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# **BID SWITCH**

ENGINEERED BY  
**IPONWEB**

## **BidSwitch Documentation**

*Release 5.3*

**BidSwitch**

Jul 19, 2022

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**Note:** Some sections require login as they are for BidSwitch customers only. These are accessed using IPONWEB LDAP credentials and are denoted with lock symbol. All publicly available sections are also available on the [BidSwitch Protocols<sup>1</sup>](#) site.

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BidSwitch provides real-time bid/offer access for supply and demand partners across all online media advertising types (display, mobile, video, native, dooh etc) and allows advertising platforms to engage with new Buyers and Suppliers, enter new geographical regions, and utilise new media types by providing a unifying integration layer for parties using many different technologies to run their businesses.

BidSwitch is a technology developed at IPONWEB to simplify the integration of Demand Side Platforms (DSPs) with Sell Side Platforms (SSPs). The key idea behind the service is to enable quick and cheap integration for Buyers with Suppliers without many rounds of specification refinements and development between them.

BidSwitch acts as this intermediary between Buyers and Suppliers by developing custom protocols based on the OpenRTB 2.x standards. This lets all parties integrated with the BidSwitch platform conduct business with each other through a single point of integration. The [BidSwitch Protocol<sup>2</sup>](#) section defines the protocol for interaction between DSPs and BidSwitch.

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<sup>1</sup> <https://protocol.bidswitch.com/>

<sup>2</sup> <https://protocol.bidswitch.com/standards/standards.html#bsw-PROTO>

# CHAPTER 1

## BIDSWITCH SUPPLIER PROTOCOL V1.0

This guide covers the latest version of the BidSwitch Supplier Protocol. It is based on the latest [OpenRTB Protocol Specification V2.5<sup>3</sup>](#), and helps Suppliers to integrate with BidSwitch, and thus access all of its connected Buyers.

For Suppliers who wish to integrate with BidSwitch, if you are fully compatible with this spec, you can be integrated much more quickly than waiting for a bespoke integration to be developed.

### 1.1 Protocol Release Notes

#### 1.1.1 19th July 2022

Added the `pmp.deals.ext.deal_type` extension to support passing the category of deal from Supplier to Buyer. See the *Deals Object* (page 38) for more details.

#### 1.1.2 14th June 2022

Added the Google DV360 specific request field `user.ext.google_audiences`, see the *User Ext Object* (page 46) section for more details.

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<sup>3</sup> <http://www.iab.com/wp-content/uploads/2016/03/OpenRTB-API-Specification-Version-2-5-FINAL.pdf>

### 1.1.3 3rd February 2022

Added Multiple Bidfloor Support, allowing you to set a different bidfloor per Buyer, see the *Multiple Bidfloor Support* (page 18) section for details.

- `imp.ext.wseat`
- `imp.ext.wseat.id`
- `imp.ext.wseat.bidfloor`
- `imp.ext.wseat.bidfloorcur`

### 1.1.4 24th September 2021

Added support for the `site|app.ext.inventorypartnerdomain` bid request field. This field was added in the (app-)ads.txt v1.0.3 specification<sup>4</sup> update. See the *Site Object* (page 56) or *App Object* (page 58) section for more details.

### 1.1.5 18th August 2021

Added support for the optional `seatbid.bid.bundle` field to response bid object; see *Response Bid Object* (page 80) for details.

### 1.1.6 28th May 2021

Support updated for the *SKAdNetwork*<sup>5</sup> protocol response extension to include the addition of the `fidelities` object. See the *SkAdNetwork Extension* (page 83) section for more details.

- `seatbid.bid.ext.skadn.fidelities`
- `seatbid.bid.ext.skadn.fidelities.fidelity`
- `seatbid.bid.ext.skadn.fidelities.nonce`
- `seatbid.bid.ext.skadn.fidelities.timestamp`
- `seatbid.bid.ext.skadn.fidelities.signature`

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<sup>4</sup> <https://iabtechlab.com/ads-txt/>

<sup>5</sup> [https://github.com/InteractiveAdvertisingBureau/openrtb/blob/master/extensions/community\\_extensions/skadnetwork.md](https://github.com/InteractiveAdvertisingBureau/openrtb/blob/master/extensions/community_extensions/skadnetwork.md)

### 1.1.7 14th April 2021

Added support for passing the Federated Learning of Cohorts (FLOC) ID using the Google format, `user.ext.floc`, see the *FloC Object* (page 47) section for details.

### 1.1.8 30th March 2021

Added support for the following fields:

- `site.ext.amp`
- `geo.accuracy`
- `geo.metro`

### 1.1.9 25th February 2021

Updated support for the IAB SKAdNetwork Specification<sup>6</sup>, which resulted in the following bid request additions.

- `imp.ext.skadn.versions`, see the *Impression Ext* (page 16) section for more details
- `imp.ext.skadn.skadnetlist`
- `imp.ext.skadn.skadnetlist.max`
- `imp.ext.skadn.skadnetlist.excl`
- `imp.ext.skadn.skadnetlist.addl`
- `device.ext.attrs`, see the *Device Object Properties* (page 40) section for more details

### 1.1.10 21st December 2020

- Support added for `user.ext.eids`. This is the Open RTB *Extended User Identifiers*<sup>7</sup> community extension. See the *Extended Identifiers* (page 48) section for details.
- Deprecated the `user.ext.xuids` field which duplicates the `eids` functionality, see the *Extended Identifiers* (page 48) section for details
- Added support for the blocked apps `bapp` field, see the *Supplier Bid Request* (page 13) section for details

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<sup>6</sup> [https://github.com/InteractiveAdvertisingBureau/openrtb/blob/master/extensions/community\\_extensions/skadnetwork.md](https://github.com/InteractiveAdvertisingBureau/openrtb/blob/master/extensions/community_extensions/skadnetwork.md)

<sup>7</sup> [https://github.com/InteractiveAdvertisingBureau/openrtb/tree/master/extensions/2.x\\_official\\_extensions](https://github.com/InteractiveAdvertisingBureau/openrtb/tree/master/extensions/2.x_official_extensions)

### 1.1.11 19th November 2020

Added the `imp.pmp.deals.ext.buyer_wseat` field. This specifies the Advertisers/Agencies that should have access to this deal in the DSP's system, see the *Deals Object* (page 38) section for more details.

### 1.1.12 12th November 2020

Added fields to complete support for the IAB Tech Lab OTT/CTV Store Assigned App Identification Guidelines<sup>8</sup> and the Guidelines for Identifier for Advertising (IFA) on CTV/OTT platforms<sup>9</sup>

- `app.storeid` see the *App Object* (page 58) section for more details
- `device.ext.ifa_type` see the *Device Object Properties* (page 40) section for more details
- `device.ext.truncated_ip` added to support Google's Display & Video 360 OpenRTB Specification<sup>10</sup>

### 1.1.13 15th September 2020

Added support for the content object, see *Content Object* (page 59). This object can be passed in `site.content` or `app.content`

### 1.1.14 7th September 2020 - iOS 14

The release adds support for iOS 14 based on the OpenRTB SKAdNetwork Extension<sup>11</sup>.

#### Bid Request Fields

- `imp.ext.skadn` See the `imp-ext` section for more details
- `imp.ext.skadn.version`
- `imp.ext.skadn.sourceapp`
- `imp.ext.skadn.skadnetids`
- `imp.ext.skadn.skadnhsh`
- `device.ext.idfv` See the `device-obj` for more details
- `user.ext.impdepth` See the `user-obj` for more details
- `user.ext.sessionduration`

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<sup>8</sup> <https://iabtechlab.com/wp-content/uploads/2020/08/IAB-Tech-Lab-OTT-store-assigned-App-Identification-Guidelines-2020.pdf>

<sup>9</sup> [https://iabtechlab.com/wp-content/uploads/2018/12/OTT-IFA-guidelines.final\\_Dec2018.pdf](https://iabtechlab.com/wp-content/uploads/2018/12/OTT-IFA-guidelines.final_Dec2018.pdf)

<sup>10</sup> <https://developers.google.com/display-video/ortb-spec#supported-extension-for-device-object>

<sup>11</sup> <https://github.com/InteractiveAdvertisingBureau/openrtb>



- `device.ifa` Updated validation to support Apple’s deprecation of the IDFA as part of iOS 14, this field should be passed using all zeros, rather than removed or an empty string, as all zeros is the expected format, e.g. "00000000-0000-0000-0000-000000000000"
- See the `ios14-eg` section for an iOS 14 bid request example

### Bid Response Fields

- `seatbid.bid.ext.skadn.version` See the `bid-ext-obj` section for more details.
- `seatbid.bid.ext.skadn.network`
- `seatbid.bid.ext.skadn.campaign`
- `seatbid.bid.ext.skadn.itunesitem`
- `seatbid.bid.ext.skadn.nonce`
- `seatbid.bid.ext.skadn.sourceapp`
- `seatbid.bid.ext.skadn.timestamp`
- `seatbid.bid.ext.skadn.signature`
- See the `resp-ios14` section for an iOS 14 response example

### 1.1.15 v1.0 - June 2017

Initial Release based on OpenRTB 2.5

## 1.2 Sensitive Categories and Rich Media

For greater coverage of sensitive categories BidSwitch extends the standard IAB list with additional categories. These categories may be used in the following fields.

Table 1: Sensitive Categories Fields

Bid Requests	Bid Response
<ul style="list-style-type: none"> <li>• <code>bcat</code></li> <li>• <code>site.cat</code></li> <li>• <code>app.cat</code></li> </ul>	<code>seatbid.bid.cat</code>

Table 2: BidSwitch Sensitive Categories

ID	Category
BSW1	Alcohol
BSW2	Gambling
BSW3	Tobacco and smoking
BSW4	Firearms and weapons
BSW5	Sexual & Reproductive Health
BSW6	Ringtones & Downloadable
BSW7	Drugs & Supplements
BSW8	Get Rich Quick
BSW9	Free Gifts, Quizzes, & Surveys
BSW10	Nudity
BSW11	Cosmetic Procedures & Body Modification

### 1.2.1 Supported Rich Media Frameworks

Rich Media Framework information will be sent to Buyers using the `imp.iframebuster` field in bid requests, see the impressions section for more information.

Table 3: Supported Rich Media Frameworks

Description	Value
Any framework is accepted	ALL
Adcentric	ac
Adinterax	ad
Adform	af
Atlas	at
Apivid	av
DoubleClick	dc
Eyeblaster	eb
EyeReturn	er
EyeWonder	ew
Flashtalking	ft
Klipmart	km
Kpsule	ks
MediaMind	mm
Mediaplex	mp
Piximedia	pm
PointRoll	pr
Pictela	pt
Rockabox	rb
Smart Adserver	sa
Silence Media	sm
Unicast	ui
Undertone	ut
Viewpoint	vp
Weborama	wo

### 1.3 Backward Compatibility

- BidSwitch Supplier Spec 1.0<sup>12</sup>

### 1.4 Data Compression (gzip)

BidSwitch supports JSON and Compressed JSON (gzip) as data formats for bid requests and bid responses. It is recommended to use Compressed JSON to minimize the amount of data exchanged between you and BidSwitch as this reduces latency times between servers, and traffic listening costs for all parties involved. Here is what BidSwitch has observed with gzip traffic:

- When enabled, gzip compression ratios tend to be in the range of x1.4 to x2.0 (depending on the size of the request/response)

<sup>12</sup> [https://docs.bidswitch.com/\\_downloads/BidSwitch\\_supplier\\_spec\\_1.0.pdf](https://docs.bidswitch.com/_downloads/BidSwitch_supplier_spec_1.0.pdf)

- There is no tangible extra CPU load due to compressing/decompressing traffic, i.e. there is no extra cost

You can enable this on your integration at anytime as no changes are needed on the BidSwitch side.

In order to set up Compressed JSON bid requests and accept compressed responses, use the following instructions:

1. Compress your HTTP request body with `gzip`
2. Add a `Content-Encoding: gzip` HTTP header to indicate that the request is compressed
3. Add an `Accept-Encoding: gzip` header to indicate that you can accept a compressed response
4. Please contact BidSwitch support at [support@bidswitch.com](mailto:support@bidswitch.com) to ensure all parties are aware of a change in the integration

Once set up, BidSwitch starts accepting bid requests in Compressed JSON and responds using compressed JSON. All such bid responses carry a `Content-Encoding: gzip` HTTP header indicating that the response is compressed. It is recommended that you check for this HTTP header to distinguish between JSON and Compressed JSON bid response formats, if it is present decompress the HTTP body before further processing.

---

**Note:** BidSwitch may still respond with non-compressed content when it detects that the size of a gzip compressed response would exceed the size of an uncompressed response. This may happen for very short bid responses. In this case the `Content-Encoding: gzip` header is absent.

---

## 1.5 Macros

### 1.5.1 Win price macro

In order for the exchange to convey certain information to the winning bidder (e.g., the settlement price), some substitution macros can be inserted into the win notice URL. Prior to calling a win notice URL, BidSwitch will search the specified URL for any of the defined macros and replace them with the appropriate data.

---

**Note:** The substitution is simple in the sense that wherever a legal macro is found, it will be replaced without regard to syntax correctness.

---

Table 4: Win Price Macro Description

Value	Description
<code>\${AUCTION_PRICE}</code>	<p>Settlement price for the auction. The substituted value will be defined in CPM. This macro should be used in the <code>burl</code> field, see the <i>Response Bid Object</i> (page 80) section for usage details. As well as the <code>burl</code> field, its use is also supported in these fields:</p> <ul style="list-style-type: none"> <li>• For Native Responses: <code>seatbid.bid.burl</code>, <code>seatbid.bid.adm_native.jstracker</code> or <code>seatbid.bid.adm_native.imptracker</code></li> <li>• For non-native Responses: <code>seatbid.bid.burl</code> or <code>seatbid.bid.adm</code></li> </ul>

## Encrypting the Win Price

BidSwitch can process encrypted win price macros, and uses the same method as Google<sup>13</sup>. To enable this for your integration, contact BidSwitch support to receive the **integrity key** and **encryption key** necessary for doing this. Both of these keys will be sent to you in web-safe base64 strings and they should be web-safe decoded and then base64 decoded by your application.

```
skU7Ax_NL5pPAFyKdkfZjZz2-VhIN8bjj1rVF0aJ_5o= // Example Encryption key (e_key)
ar023ykdNqUQ5LEoQOFVmpkBd7xB5C089PDZlSjpfxo= // Example Integrity key (i_key)
```

## Encryption scheme

The price is encrypted using a custom encryption scheme that is designed to minimize size overhead while ensuring adequate security. The encryption scheme uses a keyed HMAC algorithm to generate a secret pad based on the unique impression event ID. The encrypted price has a fixed length of 28 bytes, comprised of:

- 16-byte initialization vector
- 8-bytes of ciphertext
- 4-byte integrity signature

The encrypted price must be web-safe base64-encoded, according to RFC 3548<sup>14</sup>, with padding characters omitted. Thus, the 28-byte encrypted price is encoded as a 38 character web-safe base64 string irrespective of the winning price paid.

```
# The encrypted format is:
{initialization_vector (16 bytes)}{encrypted_price (8 bytes)}{integrity (4 bytes)}

# Example encrypted prices:
```

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<sup>13</sup> <https://developers.google.com/ad-exchange/rtb/response-guide/decrypt-price>

<sup>14</sup> <https://tools.ietf.org/html/rfc3548>

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```
WEp8wQAAAAABnFd5EkB2k1wJeFcAj-Z_JV0eGzA # 100 CPI micros
WEp8sQAAAAACwF6CtLJrXSRFBM8UiTTIyngN-og # 1900 CPI micros
WEp8nQAAAAADG-y45xxIC1tMWuTjzmDW6HtroQ # 2700 CPI micros
```

The price needs to be encrypted as `<price xor HMAC(encryption_key, initialization_vector)>` so decryption calculates `HMAC(encryption_key, initialization_vector)` and xor's with the encrypted price to reverse the encryption. The integrity stage takes 4 bytes of `<HMAC (integrity_key, price||initialization_vector)>` where `||` is concatenation.

The following example code outlines this, with the following definitions:

- `iv` initialization vector (16 bytes - unique to the impression)
- `e_key` encryption key (32 bytes - provided by BidSwitch Support)
- `i_key` integrity key (32 bytes - provided by BidSwitch Support)
- `price` (8 bytes - in micros of account currency)
- `hmac(k, d)` SHA-1 HMAC of data `d`, using key `k`
- `a || b` string `a` concatenated with string `b`

```
// example code
pad = hmac(e_key, iv) // first 8 bytes
enc_price = pad <xor> price
signature = hmac(i_key, price || iv) // first 4 bytes

final_message = WebSafeBase64Encode( iv || enc_price || signature )
```

Once enabled, you can return the encrypted price to BidSwitch who can then return it to the winning Buyer in the appropriate manner.

- You need to encrypt the value using SHA-1 HMAC. You can do this using a crypto library that supports SHA-1 HMAC, such as Openssl
- The encrypted value should be then encoded using web-safe BASE64

```
# <!-- Example billing URL (burl) which will have macro substituted -->
https://adserver.com/winnotice?impid=102&winprice=${AUCTION_PRICE}

# <!-- Example billing URL (e.g. burl) -->
https://adserver.com/winnotice?impid=102&winprice=1.34

# <!-- Example encrypted billing URL (e.g burl) -->
https://adserver.com/winnotice?impid=102&winprice=WEp8nQAAAAADG-
↪y45xxIC1tMWuTjzmDW6HtroQ
```

## 1.5.2 Supplier Click Tracking URL Macro

If you require Buyers to include a click tracking macro in their creatives, Buyers will return this macro in the `adm` field. You should replace this macro with your Supplier click tracking URL. If you do not support click tracking macros and a Buyer replies with one in the `adm` field, BidSwitch will replace it with an empty string.

**Note:** In the case of video and native inventory, click tracking is handled on the Supplier side and the click macro is not used, nor is the `adm` field.

Table 5: Click Tracking Macro

Value	Type
<code>\${CLICK_URL:URLENCODE}</code>	A placeholder for the Supplier click tracking URL in URL encoded form. Required for bids to Suppliers that support click tracking. No more than one click tracking macro can be used in the <code>bid.adm</code> field. Only single-encoded click tracking URLs are supported.

If requested, the Supplier click URL should be inserted before the landing page in the creative. The landing page URL should be single-escaped. For example, if the Buyer click-URL contains:

```
http://dsp.com/click?bc=dnJD723&sspclick=${CLICK_URL:URLENCODE}
```

The macro is replaced by the Supplier and the user clicks the resulting URL

```
http://dsp.com/click?bc=dnJD723&sspclick=http%3A%2F%2Fssp.com%2Fclick%3Fic%3DbKk4%26lp%3D
```

The Buyer unescapes the `sspclick` parameter and redirects to the target URL while adding the landing page at the end

```
http://ssp.com/click?ic=bKks3k4&lp=http%3A%2F%2Fadvertiser.com%2Fhomepage
```

**Note:** Some Suppliers may keep the `/` and `:` characters unencoded, thus the resulting click URL may take a form such as the following

```
http://dsp.com/click?bc=dnJD723&sspclick=http://ssp.com%2Fclick%3Fic%3DbKk4%26lp%3D
```

## 1.6 Supplier Bid Request

This is the top level object that is sent by the Supplier to BidSwitch. Each bid request sent should contain the following fields.

---

### Note:

- Fields marked with an asterisk (\*) are optional.
  - While individually none of the following fields are required, one of them is required to be in each bid request: **banner**, **video**, **audio**, or **native**.
  - While individually neither of the following fields is required, one of them must be in the request: **site**, **app**.
- 

Table 6: Bid Request Object Properties

Value	Type	Description
<i>id</i>	<i>string</i>	Unique ID of the bid request, for example, "b5ba5ed2-547e-4e86-8a84-34a440dad6db"
<i>imp</i>	<i>array of objects</i>	Array of objects representing the impressions offered, for more information, see the <i>Impression Object</i> (page 15) section.
<i>device</i>	<i>object</i>	Device object with details about the device to which the impression will be delivered, for more information, see the <i>Device Object Properties</i> (page 40) section.
<i>user*</i>	<i>object</i>	User Object which describes the user, for more information, see the <i>User Object</i> (page 44) section.
<i>tmax*</i>	<i>integer</i>	Maximum time in milliseconds the exchange allows for bids to be received to avoid timeout, including internet latency, for example, 120.
<i>cur*</i>	<i>array of strings</i>	Array of allowed currencies for bids on this bid request using ISO-4217 <sup>15</sup> alpha codes, for example, ["USD", "EUR"]. The default is ["USD"].
<i>at*</i>	<i>integer</i>	Auction type, the default value is 2. <ul style="list-style-type: none"> <li>• 1: the first price auction.</li> <li>• 2: the second price auction.</li> </ul>
<i>source*</i>	<i>object</i>	Indicates the entity responsible for the final impression sale decision.
<i>site*</i>	<i>object</i>	The <i>Site Object</i> (page 56) describing the site. Either <b>Site</b> or <b>App</b> must be present.
<i>app*</i>	<i>object</i>	The <i>App Object</i> (page 58) describing the mobile application. Either <b>Site</b> or <b>App</b> must be present.

continues on next page



Table 6 – continued from previous page

Value	Type	Description
<i>bcat*</i>	<i>array of strings</i>	Blocked Advertiser Categories, using the IAB taxonomy, and extended with additional sensitive categories listed in the <i>Sensitive Categories and Rich Media</i> (page 6) section. Creatives belonging to at least one of the listed categories are not permitted for bidding in the current bid request, for example ["IAB10-1", "IAB25", "BSW3"]
<i>badv*</i>	<i>array of strings</i>	Array of strings of blocked top-level domains of advertisers, for example, ["mysite.com", "mysite2.com"]
<i>bapp*</i>	<i>array of strings</i>	A list of applications blocked from being advertised, specified using their their platform-specific identifiers, i.e. the app bundle ID. On Android, these should be app bundle and on iOS numeric IDs e.g. ["com.app.example", "012987652"]
<i>bseat*</i>	<i>array of strings</i>	An array of Buyer seats disallowed to bid on this auction, for example ["58", "61", "99"]. If this field is present, the specified seat IDs may be supplied using BidSwitch or Supplier taxonomy. <ul style="list-style-type: none"> <li>• The <i>wseat</i> field takes precedence, so if you have the same value in both fields the request is sent to the Buyer.</li> <li>• If you have set up multiple seat values for a Buyer as part of <i>ssp-spec-id</i>, you should include all value for the Buyer in this field.</li> <li>• If you send Agency Seat IDs as outlined in the <i>agency-map</i> section, the request is passed to the Buyer and bidder enforcement is their responsibility.</li> </ul>
<i>wseat*</i>	<i>array of strings</i>	An array of Buyer seats allowed to bid on this auction, for example [58, 61, 99]. If this field is present, the specified seat IDs may be supplied using BidSwitch or Supplier taxonomy. A bid request may contain multiple seat IDs using the Supplier taxonomy.
<i>allimps*</i>	<i>integer</i>	A flag to indicate if the Supplier can verify that the impressions offered represent all of the impressions available in context (e.g., all on the web page, all video spots such as pre/mid/post roll) to support road-blocking. <ul style="list-style-type: none"> <li>• 0 = no or unknown</li> <li>• 1 = yes, the impressions offered represent all that are available.</li> </ul>
<i>regs*</i>	<i>object</i>	A regulations object that specifies any industry, legal, or governmental regulations in force for this request, for more information, see the <i>Regulation Object</i> (page 63) section.
<i>ext*</i>	<i>object</i>	Ext Object used for Supplier specific properties, for more information, see the <i>Ext Object</i> (page 51) section.

<sup>15</sup> <https://www.iso.org/iso-4217-currency-codes.html>

## 1.6.1 Impression Object

**Note:** Fields marked with asterisk (\*) are optional.

Table 7: Impression Object Properties

Value	Type	Description
<i>id</i>	<i>string</i>	ID of the impression being shown, unique within the bid request, for example "1"
<i>banner*</i>	<i>object</i>	The <i>Banner Object</i> (page 19) describes the ad properties. Required for banner impressions. One of these objects should be present in the request: <b>banner</b> , <b>video</b> , <b>audio</b> , or <b>native</b> .
<i>video*</i>	<i>object</i>	The <i>Video Object</i> (page 21) describes the ad properties. Required for video impressions.
<i>audio*</i>	<i>object</i>	The <i>Audio Object</i> (page 26) describes the ad properties. Required for audio impressions. One of these objects should be present in the request: <b>banner</b> , <b>video</b> , <b>audio</b> , or <b>native</b> .
<i>native*</i>	<i>object</i>	The <i>Native Object</i> (page 28) describes the ad properties. Required for native impressions. One of these objects should be present in the request: <b>banner</b> , <b>video</b> , <b>audio</b> , or <b>native</b> .
<i>bidfloor*</i>	<i>float</i>	Bid floor in CPM as set by the Supplier, for example, 0.01080
<i>bidfloorcur*</i>	<i>string</i>	Bid floor currency specified using ISO-4217 alpha codes, the default is, "USD".
<i>instl*</i>	<i>integer</i>	Specifies if the ad is an interstitial. <ul style="list-style-type: none"> <li>• 0 = not interstitial, the default value.</li> <li>• 1 = the ad is interstitial or full screen</li> </ul>
<i>tagid*</i>	<i>string</i>	Identifier for specific ad placement or ad tag that was used to initiate the auction.
<i>secure*</i>	<i>integer</i>	Specifies if the page is SSL compliant: <ul style="list-style-type: none"> <li>• 0: for insecure pages, the default value.</li> <li>• 1: for secure pages. Creative assets for secure pages should be SSL-compliant.</li> </ul>
<i>iframebuster*</i>	<i>array of strings</i>	Array of names of supported iframe busters, for example, ["dc", "rb"], for more information, see the srmf section.
<i>pmp*</i>	<i>object</i>	The <i>Private Marketplace Object</i> (page 37), used for direct deals between Buyers and Suppliers.
<i>displaymanager*</i>	<i>string</i>	Name of the ad mediation partner, SDK technology, or native player responsible for rendering the ad (typically video or mobile), for example, "SOMA"
<i>displaymanagerver*</i>	<i>string</i>	Version of the ad mediation partner, SDK technology, or native player responsible for rendering the ad (typically video or mobile), for example, "1.1"

continues on next page

Table 7 – continued from previous page

Value	Type	Description
<i>metric*</i>	<i>array of objects</i>	The object that is associated with an impression as an array of metrics, see the <i>Metric Object</i> (page 44) section.
<i>exp*</i>	<i>integer</i>	Impression expiry timeout, in seconds, the default is "300". An impression will be considered expired if it is registered later than <code>imp.exp</code> seconds after the auction.
<i>ext*</i>	<i>object</i>	Impression extension object, see <i>Impression Ext</i> (page 16)

## Impression Ext

Table 8: Impression Object Properties

Value	Type	Description
<i>wopv</i>	<i>str</i>	Passes the WhiteOps MediaGuard Prediction ID, e.g. "abc-123"
<i>skadn*</i>	<i>object</i>	Apple Ad Network Object, this will be used to pass app data from iOS 14 and newer releases. See <i>SkAdNetwork Extension</i> (page 16)
<i>ssai*</i>	<i>int</i>	Indicates if server-side ad insertion (e.g., stitching an ad into an audio or video stream) is in use and the impact of this on asset and tracker retrieval. It can take the following values: <ul style="list-style-type: none"> <li>• 0 = status unknown</li> <li>• 1 = all client-side (i.e., not server-side)</li> <li>• 2 = assets stitched server-side but tracking pixels fired client-side</li> <li>• 3 = all server-side.</li> </ul>
<i>wseat*</i>	<i>array of objects</i>	Used to set different bid floors per Buyer when necessary, see <i>Multiple Bidfloor Support</i> (page 18). If you want to keep the global <code>imp.bidfloor</code> value for a particular Buyer, you should not add the corresponding <code>wseat</code> entry in the <code>imp.ext.wseat</code> array.

## SkAdNetwork Extension

Table 9: skadn Extension Properties

Value	Type	Description
<i>version*</i>	<i>str</i>	Version of skadnetwork supported. Always "2.0" or higher. Dependent on both the OS version and the SDK version., e.g. "2.0" <a href="https://developer.apple.com/documentation/storekit/skadnetwork">https://developer.apple.com/documentation/storekit/skadnetwork</a>
<i>versions*</i>	<i>array of strings</i>	An array of strings containing the supported skadnetwork versions. Always "2.0" or higher. Dependent on both the OS version and the SDK version.

continues on next page

Table 9 – continued from previous page

Value	Type	Description
<i>sourceapp</i> *	<i>str</i>	ID of publisher app in Apple’s App Store. Should match “app.bundle”
<i>skadnetids</i> *	<i>array of string</i>	A subset of SKAdNetworkItem entries in the publisher app’s <code>info.plist</code> that are relevant to the DSP, e.g. <code>["cDkw7geQsH.skadnetwork", "qyJfv329m4.skadnetwork"]</code> <a href="https://developer.apple.com/documentation/bundleresources/information_property_list">https://developer.apple.com/documentation/bundleresources/information_property_list</a>
<i>skadnetlist</i> *	<i>object</i>	An object containing the IAB Tech Lab (IABTL) list definition. See the <i>skadnetlist object</i> (page 17) table for details. You can also find out more about the IABTL List from their release <a href="#">blog post</a> <sup>16</sup> and at <a href="https://tools.iabtechlab.com/skadnetwork">https://tools.iabtechlab.com/skadnetwork</a>

## skadnetlist object

Table 10: skadnetlist Properties

Value	Type	Description
<i>max</i> *	<i>integer</i>	A list of IABTL IDs containing the max entry ID on the list up to which you wish to include. The skadnetids associated with all IABTL IDs numerically lower than this are included as subset of SKAdNetworkItem entries in the publisher app’s <code>info.plist</code> that are relevant to the DSP, e.g. 42.
<i>excl</i> *	<i>array of integers</i>	A list of IABTL registration IDs to be excluded, i.e. those numerically lower than the max value but which should not be included, e.g. [12, 14]
<i>addl</i> *	<i>array of strings</i>	A list of raw lowercase SKAdNetworkItem entries in the publisher app’s <code>info.plist</code> that are relevant to the DSP, e.g. <code>["cDkw7geQsH.skadnetwork", "qyJfv329m4.skadnetwork"]</code> <a href="https://developer.apple.com/documentation/bundleresources/information_property_list">https://developer.apple.com/documentation/bundleresources/information_property_list</a> <b>Note:</b> The intention of this field is to replace the <code>skad.skadnetids</code> field, it is also recommended that this list not exceed 10.

<sup>16</sup> <https://iabtechlab.com/blog/register-now-for-iab-tech-lab-skadnetwork-id-list/>

## Multiple Bidfloor Support

Table 11: Multiple Bidfloor Support

Value	Type	Description
<i>id</i>	<i>string</i>	The BidSwitch ID for the Buyer to whom the bidfloor should be passed.
<i>bidfloor</i>	<i>float</i>	The Bid floor in CPM for this Buyer.
<i>bidfloorcur*</i>	<i>string</i>	The bid floor currency to use when trading with this Buyer, the Supplier's preferred currency by default.

## Example Impression Object JSON

```
{
  "imp": [
    {
      "id": "1",
      "metric": [
        {
          "type": "viewability",
          "value": 0.85
        }
      ],
      "bidfloor": 0.426,
      "banner": {
        "w": 300,
        "h": 250,
        "pos": 1,
        "topframe": 0,
        "expdir": [
          1,
          3
        ]
      },
      "ext": {
        "wopv": "f0ea2b36-a164-427a-9a69-dd43f8e946c8",
        "wseat": [
          {
            "id": "74",
            "bidfloor": 14.2,
            "bidfloorcur": "USD"
          }
        ]
      }
    }
  ]
}
```

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```

    ]
  }

```

## 1.6.2 Banner Object

**Note:** Fields marked with an asterisk (\*) are optional.

Table 12: Banner Object Properties

Value	Type	Description
<i>w</i>	integer	Width of the impression in pixels, for example, 300
<i>h</i>	integer	Height of the impression in pixels, for example 250
<i>battr</i> *	array of integers	Blocked creative attributes as defined in the OpenRTB protocol, for example, [1, 23]
<i>btype</i> *	array of integers	Blocked banner ad types as defined in the OpenRTB protocol, for example, [4, 21]
<i>pos</i> *	integer	Ad Position as defined in the OpenRTB protocol, for example, 1
<i>topframe</i> *	integer	Indicates if the banner is in the top frame as opposed to an iframe. <ul style="list-style-type: none"> <li>• 0 = no</li> <li>• 1 = yes.</li> </ul>
<i>mimes</i> *	array of strings	Specifies the content MIME types supported, common MIME types include "text/html", "application/x-shockwave-flash", and "image/gif". For example: [ "video/mp4", "image/jpg" ]
<i>expdir</i> *	array of integers	Possible expansion directions for an expandable ad, for example, [2,5]. This can take the following values: <ul style="list-style-type: none"> <li>• 1: Left</li> <li>• 2: Right</li> <li>• 3: Up</li> <li>• 4: Down</li> <li>• 5: Full screen</li> </ul> If the field is not present, expandable creatives are not allowed.
<i>format</i> *	array or objects	An array of format objects, see <i>Format Object</i> (page 20), denoting the alternative sizes that may be used for bidding. If one of the alternative ad sizes is used in the bid response, then the <code>seatbid.bid.h</code> and <code>seatbid.bid.w</code> fields are required in the bid response.

continues on next page

Table 12 – continued from previous page

Value	Type	Description
<i>api*</i>	<i>array of integers</i>	List of supported API frameworks for this impression as defined in the OpenRTB, for example [3, 5]. If an API is not explicitly listed, it is assumed not to be supported.

### Banner JSON Example

```
{
  "banner":{
    "id":"abc123",
    "w":300,
    "h":250,
    "pos":1,
    "topframe":0,
    "btype":[
      2,
      3
    ],
    "mimes":[
      "text/html",
      "application/x-shockwave-flash"
    ],
    "format":[
      {
        "h":50,
        "w":300
      }
    ]
  }
}
```

### 1.6.3 Format Object

Table 13: Format Object Properties

Value	Type	Description
<i>h</i>	<i>integer</i>	Height of the impression in pixels, for example 500
<i>w</i>	<i>integer</i>	Width of the impression in pixels, for example 340

```
{
  "format":[
    {
      "w":300,
```

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```

    "h":250
  }
]
}

```

### 1.6.4 Video Object

**Note:** Fields marked with an asterisk (\*) are optional.

Table 14: Video Object Properties

Value	Type	Description
<i>mimes</i>	<i>array of strings</i>	Content MIME types supported.
<i>minduration</i>	<i>integer</i>	Minimum video ad duration in seconds, for example, 2
<i>maxduration</i>	<i>integer</i>	Maximum video ad duration in seconds, for example, 15
<i>linearity*</i>	<i>integer</i>	Indicates if the impression must be linear or nonlinear, for example, 1. If none is specified, it is assumed all are allowed <ul style="list-style-type: none"> <li>• 1: Linear/In-stream</li> <li>• 2: Non-Linear/Overlay</li> </ul>

continues on next page



Table 14 – continued from previous page

Value	Type	Description
<i>placement*</i>	<i>integer</i>	Placement type for the impression, for example 2. <b>Note:</b> Though not required, this is an important field for some Buyers, not explicitly setting it will result in lower demand. This field can take the following values: <ul style="list-style-type: none"> <li>• 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).</li> <li>• 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.</li> <li>• 3: In-article. Loads and plays dynamically between paragraphs of editorial content; existing as a standalone branded message.</li> <li>• 4: In-feed. Found in content, social, or product feeds.</li> <li>• 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 <code>imp.inst1</code> field.</li> </ul>
<i>playbackend*</i>	<i>integer</i>	The event that causes playback to end, for example 2. This field can take the following values: <ul style="list-style-type: none"> <li>• 1: On Video Completion or when Terminated by User.</li> <li>• 2: On Leaving Viewport or when Terminated by User.</li> <li>• 3: On Leaving Viewport Continues as a Floating/Slider Unit until Video Completion or when Terminated by User.</li> </ul>
<i>protocols</i>	<i>array of integers</i>	Accepted video bid response protocols as defined in OpenRTB, for example [6,8]. As BidSwitch only serves video using VAST wrappers, the valid response integers are 5, 6, or 8 for the request to be eligible for bidding.
<i>pos*</i>	<i>integer</i>	Ad Position as defined in OpenRTB, for example 1
<i>w*</i>	<i>integer</i>	Width of the player in pixels, for example, 600
<i>h*</i>	<i>integer</i>	Height of the player in pixels, for example 400
<i>startdelay*</i>	<i>integer</i>	Indicates the start delay in seconds. If the start delay value is greater than 0, then the position is mid-roll and the value indicates the start delay. <ul style="list-style-type: none"> <li>• &gt; 0: Mid-Roll (value indicates start delay in second)</li> <li>• 0: Pre-roll</li> <li>• -1: Generic mid-roll</li> <li>• -2: Generic post-roll</li> </ul>

continues on next page

Table 14 – continued from previous page

Value	Type	Description
<i>battr*</i>	<i>array of integers</i>	Blocked creative attributes as defined in OpenRTB, for example, [6]
<i>minbitrate*</i>	<i>integer</i>	Minimum bit rate in Kbps, for example 680
<i>maxbitrate*</i>	<i>integer</i>	Maximum bit rate in Kbps, for example 990
<i>api*</i>	<i>array of integers</i>	List of supported API frameworks for this impression as defined in OpenRTB, for example, [1,2]. If an API is not explicitly listed, it is assumed not to be supported.
<i>maxextended*</i>	<i>integer</i>	Maximum extended video ad duration if extension is allowed. <ul style="list-style-type: none"> <li>• Blank or 0, extension is not allowed.</li> <li>• -1, extension is allowed, and there is no time limit imposed.</li> <li>• Greater than 0, then the value represents the number of seconds of extended play supported beyond the <code>maxduration</code> value.</li> </ul>
<i>boxingallowed*</i>	<i>integer</i>	Indicates if letter-boxing of 4:3 content into a 16:9 window is allowed: <ul style="list-style-type: none"> <li>• 0 = no</li> <li>• 1 = yes.</li> </ul>
<i>playback-method*</i>	<i>array of integers</i>	Allowed playback methods as defined in the OpenRTB, for example [1, 2]. If none are specified, it is assumed all are allowed.
<i>delivery*</i>	<i>array of integers</i>	Supported delivery methods (e.g., streaming, progressive) as defined in OpenRTB. If none specified, assume all are supported, for example, [1, 2]
<i>sequence*</i>	<i>integer</i>	If multiple ad impressions are offered in the same bid request, the sequence number will allow for the coordinated delivery of multiple creatives, for example, 2.
<i>companionad*</i>	<i>object array</i>	Array of Banner objects if companion ads are available. See the <i>Banner Object</i> (page 19) section for more information.
<i>companion-type*</i>	<i>array of integers</i>	List of allowed companion ad types, for example [1, 2] Possible values: <ul style="list-style-type: none"> <li>• 1: Static Resource</li> <li>• 2: HTML Resource</li> <li>• 3: iframe Resource</li> </ul>
<i>skip*</i>	<i>integer</i>	Indicates if the player will allow the video to be skipped, where 0 = no, 1 = yes.

## Video Ext Object

Table 15: Video Ext Object Properties

Value	Type	Description
<i>rewarded*</i>	<i>integer</i>	Indicates whether the ad is being rendered as part of a rewarded / incentivised user experience, where: <ul style="list-style-type: none"> <li>• 0 = non-rewarded</li> <li>• 1 = rewarded</li> <li>• If omitted, non-rewarded can be assumed</li> </ul>

## Video Object Example

```
{
  "id":"1",
  "bidfloor":0.03,
  "video":{
    "w":640,
    "h":480,
    "pos":1,
    "startdelay":0,
    "minduration":5,
    "maxduration":30,
    "maxextended":30,
    "minbitrate":300,
    "maxbitrate":1500,
    "skip":1,
    "api":[
      1,
      2
    ],
    "protocols":[
      6,
      8
    ],
    "mimes":[
      "video/x-flv",
      "video/mp4",
      "application/x-shockwave-flash",
      "application/javascript"
    ],
    "linearity":1,
    "boxingallowed":1,
    "playbackmethod":[
      1,
```

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```
    3
  ],
  "delivery": [
    2
  ],
  "battr": [
    13,
    14
  ],
  "companionad": [
    {
      "id": "1234567893-1",
      "w": 300,
      "h": 250,
      "pos": 1,
      "battr": [
        13,
        14
      ],
      "expdir": [
        2,
        4
      ]
    },
    {
      "id": "1234567893-2",
      "w": 728,
      "h": 90,
      "pos": 1,
      "battr": [
        13,
        14
      ]
    }
  ],
  "companiontype": [
    1,
    2
  ]
}
```

## 1.6.5 Audio Object

**Note:** Fields marked with an asterisk (\*) are optional.

Table 16: Audio Object Properties

Value	Type	Description
<i>mimes</i>	<i>array of strings</i>	Content MIME types supported, for example ["audio/mp4", "audio/mpeg"]
<i>minduration*</i>	<i>integer</i>	Minimum audio ad duration in seconds, for example, 2
<i>maxduration*</i>	<i>integer</i>	Maximum audio ad duration in seconds, for example, 15
<i>protocols</i>	<i>array of integers</i>	Accepted audio bid response protocols as defined in OpenRTB, for example [9,10]
<i>startdelay*</i>	<i>integer</i>	Indicates the start delay in seconds, or generic values below: <ul style="list-style-type: none"> <li>• 0: Pre-roll</li> <li>• -1: Generic mid-roll</li> <li>• -2: Generic post-roll</li> </ul>
<i>battr*</i>	<i>array of integers</i>	Blocked creative attributes as defined in OpenRTB, for example, [6]
<i>minbitrate*</i>	<i>integer</i>	Minimum bit rate in Kbps, for example 32
<i>maxbitrate*</i>	<i>integer</i>	Maximum bit rate in Kbps, for example 320
<i>api*</i>	<i>array of integers</i>	List of supported API frameworks for this impression as defined in the OpenRTB guide, for example, [1,2]. If an API is not explicitly listed, it is assumed not to be supported.
<i>maxextended*</i>	<i>integer</i>	Maximum extended audio ad duration if extension is allowed. <ul style="list-style-type: none"> <li>• Blank or 0, extension is not allowed.</li> <li>• -1, extension is allowed, and there is no time limit imposed.</li> <li>• Greater than 0, then the value represents the number of seconds of extended play supported beyond the <i>maxduration</i> value.</li> </ul>
<i>delivery*</i>	<i>array of integers</i>	Supported delivery methods (e.g., streaming, progressive) as defined in OpenRTB. If none specified, assume all are supported, for example, [1, 2]
<i>maxseq*</i>	<i>integer</i>	The maximum number of ads that can be played in an ad pod, for example, 1
<i>feed*</i>	<i>integer</i>	Type of audio feed, for example, 1
<i>sequence*</i>	<i>integer</i>	If multiple ad impressions are offered in the same bid request, the sequence number will allow for the coordinated delivery of multiple creatives, for example, 2
<i>stitched*</i>	<i>integer</i>	Indicates if the ad is stitched with audio content or delivered independently, for example, 1

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Table 16 – continued from previous page

Value	Type	Description
<i>nvols*</i>	<i>integer</i>	Volume normalization mode as defined in OpenRTB, for example, 1
<i>companionad*</i>	<i>array of objects</i>	Array of Banner objects if companion ads are available. See the <i>Banner Object</i> (page 19) section for more information.
<i>companion-type*</i>	<i>array of integers</i>	Supported DAAST companion ad types, for example [1, 2] Possible values: <ul style="list-style-type: none"> <li>• 1: Static Resource</li> <li>• 2: HTML Resource</li> <li>• 3: iframe Resource</li> </ul>

### Audio Object Example

```
{
  "id": "1",
  "bidfloor": 0.03,
  "audio": {
    "startdelay": 0,
    "minduration": 5,
    "maxduration": 30,
    "maxextended": 30,
    "minbitrate": 300,
    "maxbitrate": 1500,
    "api": [
      1,
      2
    ],
    "protocols": [
      9,
      10
    ],
    "mimes": [
      "audio/aac",
      "audio/mp4",
      "audio/mpeg"
    ],
    "delivery": [
      2
    ],
    "battr": [
      13,
      14
    ],
    "companionad": [
```

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```
{
  "id": "1234567893-1",
  "w": 300,
  "h": 250,
  "pos": 1,
  "battr": [
    13,
    14
  ],
  "expdir": [
    2,
    4
  ]
},
{
  "id": "1234567893-2",
  "w": 728,
  "h": 90,
  "pos": 1,
  "battr": [
    13,
    14
  ]
}
],
"companiontype": [
  1,
  2
]
}
}
```

### 1.6.6 Native Object

**Note:** Fields marked with an asterisk (\*) are optional.

Table 17: Native Object

Value	Type	Description
<i>request_native</i>	<i>object</i>	Contains the <i>Native Request Object</i> (page 30) object.
<i>battr*</i>	<i>array of integers</i>	Blocked creative attributes as defined in OpenRTB., for example, [1, 3]
<i>api*</i>	<i>array of integers</i>	List of supported API frameworks for this impression as defined in OpenRTB, for example [2,3,5]. If an API is not explicitly listed, it is assumed not to be supported.

### Native Object Example

```
{
  "native":{
    "request_native":{
      "ver":"1.2",
      "layout":1,
      "adunit":4,
      "assets":[
        {
          "id":1,
          "required":1,
          "title":{
            "len":25
          }
        }
      ]
    },
    "api":[
      3
    ],
    "battr":[
      13,
      14
    ]
  }
}
```



### 1.6.7 Native Request Object

**Note:** Fields marked with asterisk (\*) are optional.

Table 18: Native Request Object

Value	Type	Description
<i>ver</i>	<i>string</i>	Version of the Native Markup in use, for example, "1.2". <b>Note:</b> It must be 1.2
<i>layout*</i>	<i>integer</i>	The Layout ID of the native ad unit as described in OpenRTB Native specification, for example, 3
<i>adunit*</i>	<i>integer</i>	The Ad unit ID of the native ad unit as described in OpenRTB Native specification.
<i>plcmtype*</i>	<i>integer</i>	The design/format/layout of the ad unit being offered. See the <i>Native Placement Type</i> (page 33) for a list of supported placement types
<i>plmctcnt*</i>	<i>integer</i>	The number of identical placements in this Layout, for example, 1
<i>seq*</i>	<i>integer</i>	0 for the first ad, 1 for the second ad, and so on. This is not the sequence number of the content in the stream.
<i>eventtrackers*</i>	<i>array of objects</i>	Specifies what type of event tracking is supported, see <i>Event Tracker Request Object</i> (page 33). Required by some Buyers, see <i>Required Fields per Buyer</i> (page 64)
<i>privacy*</i>	<i>integer</i>	Set to 1 when the native ad supports a buyer-specific privacy notice, set to 0 otherwise.
<i>assets</i>	<i>array of objects</i>	An array of Asset Objects. Any bid must comply with this array of elements. See the Native Asset Object section below for more details.

## Native Asset Object

Table 19: Native Asset Object Properties

Value	Type	Description
<i>id</i>	<i>integer</i>	Unique asset id, for example 2
<i>required</i> *	<i>integer</i>	Set to 1 if asset is required (exchange will not accept a bid without it), default is 0.
<i>title</i> **	<i>object</i>	Native title object, see the Native Asset Title Object section below for more details.
<i>img</i> **	<i>object</i>	Native image object, see the Native Asset Image Object below for more details.
<i>video</i> **	<i>object</i>	Native video object, see the Native Asset Video Object below for more details.
<i>data</i> **	<i>object</i>	Native asset data object, see the Native Asset Data Object below section for more details.

**Note:** (\*\*) There may only be exactly one of the fields marked with double asterisk in each asset object.

## Native Asset Title Object

Table 20: Native Asset Title Object

Value	Type	Description
<i>len</i>	<i>integer</i>	Maximum length of the text in the title element, for example, 30

## Native Asset Image Object

The image asset object may contain the exact image size, the minimum image size, or both. If only the exact image size is specified then the image in the bid response should have the corresponding size. If the minimum size is specified then the image asset in the bid response should comply with the following restrictions.

- The size of the image should be equal to or larger than the minimum specified
- The image asset in the bid response should contain the **w** and **h** fields.

**Note:** It is recommended that the aspect ratio of the image should be close to the one specified by the exact size or by the minimum size; the acceptable aspect ratio deviation is from  $0.8 * (w/h)$  to  $1.25 * (w/h)$

Table 21: Native Asset Image Object

Value	Type	Description
<i>type</i> *	<i>integer</i>	Image asset type, for example 3. Takes the following values: <ul style="list-style-type: none"> <li>• 1 Icon</li> <li>• 2 Logo (Logo image for the brand/app)</li> <li>• 3 Main (Large image preview for the ad)</li> </ul>
<i>w</i> *	<i>integer</i>	Width of the image in pixels, for example, 300
<i>wmin</i> *	<i>integer</i>	The minimum requested width of the image in pixels, for example, 100
<i>h</i> *	<i>integer</i>	Height of the image in pixels, for example, 250
<i>hmin</i> *	<i>integer</i>	The minimum requested height of the image in pixels, for example, 100
<i>mimes</i> *	<i>array of strings</i>	Whitelist of content MIME types supported, for example, ["image/gif"] If blank, assume all types are allowed.

## Native Asset Video Object

Table 22: Native Asset Video Object

Value	Type	Description
<i>mimes</i>	<i>array of strings</i>	Content MIME types supported, for example, ["video/mpeg", "video/mp4"]
<i>minduration</i>	<i>integer</i>	Minimum video ad duration in seconds, for example, 2
<i>maxduration</i>	<i>integer</i>	Maximum video ad duration in seconds, for example 15
<i>protocols</i>	<i>array of integers</i>	Accepted video bid response protocols as defined in OpenRTB, for example, [2,5]
<i>ext</i>	<i>object</i>	Extension object, see <i>Native Asset Video Object Extension</i> (page 32)

## Native Asset Video Object Extension

Table 23: Native Asset Video Object Extension Properties

Value	Type	Description
<i>playback-method</i> *	<i>array of integers</i>	Allowed playback methods as defined in the OpenRTB, for example [1, 2]. If none are specified, it is assumed all are allowed.

## Native Asset Data Object

Table 24: Native Asset Data Object

Value	Type	Description
<i>type</i>	<i>integer</i>	Data asset type as described in OpenRTB Native specification, for example, 1
<i>len*</i>	<i>integer</i>	Maximum length of the text in the element's response, for example, 25

## Native Placement Type

Table 25: Native Placement Type Options

Value	Description
1	In the feed of content, for example 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, for example in the ads section on the right rail, as a banner-style placement near the content, etc.
4	Recommendation widget, most commonly presented below the article content.
500+	To be defined by the exchange

## Event Tracker Request Object

Table 26: Event Tracker Request Object

Value	Type	Description
<i>event</i>	<i>integer</i>	Type of event available for tracking. See the <i>Event Tracking Types</i> (page 34)
<i>methods</i>	<i>array of integers</i>	Array of the types of tracking available for the given event. See the <i>Event Tracking Methods</i> (page 34) table
<i>ext*</i>	<i>object</i>	This object is a placeholder that may contain custom JSON agreed to by the parties to support flexibility beyond the standard defined in this specification

## Event Tracking Types

Table 27: Event Tracking Types

Value	Type	Description
1	<i>Impression</i>	Impression
2	<i>viewable-mrc50</i>	Visible impression using MRC definition at 50% in view for 1 second.
3	<i>viewable-mrc100</i>	Visible impression using MRC definition at 100% in view for 1 second, i.e. GroupM standard
4	<i>viewable-video50</i>	Visible impression for video using MRC definition at 50% in view for 2 seconds.
500+	<i>exchange specific</i>	

## Event Tracking Methods

Table 28: Event Tracking Methods

Value	Type	Description
1	<i>img</i>	Image-pixel tracking – The URL provided in the response will be inserted as a 1x1 pixel at the time of the event.
2	<i>js</i>	Javascript-based tracking – The URL provided in the response will be inserted as a js tag at the time of the event.
500+	<i>exchange specific</i>	Could include custom measurement companies such as Moat, DoubleVerify, IAS, etc – in this case additional elements will often be passed.

## Example Native Request

```
{
  "native":{
    "request_native":{
      "plcmcnt":1,
      "plcmtype":2,
      "privacy":1,
      "context":1,
      "contextsubtype":12,
      "eventtrackers":[
        {
          "event":1,
          "methods":[
            1,
            2
          ]
        }
      ]
    }
  }
}
```

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```
    ]
  },
  {
    "event":2,
    "methods":[
      1
    ]
  }
],
"assets":[
  {
    "id":1,
    "data":{
      "type":12
    },
    "required":1
  },
  {
    "title":{
      "len":50
    },
    "id":2,
    "required":1
  },
  {
    "id":3,
    "img":{
      "w":80,
      "h":80,
      "type":1
    },
    "required":1
  },
  {
    "id":4,
    "img":{
      "w":1200,
      "h":627,
      "type":3
    },
    "required":1
  },
  {
    "data":{
      "type":3
    }
  }
]
```

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```
    },
    "id":5,
    "required":0
  },
  {
    "id":6,
    "data":{
      "len":100,
      "type":2
    },
    "required":1
  },
  {
    "id":7,
    "video":{
      "mimes":[
        "video/mpeg",
        "video/mp4"
      ],
      "minduration":2,
      "protocols":[
        2,
        5
      ],
      "maxduration":2,
      "ext":{
        "playbackmethod":[
          1,
          2
        ]
      }
    },
    "required":1
  }
],
"ver":"1.2"
}
}
```

## 1.6.8 Private Marketplace Object

**Note:** Fields marked with an asterisk (\*) are optional.

Table 29: Private Marketplace Object Properties

Value	Type	Description
<i>private_auction*</i>	<i>integer</i>	A value of 1 indicates that only bids submitted inside <code>pmp.deals</code> will take part in the auction. A value of 0 indicates that bids without deal information may also be considered for serving.
<i>deals</i>	<i>array of objects</i>	Array of Deal objects, for more information, see the <i>Deals Object</i> (page 38) section.

### Private Marketplace Object Example

```
{
  "pmp":{
    "private_auction":1,
    "deals":[
      {
        "id":"deal-1",
        "wseat":[
          "58"
        ],
        "bidfloor":2.5,
        "at":1
      },
      {
        "id":"deal-2",
        "bidfloor":2,
        "at":2
      }
    ]
  }
}
```



## 1.6.9 Deals Object

**Note:** Fields marked with an asterisk (\*) are optional.

Table 30: Deal Object Properties

Value	Type	Description
<i>id</i>	<i>string</i>	Deal ID, for example, "AA-1234" <b>Note:</b> Do not use any of the following symbols in the Deal ID, as doing so will result in request invalidation: , # % \$ @ * & ? ! ` ~ " ' / \   ( ) { } [ ]+ = ^ :
<i>wseat*</i>	<i>array of strings</i>	Array of Buyer seats allowed to bid on this Direct Deal, for example, ["58", "99"]. If present, the allowed seat IDs may be supplied using the BidSwitch or Supplier taxonomy. <ul style="list-style-type: none"> <li>• The BidSwitch taxonomy uses the Buyer ID as the single seat ID value.</li> <li>• The seat in the Supplier taxonomy may represent the whole Buyer or some entity on the Buyer side (e.g. agency)</li> <li>• A bid request may contain multiple seat IDs in the Supplier taxonomy.</li> <li>• The bid response should contain the appropriate seat value corresponding to one of values of the <i>wseat</i> field, see the <i>Seat Bid Object</i> (page 80) section.</li> </ul>
<i>bidfloor*</i>	<i>float</i>	Deal price in CPM. If it's a fixed price deal as set using <i>deals.at = 3</i> then this field sets the the exact price of the deal, otherwise this is the bid floor of the deal, for example, 1.3
<i>bidfloorcur*</i>	<i>string</i>	Bid floor currency specified using <a href="https://www.iso.org/iso-4217-currency-codes.html">ISO-4217</a> <sup>17</sup> alpha codes, for example, "USD"
<i>at*</i>	<i>integer</i>	Auction type. <ul style="list-style-type: none"> <li>• 1 for first price auction.</li> <li>• 2 for second price auction.</li> <li>• 3 for fixed price deal.</li> </ul>

<sup>17</sup> <https://www.iso.org/iso-4217-currency-codes.html>

## Deal Extension Object

Table 31: Deal Ext Object Properties

Value	Type	Description
<i>buyer_wseat*</i>	<i>array of strings</i>	Specifies the Advertisers/Agencies that should have access to this deal in the Buyer's system. You should use their seat ID with the Buyer, e.g. ["agency-123", "advertiser-456"]. <b>Note:</b> To obtain the correct Seat ID for an agency at a particular Buyer you will need to contact the agency. You may also find more information about this in the <code>buyers</code> field description of the <code>dpa</code> section.
<i>deal_type*</i>	<i>int</i>	Indicates additional details about the type of deal, the default is 0 <ul style="list-style-type: none"> <li>• 0 Unknown deal type</li> <li>• 1 Preferred deal</li> <li>• 2 Private auction</li> <li>• 3 Programmatic guaranteed</li> <li>• 4 Auction package</li> </ul>

## Deals Object Example

```
{
  "pmp":{
    "private_auction":1,
    "deals":[
      {
        "id":"deal-1",
        "wseat":[
          "58"
        ],
        "bidfloor":2.5,
        "at":1,
        "ext":{
          "deal_type":3,
          "buyer_wseat":[
            "abc-123"
          ]
        }
      },
      {
        "id":"deal-2",
        "bidfloor":2,
        "at":2
      }
    ]
  }
}
```

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```

    ]
  }
}

```

### 1.6.10 Device Object Properties

**Note:** Fields marked with an asterisk (\*) are optional.

(\*\*) Required for in-app requests.

Table 32: Device Object Properties

Value	Type	Description
<i>geo</i>	<i>object</i>	Geo Object as derived from the device's location services, or supplied by the Supplier if the device IP is missing. For more information, see the <i>Geo Object Properties</i> (page 43) section.
<i>ip</i>	<i>string</i>	Specifies the IPv4 address closest to the device. <ul style="list-style-type: none"> <li>• <b>Semi-Required</b> One of IP or IPv6 required</li> <li>• Required for almost all requests, any containing invalid IP addresses will be discarded based on IP Validation e.g. 87.224.77.0</li> <li>• <b>Note:</b> This field is only optional for Connected TV inventory</li> </ul>
<i>ipv6*</i>	<i>string</i>	<b>Semi-Required</b> One of IP or IPv6 required. IP address in IPv6, for example, fe80:0:0:0:200:f8ff:fe21:67cf
<i>ua*</i>	<i>string</i>	Browser or application user agent string, for example, "Mozilla/5.0 (Windows NT 6.3; WOW64; rv:35.0)Gecko/20100101Firefox/35.0"
<i>language*</i>	<i>string</i>	Alpha-2/ISO 639-1 code of browser language, for example, en
<i>carrier*</i>	<i>string</i>	Carrier or ISP derived from the IP address, for example, WIFI
<i>connection-type*</i>	<i>integer</i>	Connection type as defined in OpenRTB, for example, 2
<i>didsha1*</i>	<i>string</i>	Hardware device ID (e.g., IMEI); hashed via SHA1, for example, CCF6DC12B98AEB2346AFE1BEE7860DF01FDE158B
<i>didmd5*</i>	<i>string</i>	Hardware device ID (e.g., IMEI); hashed via MD5. 93D05D4D69DEE2BC6645D9F0A0C1938C
<i>dpidsha1*</i>	<i>string</i>	Platform device ID (e.g., Android ID); hashed via SHA1, for example, CCF6DC12B98AEB2346AFE1BEE7860DF01FDE158B
<i>dpidmd5*</i>	<i>string</i>	Platform device ID (e.g., Android ID); hashed via MD5, for example, 93D05D4D69DEE2BC6645D9F0A0C1938C

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Table 32 – continued from previous page

Value	Type	Description
<i>ifa</i> **	<i>string</i>	The ID for Advertisers (IFA) in clear text (i.e. not hashed), for example Apple's IDFA or Android's Advertising ID. <b>Note:</b> This field is required for in-app requests. The Apple IDFA is usually uppercase, and the Android Advertiser ID is usually lowercase. For example: <ul style="list-style-type: none"> <li>• Android "035911ea-467d-4056-903b-65cf44f5633b"</li> <li>• iOS "30255BCE-4CDA-4F62-91DC-4758FDF8512"</li> <li>• iOS 14 00000000-0000-0000-0000-000000000000, with Apple's deprecation of the IDFA as part of iOS 14, this field should be passed using all zeros, rather than removed or an empty string, as all zeros are the expected format.</li> </ul> <b>Note:</b> These fields can use UUIDv4 or UUIDv5 formats. If passing synthetic IFAs, you should use either the v4 or v5 implementation of RFC 4122 <sup>18</sup> to generate them. There's a number of online tools for checking the version if you need to troubleshoot UUID issues, e.g. <a href="#">UUID / GUID Validator</a> <sup>19</sup>
<i>make</i> *	<i>string</i>	Device make, for example, <b>Apple</b>
<i>mccmnc</i> *	<i>string</i>	Mobile carrier as the concatenated MCC-MNC code (e.g., "310-005" identifies Verizon Wireless CDMA in the USA). Refer to <a href="https://en.wikipedia.org/wiki/Mobile_country_code">https://en.wikipedia.org/wiki/Mobile_country_code</a> for further examples. <b>Note:</b> that the dash between the MCC and MNC parts is required to remove parsing ambiguity
<i>model</i> *	<i>string</i>	Device model, for example, <b>iPhone</b>
<i>os</i> *	<i>string</i>	Device operating system, for example, <b>iOS</b>
<i>osv</i> *	<i>string</i>	Device operating system version, for example, <b>3.1.2</b>
<i>h</i> *	<i>integer</i>	Physical height of the screen in pixels, for example, <b>750</b>
<i>w</i> *	<i>integer</i>	Physical width of the screen in pixels, for example, <b>1334</b>
<i>pxratio</i> *	<i>float</i>	The ratio of physical pixels to device independent pixels, for example, <b>1.0</b>
<i>dnt</i> *	<i>integer</i>	Do not track. <ul style="list-style-type: none"> <li>• 0: do not track is set to false</li> <li>• 1: do not track is set to true in the browser, for example, 0</li> </ul>
<i>lmt</i> *	<i>integer</i>	Limit Ad Tracking. Signal commercially endorsed (e.g., iOS, recommended Android): <ul style="list-style-type: none"> <li>• 0: tracking is unrestricted,</li> <li>• 1: tracking must be limited per commercial guidelines, for example, 0</li> </ul>
<i>devicetype</i> *	<i>integer</i>	Device type as defined by OpenRTB, for example, <b>4</b>
<i>js</i> *	<i>integer</i>	1 if the device supports JavaScript; otherwise 0.
<i>flashver</i> *	<i>string</i>	Flash version detected, for example, <b>10.1</b>
<i>ext</i> *	<i>object</i>	Device extension object

## Device Ext

Table 33: Device Ext Object Properties

Value	Type	Description
<i>atts*</i>	<i>int</i>	(iOS Only) An integer passed to represent the app's app tracking authorization status, can contain the following values. <ul style="list-style-type: none"> <li>• 0 = not determined</li> <li>• 1 = restricted</li> <li>• 2 = denied</li> <li>• 3 = authorized</li> </ul>
<i>dooh*</i>	<i>object</i>	Passes the <i>DOOH Object</i> (page 61) for Digital out of Home inventory, required to indicate DooH inventory
<i>truncated_ip*</i>	<i>integer</i>	Indicates whether the IP address in the <code>device.ip</code> field is truncated. 1 = truncated 0 = not truncated. It is assumed not truncated and required if the IP address is truncated. If not declared the bid request might be classified as invalid traffic, by Google. This is a field only for Google, see the <a href="#">Display &amp; Video 360 OpenRTB Specification</a> <sup>20</sup>
<i>ifa_type*</i>	<i>string</i>	Indicates the origin of the <code>device.ifa</code> field, whether it was provided from the device itself or generated by a publisher or Supplier in the supply chain. Takes the following values from the <a href="#">Guidelines for Identifier for Advertising (IFA) on CTV/OTT platforms</a> <sup>21</sup> <ul style="list-style-type: none"> <li>• "aaid" Android TV</li> <li>• "rida" Roku</li> <li>• "afai" Amazon Fire</li> <li>• "idfa" Apple tvOS</li> <li>• "msai" Xbox/Microsoft</li> <li>• "dpid" Generic device platform ID</li> <li>• "ppid" Publisher provided ID</li> <li>• "sspид" SSP provided ID</li> <li>• "sessionid" Short-lived session ID (frequency capping only)</li> </ul>
<i>idfv*</i>	<i>str</i>	Passes the ID for Vendor ( <i>IDFV</i> <sup>22</sup> ). A persistent unique identifier for each app on a device that identifies the device to the app's vendor. The value of this property is the same for apps that come from the same vendor running on the same device. A different value is returned for apps on the same device that come from different vendors, and for apps on different devices regardless of vendor, e.g. "1F277D46-12BF-482A-9085-B4F811DD6E4D"

<sup>18</sup> <https://tools.ietf.org/html/rfc4122><sup>19</sup> <https://www.freecodeformat.com/validate-uuid-guid.php>

## 1.6.11 Geo Object Properties

The information provided in the Geo Object is based on [MaxMind database](#)<sup>23</sup>, except latitude and longitude values.

**Note:** Fields marked with an asterisk (\*) are optional.

Table 34: Geo Object Properties

Value	Type	Description
<i>accuracy*</i>	int	Estimated location accuracy in meters.
<i>lat*</i>	float	Latitude from -90 to 90. South is negative, for example, 52.35
<i>lon*</i>	float	Longitude from -180 to 180. West is negative, for example, 4.9167
<i>type*</i>	integer	Source of location data as defined by OpenRTB, for example, 1
<i>country*</i>	string	Country using <a href="#">ISO-3166-1</a> <sup>24</sup> Alpha-2, for example NL
<i>region*</i>	string	Region using ISO-3166-2 region codes, for example, NY
<i>city*</i>	string	City name.
<i>metro*</i>	string	Google metro code; similar to but not exactly Nielsen DMAs.
<i>zip*</i>	string	Zip/postal code, for example, "90210"
<i>utcoffset*</i>	integer	Local time as the number +/- of minutes from UTC, for example, -240

## Geo Object Example

```
{
  "geo": {
    "country": "US",
    "region": "NY",
    "city": "City Name",
    "zip": "10601",
    "utcoffset": -240
  }
}
```

<sup>20</sup> <https://developers.google.com/display-video/ortb-spec#supported-extension-for-device-object>

<sup>21</sup> <https://iabtechlab.com/standards/guidelines-identifier-advertising-over-the-top-platforms/>

<sup>22</sup> <https://developer.apple.com/documentation/uikit/uidevice/1620059-identifierforvendor>

<sup>23</sup> <https://www.maxmind.com/en/geoip2-services-and-databases>

<sup>24</sup> <https://www.iso.org/iso-3166-country-codes.html>

## 1.6.12 Metric Object

**Note:** Fields marked with an asterisk (\*) are optional.

Table 35: Metric Object Properties

Value	Type	Description
<i>type</i>	<i>string</i>	The type of metric being presented. Currently BidSwitch only supports using <b>viewability</b> as the metric type
<i>value</i>	float	A decimal number representing the value of the metric being supplied <b>viewability</b> probability is in the range <i>0.0 – 1.0</i> .
<i>vendor*</i>	string	Source of the value declared by the Supplier

### Metric JSON Example

```
{
  "metric": [
    {
      "type": "viewability",
      "value": 0.85
    }
  ]
}
```

## 1.6.13 User Object

**Note:** Fields marked with asterisk (\*) are optional.

Table 36: User Object Properties

Value	Type	Description
<i>id*</i>	<i>string</i>	Your unique ID for this user. The User ID can be a maximum of 50 characters.
<i>buyeruid*</i>	<i>string</i>	The BidSwitch ID for this user. For in-app traffic the lowercase IDFA, or Android ID is used. For example, "38f72eaf-5d6f-4143-824f-deaf753d7239". The User ID can be a maximum of 50 characters.
<i>keywords*</i>	<i>string</i>	Comma separated list of keywords, interests, or intent, for example, <b>Cars, sports, vacation</b>
<i>yob*</i>	<i>integer</i>	Year of birth as a 4-digit integer, for example, 1977

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Table 36 – continued from previous page

Value	Type	Description
<i>gender*</i>	<i>string</i>	Specifies the user gender, for example, "F" <ul style="list-style-type: none"><li>• "M" = Male</li><li>• "F" = Female</li><li>• "0" = Known to be other, or omitted if unknown</li></ul>
<i>data*</i>	<i>array of objects</i>	Additional data. Each data object represents a different data source, for more information, see the <i>Data Object</i> (page 52) section.
<i>ext*</i>	<i>object</i>	See <i>User Ext Object</i> (page 46)



User Ext Object

Table 37: User Ext Object Properties

Value	Type	Description
<i>eids*</i>	<i>array of objects</i>	Contains the Extended identifiers object, see the <i>Extended Identifiers</i> (page 48) section for details
<i>google_audiences*</i>	<i>string</i>	<p>Passes the case-sensitive value of "Collectable" when the request is eligible to be collected for processing as part of Google Affinity Audiences<sup>25</sup>. This field is only relevant to DV360. If you need more details, contact your Account manager. If an empty string or another different/incorrect value is present, the request will not be considered eligible for Google Affinity Audiences:</p> <pre>{   "user":{     "ext":{       "google_audiences":"Collectable"     }   } }</pre>
<i>floc*</i>	<i>object</i>	<p>Cohort ID that is common to a large cohort of users with similar browsing habits. Currently the cohort ID is simulated by the exchange (as opposed to by the browser). When simulated cohort ID is provided, traditional pseudonymous cookie-based user identifiers or device advertising identifiers would not be populated. Experimental feature; may be subject to change. See <a href="https://github.com/WICG/floc">https://github.com/WICG/floc</a> for more background on FLoC.</p> <hr/> <p><b>Note:</b> In the event FLOC is being used there should be no <code>user.id</code> or <code>user.buyerid</code> present.</p> <hr/>
<i>impdepth*</i>	<i>int</i>	The count of impressions for a specific placement type in a given app session. The impression depth is reset once the session ends, e.g 2
<i>sessionduration*</i>	<i>int</i>	The total duration of time a user has spent so far in a specific app session expressed in seconds. For example, a user has been playing Word Game for 45 seconds, e.g. 45
<i>consented_providers_settings*</i>	<i>object</i>	Passes a set of IDs corresponding to providers for whom the publisher has provided user consent using Google vendor list. See the <i>Consented Provider Settings</i> (page 47)
<i>consent*</i>	<i>string</i>	<p>The binary encoding scheme that is passed in base64 URL/web safe format known as daisybit, e.g. "Y29uc2VudCBkYXRh"</p> <p>The data stored in the consent string is divided into 3 parts: metadata, the purposes for which the user has given consent, and to which vendors this consent was given.</p>
<b>1.6. Supplier Bid Request</b>	<b>Request</b>	<p>The Supplier should pass this information to Buyers to ensure they can bid appropriately in their responses. For more information see the following links:</p> <ul style="list-style-type: none"> <li>• <a href="https://github.com/InteractiveAdvertisingBureau/">https://github.com/InteractiveAdvertisingBureau/</a></li> </ul>

## Consented Provider Settings

Table 38: Consented Providers

Value	Type	Description
<i>consented_providers</i>	<i>array of integers</i>	Set of IDs corresponding to providers for whom the publisher has provided user consent using Google vendor list. A mapping of provider ID to provider name is posted at <a href="https://storage.googleapis.com/adx-rtb-dictionaries/providers.csv">https://storage.googleapis.com/adx-rtb-dictionaries/providers.csv</a>

## FLoC Object

Table 39: FLoC Object Properties

Value	Type	Description
<i>id</i>	<i>string</i>	The value of a cohort ID – a string identifier that is common to a large cohort of users with similar browsing habits.
<i>type</i>	<i>integer</i>	Identifies the method of generating the cohort ID, see this Google whitepaper for more details: <a href="#">Evaluation of Cohort Algorithms for the FLoC API</a> <sup>26</sup> <ul style="list-style-type: none"> <li>• FLOC_TYPE_UNKNOWN = 0; Default value that should not be used.</li> <li>• SIMULATED_AFFINITY_CLUSTERING_CENTROID_VERTICAL = 2; FLoC simulated using affinity hierarchical clustering with centroids and feature extraction based on Topic categories as described in the whitepaper.</li> <li>• SIMULATED_SIMHASH_SORTING_LSH_DOMAIN_ONE_HOT = 3; FLoC simulated using SortingLSH clustering algorithm and Domain One-hot encoding feature extraction as described in the whitepaper. FLoC simulated using a k Random Centers locality-sensitive hash function as described in <a href="https://github.com/google/ads-privacy/blob/master/proposals/FLoC/k-random-centers.md">github.com/google/ads-privacy/blob/master/proposals/FLoC/k-random-centers.md</a> with Domain TF-IDF feature extraction as described in the whitepaper.</li> <li>• KCENTER_DOM_FILTERED_TFDIF = 4;</li> </ul>

```
{
  "user":{
    "ext":{
      "floc":{
```

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<sup>25</sup> [https://support.google.com/displayvideo/answer/6021489?hl=en&ref\\_topic=2726036](https://support.google.com/displayvideo/answer/6021489?hl=en&ref_topic=2726036)

<sup>26</sup> <https://github.com/google/ads-privacy/blob/master/proposals/FLoC/FLOC-Whitepaper-Google.pdf>

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```
    "id":"str123",
    "type":3
  }
}
```

## Extended Identifiers

Supports the official Open RTB community extension for passing multiple third party user identifiers, see the official [Extended Identifiers](#)<sup>27</sup> spec for more details.

This object passes any additional User IDs a Supplier, Consent Management Platform (CMP), Data Management Platform (DMP), or BidSwitch may have for a user. There is a number of identity solutions that provide IDs for users that are not based on 3rd party data, and many of these solution providers extend their first-party data as offerings that can be used to offset the decline of 3rd party cookies.

BidSwitch and many of our partners support these offerings and have build systems to collate, map, and make these IDs available to Buyers, who can use them to improve the robustness of targeted advertising. When the appropriate consent is in place (e.g CCPA, GDPR) BidSwitch **passes all and any** correctly set ID in this field. The following IDs are the most commonly sent through BidSwitch, but if you are looking for a particular ID in requests, you should check the `source` value to identify it. You can find a more extensive list of possible IDs on the [Prebid User ID Module page](#)<sup>28</sup>

- The TradeDesk ID known as the Unified ID 2.0 and passed as "uidapi.com", is based on a Single-Sign On (SSO) email validation service for publisher site access.
- The TradeDesk ID known as the Unified ID 1.0 and passed as "adserver.org". You can read more about that here <https://www.thetradedesk.com/us/about-us/industry-initiatives/unified-id-solution-2-0/unified-id-solution-1-0>
- The LiveIntent ID, passed as "liveintent.com", is built and authenticated daily through consent-based email, you can read more about here <https://www.liveintent.com/identity-solutions/>
- The ID5 ID, passed as "id5-sync.com", enables publishers to create and distribute a shared first-party identifier, you can read more about that here <https://www.id5.io/>
- The prebid managed SharedID, passed using "sharedid.org", see <https://prebid.org/product-suite/sharedid/> for more details
- The LiveRamp ID, passed as "liveramp.com", associates anonymous device IDs and other online customer IDs from publishers, platforms, or data providers with an *IdentityLink* (IDL) single person-based identifier. You can read more about it here <https://liveramp.com/our-platform/identity-resolution/>

<sup>27</sup> [https://github.com/InteractiveAdvertisingBureau/openrtb/tree/master/extensions/2.x\\_official\\_extensions](https://github.com/InteractiveAdvertisingBureau/openrtb/tree/master/extensions/2.x_official_extensions)

<sup>28</sup> <https://docs.prebid.org/dev-docs/modules/userId.html>

**Note:**

- The LiveRamp ID is encrypted and only enabled for certain Buyers that have the business contracts in place to decrypt and use this ID, contact [support@bidswitch.com](mailto:support@bidswitch.com) if you are a LiveRamp partner.
- The LiveIntent ID is only available to certain Buyers to whom LiveIntent wish to grant usage rights.

Table 40: eids Object Properties

Value	Type	Description
<i>source</i>	<i>string</i>	<p><b>(Required)</b> Source or technology provider responsible for the set of included IDs. Expressed as a top-level domain. BidSwitch includes the following IDs when available.</p> <ul style="list-style-type: none"> <li>• The Trade Desk backed Unified ID passed using "adserver.org" for v1.0 and as "uidapi.com" for v2.0.</li> <li>• id5 passed using "id5-sync.com"</li> <li>• The LiveIntent ID passed using "liveintent.com"</li> <li>• IDL passed using "liveramp.com"</li> <li>• SharedID passed using "sharedid.org"</li> </ul>
<i>uids</i>	<i>array of objects</i>	<b>(Required)</b> Passes the User IDs matched from the given provider.

**uids Object**

Table 41: uids Object Properties

Value	Type	Description
<i>id</i>	<i>string</i>	<b>(Required)</b> The User ID with this provider.
<i>atype</i>	<i>int</i>	<p><b>(Optional)</b> The type of user agent the match is from.</p> <ul style="list-style-type: none"> <li>• 1 An ID which is tied to a specific web browser or device (cookie-based, probabilistic, or other).</li> <li>• 2 In-app impressions, which will typically contain a type of device ID (or rather, the privacy-compliant versions of device IDs).</li> <li>• 3 A person-based ID, i.e., that is the same across devices.</li> <li>• 500+ Vendor-specific codes.</li> </ul>

## User Object Example

```

{
  "user":{
    "id":"45asdf987656789adfad4678rew656789",
    "buyeruid":"1234567890",
    "keywords":"sports, entertainment",
    "yob":1976,
    "gender":"F",
    "ext":{
      "ug":1,
      "cookie_age":15,
      "consent":"Y29uc2VudCBkYXRh",
      "consented_providers_settings":{
        "consented_providers":[
          1791
        ]
      },
      "eids":[
        {
          "source":"adserver.org",
          "uids":[
            {
              "id":"zzz",
              "atype":1
            },
            {
              "id":"DB700403-9A24-4A4B-A8D5-8A0B4BE777D2",
              "atype":2
            }
          ]
        },
        {
          "source":"liveintent.com",
          "uids":[
            {
              "id":"IP14zj44RhezVyNE83bYfogYRN6W8LaCy3USy8dPQ==",
              "atype":3
            }
          ]
        },
        {
          "source":"liveramp.com",
          "uids":[
            {
              "id":"0db20294a3908612bc7e732c2022095391074cf3"
            }
          ]
        }
      ]
    }
  }
}

```

(continues on next page)



## 1.6.15 ads.txt Object

Table 43: Ads.txt Object Properties

Value	Type	Description
<i>status</i>	<i>int</i>	Indicates what information the ads.txt file contained regarding this Suppliers selling relationship with the publisher: <ul style="list-style-type: none"> <li>• 1 = direct</li> <li>• 2 = reseller</li> <li>• 3 = unauthorized</li> </ul>
<i>pub_id</i>	<i>string</i>	Exchange-specific publisher ID, e.g "abc-123". Note: Do not use any of the following symbols in the publisher ID, as doing so may cause issues: , # % \$ @ * & ? ! ` ~ " ' / \   ( ) { } [ ] + = ^
<i>auth_id*</i>	<i>string</i>	Passes the TAG ID if present in the ads.txt file, e.g. 8765jfhfg09j
<i>supplier_domain*</i>	<i>string</i>	Passes the Supplier's domain listed in the publisher's ads.txt file, e.g. "openx.com"

## 1.6.16 Data Object

**Note:** Fields marked with asterisk (\*) are optional.

Table 44: Data Object Properties

Value	Type	Description
<i>id*</i>	<i>string</i>	Exchange-specific ID for the data provider, for example "BSW001"
<i>name</i>	<i>string</i>	Exchange-specific name for the data provider, for example "domain-origin"
<i>segment</i>	<i>array of objects</i>	Array of Segment objects that contain the actual data values.

## Segment Object

Table 45: Segment Object Properties

Value	Type	Description
<i>id*</i>	<i>string</i>	ID of the data segment specific to the data provider, for example, "Seg123"
<i>name</i>	<i>string</i>	Name of the data segment specific to the data provider, for example, "status"
<i>value*</i>	<i>string</i>	String representation of the data segment value, for example, "verified"

```

{
  "data": [
    {
      "name": "domain-origin",
      "segment": [
        {
          "name": "status",
          "value": "verified"
        },
        {
          "name": "domain",
          "value": "abcd.com"
        }
      ]
    }
  ]
}

```

### 1.6.17 Source Object

**Note:** Fields marked with an asterisk (\*) are optional.

Table 46: Source Object Properties

Value	Type	Description
<i>fd</i>	<i>integer</i>	Indicates the entity responsible for the final impression sale decision, using the following values: <ul style="list-style-type: none"> <li>• 0 = The exchange behind BidSwitch</li> <li>• 1 = An upstream source (usually header bidder)</li> </ul> For example a bid request containing <code>ext.ssp='rubicon'</code> and <code>source.fd=0</code> implies that the auction is run at Rubicon SSP. If the same request has <code>source.fd=1</code> then the auction is run at a header bidder upstream from Rubicon SSP. <b>Note:</b> The BidSwitch platform never acts as the decision maker.
<i>tid</i>	string	<b>(Recommended)</b> Transaction ID that must be common across all participants in this bid request (e.g., potentially multiple exchanges).
<i>pchain*</i>	<i>string</i>	Payment ID chain string containing embedded syntax described in the TAG Payment ID Protocol v1.0.
<i>ext*</i>	<i>object</i>	Contains additional fields, see <i>Source Extension</i> (page 54)



## Source Extension

Table 47: Source Extension Object Properties

Value	Type	Description
<i>omidpn</i>	<i>string</i>	Identifier of the OM SDK integration, the <a href="#">IAB Open Measurement specification on Github</a> <sup>29</sup>
<i>omidpv</i>	<i>string</i>	Version of the OM SDK integration.
<i>schain</i>	<i>object</i>	Contains the supplychain object, as fully described here on the <a href="#">IAB Github Page</a> <sup>30</sup> : The SupplyChain object is composed primarily of a set of nodes where each node represents a specific entity that participates in the selling of a bid request. The entire chain of nodes from beginning to end would represent all sellers who were paid for an individual bid request.

## SupplyChain Object

Table 48: schain

Value	Type	Description
<i>complete</i>	<i>int</i>	<b>(Required)</b> Flag indicating whether the chain contains all nodes leading back to the source of the inventory, where 0 = no, 1 = yes.
<i>nodes</i>	<i>array of objects</i>	<b>(Required)</b> Array of objects in the order of placing in the chain. The original source of the request is first and the final seller of the request last, see <a href="#">Supply Chain Nodes</a> (page 55)
<i>ver</i>	<i>str</i>	<b>(Required)</b> Version of the supply chain specification in use. Currently "1.0" is the only option.

<sup>29</sup> <https://github.com/InteractiveAdvertisingBureau/AdCOM/blob/master/OpenRTB%20support%20for%20OMSDK.md>

<sup>30</sup> <https://github.com/InteractiveAdvertisingBureau/openrtb/blob/master/supplychainobject.md>

## Supply Chain Nodes

Table 49: supply chain node

Value	Type	Description
<i>asi</i>	<i>string</i>	<b>(Required)</b> The canonical domain name of the SSP, Exchange, Header Wrapper, etc system that bidders connect to. This may be the operational domain of the system, if that is different than the parent corporate domain, to facilitate WHOIS and reverse IP lookups to establish clear ownership of the delegate system. This should be the same value as used to identify sellers in an ads.txt file if one exists.
<i>sid</i>	<i>string</i>	<b>(Required)</b> The identifier associated with the seller or reseller account within the advertising system. This must contain the same value used in transactions (i.e. OpenRTB bid requests) in the field specified by the SSP/exchange. Typically, in OpenRTB, this is publisher.id. For OpenDirect it is typically the publisher's organization ID. Should be limited to 64 characters in length.
<i>hp</i>	<i>int</i>	<b>(Required)</b> Indicates whether this node will be involved in the flow of payment for the inventory. When set to 1, the advertising system in the <i>asi</i> field pays the seller in the <i>sid</i> field, who is responsible for paying the previous node in the chain. When set to 0, this node is not involved in the flow of payment for the inventory. For version 1.0 of SupplyChain, this property should always be 1. It is explicitly required to be included as it is expected that future versions of the specification will introduce non-payment handling nodes. Implementers should ensure that they support this field and propagate it onwards when constructing SupplyChain objects in bid requests sent to a downstream advertising system.
<i>rid</i>	<i>string</i>	The OpenRTB RequestId of the request as issued by this seller.
<i>name*</i>	<i>string</i>	The business name of the entity represented by this node. This value is optional and should NOT be included if it exists in the advertising system's sellers.txt file.
<i>domain*</i>	<i>string</i>	The business domain name of the entity represented by this node. This value is optional and should NOT be included if it exists in the advertising system's sellers.txt file.

## Example Source JSON

```
{
  "source":{
    "fd":1,
    "ext":{
      "schain":{
        "complete":0,
        "ver":"1.0",
        "nodes":[
          {
            "asi":"reseller.com",
            "sid":"aaaaa",
            "rid":"BidRequest4",
            "hp":1
          }
        ]
      }
    }
  }
}
```

### 1.6.18 Site Object

**Note:** Fields marked with an asterisk (\*) are optional.

Table 50: Site Object Properties

Value	Type	Description
<i>publisher</i>	<i>object</i>	Publisher object, for more information, see the <i>Publisher Object</i> (page 62) section.
<i>id</i>	<i>string</i>	An exchange specific identifier.
<i>name*</i>	<i>string</i>	Site name (may be masked by publisher request), for example, "Test Site"
<i>domain*</i>	<i>string</i>	Domain of the site, used for advertiser side blocking. "testsite.com"
<i>content*</i>	<i>object</i>	Passes the content object, see the <i>Content Object</i> (page 59) section for details
<i>cat*</i>	<i>array of strings</i>	Array of IAB content categories for the site, ["IAB1", "IAB2-3"]. Based on the IAB taxonomy, and extended with additional sensitive categories listed in the <i>Sensitive Categories and Rich Media</i> (page 6) section. The content categories specified can be extended using BidSwitch <i>Sensitive Categories and Rich Media</i> (page 6).

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Table 50 – continued from previous page

Value	Type	Description
<i>page*</i>	<i>string</i>	URL of the page where the impression will be shown. "http://testsite.com/main.asp"
<i>ref*</i>	<i>string</i>	Referrer URL that caused navigation to the current page, for example, "http://testsite.com/main.asp"
<i>privacypolicy*</i>	<i>integer</i>	Indicates if the site has a privacy policy. <ul style="list-style-type: none"> <li>• 0 = No</li> <li>• 1 = Yes.</li> </ul>
<i>mobile*</i>	<i>integer</i>	Mobile-optimized signal. <ul style="list-style-type: none"> <li>• 0 = No</li> <li>• 1 = Yes.</li> </ul>
<i>ext*</i>	<i>object</i>	Site extension object

## Site Ext

Table 51: Site Extension Object Properties

Value	Type	Description
<i>amp</i>	<i>bool</i>	Indicates if the site is AMP (Accelerated Mobile Pages) optimised, where 1 = Yes and 0 = No
<i>inventorypartnerdomain</i>	<i>string</i>	A pointer to the domain of the partner (of the site/app owner) with ownership of some portion of ad inventory on the site/app. The partner's <code>ads.txt</code> or <code>app-ads.txt</code> file will be hosted here. This directive was added in the (app-)ads.txt v1.0.3 specification <sup>31</sup> update.

## SSP Site Object Example

```
{
  "site":{
    "id":"abc35123",
    "name":"Site ABCD",
    "domain":"siteabcd.com",
    "cat":[
      "IAB2-1",
      "IAB2-2"
    ],
    "page":"http://siteabcd.com/page.htm",
    "ref":"http://referringsite.com/referringpage.htm",
    "privacypolicy":1,
  }
}
```

(continues on next page)

<sup>31</sup> <https://iabtechlab.com/ads-txt/>

(continued from previous page)

```

"ext":{
  "inventorypartnerdomain":"examplepartnerdomain.com"
},
"publisher":{
  "id":"abc2345",
  "name":"Publisher A"
}
}
}

```

### 1.6.19 App Object

**Note:** Fields marked with an asterisk (\*) are optional.

Table 52: App Object Properties

Value	Type	Description
<i>publisher</i>	<i>object</i>	Publisher object, for more information, see the <i>Publisher Object</i> (page 62) section.
<i>id</i>	<i>string</i>	The application ID.
<i>name</i> *	<i>string</i>	Application name, for example, "Test App"
<i>domain</i> *	<i>string</i>	The domain of the app, for example, "mygame.example.com"
<i>cat</i> *	<i>array of strings</i>	Array of IAB content categories for the publisher site, for example, ["IAB1", "IAB2- 3"]. Based on the IAB taxonomy, and extended with additional sensitive categories listed in the <i>Sensitive Categories and Rich Media</i> (page 6) section.
<i>content</i> *	<i>object</i>	Passes the content object, see the <i>Content Object</i> (page 59) section for details
<i>bundle</i> *	<i>string</i>	Application bundle or package name, for example, "com.example.mygame"
<i>paid</i> *	<i>integer</i>	Specifies if the App is a free or paid version. <ul style="list-style-type: none"> <li>• 0 = The app is free,</li> <li>• 1 = The app is a paid version.</li> </ul>
<i>storeurl</i> *	<i>string</i>	App store's URL for the mobile application, for example "http://media-apps.cc/android"
<i>storeid</i> *	<i>string</i>	The ID of the app in an app store (e.g., Apple iTunes, Google Play).
<i>ver</i> *	<i>string</i>	Application version, for example "1.1"

continues on next page

Table 52 – continued from previous page

Value	Type	Description
<i>privacypolicy*</i>	<i>integer</i>	Indicates if the app has a privacy policy. <ul style="list-style-type: none"> <li>• 0 = No</li> <li>• 1 = Yes.</li> </ul>

## 1.6.20 Ext Object

Table 53: App Extension Object Properties

Value	Type	Description
<i>inventory-partnerdomain</i>	<i>string</i>	A pointer to the domain of the partner (of the site/app owner) with ownership of some portion of ad inventory on the site/app. The partner's <code>ads.txt</code> or <code>app-ads.txt</code> file will be hosted here. This directive was added in the (app-)ads.txt v1.0.3 specification <sup>32</sup> update.

## 1.6.21 Content Object

Table 54: Content Object Properties

Value	Type	Description
<i>id*</i>	<i>string</i>	ID uniquely identifying the content.
<i>episode*</i>	<i>integer</i>	Episode number.
<i>title*</i>	<i>string</i>	Content title e.g., <i>Lost Kingdom - SE02 EP03</i>
<i>season*</i>	<i>string</i>	Content season e.g., <i>"Season 3"</i>
<i>artist*</i>	<i>string</i>	Artist credited with the content
<i>genre*</i>	<i>string</i>	Genre that best describes the content, e.g., rock, pop, etc. You may need to discuss with your trading partners about aligning around a particular taxonomy. There's a few taxonomies for defining the genre, the IAB Content taxonomy being the most standard one at the moment. <ul style="list-style-type: none"> <li>• Google have their own which you can download from their <a href="#">Display &amp; Video 360 OpenRTB Specification</a><sup>33</sup></li> <li>• The IAB <a href="#">CONTENT TAXONOMY</a><sup>34</sup></li> <li>• An audio taxonomy is also being worked on by various entities, this page will be updated when a standard is finalised</li> </ul>
<i>album*</i>	<i>string</i>	Album to which the content belongs; typically for audio.
<i>isrc*</i>	<i>string</i>	International Standard Recording Code conforming to ISO-3901.

continues on next page

<sup>32</sup> <https://iabtechlab.com/ads-txt/>

Table 54 – continued from previous page

Value	Type	Description
<i>url</i> *	<i>string</i>	A single URL of the content, for buy-side contextualization or review.
<i>cat</i> *	<i>array of strings</i>	Array of content categories using IDs from the IAB taxonomy.
<i>prodq</i> *	<i>integer</i>	Production quality: 1 Professionally Produced, 2 Prosumer 3 User Generated (UGC)
<i>context</i> *	<i>integer</i>	Type of content <ul style="list-style-type: none"> <li>• 1 Video (i.e., video file or stream such as Internet TV broadcasts)</li> <li>• 2 Game (i.e., an interactive software game)</li> <li>• 3 Music (i.e., audio file or stream such as Internet radio broadcasts)</li> <li>• 4 Application (i.e., an interactive software application)</li> <li>• 5 Text (i.e., primarily textual document such as a web page, eBook, or news article)</li> <li>• 6 Other (i.e., none of the other categories applies)</li> <li>• 7 Unknown</li> </ul>
<i>rating</i> *	<i>string</i>	Content rating (e.g., MPAA).
<i>urating</i> *	<i>string</i>	User rating of the content (e.g., number of stars, likes, etc.).
<i>mrating</i> *	<i>integer</i>	Media rating per IQG guidelines. Refer to List: Media Ratings. <ul style="list-style-type: none"> <li>• 1 All Audiences</li> <li>• 2 Everyone Over Age 12</li> <li>• 3 Mature Audiences</li> </ul>
<i>keywords</i> *	<i>string</i>	Comma separated list of keywords describing the content.
<i>live</i> *	<i>integer</i>	Indication of live content, where 0 = not live, 1 = live (e.g., stream, live blog). <b>Note:</b> This may also be passed as <b>livestream</b> due to the difference between Open RTB 2.5 and 3.0.
<i>srcrel</i> *	<i>integer</i>	Source relationship, where 0 = indirect, 1 = direct.
<i>len</i> *	<i>integer</i>	Length of content in seconds; typically for video or audio.
<i>lang</i> *	<i>string</i>	Content language using ISO-639-1-alpha-2. <b>Note:</b> This may also be passed a <b>language</b> due to the difference between Open RTB 2.5 and 3.0.
<i>embed</i> *	<i>integer</i>	Indicator of whether or not the content is embedded off-site from the the site or app described in those objects (e.g., an embedded video player), where 0 = no, 1 = yes.
<i>producer</i> *	<i>object</i>	Details about the content producer. Refer to Object: Producer.
<i>data</i> *	<i>array of objects</i>	Additional user data. Each Data object represents a different data source, see the data-obj

<sup>33</sup> <https://developers.google.com/display-video/ortb-spec#content-object>

<sup>34</sup> <https://iabtechlab.com/standards/content-taxonomy/>

Listing 1: Content Object Example

```
{
  "content":{
    "cat":[
      "IAB-1",
      "IAB-2"
    ],
    "contentrating":"MPAA",
    "context":1,
    "episode":1,
    "genre":"comedy",
    "id":"472759950",
    "language":"en",
    "len":15,
    "live":1,
    "prodq":1,
    "series":"string",
    "title":"Law & Order Criminal Intent S03 - Ep18 Ill-Bred HD Watch",
    "url":"https://forums.watchuseek.com/showthread.php",
    "userrating":"4.1"
  }
}
```

### 1.6.22 DOOH Object

The presence of this object in a request signals that it is for Digital-out-of-Home (DOOH) inventory, in such cases the following applies.

- You should use the `site` or `app` object to pass the publisher ID.
- A value is not expected in `device.ip` or `device.ipv6`, making that field optional

Table 55: DOOH Object Properties

Value	Type	Description
<i>audience*</i>	<i>float</i>	Expected number of people reached by the ad opportunity, e.g. 10.5
<i>impmultiply</i>	<i>float</i>	The <i>impmultiply</i> field is designed to be used when calculating the billable media cost by the Buyer and on the invoice. It should not be used to multiply the bid price in the bid response. Suppliers should only receive a bid price based on CPM values. For example, if the Buyer wins 3000 bids at a clearing price of \$1.50 CPM and <i>impmultiply</i> =4 each, then the invoiced amount is \$18 (1.50 / 1000 * 4 * 3000).



**Note:** Fields marked with an asterisk (\*) are optional.

Suppliers should make sure their Buyers are basing any billing calculations on the same multiplier and/or rounding to the same number of decimal places.

```
{
  "device":{
    "ext":{
      "dooh":{
        "audience":1.56,
        "impmultiply":1.34
      }
    }
  }
}
```

### 1.6.23 Publisher Object

Table 56: Publisher Object Properties

Value	Type	Description
<i>id</i>	<i>string</i>	<b>(Recommended)</b> Exchange-specific publisher ID, e.g "abc-123". <b>Note:</b> Do not use any of the following symbols in the publisher ID, as doing so may cause issues: , # % \$ @ * & ? ! ` ~ " ' / \   ( ) { } [ ] + = ^
<i>name</i> *	string	Publisher name, for example "AAP"
<i>cat</i> *	array of string	Array of IAB content categories for the publisher. ["IAB1", "IAB2-3"]

**Note:** Fields marked with an asterisk (\*) are optional and may not be sent in each request.

#### Publisher Object Example

```
{
  "publisher":{
    "id":"abc123",
    "name":"Publisher A"
  }
}
```

## 1.6.24 Regulation Object

Table 57: Regulation Object Properties

Value	Type	Description
<i>coppa</i>	<i>integer</i>	Flag indicating whether or not this request falls under the COPPA regulations established by the USA FTC: <ul style="list-style-type: none"> <li>• 0 = No.</li> <li>• 1 = Yes.</li> </ul>
<i>ext*</i>	<i>object</i>	See the regs-ext

## Regs Ext Object

Table 58: Regs Ext Object Properties

Value	Type	Description
<i>gdpr*</i>	<i>integer</i>	Indicates whether the request falls under GDPR regulations: <ul style="list-style-type: none"> <li>• 0 = No</li> <li>• 1 = Yes</li> <li>• Under OpenRTB conventions for optional attributes, omission indicates <b>Unknown</b></li> </ul> <p>If consent is given, you should check if the <code>user.ext.consent</code> field is present to ascertain what form of consent was given, see the <i>User Ext Object</i> (page 46) section</p>

continues on next page

Table 58 – continued from previous page

Value	Type	Description
<i>us_privacy*</i>	string	<p>Passes the user privacy status for requests which fall under <a href="https://iabtechlab.com/standards/ccpa/">CCPA</a><sup>35</sup> regulations. The string uses 4 characters, e.g. "1YN-", passed in the following order.</p> <ol style="list-style-type: none"> <li><b>Version Number</b> The IAB CCPA Specification version that applies to this string, passed as an integer. Currently only 1 is available.</li> <li><b>Explicit Notice</b> (N = No, Y = Yes, - = Not Applicable) Indicates whether explicit notice has been provided to the user as required by 1798.115 (d) of the CCPA and whether they have had the opportunity to opt-out of the sale of their data pursuant to 1798.120 and 1798.135 of the CCPA.</li> <li><b>Opted-Out</b> (N = No, Y = Yes, - = Not Applicable) Indicates whether the user has opted-out of the sale of their personal information pursuant to 1798.120 and 1798.135.</li> <li><b>LSPA</b> (N = No, Y = Yes, - = Not Applicable) Indicates whether the publisher is a signatory to the IAB Limited Service Provider Agreement (LSPA) and that the publisher declares the transaction should be treated as a “Covered Opt Out Transaction” or a “Non Opt Out Transaction” as defined in the agreement.</li> </ol>

```
{
  "regs":{
    "ext":{
      "gdpr":1,
      "us_privacy":"1YN-"
    }
  }
}
```

### 1.6.25 Required Fields per Buyer

Some Buyers request or require certain fields be sent to them that are above and beyond the normal IAB specification. This usually indicates fields that they deem important and thus including them will increase their interest in your inventory.

<sup>35</sup> <https://iabtechlab.com/standards/ccpa/>

Table 59: Recommended Fields per Buyer

Buyer	Required or Recommended fields
DV360	<ul style="list-style-type: none"> <li>• <code>native.request.eventtrackers.event</code> with value 1 (Required)</li> <li>• <code>native.request.eventtrackers.methods</code> with values [1,2] (Required) JavaScript-based tracking: If a placement supports JavaScript-based tracking, it should indicate support for it with an <code>EventTracker</code> object with <code>event = 1</code> (impression) and <code>method = 2</code> (js). Note that this should be used even for viewability trackers. You can read more on DV360's <a href="#">Native Inventory Page</a><sup>36</sup></li> <li>• <code>native.request.plcmnttype</code> (recommended) If you do not populate this attribute, it will be shown as unknown in the product and may limit demand.</li> <li>• In addition, exchanges are required to allow the Google native ads client side JS script <a href="https://pagead2.googlesyndication.com/pagead/js/dv3_native_client.js">https://pagead2.googlesyndication.com/pagead/js/dv3_native_client.js</a> to execute on Native placements.</li> <li>• See the <i>Native Request Object</i> (page 30) section for more details.</li> </ul>
The Trad-eDesk	<p><code>source.tid</code> (Required) Transaction ID that must be common across all participants in this bid request (e.g., potentially multiple exchanges), see the <i>Source Object</i> (page 53) section for more details.</p>

**Note:** This table of fields does not include those fields that are required as part of this protocol.

## 1.6.26 Bid Request JSON Examples

### Banner Ad Request Example

```
{
  "id": "c6987c2b-edb4-4b7b-b8cf-157af1d485e3",
  "regs": {
    "ext": {
      "gdpr": 1
    }
  },
  "site": {
    "id": "ed2265d8",
    "ref": "http://ad32.answers.com/click.php?source=fb&param4=fb-us-de-red&
↪param3=www.answers.com%2Farticle%2F31029589%2Finsanely-useful-life-hacks-to-make-
↪everything-easier&param1=tattoo&param2=67660042&param5=10153631993521186&
↪param6=6049542139960&adt=4342",
    "publisher": {
```

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<sup>36</sup> <https://support.google.com/displayvideo/answer/9020755>

(continued from previous page)

```

    "name": "www.answers.com",
    "id": "946353442_12535"
  },
  "name": "www.answers.com",
  "cat": [
    "IAB24"
  ],
  "domain": "answers.com",
  "page": "http://www.answers.com/article/31029589/insanely-useful-life-hacks-to-
↵make-everything-easier?paramt=null&param4=fb-us-de-red&param1=tattoo&
↵param2=67660042&s=8"
  },
  "wseat": [
    "165",
    "16"
  ],
  "source": {
    "fd": 0
  },
  "ext": {
    "dsp_uuids": {
      "77": "xyz"
    }
  },
  "user": {
    "id": "5e29eb00-c30a-416e-9d2a-2e18901f0916",
    "buyeruid": "CAESEHL-904oJOAiC1Y002EHTcE",
    "ext": {
      "consent": "Y29uc2VudCBkYXRh"
    }
  },
  "device": {
    "pxratio": 0,
    "language": "en",
    "mccmnc": "310-005",
    "w": 1920,
    "geo": {
      "country": "US",
      "lon": -80.237,
      "city": "City Name",
      "lat": 26.638,
      "zip": "33414",
      "region": "FL",
      "type": 2
    }
  },

```

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```
"os": "Windows",
"devicetype": 2,
"h": 1080,
"ip": "73.139.39.18",
"js": 1,
"ua": "Mozilla/5.0 (Windows NT 6.1; WOW64; rv:47.0) Gecko/20100101 Firefox/47.0
↪",
"dnt": 0
},
"tmax": 75,
"cur": [
  "USD"
],
"imp": [
  {
    "bidfloor": 3.213,
    "metric": [
      {
        "type": "viewability",
        "value": 0.85
      }
    ]
  },
  {
    "id": "1",
    "banner": {
      "pos": 1,
      "h": 600,
      "battnr": [
        1,
        3,
        5,
        6,
        8,
        9,
        10,
        14,
        15,
        16
      ],
      "w": 160,
      "format": [
        {
          "h": 300,
          "w": 300
        },
        {

```

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```

        "h": 350,
        "w": 300
      }
    ],
    "btype": [
      1
    ]
  },
  "exp": 300,
  "tagid": "25108",
  "bidfloorcur": "USD",
  "secure": 0,
  "instl": 0
}
],
"bcat": [
  "IAB25-3",
  "BSW1",
  "BSW2",
  "BSW10",
  "BSW4",
  "IAB26"
],
"at": 2
}

```

### Native Ad Request Example

```

{
  "id": "129ca6dd-5403-4476-a4a6-555d6a538bc4",
  "app": {
    "id": "pubnative_1009429",
    "publisher": {
      "name": "",
      "id": "pubnative_1005292"
    },
    "storeurl": "https://play.google.com/store/apps/details?id=com.leo.
↪appmaster",
    "bundle": "com.leo.appmaster",
    "cat": [
      "IAB3"
    ],
    "name": "PG_lock_pic"
  },
}

```

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```
"wseat": [
  "167"
],
"source": {
  "fd": 0
},
"user": {
  "id": "45asdf987656789adfad4678rew656789",
  "buyeruid": "1234567890",
  "keywords": "sports, entertainment",
  "yob": 1976,
  "gender": "F",
  "ext": {
    "ug": 1,
    "cookie_age": 15,
    "consent": "Y29uc2VudCBkYXRh"
  }
},
"device": {
  "connectiontype": 3,
  "model": "Micromax A096",
  "mccmnc": "310-005",
  "language": "en",
  "geo": {
    "country": "IN",
    "lon": 85.1167,
    "city": "Patna",
    "lat": 25.6,
    "zip": "800002",
    "region": "34",
    "type": 2
  },
  "ifa": "793ff4b0-d077-4002-aeb6-b8ea64dd4b2b",
  "osv": "5.0.2",
  "os": "Android",
  "carrier": "Airtel",
  "devicetype": 1,
  "ip": "223.176.12.242",
  "ua": "Dalvik/2.1.0 (Linux; U; Android 5.0.2; Micromax A096 Build/LRX21M)",
  "dnt": 2
},
"tmax": 80,
"cur": [
  "USD"
],
```

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```
"imp": [
  {
    "bidfloor": 0.324,
    "id": "1",
    "native": {
      "request": {
        "plcmcnt": 1,
        "plcmtype": 2,
        "privacy": 1,
        "context": 1,
        "contextsubtype": 12,
        "assets": [
          {
            "id": 1,
            "data": {
              "type": 12
            },
            "required": 1
          },
          {
            "title": {
              "len": 50
            },
            "id": 2,
            "required": 1
          },
          {
            "id": 3,
            "img": {
              "w": 80,
              "h": 80,
              "type": 1
            },
            "required": 1
          },
          {
            "id": 4,
            "img": {
              "w": 1200,
              "h": 627,
              "type": 3
            },
            "required": 1
          },
          {
```

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```
        "data": {
            "type": 3
        },
        "id": 5,
        "required": 0
    },
    {
        "id": 6,
        "data": {
            "len": 100,
            "type": 2
        },
        "required": 1
    }
],
"ver": "1.2"
}
},
"exp": 1800,
"bidfloorcur": "USD",
"ext": {},
"instl": 0
}
],
"bcat": [
    "IAB25-3",
    "BSW1",
    "BSW2",
    "BSW10",
    "BSW4",
    "IAB26"
],
"ext": {
    "ads_txt": {
        "status": 2,
        "auth_id": "1kjgh7653",
        "pub_id": "537120563",
        "supplier_domain": "example.com"
    }
},
"at": 2
}
```

## Video Ad Request Example

```

{
  "regs": {
    "ext": {
      "gdpr": 1
    }
  },
  "id": "75c0238c-3b52-4b87-957a-817f83e853f1",
  "site": {
    "id": "adaptv_",
    "publisher": {
      "name": "",
      "id": "tv4182"
    },
    "cat": [
      "IAB1"
    ],
    "page": "http://kissasian.com"
  },
  "wseat": [
    "126"
  ],
  "source": {
    "fd": 0
  },
  "user": {
    "id": "b457c658-ffdc-415c-8d91-30d864f4a5f5",
    "buyeruid": "7bcb7e7c-eff0-43ad-8522-b5c9251f0d43",
    "ext": {
      "consent": "Y29uc2VudCBkYXRh"
    }
  },
  "device": {
    "language": "en",
    "mccmnc": "310-005",
    "geo": {
      "country": "US",
      "lon": -75.15,
      "city": "Philadelphia",
      "lat": 39.94,
      "zip": "19147",
      "region": "PA",
      "type": 2
    },
    "lmt": 0,

```

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```
"os": "Other",
"devicetype": 6,
"ip": "73.141.79.240",
"ua": "Mozilla/5.0 (PlayStation 4 3.55) AppleWebKit/537.78 (KHTML, like Gecko)"
},
"tmax": 120,
"cur": [
  "USD"
],
"imp": [
  {
    "bidfloor": 0.02268,
    "metric": [
      {
        "type": "viewability",
        "value": 0.85
      }
    ],
    "id": "1",
    "instl": 0,
    "exp": 300,
    "bidfloorcur": "USD",
    "secure": 0,
    "video": {
      "protocols": [
        2,
        5
      ],
      "placement": 2,
      "playbackend": 1,
      "minduration": 5,
      "skip": 1,
      "playbackmethod": [
        3
      ],
      "maxduration": 60,
      "startdelay": 0,
      "linearity": 1,
      "mimes": [
        "video/mp4"
      ]
    }
  }
],
"bcat": [
```

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```
"IAB25-3",
"BSW1",
"BSW2",
"BSW10",
"BSW4",
"IAB26"
],
"at": 2
}
```

### Audio Ad Request Example

```
{
  "id": "1234534625253",
  "wseat": [
    "58"
  ],
  "source": {
    "fd": 0
  },
  "imp": [
    {
      "id": "1",
      "secure": 1,
      "audio": {
        "startdelay": 0,
        "minduration": 5,
        "maxduration": 30,
        "maxextended": 30,
        "minbitrate": 300,
        "maxbitrate": 1500,
        "api": [
          1,
          2
        ],
      ],
      "protocols": [
        9,
        10
      ],
      "mimes": [
        "audio/aac",
        "audio/mp4",
        "audio/mpeg"
      ],
    ],
  ],
}
```

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```
"delivery": [
  2
],
"battr": [
  13,
  14
],
"companionad": [
  {
    "id": "1234567893-1",
    "w": 300,
    "h": 250,
    "pos": 1,
    "battr": [
      13,
      14
    ],
    "expdir": [
      2,
      4
    ]
  },
  {
    "id": "1234567893-2",
    "w": 728,
    "h": 90,
    "pos": 1,
    "battr": [
      13,
      14
    ]
  }
],
"companiontype": [
  1,
  2
]
}
],
"site": {
  "id": "google_234563",
  "domain": "siteabcd.com",
  "page": "https://siteabcd.com/page.htm",
  "ref": "http://google.com/?q=siteabcd",
```

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```

    "publisher": {
      "id": "google_25"
    }
  },
  "device": {
    "ip": "64.124.253.1",
    "mccmnc": "310-005",
    "geo": {
      "country": "US",
      "region": "NY",
      "city": "White Plains",
      "zip": "10601"
    },
    "ua": "Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10.6; en-US; rv:1.9.2.16)
↳ Gecko/20110319 Firefox/3.6.16",
    "language": "en"
  },
  "ext": {
    "dsp_uuids": {
      "77": "xyz"
    }
  },
  "user": {
    "id": "45asdf987656789adfad4678rew656789",
    "buyeruid": "1234567890",
    "cur": [
      "USD"
    ]
  }
}

```

### DooH Request Example

```

{
  "id": "1234534625253",
  "wseat": [
    "58"
  ],
  "site": {
    "id": "dooH-screens",
    "publisher": {
      "name": "motorway-ad-walls",
      "id": "ourdoors-4182"
    }
  }
}

```

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```

},
"imp": [
  {
    "id": "06d690d1-bac0-43fa-9257-f6d62d984231",
    "bidfloor": 15,
    "exp": 360,
    "video": {
      "mimes": [
        "video/x-flv",
        "video/mp4"
      ],
      "placement": 2,
      "playbackend": 1,
      "skip": 0,
      "minduration": 30,
      "maxduration": 30,
      "protocols": [
        3,
        6,
        7
      ],
      "w": 640,
      "h": 480
    },
    "pmp": {
      "private_auction": 1,
      "deals": [
        {
          "id": "deal-1",
          "wseat": [
            "58"
          ],
          "bidfloor": 2.5,
          "bidfloorcur": "USD",
          "at": 3
        }
      ]
    }
  }
],
"device": {
  "ifa": "035911ea467d03b65cf44f5633b",
  "mccmnc": "310-005",
  "ip": "64.124.253.1",
  "geo": {

```

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```

    "lat": 35.012344,
    "lon": -115.12345,
    "country": "US",
    "region": "NY",
    "city": "White Plains",
    "zip": "10601"
  },
  "devicetype": 6,
  "ext": {
    "dooh": {
      "audience": 19.5,
      "impmultiply": 1
    }
  }
},
"user": {
  "id": "45asdf987656789adfad4678rew656789",
  "data": [
    {
      "id": "6",
      "name": "Data Provider 1",
      "segment": [
        {
          "name": "M",
          "value": "15"
        },
        {
          "name": "F",
          "value": "9"
        },
        {
          "name": "M65+",
          "value": "8.1"
        },
        {
          "name": "TOTAL",
          "value": "19.5"
        }
      ]
    }
  ]
},
{
  "name": "demographic",
  "segment": [
    {
      "id": "12341318394918",

```

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```
        "name": "auto intenders"
      }
    ]
  }
]
},
"tmax": 150,
"exp": 300,
"cur": "USD",
"source": {
  "fd": 0
},
"ext": {
  "wt": 1,
  "clktrkrq": 0,
  "is_secure": 0,
  "ssp": "rubicon",
  "tgroup": [
    123,
    456,
    321,
    765
  ],
  "ads_txt": {
    "status": 2,
    "auth_id": "1kjgh7653",
    "pub_id": "537120563",
    "supplier_domain": "example.com"
  }
}
}
```

## 1.7 Supplier Bid Response

This is the top level object that is sent by BidSwitch to the Supplier. Each bid request sent should contain the following fields.

Table 60: Bid Response Object Properties

Value	Type	Description
<i>id</i>	<i>string</i>	Specifies the ID of the bid request to which this is a response to, for example, "d7d1e107-fe7c-4a57-9592-d1d41fa702d9"
<i>seatbid</i>	<i>array of objects</i>	An array of Seat Bid objects, see the <i>Seat Bid Object</i> (page 80) section. The length of the array can be either 1+ (for yes-bid) or 0 (for no-bid).
<i>cur*</i>	<i>string</i>	Sets the bidding currency using <a href="#">ISO-4217<sup>37</sup></a> alphabetic codes. If not provided USD is assumed, "USD"
<i>nbr*</i>	<i>integer</i>	Returns a reason why the impression was not forwarded to any Buyers. A No Bid Reason response if different to a No Bid Response. See the nbr section for details.

### 1.7.1 Seat Bid Object

Table 61: seatbid Object Properties

Value	Type	Description
<i>bid</i>	<i>array of objects</i>	Array of Bid Objects, see <i>Response Bid Object</i> (page 80).
<i>seat*</i>	<i>string</i>	ID of the bidder seat on whose behalf this bid is made. The value should match one of the values supplied in the <i>wseat</i> field of the bid request and it is REQUIRED if the <i>wseat</i> field is present in bid request. For example, "34"

**Note:** Fields marked with asterisk (\*) are optional.

### 1.7.2 Response Bid Object

**Note:**

- (\*) Fields marked with an asterisk are optional.
- While individually neither of the following fields is required, one of them must be in the response: *adm*, *adm\_native*.

<sup>37</sup> <https://www.iso.org/iso-4217-currency-codes.html>

Table 62: Bid Object Properties

Value	Type	Description
<i>id</i>	<i>string</i>	A bidder generated ID for the bid object, used for tracking and debugging purposes, for example 3.
<i>impid</i>	<i>string</i>	The ID of the impression object ( <i>imp</i> ) from the bid request to which this bid response applies, for example "1"
<i>price</i>	<i>float</i>	The bid price as a float value, expressed as CPM. All prices assumed to be in USD if the <i>cur</i> parameter is omitted, for example 1.23
<i>protocol*</i>	<i>integer</i>	The Video response protocol of the markup if applicable, see the <a href="#">Video Response Protocols</a> (page 85) table for the valid values. <b>Note:</b> This field is required in video responses.
<i>adm*</i>	<i>string</i>	Used to pass creative markup for display (banner), video, or audio ads. One of either <i>adm</i> or <i>adm_native</i> should be present in the response. <ul style="list-style-type: none"> <li>This field can contain the win price macro.</li> <li>This field is not used for native bid responses.</li> </ul> <pre>&lt;a href="\http://adserver.com/click?adid=125\"&gt; &lt;img src="\http://image1.cdn.com/impid=102\"/&gt;&lt;/a&gt;</pre>
<i>adm_native*</i>	<i>object</i>	Used for native bid responses, see the <a href="#">Native Response Object</a> (page 85) for the data it contains. One of either <i>adm</i> or <i>adm_native</i> should be present in the response.
<i>burl</i>	<i>string</i>	The Billing notice URL called by the exchange using a server-to-server call when a winning bid becomes billable based on exchange-specific business policy (e.g., typically delivered, viewed, etc.). This field <b>should</b> contain the win price macro, see the <a href="#">Macros</a> (page 9) section. <pre>"burl": "https://adserver.com/winnotice?impid=102&amp;winprice=\${AUCTION_PRICE}"</pre>
<i>iurl*</i>	<i>string</i>	Sample image URL (without cache busting) for content checking. <b>REQUIRED</b> when bidding on on banner bid requests. <pre>"http://adserver.com/preview?impid=102"</pre>
<i>language*</i>	<i>string</i>	The Alpha-2 ISO 639-1 <sup>38</sup> code for the creative's language, for example, <i>ja</i> . The nonstandard code " <i>xx</i> " may also be used if the creative has no linguistic content (e.g., a banner with just a company logo).
<i>adomain</i>	<i>array of strings</i>	Advertiser's primary or top-level domain for advertiser checking. This can be a list of domains if there is a rotating creative. Note that some Suppliers allow only one domain. To those Suppliers BidSwitch only sends the first domain from the list, for example, [" <i>advertiser.com</i> "]
<i>bundle*</i>	<i>string</i>	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., <i>com.foo.mygame</i> )

continues on next page

Table 62 – continued from previous page

Value	Type	Description
<i>cat</i> *	array of strings	Array of IAB content categories, for example, ["IAB1", "IAB2-3"]. Based on the IAB taxonomy, and extended with additional sensitive categories listed in the <i>Sensitive Categories and Rich Media</i> (page 6) section.
<i>cid</i> *	string	Campaign ID or similar that is used by the Buyer to track and organize their campaigns, for example, 102.
<i>crid</i>	string	Creative ID to assist with ad quality checking, for example ‘3021’
<i>attr</i> *	array of integers	Creative attributes as defined in the OpenRTB protocol, for example, [1,3].
<i>dealid</i> *	string	Reference to the <code>deal.id</code> from the bid request, if this bid pertains to a private marketplace direct deal, for example, "AA-1234"
<i>h</i> *	integer	The height of the creative in pixels when an alternative ad size is used, relevant for banner ads only. 250
<i>w</i> *	integer	The width of the creative in pixels when an alternative ad size is used, relevant for banner ads only. 300
<i>ext</i> *	object	This field can be used to supply information about the creative agency for whom the Buyer is working, see the Bid Ext Object section below for details.

## Bid Ext Object

Table 63: Bid Ext Object Properties

Value	Type	Description
<i>advertiser_name</i> *	string	The name of the advertiser serving the creative, for example, "Coca-Cola"
<i>agency_name</i> *	string	The name of the agency representing the advertiser, for example, "CCA"
<i>agency_id</i> *	string	ID of the agency representing the advertiser, for example, ‘123’
<i>third_party_buyer_token</i>	string	This is a Google specific response field, the token is used to identify end third-party buyer information if the exchange as an Open Bidder is an intermediary. This is obtained from the third-party buyer and must be passed to Google unaltered in the bid response. You can read more about it here <a href="https://developers.google.com/authorized-buyers/rtb/response-guide">https://developers.google.com/authorized-buyers/rtb/response-guide</a>
<i>data</i> *	array of object	Returns arbitrary data from the Buyer, each object can take <b>data.name</b> and <b>data.value</b> to describe the data, see the <i>Data Response Object</i> (page 89) for more details.
<i>skadn</i> *	object	Apple Ad Network Object, this will be used to pass app data from iOS 14 and newer releases. See <i>SkAdNetwork Extension</i> (page 83)

<sup>38</sup> <https://www.iso.org/iso-639-language-codes.html>

## SkAdNetwork Extension

Table 64: skadn Ext Object Properties

Value	Type	Description
<i>version</i> *	<i>str</i>	Version of SKAdNetwork desired. Must be "2.0" or above. From SKAdNetwork v2.2 onwards, this should be used in the <code>fidelities</code> object.
<i>network</i> *	<i>str</i>	Ad network identifier used in signature. Should match one of the items in the <code>imp.ext.skadnetids</code> array in the request
<i>campaign</i> *	<i>str</i>	Campaign ID compatible with Apple's spec. As of 2.0, this should be an integer between 1 and 100, expressed as a string, e.g. "45"
<i>fidelities</i> *	<i>array of objects</i>	Supports multiple fidelity types introduced in SKAdNetwork v2.2, see the <i>SkAdNetwork Fidelities</i> (page 84) object for details.  <b>Note:</b> From SKAdNetwork v2.2 onwards, this object wraps some of the other fields in this table into it. As a result, <code>nonce</code> , <code>version</code> , <code>timestamp</code> and <code>signature</code> should be used in the <code>fidelities</code> object and considered deprecated in this object.
<i>itunesitem</i> *	<i>str</i>	ID of advertiser's app in Apple's app store. Should match the <code>app.bundle</code> request field e.g "880047117"
<i>nonce</i> *	<i>str</i>	An ID unique to each ad response (GUID/UUID) e.g. "beeeb65e-b3de-02420004". From SKAdNetwork v2.2 onwards, this should be used in the <code>fidelities</code> object.
<i>sourceapp</i> *	<i>str</i>	ID of publisher's app in Apple's app store, this should match the <code>imp.ext.skadn.sourceapp</code> value
<i>timestamp</i> *	<i>str</i>	Unix time in millis string used at the time of signature. From SKAdNetwork v2.2 onwards, this should be used in the <code>fidelities</code> object.
<i>signature</i> *	<i>str</i>	SKAdNetwork signature as specified by Apple e.g. "MEQCIEQZRRyMyUXg==". From SKAdNetwork v2.2 onwards, this should be used in the <code>fidelities</code> object.

## SkAdNetwork Fidelities

Table 65: Fidelities Object Properties

Value	Type	Description
<i>version*</i>	<i>str</i>	Version of SKAdNetwork desired. Must be “2.0” or above.
<i>nonce*</i>	<i>str</i>	An ID unique to each ad response (GUID/UUID) e.g. "beeeb65e-b3de-02420004"
<i>timestamp*</i>	<i>str</i>	Unix time in millis string used at the time of signature
<i>signature*</i>	<i>str</i>	SKAdNetwork signature as specified by Apple e.g. "MEQCIEQZRRyMyUXg=="

```
{
  "ext":{
    "advertiser_name":"Coca-Cola",
    "agency_name":"CC-advertising",
    "data":[
      {
        "name":"TUV",
        "value":"ABC123"
      }
    ],
    "skadn":{
      "network":"cDkw7geQsH.skadnetwork",
      "campaign":"45",
      "itunesitem":"880047117",
      "sourceapp":"123456789",
      "fidelities":[
        {
          "timestamp":"1594406341",
          "signature":"2RmFS7daRzSVZRVZ8RyMyUXg==",
          "nonce":"473b1a16-b4ef-43ad-9591-fcf3aefa82a7",
          "version":"2.2"
        }
      ]
    }
  }
}
```

## Video Response Protocols

Table 66: Video Response Protocols

Value	Type
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
9	DAAST 1.0
10	DAAST 1.0 Wrapper

### 1.7.3 Native Response Object

**Note:** Fields marked with an asterisk (\*) are optional.

Table 67: Native Object Properties

Value	Type	Description
<i>assets</i>	<i>array of objects</i>	List of native ad assets.
<i>link</i>	<i>object</i>	The native-link-obj. This is the default link object for the ad. Individual assets can also have a link object which applies if the asset is activated (clicked). If the asset has no link object, the parent link object applies.
<i>imptrackers</i> **	<i>array of strings</i>	An array of impression tracking URLs, expected to return a 1x1 image or 204 response, for example, ["http://adserver.com/native?impid=102"] <b>Note:</b> This field can contain the win price macro, see the <a href="#">Macros</a> (page 9) section for more details
<i>ver</i> *	<i>string</i>	Version of the Native Markup version in use, for example, "1.2".
<i>jstracker</i> *	<i>string</i>	Optional JavaScript impression tracker. This should be valid HTML with JavaScript already wrapped in <script> tags. It will be executed at impression time where it can be supported. <b>Note:</b> This field can contain the win price macro, see the <a href="#">Macros</a> (page 9) section for more details
<i>eventtrackers</i> *	<i>array of objects</i>	Array of tracking objects to run with the ad, in response to the declared supported methods in the request. The link see <a href="#">Event Tracker Request Object</a> (page 33) for details.

continues on next page



Table 67 – continued from previous page

Value	Type	Description
<i>privacy*</i>	<i>string</i>	If support for this was indicated in the request, sets the URL of a page informing the user about the buyer's targeting activity, e.g <a href="https://www.example.com/privacy-notice">https://www.example.com/privacy-notice</a>

## Native Assets Object

### Note:

- (\*) There may be exactly one of the fields marked with asterisk in one asset object.
- (\*\*) The link object is optional and may not be present in each response.

Table 68: Native Asset Object Properties

Value	Type	Description
<i>id</i>	<i>integer</i>	A unique asset ID, must match one of the asset IDs in the bid request, for example, 1.
<i>required*</i>	<i>integer</i>	Set to 1 if the asset is required (bidder requires it to be displayed), default is 0, for example, 1.
<i>title*</i>	<i>object</i>	Title object for a title asset, see Native Assets Title Object below.
<i>img*</i>	<i>object</i>	Image object for an image asset, see Native Assets Image Object below.
<i>video*</i>	<i>object</i>	Video object for a video asset, see Native Asset Video Object below.
<i>data*</i>	<i>object</i>	Data object for a data asset, see Native Asset Data Object below.
<i>link**</i>	<i>object</i>	Link object for a call to action. <ul style="list-style-type: none"> <li>• The link object applies if the asset item is activated (clicked).</li> <li>• If there is no link object on the asset, the parent link object on the bid response applies. See Native Link Object below.</li> </ul>

## Native Assets Title Object

Table 69: Native Asset Title Object Properties

Value	Type	Description
<i>text*</i>	string	The text associated with the title element. "Our product is the best!"

## Native Assets Image Object

Table 70: Native Asset Image Object Properties

Value	Type	Description
<i>url</i>	<i>string</i>	<b>(Required)</b> URL of the image asset, for example, "http://adserver.com/image?impid=102".
<i>h</i>	<i>integer</i>	<b>(Recommended)</b> Height of the image in pixels, for example, 250.
<i>w</i>	<i>integer</i>	<b>(Recommended)</b> Width of the image in pixels, for example, 300.

## Native Asset Video Object

Table 71: Native Asset Video Object Properties

Value	Type	Description
<i>vasttag</i>	<i>string</i>	Vast XML, use the following example to format your VAST XML response.

```
<?xml version="1.0" encoding="UTF-8"?>
<VAST version="2.0">
  <Ad id="12345">
    <InLine>
      <AdSystem version="1.0">SpotXchange</AdSystem>
      <AdTitle><![CDATA[Sample VAST]]></AdTitle>
      <Impression>http://sample.com</Impression>
      <Description><![CDATA[A sample VAST feed]]></Description>
      <Creatives>
        <Creative sequence="1" id="1">
          <Linear>
            <Duration>00:00:30</Duration>
            <TrackingEvents />
            <VideoClicks>
              <ClickThrough><![CDATA[http://sample.com/openrt btest]]>
            </ClickThrough>
          </Linear>
        </Creative>
      </Creatives>
    </InLine>
  </Ad>
</VAST>
```

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```

        </VideoClicks>
        <MediaFiles>
          <MediaFile delivery="progressive" bitrate="256"
            width="640" height="480" type="video/mp4">
            <![CDATA[http://sample.com/video.mp4]]>
          </MediaFile>
        </MediaFiles>
      </Linear>
    </Creative>
  </Creatives>
</InLine>
</Ad>
</VAST>

```

### Native Asset Data Object

Table 72: Native Asset Data Object Properties

Value	Type	Description
<i>value</i>	<i>string</i>	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”.

### Native Link Object

Table 73: Native Link Object Properties

Value	Type	Description
<i>url</i>	<i>string</i>	Landing URL of the clickable link, for example, "http://advertiser.com/"
<i>clicktrackers*</i>	<i>array of strings</i>	Click tracker URLs to be activated when the URL is clicked, for example, ["http://adserver.com/click?impid=102"]

### Native Response Example

```

{
  "seatbid": [
    {
      "bid": [
        {
          "adm_native": {
            "ver": "1.2",

```

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```

        "value": "abc123"
      },
      {
        "name": "dmp-data",
        "value": "56752-86862"
      }
    ]
  }
}
}
}

```

## 1.7.5 Bid Response JSON Examples

### Banner Bid Response

```

{
  "id": "1234567890",
  "seatbid": [
    {
      "bid": [
        {
          "id": "1",
          "impid": "102",
          "price": 9.43,
          "crid": "314",
          "cid": "42",
          "language": "en",
          "burl": "https://adserver.com/imp?impid=102&winprice=${AUCTION_PRICE}",
          "adm": "<a href=\"http://adserver.com/click?adid=12345&tracker=${CLICK_
↪URL:URLENCODE}\"><img src=\"http://image1.cdn.com/impid=102\"/></a>",
          "iurl": "http://adserver.com/preview?crid=314",
          "adomain": [
            "advertiserdomain.com"
          ],
          "ext": {
            "advertiser_name": "Coca-Cola",
            "agency_name": "CC-advertising",
            "agency_id": "abcd1234"
          }
        }
      ]
    }
  ],
  "seat": "4"
}

```

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(continued from previous page)

```
]
}
```

## Native Bid Response

```
{
  "id": "1234567890",
  "seatbid": [
    {
      "bid": [
        {
          "id": "1",
          "impid": "102",
          "price": 9.43,
          "crid": "314",
          "cid": "42",
          "language": "en",
          "burl": "https://adserver.com/imp?impid=102&winprice=${AUCTION_PRICE}",
          "adomain": [
            "advertiserdomain.com"
          ],
          "ext": {
            "advertiser_name": "Coca-Cola",
            "agency_name": "CC-advertising",
            "agency_id": "abcd1234"
          },
          "adm_native": {
            "ver": "1.2",
            "jstracker": "<html></head><body></body><script src='./jquery.js'></script></html>",
            "privacy": "https://www.example.com/privacy-notice",
            "link": {
              "url": "http://adserver.com/click?impid=102"
            },
            "imptrackers": [
              "http://adserver.com/native?impid=102"
            ],
            "assets": [
              {
                "id": 1,
                "required": 1,
                "title": {
                  "text": "A test Native Ad"
                }
              }
            ]
          }
        }
      ]
    }
  ]
}
```

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```

    }
  ]
}
],
"seat": "58"
}
]
}

```

## Video Bid Response

```

{
  "cur": "USD",
  "id": "e9c3e120-ffcb-4300-9c98-644cb26f95df",
  "seatbid": [
    {
      "bid": [
        {
          "crid": "3",
          "adm": "<?xml version='1.0' encoding='UTF-8'?><VAST version='2.0'
↵><Ad id='e1081d52_a3d9353a3f5711e795201cdbeb920001'><Wrapper><AdSystem>
↵BidSwitch</AdSystem><VASTAdTagURI><![CDATA[http://adsrv.com/vast/
↵7drQU9ksr]]></VASTAdTagURI><Error><![CDATA[http://gce-sc.bidswitch.net/vast_
↵error/gdmj4t2_3wJg/]]></Error><Impression><![CDATA[http://gce-sc.bidswitch.
↵net/imp/{AUCTION_PRICE}/mj4t2_3wJg/]]></Impression><Creatives></Creatives>
↵</Wrapper></Ad></VAST>",
          "language": "en",
          "protocol": 3,
          "burl": "https://adserver.com/imp?impid=102&winprice={AUCTION_PRICE}
↵",
          "adomain": [
            "nokia.com"
          ],
          "cid": "11",
          "ext": {
            "advertiser_name": "Nokia"
          },
          "id": "1c3ff810-3623-4b04-8396-9e7ca071cb72",
          "impid": "1",
          "price": 4.079077199308326
        }
      ]
    },
    "seat": "1"
  ]
}

```

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```

    }
  ]
}

```

**BidSwitch No Bid Reason**

```

{
  "id": "1234567890",
  "seatbid": [
    ],
  "nbr": 4
}

```

**Audio Ad Response**

```

{
  "cur": "USD",
  "id": "e9c3e120-ffcb-4300-9c98-644cb26f95df",
  "seatbid": [
    {
      "bid": [
        {
          "crid": "3tre445",
          "adm": "<?xml version='1.0' encoding='UTF-8'?><VAST version='2.0'><Ad id='e1081d52_a3d9353a3f5711e795201cdbeb920001'><Wrapper><AdSystem>
↪ BidSwitch</AdSystem><VASTAdTagURI><![CDATA[http://adsrv.com/vast/7drQU9ksr]]></VASTAdTagURI><Error><![CDATA[http://gce-sc.bidswitch.net/vast_error/gdmj4t2_3wJg/]]></Error><Impression><![CDATA[http://gce-sc.bidswitch.net/imp/{AUCTION_PRICE}/mj4t2_3wJg/]]></Impression><Creatives></Creatives>
↪ </Wrapper></Ad></VAST>",
          "burl": "https://adserver.com/imp?impid=102&winprice=${AUCTION_PRICE}",
↪ ",
          "adomain": [
            "example.com"
          ],
          "cid": "11",
          "language": "en",
          "ext": {
            "advertiser_name": "Nokia",
            "agency_name": "CC-advertising",
            "agency_id": "abcd1234"
          },
        }
      ],
    }
  ],
}

```

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```

        "id": "1c3ff810-3623-4b04-8396-9e7ca071cb72",
        "impid": "1",
        "price": 4.079077199308326
    }
  ],
  "seat": "1"
}
]
}

```

## TV/DOOH Bid Response

```

{
  "cur": "USD",
  "id": "e9c3e120-ffcb-4300-9c98-644cb26f95df",
  "seatbid": [
    {
      "bid": [
        {
          "adid": "3",
          "burl": "https://adserver.com/imp?impid=102&winprice=${AUCTION_
↵PRICE}",
          "nurl": "http://adserver.com/winnotice?impid=102",
          "adm": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><VAST_
↵version=\"2.0\"><Ad id=\"12345\"><InLine><AdSystem version=\"1.0\">SpotXchange</
↵AdSystem><AdTitle><![CDATA[Sample VAST]]></AdTitle><Impression>http://sample.com
↵</Impression><Description><![CDATA[A sample VAST feed]]></Description><Creatives>
↵<Creative sequence=\"1\" id=\"1\"><Linear><Duration>00:00:30</Duration>
↵<TrackingEvents /><VideoClicks><ClickThrough><![CDATA[http://sample.com/openrt_
↵btest]]></ClickThrough></VideoClicks><MediaFiles><MediaFile delivery=
↵\"progressive\" bitrate=\"256\" width=\"640\" height=\"480\" type=\"video/mp4\"><![
↵CDATA[http://sample.com/video.mp4]]></MediaFile></MediaFiles></Linear></
↵Creative></Creatives></InLine></Ad></VAST>",
          "adomain": [
            "example.com"
          ],
          "cid": "11",
          "language": "en",
          "ext": {
            "advertiser_name": "Example. Inc"
          },
          "id": "1c3ff810-3623-4b04-8396-9e7ca071cb72",
          "impid": "1",
          "price": 4.079077199308326
        }
      ]
    }
  ]
}

```

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```
    }  
  ],  
  "seat": "1"  
}  
]  
}
```