

Attribute	Type	Description
id	string	Exchange-specific ID for the data provider.
name	string; optional	Exchange-specific name for the data provider.
segment	object array	Array of Segment (Section 4.19) objects that contain the actual data value s.

4.19 Object: Segment

Attribute	Type	Description
id	string	ID of the data segment specific to the data provider.
name	string; optional	Name of the data segment specific to the data provider.
value	string	String representation of the data segment value.

5   Sample Bid Requests

5.1   Request: Banner

```json
{
 "id": "8bbe9850-0151-1000-c9a6-3eeeaad3f494",
 "regs": {
  "coppa": 0
 },
 "imp": [
  {
   "id": "1",
   "banner": {
    "format": [{
      "w": 320,
      "h": 50
    }, {
      "w": 300,
```

1. **bidrequest.imp.banner** denotes that this impression is a banner opportunity.
2. **bidrequest.imp.banner.format** showcases the various alternative sizes (taking into account device density) that can be served on this request. (This is disabled by default).
3. **bidrequest.imp.banner.api** showcases the various APIs supported. In this case, MRAID 1 and MRAID 2.
4. **bidrequest.imp.secure** set to 1 denotes that

```json
      "h": 50
    }, {
      "w": 600,
      "h": 100
    }, {
      "w": 640,
      "h": 100
    }
  ],
  "w": 320,
  "h": 50,
  "id": "1",
  "pos": 1,
  "battr": [
    1,
    2,
    3,
    4,
    5,
    6
  ],
  "mimes": [
    "image/jpeg",
    "image/gif",
    "image/png"
  ],
  "api": [
    3,
    5
  ]
},
"displaymanager": "inmobi_sdk",
"instl": 0,
"bidfloor": 0.07,
"bidfloorcur": "CNY",
"secure": 1,
"pmp": {
  "private_auction": 0,
  "deals": [
    {
      "id": "123456",
      "bidfloor": 15.0,
      "bidfloorcur": "CNY",
      "at": 1
    }, {
      "id": "788910",
      "bidfloor": 10.0,
      "bidfloorcur": "CNY",
      "at": 2
    }
  ]
},
"ext": {
  "dpl": true,
  "dplRecommended": true,
  "viewabilityvendors": [
    "moat.com"
```

HTTPS is required for beacons, creative markup, etc.

5. **bidrequest.imp.ext.{dpl,dplRecommended}** denotes whether deeplinking is supported on this inventory or not.
6. **bidrequest.imp.pmp.deals** denotes the PMP deals applicable for this request.
7. **bidrequest.device.pxratio** denotes the device density.
8. **bidrequest.imp.ext.viewabilityvendors** denotes the viewability vendors supported.

```
      ]
    }
  }
],
"app": {
  "id": "bec616cfc2734f2fa88d81d08f9eb7b5",
  "name": "My Talking Angela",
  "cat": [
    "IAB10-2",
    "IAB1",
    "IAB19-29",
    "IAB9-30",
    "IAB6"
  ],
  "bundle": "909351158",
  "storeurl": "http://itunes.apple.com/app/id909351158?mt=8",
  "ext": {
    "fs": "1",
    "bundle": "com.outfit7.talkingAngela"
  }
},
"device": {
  "dnt": 0,
  "lmt": 0,
  "ua": "Mozilla/5.0 (iPad; CPU OS 8_4 like Mac OS X)
AppleWebKit/600.1.4 (KHTML, like Gecko) Mobile / 12 H143 ",
  "ip": "183.224.95.126",
  "geo": {
    "lat": 25.037,
    "lon": 102.706,
    "country": "CHN",
    "city": "BEIJING",
    "type": 1
  },
  "carrier": "China Mobile",
  "language": "cn",
  "make": "Apple",
  "model": "iPad",
  "os": "iOS",
  "osv": "8.4",
  "connectiontype": 2,
  "devicetype": 5,
  "pxratio": 2.0,
  "ifa": "249D9EEF-9DC3-4X61-9328-DFA9288B8B4C",
  "dpidsha1": "a3600e82956b227038c8cf0652ddd091a4236cd7",
  "dpidmd5": "f250f794d8df011998e8b48e817570b7",
  "ext": {
    "idfamd5": "f250f794d8df011998e8b48e817570b7",
    "idfa": "249D9EEF-9DC3-4X61-9328-DFA9288B8B4C",
    "idfasha1": "a3600e82956b227038c8cf0652ddd091a4236cd7"
  }
},
"user": {
  "id": "249D9EEF-9DC3-4X61-9328-DFA9288B8B4C",
  "buyerid": "249D9EEF-9DC3-4X61-9328-DFA9288B8B4C",
  "gender": "F",
  "ext": {
```

```
    "ageId": 3
  }
},
"at": 2,
"tmax": 200,
"bcat": [
  "IAB7-27",
  "IAB7-29",
  "IAB7-28",
  "IAB7-22"
],
"badv": [
  "paps.com",
  "fhs.com",
  "www.affairalert.com",
  "www.ewank.com"
]
}
```

5.2 Request: Video

```
{
  "id": "8bbe9850-0151-1000-c9a6-3eeeaad3f494",
  "regs": {
    "coppa": 0
  },
  "imp": [
    {
      "id": "1",
      "video": {
        "mimes": [
          "video/mp4"
        ],
        "minduration": 1,
        "maxduration": 30,
        "protocols": [
          2,
          5
        ],
        "w": 480,
        "h": 320,
        "startdelay": 0,
        "placement": 4,
        "linearity": 1,
        "skip": 0,
        "skipmin": 0,
        "skipafter": 0,
        "battr": [
          1,
          2,
          3,
          4,
```

1. **bidrequest.imp.video** denotes that this impression is a video opportunity.
2. **bidrequest.imp.video.protocols** denotes the VAST protocols supported. In this case, VAST 2.0 and VAST 2.0 Wrapper is supported.
3. **bidrequest.imp.video.companiontype** denotes the companion types supported for this request.
4. **bidrequest.imp.video.ext.rewarded** denotes whether the placement is a rewarded video placement or not.
5. **bidrequest.imp.video.ext.experiences** denotes the orientation experiences supported for this request. In this case, all of landscape, portrait or vertical video are supported.
6. **bidrequest.imp.video.placement** denotes the placement type applicable. In this case, 4 represents an In-Feed video placement.
7. **bidrequest.imp.instl** denotes whether the placement is a full screen placement or not. In this case, it is not.
8. **bidrequest.imp.video.maxduration** denotes the maximum video duration allowed.

```json
      5,
      6
    ],
    "maxbitrate": 2000,
    "boxingallowed": 0,
    "playbackmethod": [
      1
    ],
    "playbackend": 1,
    "pos": 0,
    "companionad": [
      {
        "w": 480,
        "h": 320,
        "id": "1"
      }
    ],
    "companiontype": [
      1
    ],
    "ext": {
      "experiences": [
        1,
        2,
        3
      ],
      "rewarded": 1
    }
  },
  "displaymanager": "inmobi_sdk",
  "instl": 0,
  "bidfloor": 0.07,
  "bidfloorcur": "CNY",
  "secure": 1,
  "pmp": {
    "private_auction": 0,
    "deals": [
      {
        "id": "123456",
        "bidfloor": 15.0,
        "bidfloorcur": "CNY",
        "at": 1
      },
      {
        "id": "788910",
        "bidfloor": 10.0,
        "bidfloorcur": "CNY",
        "at": 2
      }
    ]
  },
  "ext": {
    "dpl": true,
    "dplRecommended": true,
    "viewabilityvendors": [
      "moat.com"
    ]
```

```json
        }
      }
    ],
    "app": {
      "id": "bec616cfc2734f2fa88d81d08f9eb7b5",
      "name": "My Talking Angela",
      "cat": [
        "IAB10-2",
        "IAB1",
        "IAB19-29",
        "IAB9-30",
        "IAB6"
      ],
      "bundle": "909351158",
      "storeurl": "http://itunes.apple.com/app/id909351158?mt=8",
      "ext": {
        "fs": "1",
        "bundle": "com.outfit7.talkingAngela"
      }
    },
    "device": {
      "dnt": 0,
      "lmt": 0,
      "ua": "Mozilla/5.0 (iPad; CPU OS 8_4 like Mac OS X)
AppleWebKit/600.1.4 (KHTML, like Gecko) Mobile / 12 H143 ",
      "ip": "183.224.95.126",
      "geo": {
        "lat": 25.037,
        "lon": 102.706,
        "country": "CHN",
        "city": "BEIJING",
        "type": 1
      },
      "carrier": "China Mobile",
      "language": "cn",
      "make": "Apple",
      "model": "iPad",
      "os": "iOS",
      "osv": "8.4",
      "connectiontype": 2,
      "devicetype": 5,
      "pxratio": 2.0,
      "ifa": "249D9EEF-9DC3-4X61-9328-DFA9288B8B4C",
      "dpidsha1": "a3600e82956b227038c8cf0652ddd091a4236cd7",
      "dpidmd5": "f250f794d8df011998e8b48e817570b7",
      "ext": {
        "idfamd5": "f250f794d8df011998e8b48e817570b7",
        "idfa": "249D9EEF-9DC3-4X61-9328-DFA9288B8B4C",
        "idfasha1": "a3600e82956b227038c8cf0652ddd091a4236cd7"
      }
    },
    "user": {
      "id": "249D9EEF-9DC3-4X61-9328-DFA9288B8B4C",
      "buyerid": "249D9EEF-9DC3-4X61-9328-DFA9288B8B4C",
      "gender": "F",
      "ext": {
        "ageId": 3
```

```
    }
  },
  "at": 2,
  "tmax": 200,
  "bcat": [
    "IAB7-27",
    "IAB7-29",
    "IAB7-28",
    "IAB7-22"
  ],
  "badv": [
    "paps.com",
    "fhs.com",
    "www.affairalert.com",
    "www.ewank.com"
  ]
}
```

5.3   Request: Native

```
{
  "id": "8bbe9850-0151-1000-c9a6-3eeeaad3f494",
  "regs": {
    "coppa": 0
  },
  "imp": [
    {
      "id": "1",
      "native": {
        "ver": "1",
        "request": {
          "layout": 6,
          "plcmtcnt": 3,
          "assets": [
            {
              "id": 4,
              "required": 1,
              "img": {
                "type": 3,
                "wmin": 300,
                "hmin": 250,
                "ext": {
                  "ar": 1.2,
                  "arTolerance": 10.0
                }
              }
            },
            {
              "id": 5,
              "required": 0,
```

1. **bidrequest.imp.native** denotes that this impression is a native opportunity.
2. **bidrequest.imp.native.request.assets.img.ext.{ar,arTolerance}** denotes the aspect ratio and tolerance in aspect ratio allowed for images.
3. **bidrequest.imp.native.plcmtcnt** denotes the number of identical placements available. A value greater than one here denotes that multiple bids can win this impression.
4. **bidrequest.imp.native.request** is used instead of the earlier **bidrequest.imp.native.requestobj** construct used in earlier versions of the spec.

```json
        "data": {
          "type": 12
        }
      },
      {
        "id": 6,
        "required": 0,
        "data": {
          "type": 5
        }
      },
      {
        "id": 7,
        "required": 0,
        "data": {
          "type": 3
        }
      }
    ]
  }
},
"displaymanager": "inmobi_sdk",
"instl": 0,
"bidfloor": 0.07,
"bidfloorcur": "CNY",
"secure": 1,
"pmp": {
  "private_auction": 0,
  "deals": [
    {
      "id": "123456",
      "bidfloor": 15.0,
      "bidfloorcur": "CNY",
      "at": 1
    },
    {
      "id": "788910",
      "bidfloor": 10.0,
      "bidfloorcur": "CNY",
      "at": 2
    }
  ]
},
"ext": {
  "dpl": true,
  "dplRecommended": true,
  "viewabilityvendors": [
    "moat.com"
  ]
}
}
],
"app": {
  "id": "bec616cfc2734f2fa88d81d08f9eb7b5",
  "name": "My Talking Angela",
  "cat": [
    "IAB10-2",
```

```json
      "IAB1",
      "IAB19-29",
      "IAB9-30",
      "IAB6"
    ],
    "bundle": "909351158",
    "storeurl": "http://itunes.apple.com/app/id909351158?mt=8",
    "ext": {
      "fs": "1",
      "bundle": "com.outfit7.talkingAngela"
    }
  },
  "device": {
    "dnt": 0,
    "lmt": 0,
    "ua": "Mozilla/5.0 (iPad; CPU OS 8_4 like Mac OS X)
AppleWebKit/600.1.4 (KHTML, like Gecko) Mobile / 12 H143 ",
    "ip": "183.224.95.126",
    "geo": {
      "lat": 25.037,
      "lon": 102.706,
      "country": "CHN",
      "city": "BEIJING",
      "type": 1
    },
    "carrier": "China Mobile",
    "language": "cn",
    "make": "Apple",
    "model": "iPad",
    "os": "iOS",
    "osv": "8.4",
    "connectiontype": 2,
    "devicetype": 5,
    "pxratio": 2.0,
    "ifa": "249D9EEF-9DC3-4X61-9328-DFA9288B8B4C",
    "dpidsha1": "a3600e82956b227038c8cf0652ddd091a4236cd7",
    "dpidmd5": "f250f794d8df011998e8b48e817570b7",
    "ext": {
      "idfamd5": "f250f794d8df011998e8b48e817570b7",
      "idfa": "249D9EEF-9DC3-4X61-9328-DFA9288B8B4C",
      "idfasha1": "a3600e82956b227038c8cf0652ddd091a4236cd7"
    }
  },
  "user": {
    "id": "249D9EEF-9DC3-4X61-9328-DFA9288B8B4C",
    "buyerid": "249D9EEF-9DC3-4X61-9328-DFA9288B8B4C",
    "gender": "F",
    "ext": {
      "ageId": 3
    }
  },
  "at": 2,
  "tmax": 200,
  "bcat": [
    "IAB7-27",
    "IAB7-29",
    "IAB7-28",
```

```
   "IAB7-22"
 ],
 "badv": [
  "paps.com",
  "fhs.com",
  "www.affairalert.com",
  "www.ewank.com"
 ]
}
```

6 Bid Responses

RTB responses contain bids that make reference to specific impressions within the bid request. The bid response consists of the top-level bid response object and optional objects that depict the bids.

InMobi RTB platform treats the following response types as no-bids:

- HTTP responses having a non 200 status code.
- HTTP responses having no body or a body just containing an empty JSON object.
- A well-formed no bid response.
  {"id": "1234567890", "seatbid": []}
- A well-formed no bid response with a reason code. This is the recommended form.
  {"id": "1234567890", "seatbid": [], "nbr": 2}

InMobi supports both the standard first price and the second-price plus auction models. Bids below the floor price will not be considered in the auction.

Win/loss notifications are currently not supported by the InMobi RTB platform.

Multiple bids are now supported. Buyers can now send multiple bids corresponding to the same impression object in the response. In case of Native Markup Request object, where **plcmtcnt** is greater than 1, multiple bids may be eligible to win a single impression.

6.1. Object Specifications

The following subsections define each of the objects in the bid response model. Several conventions are used throughout:
- Attributes are "required" if their omission would technically break the protocol.

- Some optional attributes are denoted "recommended" due to their elevated business importance.

6.2 Bid Response Object Hierarchy

Object	Supported	Extensions
Bid Response (Top level object)	Yes	No
Seat Bid	Yes	No
Bid	Yes	Yes

6.3 Object: Bid Response

Attribute	Type	Description
id	string; required	This is the unique identifier of the response.
seatbid	object array; required	Array of seatbid objects; 1+ required if a bid is to be made
bidid	string; recommended	Bidder generated response id to assist with logging/tracking. This functionality is currently not supported but the corresponding substitution macro is.
cur	string; recommended; default "USD"	Bid currency using ISO-4217 alpha codes. (The partner can bid in Chinese currency CNY, if needed)
nbr	integer; recommended	Reason for not bidding. Refer to List 8.17.

6.4 Object: Seat Bid

Attribute	Type	Description
bid	object array; required	Array of 1+ Bid objects each related to an impression. Multiple bids can relate to the same impression.
seat	string; required	ID of the buyer seat (e.g., advertiser, agency) on whose behalf this bid is made.

6.5 Object: Bid

Attribute	Type	Description
id	string; required	Bidder generated bid id to assist with logging/tracking.
impid	string; required	Id of the Imp object in the related bid request.
price	float; required	Bid price expressed as CPM although the actual transaction is for a unit impression only.
burl	string; required	Billing notice URL called by the exchange when a winning bid becomes billable based on exchange-specific business policy (e.g., typically delivered, viewed, etc.). Substitution macros(Section 6.8) may be included in the URL.
adm	string; required in case of non-native ads	Ad markup for banner (HTML) /video (Vast XML) responses.
admobject	object; required for native ads	Ad markup object (Section 6.6) for native responses.
adid	string	ID of a preloaded ad to be served if the bid wins. This functionality is currently not supported but the corresponding substitution macro is.

adomain	string array; required	Advertiser domain for block list checking (e.g., "ford.com"). This can be a list of domains if there is a rotating creative.
bundle	string; recommended	A platform-specific application identifier intended to be unique to the app and independent of the exchange. On Android, this should be a bundle or package name (e.g., com.foo.mygame). On iOS, it is a numeric ID This is recommended for app download campaigns.
iurl	string; required	URL without cache-busting to an image that is representative of the content of the campaign for ad quality/safety checking
cid	string; recommended	Campaign ID to assist with ad quality checking; the collection of creatives for which iurl should be representative.
crid	string; required	Creative ID to assist with ad quality checking. This must not be longer than 64 characters, otherwise it will be truncated.
cat	string array; required	IAB content categories of the creative.
attr	integer array; recommended	Set of attributes describing the creative.
api	integer; recommended	API required by the markup if applicable. Recommended wherever applicable, for example, for rich media banner ads Refer to List 8.3.
protocol	integer; required for video ads	Video response protocol of the markup if applicable. Required for video ads.
dealid	String; required for a PMP deal	Reference to the deal.id from the bid request if this bid pertains to a private marketplace direct deal.
w	integer;required for banner ads	Width of the creative in device independent pixels (DIPS). Required for banner ads.
h	integer;required for banner ads	Height of the creative in device independent pixels (DIPS). Required for banner ads.

ext	object	Refer to the next section.

6.5.1 Extensions: Bid

On the response side, bidders need to explicitly mention the viewability vendors used so that the InMobi RTB platform can properly initialise the appropriate vendor libraries in app. List of Viewability Vendors can be found here.

Attribute	Type	Description
video	object	Object containing video related extensions fields.
apkDownloader	object	Object containing APK Downloader related extensions fields.
adChoiceUrl	string	Third Party Ad Choice Url
viewabilityvendors	string array	Viewability Vendor trackers present in the creative. Please refer to Section 4.9.Example: ['integralads.com']

6.5.1.1 Extensions: BidVideoExt

Attribute	Type	Description
companiontype	integer	VAST companion ad type. Refer to list 8.13.
experience	integer	Video experiences used. Refer to list 8.16.

6.5.1.2 Extensions: BidApkDownloaderExt

Attribute	Type	Description
used	boolean	Whether the APK Downloader functionality needs to be initialised.

startTrackers	string array	List of trackers to be fired on APK Download Start.
endTrackers	string array	List of trackers to be fired on APK Download End.
errorTrackers	string array	List of trackers to be fired on Error.

6.6 Object: AdmObject

Attribute	Type	Description
native	object; required	The native object is the top level JSON object which identifies a native response.

6.7 Object: Native

Attribute	Type	Description
ver	integer; default 1	Version of the Native Markup version in use.
assets	object array; required	List of native ad's assets.
link	object; required	Destination Link. This is default link object for the ad.
imptrackers	string array	Array of impression tracking URLs, expected to return a 1x1 image or 204 response typically only passed when using 3rd party trackers.

6.7.1 Object: Asset

Attribute	Type	Description
id	integer; required	Unique asset id, assigned by exchange.

required	Integer; default 0	Set to 1 if asset is required (exchange will not accept a bid without it)
title	object	Title object for title assets. See Title Object definition. (Section 6.7.2).
img	object	Image object for image assets. See Image Object definition (Section 6.7.3).
data	object	Data object for ratings, prices etc. See Data Object definition (Section 6.7.4).

6.7.2 Object: Title

Attribute	Type	Description
text	string; required	The text to be placed in the text element.

6.7.3 Object: Image

Attribute	Type	Description
url	string; required	URL of the image asset.
w	integer; recommended	Width of the image in pixels.
h	integer; recommended	Height of the image in pixels.

6.7.4 Object: Data

Attribute	Type	Description
label	string	The optional formatted string name of the data type to be displayed.

Attribute	Type	Description
value	string; required	The formatted string of data to be displayed. Can contain a formatted value such as "5 stars" or "$10" or "3.4 stars out of 5".

6.7.5 Object: Link

Attribute	Type	Description
url	string; required	Landing URL of the clickable link.
clicktrackers	string array	List of third party tracker URLs to be fired on click of the URL.
fallback	string	Fallback URL for deeplink. To be used if the URL given in the "url" property is not supported by the device.

6.8 Substitution Macros

Macro	Description
${AUCTION_ID}	Id of the bid request; from BidRequest.id attribute.
${AUCTION_BID_ID}	Id of the bid; from BidResponse.bidid attribute.
${AUCTION_IMP_ID}	Id of the impression just won; from imp.id attribute.
${AUCTION_SEAT_ID}	Id of the bidder seat for whom the bid was made
${AUCTION_AD_ID}	Id of the ad markup the bidder wishes to serve; from bid.adid attribute.
${AUCTION_PRICE}	Settlement price using the same currency and units as the bid.
${AUCTION_CURRENCY}	The currency used in the bid (explicit or implied); for confirmation only.

${AUCTION_MBR}	Market Bid Ratio defined as: clearance price / bid price. This macro is currently not supported, and will be replaced by a zero-length string.
${AUCTION_LOSS}	Loss reason codes. This macro is currently not supported, and will be replaced by a zero-length string.

7 Sample Bid Responses

7.1 Bid Response: Banner

```json
{
 "cur": "CNY",
 "id": "8bbe9850-0151-1000-c9a6-3eeeaad3f494",
 "bidid": "<Partner Specific Response Id>",
 "seatbid": [
  {
    "seat": "<Partner Specific Seat 1>",
    "bid": [
     {
      "adid": "<Partner Specific Ad Id 1>",
      "adm": "<Ad 1>",
      "adomain": [
       "abc.com"
      ],
      "attr": [
       1,
       2,
       7
      ],
      "crid": "1234dawdawdwdwd",
      "id": "<Partner Specific Bid Id 1>",
      "impid": "1",
      "iurl": "http://imgurl.com",
      "burl":
"http://winurl.com?win_price=${AUCTION_PRICE}",
      "price": 0.660,
      "cid": "<Partner Specific Bid Id 1>",
      "bundle": "com.outfit7.talkingTom",
      "cat": [
       "IAB10-2",
       "IAB1",
       "IAB19-29",
       "IAB9-30",
       "IAB6"
      ],
      "api": 3,
      "w": 640,
      "h": 100,
```

1. The example showcases a sample banner response with 3 bids (2 from seat 1, and 1 from seat 2).
2. **bidresponse.seatbid[].bid[].burl** denotes the billing url.
3. **bidresponse.seatbid[].bid[].{iurl, cat, cid, crid, attr, api, adomain}** denotes various creative metadata. **iurl, cat, crid, adomain** are mandatory parameters; **cid** is exposed in reporting; **attr** is required for mraid/rich media ads.
4. **bidresponse.seatbid[].bid[].ext.viewabilityvendors** denotes the viewability vendors that need to be initialised.
5. **bidresponse.seatbid[].bid[].dealid** denotes the deal applicable to this response.
6. **bidresponse.seatbid[].bid[].{w, h}** denotes the size of the creative and is mandatory. Accurate w and h values help us in ensuring a quality experience for the user.

```json
        "dealid": "123456",
        "ext": {
         "viewabilityvendors": [
           "moat.com"
         ]
        }
       },
       {
        "adid": "<Partner Specific Ad Id 2>",
        "adm": "<Ad 2>",
        "adomain": [
         "def.com"
        ],
        "attr": [
         3,
         7
        ],
        "crid": "1234dawdawasdad",
        "id": "<Partner Specific Bid Id 2>",
        "impid": "1",
        "iurl": "http://imgurl2.com",
        "burl":
"http://winurl2.com?win_price=${AUCTION_PRICE}",
        "price": 1.9,
        "cid": "<Partner Specific Bid Id 2>",
        "bundle": "com.outfit7.talkingTom",
        "cat": [
         "IAB10-2",
         "IAB1"
        ],
        "api": 5,
        "w": 300,
        "h": 50,
        "ext": {
         "viewabilityvendors": [
           "ias.com"
         ]
        }
       }
      ]
     },
     {
       "seat": "<Partner Specific Seat 2>",
       "bid": [
        {
         "adid": "<Partner Specific Ad Id 3>",
         "adm": "<Ad 3>",
         "adomain": [
           "supercell.com"
         ],
         "attr": [
           1,
           2
         ],
         "crid": "1234da244",
         "id": "<Partner Specific Bid Id 3>",
         "impid": "1",
```

```json
      "iurl": "http://imgurl3.com",
      "burl":
"http://winurl3.com?win_price=${AUCTION_PRICE}",
      "price": 5.660,
      "cid": "<Partner Specific Bid Id 3>",
      "bundle": "com.supercell.clashRoyale",
      "cat": [
        "IAB9-30",
        "IAB6"
      ],
      "api": 3,
      "w": 640,
      "h": 100
    }
  ]
 }
]
}
```

7.2 Response: Video

```json
{
"cur": "CNY",
"id": "8bbe9850-0151-1000-c9a6-3eeeaad3f494",
"bidid": "<Partner Specific Response Id>",
"seatbid": [
 {
   "seat": "<Partner Specific Seat 1>",
   "bid": [
    {
      "adid": "<Partner Specific Ad Id 1>",
      "adm": "<Vast Ad 1>",
      "adomain": [
       "abc.com"
      ],
      "attr": [
       1,
       2,
       7
      ],
      "crid": "1234dawdawdwdwd",
      "id": "<Partner Specific Bid Id 1>",
      "impid": "1",
      "iurl": "http://imgurl.com",
      "burl":
"http://winurl.com?win_price=${AUCTION_PRICE}",
      "price": 0.660,
      "cid": "<Partner Specific Bid Id 1>",
      "bundle": "com.outfit7.talkingTom",
      "cat": [
        "IAB10-2",
        "IAB1",
```

1. The example showcases a sample video response with 1 bid.
2. **bidresponse.seatbid[].bid[].burl** denotes the billing url.
3. **bidresponse.seatbid[].bid[].{iurl, cat, cid, crid, attr, api, adomain}** denotes various creative metadata. **iurl, cat, crid, adomain** are mandatory parameters; **cid** is exposed in reporting; and **protocol** is required.
4. **bidresponse.seatbid[].bid[].ext.viewabilityvendors** denotes the viewability vendors that need to be initialised.
5. **bidresponse.seatbid[].bid[].dealid** denotes the deal applicable to this response.
6. **bidresponse.seatbid[].bid[].ext.video.experience** denotes the orientation experience applicable. In this case, the experience chosen is vertical video.

```
        "IAB19-29",
        "IAB9-30",
        "IAB6"
      ],
      "protocol": 5,
      "dealid": "123456",
      "ext": {
       "viewabilityvendors": [
        "moat.com"
       ],
        "video": {
         "experience": 3
        }
       }
      }
     ]
    }
   ]
  }
```

7.3 Response: Native

```
{
 "cur": "CNY",
 "id": "8bbe9850-0151-1000-c9a6-3eeeaad3f494",
 "bidid": "<Partner Specific Response Id>",
 "seatbid": [
  {
   "seat": "<Partner Specific Seat 1>",
   "bid": [
    {
     "adid": "<Partner Specific Ad Id 1>",
     "admobject": {
      "native": {
       "ver": 1,
       "assets": [
        {
         "id": 1,
         "img": {
          "w": 80,
          "h": 80,
          "url": "<image_url>"
         }
        },
        {
         "id": 2,
         "img": {
          "w": 1200,
          "h": 627,
          "url": "<image_url>"
         }
        },
        {
```

1. The example showcases a sample native response with 1 bid.
2. **bidresponse.seatbid[].bid[].burl** denotes the billing url. The billing url can also be sent in **bidresponse.seatbid[].bid[].admobject.native.imptrackers**.
3. **bidresponse.seatbid[].bid[].{iurl, cat, cid, crid, attr, api, adomain}** denotes various creative metadata. **iurl, cat, crid, adomain** are mandatory parameters; and **cid** is exposed in reporting..
4. **bidresponse.seatbid[].bid[].ext.viewabilityvendors** denotes the viewability vendors that need to be initialised.
5. **bidresponse.seatbid[].bid[].dealid** denotes the deal applicable to this response.
6. **bidresponse.seatbid[].bid[].admobject.native.link.fallback** denotes the fallback landing page to be used for deeplinking.

```json
        "id": 3,
        "title": {
          "text": "<title>"
        }
      },
      {
        "id": 4,
        "data": {
          "value": "description"
        }
      },
      {
        "id": 5,
        "data": {
          "value": "Download"
        }
      }
    ],
    "link": {
      "url": "<landingpage_link>",
      "clicktrackers": [
        "<cick trackers>"
      ],
      "fallback": "fallback_landingpage_link"
    },
    "imptrackers": [
      "<impression_trackers>"
    ]
  }
},
"adomain": [
  "abc.com"
],
"attr": [],
"crid": "1234dawdawdwdwd",
"id": "<Partner Specific Bid Id 1>",
"impid": "1",
"iurl": "http://imgurl.com",
"burl":
"http://winurl.com?win_price=${AUCTION_PRICE}",
"price": 0.660,
"cid": "<Partner Specific Bid Id 1>",
"bundle": "com.outfit7.talkingTom",
"cat": [
  "IAB10-2",
  "IAB1",
  "IAB19-29",
  "IAB9-30",
  "IAB6"
],
"dealid": "123456"
    }
  ]
 }
]
}
```

8 Enumerated Lists

8.1 Creative Attributes

Value	Description
1	Audio Ad (Auto-Play)
2	Audio Ad (User Initiated)
3	Expandable (Automatic)
4	Expandable (User Initiated - Click)
5	Expandable (User Initiated - Rollover)
6	In-Banner Video Ad (Auto-Play)
7	In-Banner Video Ad (User Initiated)
8	Pop (e.g., Over, Under, or Upon Exit)
9	Provocative or Suggestive Imagery
10	Shaky, Flashing, Flickering, Extreme Animation, Smileys
11	Surveys
12	Text Only
13	User Interactive (e.g., Embedded Games)
14	Windows Dialog or Alert Style

15	Has Audio On/Off Button
16	Ad Provides Skip Button (e.g. VPAID-rendered skip button on pre-roll video)
17	Adobe Flash

8.2 Ad Position

Value	Description
0	Unknown
1	Above the Fold
2	DEPRECATED - May or may not be initially visible depending on screen size/resolution.
3	Below the Fold
4	Header
5	Footer
6	Sidebar
7	Full Screen

8.3 API Frameworks

Value	Description
1	VPAID 1.0
2	VPAID 2.0

Value	Description
3	MRAID-1
4	ORMMA
5	MRAID-2

8.4 Video Linearity

Value	Description
1	Linear / In-Stream
2	Non-Linear / Overlay

8.5 Protocols

Value	Description
1	VAST 1.0
2	VAST 2.0
3	VAST 3.0
4	VAST 1.0 Wrapper
5	VAST 2.0 Wrapper
6	VAST 3.0 Wrapper
7	VAST 4.0
8	VAST 4.0 Wrapper

8.6 Playback Methods

Value	Description
1	On Initiates on Page Load with Sound On
2	Initiates on Page Load with Sound Off by Default
3	Initiates on Click with Sound On
4	Initiates on Mouse-Over with Sound On
5	Initiates on Entering Viewport with Sound On
6	Initiates on Entering Viewport with Sound Off by Default

8.7 Playback Cessation Modes

Value	Description
1	On Video Completion or when Terminated by User
2	On Leaving Viewport or when Terminated by User
3	On Leaving Viewport Continues as a Floating/Slider Unit until Video Completion or when Terminated by User

8.8 Start Delay

Value	Description
>0	Mid-Roll (value indicates start delay in second)
0	Pre-Roll

Value	Description
-1	Generic Mid-Roll
-2	Generic Post-Roll

8.9 Device Type

Value	Description
1	Mobile/Tablet
2	Personal Computer
3	Connected TV
4	Phone
5	Tablet
6	Connected Device
7	Set Top Box

8.10 Connection Type

Value	Description
0	Unknown
1	Ethernet
2	WIFI
3	Cellular Network – Unknown Generation
4	Cellular Network – 2G

Value	Description
5	Cellular Network – 3G
6	Cellular Network – 4G

8.11 Video Placement Types

Value	Description
1	In-Stream Played before, during or after the streaming video content that the consumer has requested (e.g., Pre-roll, Mid-roll, Post-roll).
2	In-Banner Exists within a web banner that leverages the banner space to deliver a video experience as opposed to another static or rich media format. The format relies on the existence of display ad inventory on the page for its delivery
3	In-Article Loads and plays dynamically between paragraphs of editorial content; existing as a standalone branded message.
4	In-Feed - Found in content, social, or product feeds
5	Interstitial/Slider/Floating Covers the entire or a portion of screen area, but is always on screen while displayed (i.e. cannot be scrolled out of view). Note that a full-screen interstitial (e.g., in mobile) can be distinguished from a floating/slider unit by the imp.instl field.

8.12 Content Delivery Methods

Value	Description
1	Streaming
2	Progressive

3	Download

8.13 Companion Types

Value	Description
1	Static Resource
2	HTML Resource
3	iframe Resource

8.14 Location Types

Value	Description
1	GPS/Location Services
2	IP Address
3	User provided (e.g., registration data)

8.15 Native layout IDs

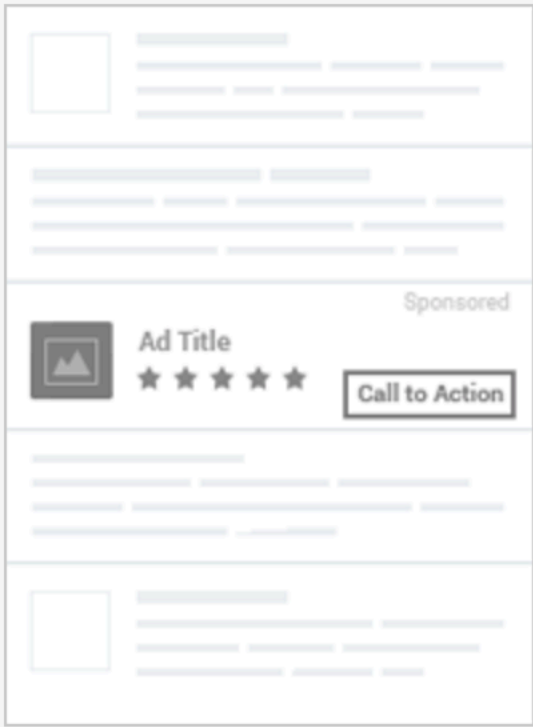| Layout ID	Description	Assets
1	Content Wall	Mandatory: Title, Icon as img, Main as img Optional: Description, CTA
3	News Feed	Mandatory: Title, Icon Optional: Description, CTA

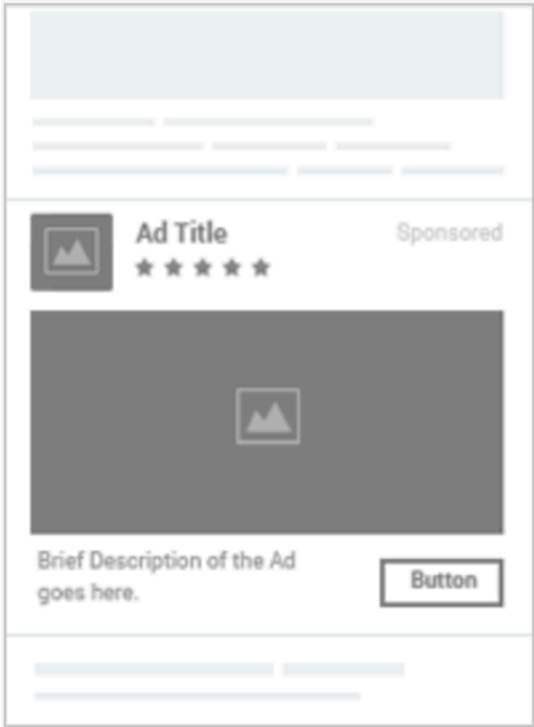| 6	Content Stream	Mandatory: Title, Icon as img, Main as img Optional: Description, CTA
501	Native Splash	Mandatory: Main as img Optional: Description, CTA

Ad template:

layoutId=1
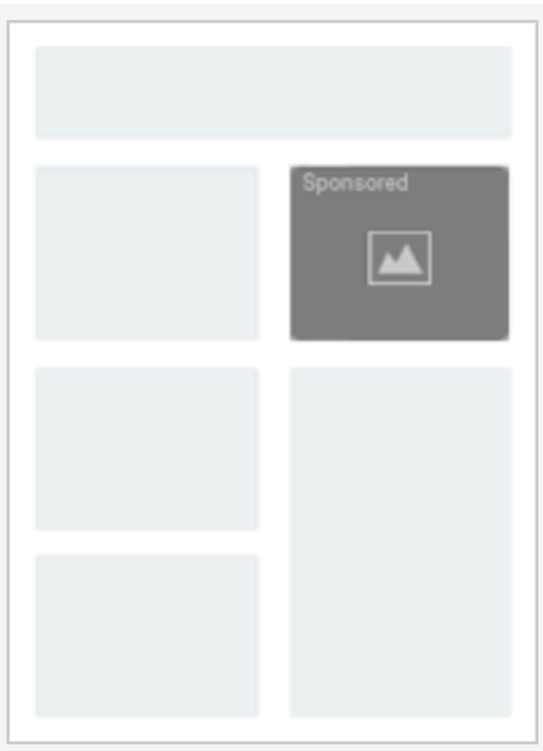
LayoutID=3

LayoutId=6

LayoutId=501
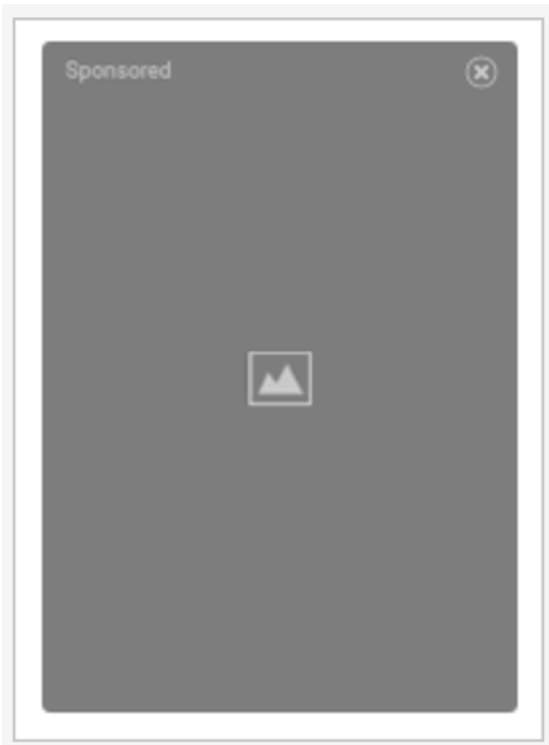
8.16 Video Experiences

Value	Description
1	Landscape Video
2	Portrait Video
3	Vertical Video

8.17 No Bid Reason Code

Value	Description
0	Unknown Error
1	Technical Error

2	Invalid Request
3	Known Web Spider
4	Suspected Non-Human Traffic
5	Cloud, Data center, or Proxy IP
6	Unsupported Device
7	Blocked Publisher or Site
8	Unmatched User
9	Daily Reader Cap Met
10	Daily Domain Cap Met

8.18 Viewability Vendors

Vendor	Domain
Integral Ad Science	integralads.com
Moat	moat.com
Comscore	comscore.com
Active View	viewability.withgoogle.com
Sizmek	sizmek.com
AdForm	adform.com
Whiteops	whiteops.com

8.19 Age

Age Enumeration	Age Enumeration Id
AGE_13_TO_17	1
AGE_18_TO_24	2
AGE_25_TO_34	3
AGE_35_TO_54	4
AGE_55_PLUS	5