BID SWITCH

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BidSwitch Protocol

Release 5.2

Sep 15, 2017

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

BidSwitch enables this by developing a custom Supplier protocol based on the OpenRTB 2.x specification. This lets all parties integrated with the BidSwitch platform conduct business with each other through a single point of integration.

The protocol defines how buyers interact with BidSwitch. This guide covers the latest version of the BidSwitch Real-time Bidding protocol. The protocol is based on the latest OpenRTB Protocol Specification V2.5[1], but an exact match is not possible due to the evolving nature of both the business, and the OpenRTB specification.

Note: It is best practice to always integrate with BidSwitch using the latest version of the protocol, for more information, see the *Compatibility and Deprecation* (page 2) section.

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[1] http://www.iab.com/wp-content/uploads/2016/03/OpenRTB-API-Specification-Version-2-5-FINAL.pdf

CHAPTER 1

COMPATIBILITY AND DEPRECATION

The BidSwitch protocol is a constantly evolving technology. As such, it regularly undergoes changes which behoove customers to keep their integration with the BidSwitch platform up to date. Along with the BidSwitch Buyer Protocol v5.2[2] documentation, use this section and the *Protocol Version Differences* (page 16) section to keep your integration up to date.

1.1 Deprecation

Any part of the specification which gets deprecated will be marked using the following style. In most circumstances a pointer to what you should do to update your implementation of the specification will be provided.

Deprecated since version X.Y.

1.2 Deprecation Timeframe

Deprecated feature support in the codebase is guaranteed for five specification releases after deprecation. Starting with the sixth specification release after deprecation, any deprecated feature is used at the at Buyers's own risk.

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[2] https://docs.bidswitch.com/standards/standards.html#bsw-proto

1.3 Backward Compatibility

All specifications with the same major version number are backward compatible. Specifications with different major version numbers are not guaranteed to be backward compatible. You can compare previous specifications against the current implementation using the following PDFs.

- BidSwitch 2.1[3] | BidSwitch 2.2[4] | BidSwitch 2.3[5]

  BidSwitch 2.4[6] | BidSwitch 2.5[7] | BidSwitch 2.6[8]

- BidSwitch 4.0[9] | BidSwitch 4.1[10] | BidSwitch 4.2[11] | BidSwitch 4.3[12]

- BidSwitch 5.0[13] | BidSwitch 5.1[14] | BidSwitch 5.2[15]

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[3] https://docs.bidswitch.com/_downloads/BidSwitch_specs_2.1.pdf
[4] https://docs.bidswitch.com/_downloads/BidSwitch_specs_2.2.pdf
[5] https://docs.bidswitch.com/_downloads/BidSwitch_specs_2.3.pdf
[6] https://docs.bidswitch.com/_downloads/BidSwitch_specs_2.4.pdf
[7] https://docs.bidswitch.com/_downloads/BidSwitch_specs_2.5.pdf
[8] https://docs.bidswitch.com/_downloads/BidSwitch_specs_2.6.pdf
[9] https://docs.bidswitch.com/_downloads/BidSwitch_specs_4.0.pdf
[10] https://docs.bidswitch.com/_downloads/BidSwitch_specs_4.1.pdf
[11] https://docs.bidswitch.com/_downloads/BidSwitch_specs_4.2.pdf
[12] https://docs.bidswitch.com/_downloads/BidSwitch_specs_4.3.pdf
[13] https://docs.bidswitch.com/_downloads/BidSwitch_specs_5.0.pdf
[14] https://docs.bidswitch.com/_downloads/BidSwitch_specs_5.1.pdf
[15] https://docs.bidswitch.com/_downloads/BidSwitch_specs_5.2.pdf

CHAPTER 2

PROTOCOL RELEASE NOTES

2.1 v5.2 - February 2017

New Protocol Fields

Bid Request fields:

- `imp.video.placement`
- `imp.video.playbackend`
- `imp.video.skip`
- `device.mccmnc`
- `source.fd`
- `imp.native.request.assets.video.ext` see, *Native Request Object* (page 50)
- `imp.native.request.assets.video.ext.playbackmethod`
- `imp.native.ext` see *Native Object* (page 48)
- `imp.native.ext.triplelift`
- `imp.native.ext.triplelift.formats`
- `imp.metric`, see *Metric Object* (page 62)

Bid Response fields:

- `seatbid.bid.burl`, and see the *Using the burl Field* (page 20) section for more details.

- `seatbid.bid.language`

- `seatbid.bid.ext.native.jstracker`

- `seatbid.bid.ext.native.assets.video.ext`, see *Native Asset Video Object* (page 100)

- `seatbid.bid.ext.native.assets.video.ext.playbackmethod`

Updated Protocol Fields

- `seatbid.bid.nurl`

- `ext.s2s_nurl`

Deprecated Fields

- `imp.ext.viewability` bid request field, replaced by the use of the *Metric Object* (page 62)

Recently Added or Updated Sections

- Creative Approval Pre-submitting API[16], a new section.
- *BidSwitch Data Centres* (page 116), updated with new Data Centre Information.
- *5.x Updating Overview* (page 20), updated with `burl` information.
- Bid Enrichment[17] information was added to the Case Studies & Fact Sheets[18] section.
- Added the *MicroAd 3PAS List* (page 149) list to the *Supplier Custom Categories* (page 131) section.
- Added the *BidSwitch OpenRTB Differences* (page 29) section.
- Added the Creative Approval Overview[19] section.
- Added the *burl Field Overview* (page 25) section.
- Added the *Server-to-Server (s2s) Calls* (page 118) section.

2.2 v5.1 - October 2016

Added

- Added the *DOOH Ad Example* (page 86) request example
- Add the SmartSwitch Bid Request Weight[20] section, and the `ext.wt` bid request field.

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[16] https://docs.bidswitch.com/api/creative-approval-pre-submit.html#ca-submit
[17] https://docs.bidswitch.com/support/pdf-downloads.html#be-pdfs
[18] https://docs.bidswitch.com/support/pdf-downloads.html#add-resources
[19] https://docs.bidswitch.com/api/creative-approval-overview.html#ca-overview
[20] https://docs.bidswitch.com/support/smart-switching-bid-weight.html#ss-bid-weight

New Protocol Fields

Added the following bid request fields:

- `ext.dooh`
- `video.ext.vast_url_rq`
- `user.data.segment.name`
- `publisher.cat`

Updated Protocol Fields

- The `seatbid.bid.ext.vast_url` description, this field can be omitted for some bid requests.

New Sections

- The *DOOH Ad Example* (page 86) section.
- The SmartSwitch Bid Request Weight[21] section, and the `ext.wt` Bid Request field.

2.3 v5.0 - July 2016

New Sections

- Added the *5.x Updating Overview* (page 20) section
- Added the `seatbid.bid.ext.daast_url` bid response field.
- Added the *Audio Bid Response* (page 106) example

Updated Sections

- Updated the `seatbid.bid.ext.vast_url` description, this field can only be used for video trading.
- Updated the `adm` and `nurl` fields, see the *Bid Object* (page 91) section.
- Updated the *Macros* (page 126) section with added win price macro usage options.
- Updated the *nurl Response Difference* (page 17) section with information about how to use the `nurl` and `adm` fields correctly.

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[21] https://docs.bidswitch.com/support/smart-switching-bid-weight.html#ss-bid-weight

2.4 v4.3 - May 2016

Added

Added the *Compatibility and Deprecation* (page 2) and *Protocol Version Differences* (page 16) sections to help users keep their BidSwitch integration up to date.

Added the following bid response fields:

- `seatbid.bid.ext.native.ext.viewtracker`

- `seatbid.bid.ext.native.ext.adchoiceurl`

Added the following bid request fields:

- `imp.audio`

- `device.geo.utcoffset`

- `video.ext.outstream`

- `ext.tv`

- `imp.banner.format`

Added programmatic TV bid request example.

Updated

- Updated the `badv`, `site` and `app` field descriptions.

- Bid response fields `seatbid.bid.ext.native.assets.img.h` and `seatbid.bid.ext.native.assets.img.w` are now required.

- The `imp.pmp.private_auction` field is now optional.

- Deprecated the `imp.banner.ext.extra_sizes` bid request field.

- The `ext.vast_url` field now supports DAAST (audio) creatives.

Removed

- Removed fields and objects deprecated in *v4.0 - May 2015* (page 9).

- Removed the `ext.creative_params` and `data` bid request fields.

2.5 v4.2 - March 2016

Added

Added support for the following bid request fields:

- allimps
- ext.s2s_nurl
- imp.exp
- imp.video.maxextended
- imp.video.boxingallowed
- imp.video.playbackmethod
- imp.video.delivery
- imp.video.sequence
- device.w
- device.h
- device.lmt
- device.pxratio
- site.privacypolicy
- app.privacypolicy
- user.yob
- user.gender
- user.data
- user.ext.ug
- user.ext.cookie_age

Added the following bid response fields:

- seatbid.bid.crid
- seatbid.bid.ext.agency_id

- Added the *Compatibility and Deprecation* (page 2) section.

- Added the *Data Format* (page 125) section.

Updated

- BidSwitch now supports Compressed JSON as an alternative bid request and bid response data format.

- The `seatbid.bid.adid` bid response field is now optional, and the `seatbid.bid.crid` field may be used instead of it.

- Removed fields and objects deprecated in *v2.6 - February 2015* (page 10).

2.6 v4.1 - September 2015

Added

Added the following bid request fields:

- site.ref
- ext.clktrkrq
- ext.gumgum.cat

- `imp.tagid`
- `imp.native.request.assets.img.mimes`
- `user.keywords`
- `imp.ext.yieldone.cat`
- `imp.bidfloorcur`
- `pmp.deal.bidfloorcur`

Updated

- Updated the bid request currency array so that it may contain multiple values.

- Extended enumeration for the `imp.video.ext.player_type` bid request field.

- Updated the `imp.video.mimes` bid request field description.

- Updated the `seatbid.bid.nurl` bid response field description.

- Changed the accepted `seatbid.bid.cat` type bid response field to a strings array.

- Updated the *Supplier Click Tracking URL Macro* (page 127) section.

- Updated the *Bid Request JSON Examples* (page 70) section, added new example requests and responses.

Removed

Removed fields and objects deprecated in *v2.5 - December 2014* (page 11).

2.7 v4.0 - May 2015

Added

- Added the *Supported Rich Media Frameworks* (page 130) section.

- Added native inventory support.

- Added the *Data Object* (page 69) and *Segment Object* (page 69).

Added the following bid request fields:

- `site.mobile`
- `device.geo.type`
- `imp.iframebuster`

Added the following bid response fields:

- `seatbid.bid.cat`
- `seatbid.bid.adm`
- `seatbid.bid.ext.native`

Updated

- Updated the `imp.banner.btype` bid request field description.

- Updated the `seatbid.bid.nurl` bid response field description.

- Updated the *Macros* (page 126) section, `${CLICK_URL}` is no longer supported.

- Bid response fields `seatbid.seat` and `seatbid.bid.nurl` are now required.

- Bid response `seatbid.bid.iurl` field is now required for banner ads.

Removed

- Removed fields and objects deprecated in *v2.4 - October 2014* (page 11).

- Removed the *Creative approval* and *Additional Features* sections.

- Deprecated `site.ext.mobile_site` and `ext.ghostery` bid request fields.

- Deprecated `seatbid.bid.ext.cat` bid response field.

Removed the following bid response fields. See this *Protocol Version Differences* (page 16) section for more details about how this affects the different major versions.

- `seatbid.bid.ext.js_url`
- `seatbid.bid.ext.img_url`
- `seatbid.bid.ext.click_url`

2.8 v2.6 - February 2015

Added

Added the following bid request fields:

- `imp.secure`
- `imp.banner.ext.extra_sizes`
- `imp.ext.viewability`

Added the following bid response fields:

- `seatbid.bid.ext.lpdomain`
- `seatbid.bid.h`
- `seatbid.bid.w`
- `seatbid.bid.iurl bid`

Deprecated

- Deprecated the `ext.is_secure` bid request field. The new `imp.secure` field replaces this, see the *Impression Object* (page 33) section for more details.

General

- Removed creative preview section.
- Removed fields and objects deprecated in *v2.3 - September 2014* (page 12).
- Updated request and response samples.

2.9 v2.5 - December 2014

Added

Added the following bid request fields:

- `imp.video.ext.player_type`
- `imp.ext.yieldone.allowed_creative_category_id`

Added the following bid response fields:

- `seatbid.bid.ext.yieldone.creative_category_id`
- `ext.protocol`
- `seatbid.bid.attr`
- `seatbid.bid.dealid`

Updated

- Click tracking macro is now required in OpenX bids.
- The field `imp.pmp.deal.at` is now optional.

Removed

- Removed fields and objects deprecated in *v2.2 - June 2014* (page 13).
- Deprecated the `seatbid.bid.ext.deal` bid response field.

2.10 v2.4 - October 2014

Added

Added the following bid request fields:

- `tmax`
- `app.paid`

- `regs.coppa`
- `device.dnt`
- `device.ipv6`
- `device.js`
- `device.flashver`
- `device.devicetype`
- `site.name`
- `imp.instl`
- `imp.displaymanagerapp`
- `imp.displaymanagerver`
- `imp.ext.yieldone.allowed_creative_types`
- `imp.video.pos`
- `imp.ext.inventory_class`

Added the following bid response field:

- `seatbid.bit.ext.yieldone.creative_type`

Updated

Changed the `imp.pmp.deals.at` values to comply with OpenRTB 2.2[22].

Removed

Deprecated the `imp.ext.yieldone.inventory_class` bid request field.

2.11 v2.3 - September 2014

Added

- Added *Video Object Example* (page 43).
- Added Creative Approval section.

Added the following bid requests fields:

- `site.ext.mobile_site`
- `imp.banner.mimes`

Added the following bid request objects:

- `imp.ext.yieldone`
- `imp.pmp`
- `ext.creative_params`

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[22] http://www.iab.com/wp-content/uploads/2015/06/OpenRTBAPISpecificationVersion2_2.pdf

Added the following bid response fields:

- `seatbid.bid.ext.duration`

- `seatbid.bid.ext.img_url`

- `seatbid.bid.ext.click_url`

Updated

- Updated the *Buyer User Matching* (page 119) section.

- The field `imp.video.linearity` is now an optional field.

- Updated the `btype` field description.

Important: Usage of `nurl`, `ext.js_url` or `ext.liveintent.img_url` bid response fields depends on the `btype` bid request field value.

Removed

- Deprecated `seatbid.bid.ext.liveintent` and `pmp` objects.

2.12 v2.2 - June 2014

Added

- Added the following bid request fields:
  - `imp.video.protocols`
  - `imp.banner.api`
  - `site.publisher.name`
  - `app.publisher.name`
  - `app.name`
  - `video.companionad.id`
  - `device.os`
  - `device.osv`
  - `device.make`
  - `device.model`

- Added extended sensitive categories, used in `bcat` field.

- Added `imp.ext.google` and `ext.ghostery` bid request objects.

Removed

- Deprecated the following bid request fields:

    - `imp.video.protocol`

    - `ext.google.excluded_attribute`

    - `ext.google.allowed_vendor_type`

2.13 v2.1 - April 2014

Added

- Added `seatbid.bid.ext.js_url` bid response field.
- Added the following bid request fields:

    - `pmp.deals.wseat`

    - `imp.banner.expdir`

    - `at`

Updated

- Bid response `seatbid.bid.nurl` field is optional now.

2.14 v2.0 - February 2014

Added

- Added application traffic support.
- Added the following bid request fields:

    - `ext.google.excluded_attribute`

    - `ext.google.allowed_vendor_type`

- Added the following bid response fields:

    - `seatbid.bid.ext.google`

    - Added `seatbid.bid.cid`

Updated

- Bid request `site` object is optional now.

CHAPTER 3

PROTOCOL VERSION DIFFERENCES

Note:

- This section covers the difference between 2.x and 4.x. For 5.x information see the *5.x Updating Overview* (page 20) section.

- The differences between each protocol affect only the format and interpretation of the bid response. Bid requests work exactly the same.

The BidSwitch protocol has three major versions, 2.X, 4.X, and 5.x. Certain fields and the interpretation of data in them differ between each version. This section outlines the differences between 2.x and 4.x.

- The bid response `nurl` field is interpreted differently, see the *nurl Response Difference* (page 17) section for details.

- Ensure that the protocol version field, which is used to define how the response will be interpreted by BidSwitch, is set to the correct protocol version. See the *Bid Response Ext Object* (page 90) section for more details.

- In 4.x the `adm` field is required for display ads, see the *Bid Object* (page 91) section for more details.

- The following bid extension fields are valid in 2.X, but not in 4.X. For more details, see the *Deprecated 2.x Properties* (page 17) section.

  - `img_url`

  - `js_url`

  - `click_url`

3.1 nurl Response Difference

The `nurl` bid response field is handled differently between each version. Use the table below to understand the expected response format for each version. For more information, see the *Bid Object* (page 91) section.

Table 3.1: nurl Version Differences

Version	Properties
2.x	The win notice URL. • For banner impressions the ad markup should be returned via this URL. Ad markup should be in HTML format. • For video impressions the URL should contain the URL of impression pixel. • The URL may contain substitution macros, see the *Macros* (page 126) section. • For application banner inventory this field will be IGNORED, use `ext.js_url` instead.
4.x	The win notice URL. • This field should **not** be used for submitting creative markup. • The URL should contain the win price macro, see the *Macros* (page 126) section. • As this URL is called from the user's browser, it should be SSL-compliant for requests with `imp.secure` set to `1`. • This URL will be called by a server to server call if the bid request has the `ext.s2s_nurl` field value set to `1`.
5.x	The win notice URL. • Similar to 4.x, except that the win price macro can only be used in one field per bid response. Either the `adm` or `nurl` field. See the *5.x Updating Overview* (page 20) or *Bid Object* (page 91) section for details.

3.2 Deprecated 2.x Properties

The following fields are not valid in a 4.x response, but are part of the 2.x protocol. See the *Bid Ext Object* (page 94) section for the latest protocol standards.

Table 3.2: Bid Ext 2.X Objects

Field	Value	Description
*img_url**	*string*	The URL of the creative image. In order to receive the user cookie and win price, this url should point to the Buyer handler and redirect to the actual creative location. The url may contain the win price macro, e.g. `${AUCTION_PRICE}`, but not the click macro. If this field is present, the `nurl` field of the bid response will be ignored.
*click_url**	*string*	The creative click URL. Required if the `img_url` field is present.
*js_url**	*string*	A Javascript-based win notice URL. • For in-app inventory, the ad markup should be returned using this URL. • For website or video inventory this field may be used as a substitute for the `nurl` field. • Ad markup should be in JavaScript format. • The URL may contain macros, see the *Macros* (page 126) section for more details.

3.3 Valid Response Formats

For valid 4.x response examples, see the examples section in the 4.2[23] guide. If you wish to check for valid 2.x response formats see the 2.x guides, for example 2.6[24] or 2.5[25].

The following diff examples show how the expected JSON response has changed between version. The green represents the changes in 4.x, and the red shows version 2.x syntax.

Example Response diff

```
  {
    "id":"1234567890",
    "ext":{
-      "protocol":"2.5"
+      "protocol":"4.2"
    },
    "seatbid":[
      {
        "bid":[
          {
            "id":"1",
            "impid":"102",
```

[23] https://docs.bidswitch.com/_downloads/BidSwitch_specs_4.2.pdf
[24] https://docs.bidswitch.com/_downloads/BidSwitch_specs_2.6.pdf
[25] https://docs.bidswitch.com/_downloads/BidSwitch_specs_2.5.pdf

```
                    "price":9.43,
                    "adid":"314",
                    "cid":"42",
                    "cat":[
                        "IAB12"
                    ],
+                   "adm":"<a href=\"http://adserver.com/click?adid=12345&tracker=${CLICK_
↪URL:URLENCODE}\"><img src=\"http://image1.cdn.com/impid=102\"/></a>",
-                   "nurl":"http://adserver.com/winnotice?impid=102&winprice=${AUCTION_
↪PRICE}&click_url=${CLICK_URL:URLENCODE}",
+                   "nurl":"http://adserver.com/winnotice?impid=102&winprice=${AUCTION_
↪PRICE}",
                    "iurl":"http://adserver.com/preview?crid=314",
                    "adomain":[
                        "advertiserdomain.com"
                    ],
                    "ext":{
                        "advertiser_name":"Coca-Cola",
                        "language":"en",
                        "cat":"IAB12",
-                       "img_url":"http://adserver.com/imp?impid=102&winprice=${AUCTION_
↪PRICE}",
-                       "click_url":"http://adserver.com/click?impid=102",
                        "agency_name":"CC-advertising"
                    }
                }
            ]
        ],
+       "seat":"4"
    }
  ]
}
```

CHAPTER 4

5.X UPDATING OVERVIEW

Use the information in the following sections to understand the slight differences between each version of the v5.x protocol.

4.1 v5.2

4.1.1 Using the `burl` Field

4.1.2 Display

- The `burl` field is only valid from v5.2 onwards.

- If using the `${AUCTION_PRICE}` macro in the `burl` field, it may be simultaneously present in either the `adm` or `nurl` field, however using `${AUCTION_PRICE}` in the `nurl` and `adm` at the same time is still not allowed.

- The `${AUCTION_PRICE}` macro should be a part of a valid URL.

- If the `burl` field is given, the `nurl` field becomes optional. Both fields are called, unless the Bid Request specifies a s2s notification only, by setting the `ext.s2s_nurl` field set to `1`.

- If the Bid Request sets the `ext.s2s_nurl` field value to `1`, only the `burl` field will be called. Therefore, use the `burl` field to pass the win price macro.

- No more than one win price macro can be used in the `adm` field, otherwise BidSwitch records multiple impression events.

4.1.3 Video/Native

Video and Native use the same logic as Display.

- If the Bid Request specifies a s2s notification only, using `ext.s2s_nurl` set to `1`, then only one of either the `nurl` or `burl` fields may be used. As it is an s2s call only, if the the `burl` field is given, the `nurl` field is ignored. Therefore, you should set the `${AUCTION_PRICE}` macro in the field that will be called.

- If the Bid Request does not explicitly set an s2s call, then `nurl`, `burl`, or both can be used and both will be called. In this scenario, both fields can contain the `${AUCTION_PRICE}` macro.

```
"burl":"https://adserver.com/winnotice?impid=102&winprice=${AUCTION_PRICE}",
```

4.2 v5.0 and v5.1

The main difference between 5.x and previous versions (v2.x and v4.x) is that it allows the `adm` bid response field to contain the win price macro, `${AUCTION_PRICE}`. This simplifies the protocol by removing some extended fields, making it more compliant with OpenRTB standards, and also letting Buyers know the clearing price at the time the creative markup is formed by placing the price macro in the `iframe` source URL.

Upgrading to this version from v2.x will also grant users access to features added in v4.x of the protocol such as native, audio, and programmatic TV.

There is a number of usage limitations around the price macro being placed in the `adm` field:

- No more than one win price macro can be used in the `adm` field, otherwise BidSwitch records multiple impression events.

- The `${AUCTION_PRICE}` should be a part of a valid URL.

- The `${AUCTION_PRICE}` should be present in only one of either the `adm` field or `nurl` field, never both.

Note: Only one price macro per bid response is allowed. You should not use it in the `adm` and `nurl` fields simultaneously.

4.2.1 URL Formatting

The price macro must be placed within a valid URL and located in the `src` attribute of an HTML tag (e.g. `<iframe>`, `<script>` or `<img>`). Use the following examples to ensure you use the correct syntax.

```
# valid URLs
"adm": "<iframe src=\"http://dsp.com/imp?bc=12345aaabbb&price=${AUCTION_PRICE}\"/>"
"adm": "<script src=\"http://dsp.com/js_imp?bc=12345aaabbb&price=${AUCTION_PRICE}\"><\/
→script>

# invalid URL
"adm":"<img src=\"http://cdn.com/img?id=123\" onclick=\"impfn(${AUCTION_PRICE})\"/>"
```

4.2.2 Server to Server Restriction

Including the price macro in the `adm` field is not allowed for bid requests that use server to server impression notification. These are marked with the `ext.s2s_nurl = 1` flag.

For server to server notifications, it is required to provide the win price macro in the `nurl` field, or from v5.2 onwards the `burl` field.

4.2.3 Upgrading from 4.x

The 5.x protocol is fully compatible with v4.x, so to upgrade you only need to set the bid response `ext.protocol` field to ''5.2''

```
{
  "id": "1234567890",
  "ext": {
    "protocol": "5.2"
  },
}
```

- If you are currently using the 4.x protocol, then no other changes are required.

Note:

- In the case of expired impressions or price errors, BidSwitch forwards impression calls originating from the `adm` field to the Buyer with a clearing price of zero. If the impression call originates from the `nurl` field then BidSwitch responds with a 1x1 pixel.

- You still have the option of using the `nurl` field to send the impression clearing price as supported in 4.x versions.

4.2.4 Upgrading from 2.x

Upgrading Context

- The `seatbid.bid.iurl` response field is required for banner bids starting from version 4.0, so it has to be supported to migrate properly from 2.x to 5.x

- In 2.x, BidSwitch was building the actual ad markup using the parameters provided in the Buyer Bid Response (`nurl` field etc), whereas in 5.x the Buyer is fully responsible for the Ad Markup and BidSwitch keeps its interference to a minimum

Upgrading Steps

To upgrade your implementation to 5.x and start its feature, use the following steps.

1. Set the bid response `ext.protocol` field to `"5.2"`

2. Move the impression/ad serving URL from whichever of the following valid 2.x fields it is currently used in (`nurl | ext.js_url | ext.img_url`) to the `adm` field

3. Wrap it with the appropriate HTML tag. Examples using the `<iframe>`, `script` and `img` tags are given below.

Example 1: Replacing the `nurl` field with `adm` and wrapping the impression link with the `<iframe>` tag.

Note: If you wrap the the impression URL using an `<iframe>` tag, then you should also define the frame width and height, as in the above example. This is to ensure better rendering of the ad on the user's device.

```
{
   "seatbid": {
      "bid": {
-         "nurl": "http://dsp.com/imp?bc=12345aaabbb&price=${AUCTION_PRICE}"
+         "adm": "<iframe src=\"http://dsp.com/imp?bc=12345aaabbb&price=${AUCTION_PRICE}
↪\ "height=\"300\" width=\"300\"><\/iframe>"
      }
   },
   "ext": {
-      "protocol": "2.6"
+      "protocol": "5.2"
   }
}
```

Example 2: Replacing the `ext.js_url` field with `adm` and wrapping the impression link with the `<script>` tag.

```
{
   "seatbid":{
```

```
      "bid":{
-         "ext":{
-             "js_url":"http://dsp.com/js_imp?bc=12345aaabbb&price=${AUCTION_PRICE}"
-         }
+         "adm": "<script src=\"http://dsp.com/js_imp?bc=12345aaabbb&price=${AUCTION_PRICE}
↪\"><\/script>"
      }


      }
    },
    "ext":{
-       "protocol": "2.6"
+       "protocol": "5.2"
    }
}
```

Example 3: Replacing the `ext.img_url` field with `adm` and wrapping the impression link with the
`<img>` tag.

```
{
    "seatbid":{
        "bid":{
-           "ext":{
-               "img_url":"http://dsp.com/img_imp?bc=12345aaabbb&price=${AUCTION_PRICE}",
-               "click_url":"http://dsp.com/click?bc=12345aaabbb"
-           }
+           "adm": "<a href=\"http://dsp.com/click?bc=12345aaabbb\">
+                     <img src=\"http://dsp.com/img_imp?bc=12345aaabbb&price=${AUCTION_PRICE}
↪\"/><\/a>"
        }
    },
    "ext":{
-       "protocol": "2.6"
+       "protocol": "5.2"
    }
}
```

Note:

- In the case of expired impressions or price errors, BidSwitch forwards impression calls origi-
  nating from the `adm` field to the Buyer with a clearing price of zero. If the impression call
  originates from the `nurl` field then BidSwitch responds with a 1x1 pixel.

- You still have the option of using the `nurl` field to send the impression clearing price as
  supported in 4.x versions.

- Click tracking is also different from v2.x to v5.x, to learn more about it see the *Supplier Click
  Tracking URL Macro* (page 127) section.

CHAPTER 5

_____

BURL FIELD OVERVIEW

The `burl` field was introduced with v5.2 of the BidSwitch protocol to comply with the latest updates to the OpenRTB specification. The idea behind the introduction of the `burl` field is to standardise the billing mechanism for Server-to-Server (s2s) notifications sent to Buyers. As such, it has the following properties when used with BidSwitch:

- It must contain the win price macro

- It is always a server-to-server (S2S) call

- It can be used in conjunction with the `adm` or `nurl` field, as well as used independently. See the *burl Response Examples* (page 27), and the *5.x Updating Overview* (page 20) section for more information.

Use the information in the following sections to utilise the `burl` field properly.

5.1 What does the burl represent?

The `burl` call signifies that BidSwitch has recorded an impression on its side. How that represents what happened on the Supplier side differs from Supplier to Supplier, specifically in the following ways:

1. Some Suppliers offer a separate call and affirm that it represents a true impression. In this case, the number of impressions may be less than the number of pure pixel calls from the creative markup, as this model covers creative pre-caching.

2. For the rest of the Suppliers, BidSwitch places a pixel in the creative markup and records the impression when this pixel is called by the browser.

3. For video and native impressions, BidSwitch receives the standard impression tracking call. For video this means the VAST impression call, and for Native it means the impression tracker. These are true impression calls by definition. For more information about Video and Native impression tracking, see the Impression Delivery and Tracking[26] section.

5.2 Using the burl Field

5.2.1 Display

- The `burl` field is only valid from v5.2 onwards.

- If using the `${AUCTION_PRICE}` macro in the `burl` field, it may be simultaneously present in either the `adm` or `nurl` field, however using `${AUCTION_PRICE}` in the `nurl` and `adm` at the same time is still not allowed.

- The `${AUCTION_PRICE}` macro should be a part of a valid URL.

- If the `burl` field is given, the `nurl` field becomes optional. Both fields are called, unless the Bid Request specifies a s2s notification only, by setting the `ext.s2s_nurl` field set to `1`.

- If the Bid Request sets the `ext.s2s_nurl` field value to `1`, only the `burl` field will be called. Therefore, use the `burl` field to pass the win price macro.

- No more than one win price macro can be used in the `adm` field, otherwise BidSwitch records multiple impression events.

5.2.2 Video/Native

Video and Native use the same logic as Display.

- If the Bid Request specifies an s2s notification only, using `ext.s2s_nurl` set to `1`, then only one of either the `nurl` or `burl` fields may be used. As it is an s2s call only, if the the `burl` field is given, the `nurl` field is ignored. Therefore, you should set the `${AUCTION_PRICE}` macro in the field that will be called.

- If the Bid Request does not explicitly set an s2s call, then `nurl`, `burl`, or both can be used and both will be called. In this scenario, both fields can contain the `${AUCTION_PRICE}` macro.

---

[26] https://docs.bidswitch.com/support/imp-tracking-markup-delivery.html#imp-track-deliver

5.3 burl Response Examples

As of v5.2, when responding to Bid Requests, a win price macro can be given in the `burl` field, and the `adm` or `nurl` field.

Note:

- The win price macro cannot be given in the `adm` and `nurl` field simultaneously. See the *5.x Updating Overview* (page 20) section for more details.

- The examples used in this section are extracts from a complete Bid Response, see the *Bid Response JSON Examples* (page 103) section for full details.

5.3.1 burl Response

```
{
  "seatbid":[
    {
      "bid":[
        {
          "language":"en",
          "burl":"https://adserver.com/winnotice?impid=102&winprice=${AUCTION_PRICE}",
          "adm":"<a href=\"https://adserver.com/clickadid=12345&tracker=${CLICK_
→URL:URLENCODE}\"><img src=\"https://image1.cdn.com/impid=102\"/></a>",
          "cat":[
            "IAB12"
          ]
        }
      ]
    }
  ]
}
```

5.3.2 burl + adm Response

In this response, both the `burl` and `adm` fields contain the win price macro. The `nurl` field is not given as it is optional with the use of the `burl` field..

```
{
  "seatbid":[
    {
      "bid":[
        {
          "language":"en",
          "burl":"https://adserver.com/winnotice?impid=102&winprice=${AUCTION_PRICE}",
          "cat":[
            "IAB12"
          ],
```

```
        "adm":"<iframe src=\"http://dsp.com/imp?bc=12345aaabbb&price=${AUCTION_PRICE}\
→"/>"
      }
    ]
  }
 ]
}
```

5.3.3 burl + nurl Response

In this response, both the `burl` and `nurl` fields contain the win price macro. The `adm` field does not.

```
{
  "seatbid":[
    {
      "bid":[
        {
          "language":"en",
          "burl":"https://adserver.com/imp?impid=102&winprice=${AUCTION_PRICE}",
          "cat":[
            "IAB12"
          ],
          "adm":"<a href=\"https://adserver.com/clickadid=12345&tracker=${CLICK_
→URL:URLENCODE}\"><img src=\"https://image1.cdn.com/impid=102\"/></a>",
          "nurl":"https://adserver.com/winnotice?impid=102&winprice=${AUCTION_PRICE}"
        }
      ]
    }
  ]
}
```

CHAPTER 6

BIDSWITCH OPENRTB DIFFERENCES

Even though the BidSwitch Real-time Bidding Protocol v5.2 is based on the latest OpenRTB Protocol Specification V2.5[27], differences exist between the two. Those differences are outlined in this section.

6.1 Bid Request Differences

The BidSwitch protocol differs in the following ways.

- `bcat` accepts additional non-IAB Blocked Advertiser Categories.

- `native.request` is an object. The OpenRTB version uses a string and passes a serialized object.

- `user.buyeruid` uses a lowercase IDFA, or Android ID for in-app traffic, if the user cookie ID is not known.

6.2 Bid Response Differences

The BidSwitch protocol differs in the following ways.

- `ext.protocol` is required.

- `seatbid.bid` array can have a maximum of two elements.

- `seatbid.seat` is required if `wseat` is present in the bid request.

- `seatbid.bid.adm` may or may not contain the win price macro depending on the protocol version, bid request parameters, and `nurl` field usage. See the *5.x Updating Overview* (page 20) section for details. The field may not be used for submitting VAST or DAAST documents.

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[27] http://www.iab.com/wp-content/uploads/2016/03/OpenRTB-API-Specification-Version-2-5-FINAL.pdf

- `seatbid.bid.iurl` is required for banner bids.

- `seatbid.bid.price` is required.

- One of either `seatbid.bid.adid` or `seatbid.bid.crid` is required.

- `seatbid.bid.adomain` is required.

- `seatbid.bid.cid` is required for a number of Suppliers.

- `seatbid.bid.cat` is required for a number of Suppliers.

- `seatbid.bid.ext.advertiser_name` is required for a number of Suppliers.

- `seatbid.bid.ext.agency_name` is required for a number of Suppliers.

- `seatbid.bid.ext.duration` is required for a number of Suppliers.

- `seatbid.bid.ext.vast_url` may be used to supply the VAST document in any video bid. It is required to be used for video bids if the `video.ext.vast_url_rq` bid request field is set to `1`. The VAST document should not contain win price macros

- `seatbid.bid.nurl`

  - Should NOT be used for submitting creative markup, and it cannot contain a win price macro if `seatbid.bid.adm` contains one.

  - May be used to supply the VAST document if the `video.ext.vast_url_rq` bid request field is set to `1`. The VAST document should NOT contain win price macros.

CHAPTER 7

BID REQUEST

This is the top level object that is sent to the Buyer. Each bid request sent from BidSwitch to a Buyer will contain the following fields.

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

Table 7.1: Bid Request Object Properties

Value	Type	Description
id	*string*	Unique ID of the bid request, provided by BidSwitch, for example, `"b5ba5ed2-547e-4e86-8a84-34a440dad6db"`
imp	*array of objects*	Array of objects representing the impressions offered, for more information, see the *Impression Object* (page 33) section.
device	*object*	Device object with details about the device to which the impression will be delivered, for more information, see the *Device Object Properties* (page 55) section.
user	*object*	User Object which describes the user, for more information, see the *User Object* (page 57) section.

Table 7.2: Bid Request Object Properties

Value	Type	Description
tmax	*integer*	Maximum time in milliseconds the exchange allows for bids to be received to avoid timeout, including internet latency, for example, `120`.
cur	*array of strings*	Array of allowed currencies for bids on this bid request using ISO-4217[28] alpha codes, for example, `["USD", "EUR"]`
ext	*object*	Ext Object used for Supplier specific properties, for more information, see the *Ext Object* (page 66) section.
*at**	*integer*	Auction type, the default value is `2`. • `1`: the first price auction. • `2`: the second price auction.
*source**	*object*	Indicates the entity responsible for the final impression sale decision, see the *Source Object* (page 64).
*site**	*object*	The *Site Object* (page 59) describing the site. One of these objects should be present in the request: `site`, `app`, `ext.tv`, or `ext.dooh`.
*app**	*object*	The *App Object* (page 60) describing the mobile application. One of these objects should be present in the request: `site`, `app`, `ext.tv`, or `ext.dooh`.
*bcat**	*array of strings*	Blocked Advertiser Categories, using the IAB taxonomy, and extended with additional sensitive categories listed in the *Sensitive Categories and Rich Media* (page 129) 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"]`
*badv**	*array of strings*	Array of strings of blocked top-level domains of advertisers, for example, `["mysite.com", "mysite2.com"]`
*wseat**	*array of strings*	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. The bid response should contain the appropriate seat value corresponding to one of the values of the `wseat` field, for more details see the *Seat Bid Object* (page 90) section.
*allimps**	*integer*	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. • `0` = no or unknown • `1` = yes, the impressions offered represent all that are available.
*regs**	*object*	A regulations object that specifies any industry, legal, or governmental regulations in force for this request, for more information, see the *Regulation Object* (page 69) section.

---

[28] http://www.iso.org/iso/home/standards/currency_codes.htm

7.1 Impression Object

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

Table 7.3: Impression Object Properties

Value	Type	Description
id	*string*	ID of the impression being shown, unique within the bid request, for example `"1"`
banner*	*object*	The *Banner Object* (page 37) describes the ad properties. Required for banner impressions.
video*	*object*	The *Video Object* (page 40) describes the ad properties. Required for video impressions.
audio*	*object*	The *Audio Object* (page 45) describes the ad properties. Required for audio impressions.
native*	*object*	The *Native Object* (page 48) describes the ad properties. Required for native impressions.
bidfloor*	*float*	Bid floor in CPM as set by the Supplier, for example, `0.01080`
bidfloorcur*	*string*	Bid floor currency specified using ISO-4217 alpha codes, for example, `"USD"`.
instl*	*integer*	Specifies if the ad is an interstitial. • `0` = not interstitial, the default value. • `1` = the ad is interstitial or full screen
tagid*	*string*	Identifier for specific ad placement or ad tag that was used to initiate the auction. This value is prefixed with the exchange name followed by underscore, for example, if Rubicon sends a bid request for a placement ID "43256", the value becomes `"rubicon_43256"`
secure*	*integer*	Specifies if the page is SSL compliant: • `0`: for insecure pages, the default value. • `1`: for secure pages. Creative assets for secure pages should be SSL-compliant.

Table 7.4: Impression Object Properties

Value	Type	Description
*iframebuster**	*array of strings*	Array of names of supported iframe busters, for example, `["dc", "rb"]`, for more information, see the *Supported Rich Media Frameworks* (page 130) section.
*pmp**	*object*	The *Private Marketplace Object* (page 63), used for direct deals between Buyers and Suppliers.
*displaymanager**	*string*	Name of the ad mediation partner, SDK technology, or native player responsible for rendering the ad (typically video or mobile), for example, `"SOMA"`
*displaymanagerver**	*string*	Version of the ad mediation partner, SDK technology, or native player responsible for rendering the ad (typically video or mobile), for example, `"1.1"`
*exp**	*integer*	Impression expiry timeout, in seconds, for example, `"300"`. An impression will be considered expired if it is registered later than `imp.exp` seconds after the auction.
*metric**	*array of objects*	The object that is associated with an impression as an array of metrics, see the *Metric Object* (page 62) section.
*ext**	*object*	See the *Impression Ext* (page 35) section.

7.1.1 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
        ]
      }
    }
  ]
}
```

7.1.2 Impression Ext

Table 7.5: Impression Extension Properties

Value	Type	Description
google	*object*	See *Impression Ext Google Object* (page 35)
yieldone*	*object*	See *Impression Ext Yieldone Object* (page 36)
inventory_class*	*integer*	Inventory class according to the Supplier classification. The Supplier classification is maintained by each Buyer and is not a BidSwitch list, for example 1
viewability*	integer	Deprecated since version 5.2. Replaced by using the *Metric Object* (page 62) This is an estimate of the likelihood that this slot will be viewable by the end user. Estimation is based on Supplier-specific data (e.g. historical viewability data, real-time data etc.). Expressed as a percentage in the range of [0, 100]. If the field is not present in the bid request then the viewability estimate is not available. For example, 100

7.1.3 Impression Ext Google Object

Table 7.6: Google Impression Extension Properties

Value	Type	Description
excluded_attribute*	*array of integers*	List of excluded creative attributes as defined by Google, for example, [70, 28, 30, 32, 22]
allowed_vendor_type*	*array of integers*	List of allowed vendor types as defined by Google.

Note: If the `site.publisher.id` or `app.publisher.id` field value equals ''google_1'' then the vendors listed at the following link are also allowed to bid:

https://storage.googleapis.com/adx-rtb-dictionaries/gdn-vendors.txt

7.1.4 Impression Ext Yieldone Object

Table 7.7: Yieldone Impression Extension Properties

Value	Type	Description
allowed_creative_types	*array of strings*	List of allowed creative types as defined by YieldOne, for example, `["HTML", "FLASH"]`
allowed_creative_category_id*	*array of integers*	List of allowed creative categories as defined by YieldOne, for example, `[70, 71, 72]`
cat*	*array of integers*	List of site categories as defined by YieldOne, for example, `[5, 16]`
inventory_class*	*integer*	Inventory class according to the YieldOne classification. Deprecated since version 2.4: Use `imp.ext.inventory_class` instead.

7.2 Banner Object

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

Table 7.8: Banner Object Properties

Value	Type	Description
id	*string*	Unique identifier for the banner object, for example, `3`. Can be used to tracking multiple banner objects in a companion banner array.
w	integer	Width of the impression in pixels, for example, `300`
h	*integer*	Height of the impression in pixels, for example `250`
*battr**	*array of integers*	Blocked creative attributes as defined in the OpenRTB protocol, for example, `[1, 23]`
btype	*array of integers*	Blocked banner ad types as defined in the OpenRTB protocol, for example, `[4, 21]`
*pos**	*integer*	Ad Position as defined in the OpenRTB protocol, for example, `1`
*topframe**	*integer*	Indicates if the banner is in the top frame as opposed to an iframe. • `0` = no • `1` = yes.
*mimes**	*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"]`
*expdir**	*array of integers*	Possible expansion directions for an expandable ad, for example, `[2,5]`. This can take the following values: • `1`: Left • `2`: Right • `3`: Up • `4`: Down • `5`: Full screen If the field is not present, expandable creatives are not allowed.
*format**	*array or objects*	An array of format objects, see *Format Object* (page 38), 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 `seatbid.bid.h` and `seatbid.bid.w` fields are required in the bid response.
*api**	*array of integers*	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.
*ext**	*object*	See the *Banner Ext Object* (page 38) section.

7.2.1 Banner Ext Object

Table 7.9: Banner Ext Object Properties

Value	Type	Description
extra_sizes	*array or objects*	An array of format objects, see *Format Object* (page 38), 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 `seatbid.bid.h` and `seatbid.bid.w` fields are required in the bid response. Deprecated since version 4.3: use `imp.banner.format` instead.

7.2.2 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
            }
        ]
    }
}
```

7.3 Format Object

Table 7.10: Format Object Properties

Value	Type	Description
h	*integer*	Height of the impression in pixels, for example 500
w	*integer*	Width of the impression in pixels, for example 340

```
{
    "format":[{
        "w":300,
        "h":250
    }]
}
```

7.4 Video Object

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

Table 7.11: Video Object Properties

Value	Type	Description
mimes	*array of strings*	Content MIME types supported. **Note:** For Google bids all the specified MIME type media files are required in the VAST response, for example, `["video/mpeg", "video/mp4"]`
minduration	*integer*	Minimum video ad duration in seconds, for example, `2`
maxduration	*integer*	Maximum video ad duration in seconds, for example, `15`
*linearity**	*integer*	Indicates if the impression must be linear or nonlinear, for example, `1`. If none is specified, it is assumed all are allowed • `1`: Linear/In-stream • `2`: Non-Linear/Overlay
*placement**	*integer*	Placement type for the impression, for example `2`. This can take the following values: • `1`: In-stream. Played before, during or after the streaming video content that the consumer has requested (e.g., Preroll, Mid-roll, Post-roll). • `2`: In-banner. Exists within a web banner that leverages the banner space to deliver a video experience as opposed to another static or rich media format. The format relies on the existence of display ad inventory on the page for its delivery. • `3`: In-article. Loads and plays dynamically between paragraphs of editorial content; existing as a standalone branded message. • `4`: In-feed. Found in content, social, or product feeds. • `5`: Interstitial/Slider/Floating. Covers the entire or a portion of screen area, but is always on screen while displayed (i.e. cannot be scrolled out of view). Note that a full-screen interstitial (e.g., in mobile) can be distinguished from a floating/slider unit by the `imp.instl` field.

Table 7.12: Video Object Properties

Value	Type	Description
*playbackend**	*integer*	The event that causes playback to end, for example 2. This field can take the following values: • 1: On Video Completion or when Terminated by User. • 2: On Leaving Viewport or when Terminated by User. • 3: On Leaving Viewport Continues as a Floating/Slider Unit until Video Completion or when Terminated by User.
protocols	*array of integers*	Accepted video bid response protocols as defined in OpenRTB, for example [2,5]
*pos**	*integer*	Ad Position as defined in OpenRTB, for example 1
*w**	*integer*	Width of the player in pixels, for example, 600
*h**	*integer*	Height of the player in pixels, for example 400
*startdelay**	*integer*	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. • > 0: Mid-Roll (value indicates start delay in second) • 0: Pre-roll • -1: Generic mid-roll • -2: Generic post-roll
*battr**	*array of integers*	Blocked creative attributes as defined in OpenRTB, for example, [6]
*minbitrate**	*integer*	Minimum bit rate in Kbps, for example 680
*maxbitrate**	*integer*	Maximum bit rate in Kbps, for example 990
*api**	*array of integers*	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.
*maxextended**	*integer*	Maximum extended video ad duration if extension is allowed. • Blank or 0, extension is not allowed. • -1, extension is allowed, and there is no time limit imposed. • Greater than 0, then the value represents the number of seconds of extended play supported beyond the maxduration value.

Table 7.13: Video Object Properties

Value	Type	Description
boxingallowed*	*integer*	Indicates if letter-boxing of 4:3 content into a 16:9 window is allowed: • 0 = no • 1 = yes.
playbackmethod*	*array of integers*	Allowed playback methods as defined in the OpenRTB, for example `[1, 2]`. If none are specified, it is assumed all are allowed.
delivery*	*array of integers*	Supported delivery methods (e.g., streaming, progressive) as defined in OpenRTB. If none specified, assume all are supported, for example, `[1, 2]`
sequence*	*integer*	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`.
companionad*	*object array*	Array of Banner objects if companion ads are available. See the *Banner Object* (page 37) section for more information.
companiontype*	*array of integers*	List of allowed companion ad types, for example `[1, 2]` Possible values: • `1`: Static Resource • `2`: HTML Resource • `3`: iframe Resource
ext*	*object*	See the *Video Ext Object* (page 43) section
skip*	*integer*	Indicates if the player will allow the video to be skipped, where 0 = no, 1 = yes.

7.4.1 Video Ext Object

Table 7.14: Video Ext Object Properties

Value	Type	Description
skippable	*integer*	Indicates whether the video ad may be skippable (i.e. contain a skip button). The values are: • 0: allow skippable • 1: require skippable • 2: deny skippable
player_type	*integer*	Video player type based on detected player size: • 1: Small player (Less than 300px) • 2: Medium player (between 300px and 600px) • 3: Large player (greater than 600px)
outstream*	*integer*	Indicates that the video is outstream, for example 1
vast_url_rq*	*integer*	Used to specify if the `bid.ext.vast_url` field is required in the bid response. It is recommended that you use this field to pass the VAST URL in all video responses. • 1: Indicates the `bid.ext.vast_url` field is required in the bid response. • 0: If this field is missing, or set as not required using 0, Buyers should still pass the VAST URL in this field as it works for all video requests. Only if it is deemed extremely necessary should you pass the VAST URL in the `bid.nurl` field. The price macro will be replaced in that field as usual. In this scenario BidSwitch will not send an impression notification as the VAST impression event should be used for that.

7.4.2 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,
```

```json
    "skip":1,
    "api":[
        1,
        2
    ],
    "protocols":[
        2,
        3
    ],
    "mimes":[
        "video/x-flv",
        "video/mp4",
        "application/x-shockwave-flash",
        "application/javascript"
    ],
    "linearity":1,
    "boxingallowed":1,
    "playbackmethod":[
        1,
        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
    ]
  }
}
```

7.5 Audio Object

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

Table 7.15: Audio Object Properties

Value	Type	Description
mimes	*array of strings*	Content MIME types supported, for example ["audio/mp4", "audio/mpeg"]
minduration	*integer*	Minimum audio ad duration in seconds, for example, 2
maxduration	*integer*	Maximum audio ad duration in seconds, for example, 15
protocols	*array of integers*	Accepted audio bid response protocols as defined in OpenRTB, for example [9,10]
startdelay*	*integer*	Indicates the start delay in seconds, or generic values below: • 0: Pre-roll • -1: Generic mid-roll • -2: Generic post-roll
battr*	*array of integers*	Blocked creative attributes as defined in OpenRTB, for example, [6]
minbitrate*	*integer*	Minimum bit rate in Kbps, for example 32
maxbitrate*	*integer*	Maximum bit rate in Kbps, for example 320
api*	*array of integers*	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.
maxextended*	*integer*	Maximum extended audio ad duration if extension is allowed. • Blank or 0, extension is not allowed. • -1, extension is allowed, and there is no time limit imposed. • Greater than 0, then the value represents the number of seconds of extended play supported beyond the *maxduration* value.
delivery*	*array of integers*	Supported delivery methods (e.g., streaming, progressive) as defined in OpenRTB. If none specified, assume all are supported, for example, [1, 2]
maxseq*	*integer*	The maximum number of ads that can be played in an ad pod, for example, 1
feed*	*integer*	Type of audio feed, for example, 1

Table 7.16: Audio Object Properties

Value	Type	Description
*sequence**	*integer*	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`
*stitched**	*integer*	Indicates if the ad is stitched with audio content or delivered independently, for example, `1`
*nvol**	*integer*	Volume normalization mode as defined in OpenRTB, for example, `1`
*companionad**	*array of objects*	Array of Banner objects if companion ads are available. See the *Banner Object* (page 37) section for more information.
*companiontype**	*array of integers*	Supported DAAST companion ad types, for example `[1, 2]` Possible values: • 1: Static Resource • 2: HTML Resource • 3: iframe Resource

7.5.1 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": [
      {
      "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
    ]
  }
}
```

7.6 Native Object

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

Table 7.17: Native Object

Value	Type	Description
request	*object*	Contains the *Native Request Object* (page 50) object.
battr*	*array of integers*	Blocked creative attributes as defined in OpenRTB., for example, [1, 3]
api*	*array of integers*	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.
ext*	*object*	Native Extension object, see *Native Extension Object* (page 49).

7.6.1 Native Extension Object

Table 7.18: Native Request Extension Object

Value	Type	Description
triplelift*	*object*	Object for including TripleLift specific information.

7.6.2 Native Request Extension Triplelift Object

Table 7.19: Native Request Extension TripleLift Object

Value	Type	Description
formats*	*array of integers*	Types supported by the particular placement according to the TripleLift classification. See the TripleLift Spec here https://triplelift.atlassian.net/wiki/display/DSP/OpenRTB+2.3+Specs

7.6.3 Native Object Example

```
{
  "native":{
    "ext":{
      "triplelift":{
        "formats":[
          1,
          2
        ]
      }
    },
    "request":{
      "ver":1,
      "layout":1,
      "adunit":4,
      "assets":[
```

```
          {
            "id":1,
            "required":1,
            "title":{
              "len":25
            }
          },
          {
            "id":7,
            "video":{
              "mimes":[
                "video/mpeg",
                "video/mp4"
              ],
              "minduration":2,
              "maxduration":2,
              "ext":{
                "playbackmethod":[
                  1,
                  2
                ]
              }
            },
            "required":1
          }
        ]
      },
      "api":[
        3
      ],
      "battr":[
        13,
        14
      ]
    }
}
```

7.7 Native Request Object

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

Table 7.20: Native Request Object

Value	Type	Description
ver*	*integer*	Version of the Native Markup in use, for example, 1
layout*	*integer*	The Layout ID of the native ad unit as described in OpenRTB Native specification, for example, 3
adunit*	*integer*	The Ad unit ID of the native ad unit as described in OpenRTB Native specification.
plcmtcnt*	*integer*	The number of identical placements in this Layout, for example, 1
seq*	*integer*	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.
assets	*array of objects*	An array of Asset Objects. Any bid must comply with this array of elements. See the *Native Asset Object* (page 51) section for more details.

7.7.1 Native Asset Object

Table 7.21: Native Asset Object Properties

Value	Type	Description
id	*integer*	Unique asset id, for example 2
required*	*integer*	Set to 1 if asset is required (exchange will not accept a bid without it), default is 0.
title **	*object*	Native title object, see the *Native Asset Title Object* (page 51) for more details.
img **	*object*	Native image object, see the *Native Asset Image Object* (page 52) for more details.
video **	*object*	Native video object, see the *Native Asset Video Object* (page 52) for more details.
data **	*object*	Native asset data object, see the *Native Asset Data Object* (page 53) section for more details.

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

7.7.2 Native Asset Title Object

Table 7.22: Native Asset Title Object

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

7.7.3 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 7.23: Native Asset Image Object

Value	Type	Description
type*	*integer*	Image asset type, for example 3. Takes the following values: • 1 Icon • 2 Logo (Logo image for the brand/app) • 3 Main (Large image preview for the ad)
w*	*integer*	Width of the image in pixels, for example, 300
wmin*	*integer*	The minimum requested width of the image in pixels, for example, 100
h*	*integer*	Height of the image in pixels, for example, 250
hmin*	*integer*	The minimum requested height of the image in pixels, for example, 100
mimes*	*array of strings*	Whitelist of content MIME types supported, for example, `["image/gif"]` If blank, assume all types are allowed.

7.7.4 Native Asset Video Object

Table 7.24: Native Asset Video Object

Value	Type	Description
mimes	*array of strings*	Content MIME types supported, for example, `["video/mpeg", "video/mp4"]`
minduration	*integer*	Minimum video ad duration in seconds, for example, 2
maxduration	*integer*	Maximum video ad duration in seconds, for example 15
protocols	*array of integers*	Accepted video bid response protocols as defined in OpenRTB, for example, `[2,5]`
ext*	*object*	*Native Asset Video Object Extension* (page 53)

7.7.5 Native Asset Video Object Extension

Table 7.25: Native Asset Video Object Extension Properties

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

7.7.6 Native Asset Data Object

Table 7.26: Native Asset Data Object

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

7.7.7 Native Request Object Example

```
{
  "native":{
    "request":{
      "plcmtcnt":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
          },
          "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
    }
  }
}
```

7.8 Device Object Properties

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

Table 7.27: Device Object Properties

Value	Type	Description
geo	*object*	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 *Geo Object Properties* (page 57) section.
ip*	*string*	IPv4 address closest to the device. Bids containing invalid IP addresses will be discarded. The field is optional for in-app traffic, for example, `87.224.77.0`
ua*	string	Browser or application user agent string, for example, `"Mozilla/5.0 (Windows NT 6.3; WOW64; rv:35.0) Gecko/ 20100101Firefox/35.0"`
language*	*string*	Alpha-2/ISO 639-1 code of browser language, for example, `en`
carrier*	*string*	Carrier or ISP derived from the IP address, for example, `WIFI`
connectiontype*	*integer*	Connection type as defined in OpenRTB, for example, `2`
didsha1*	*string*	Hardware device ID (e.g., IMEI); hashed via SHA1, for example, `CCF6DC12B98AEB2346AFE1BEE7860DF01FDE158B`
didmd5*	string	Hardware device ID (e.g., IMEI); hashed via MD5. `93D05D4D69DEE2BC6645D9F0A0C1938C`
dpidsha1*	*string*	Platform device ID (e.g., Android ID); hashed via SHA1, for example, `CCF6DC12B98AEB2346AFE1BEE7860DF01FDE158B`
dpidmd5*	string	Platform device ID (e.g., Android ID); hashed via MD5, for example, `93D05D4D69DEE2BC6645D9F0A0C1938C`

Table 7.28: Device Object Properties

Value	Type	Description
*ifa**	*string*	Native identifier for advertisers. An ID assigned by the device or browser for use as an advertising identifier, for example Apple's IDFA or Android's Advertising ID. The Apple IDFA is usually uppercase, and the Android Advertiser ID is usually lowercase. For example, • Android `"035911ea-467d-4056-903b-65cf44f5633b"` • iOS `"AAAAAAAAA-BBBB-CCCC-1111-222222220000"`
*make**	*string*	Device make, for example, `Apple`
*mccmnc**	*string*	Mobile carrier as the concatenated MCC-MNC code (e.g., `"310-005"` identifies Verizon Wireless CDMA in the USA). Refer to https://en.wikipedia.org/wiki/Mobile_country_code for further examples. **Note:** that the dash between the MCC and MNC parts is required to remove parsing ambiguity
*model**	*string*	Device mode, for example, `iPhone`
*os**	*string*	Device operating system, for example, `iOS`
*osv**	*string*	Device operating system version, for example, `3.1.2`
*w**	integer	Physical height of the screen in pixels, for example, `750`
*h**	*integer*	Physical width of the screen in pixels, for example, `1334`
*pxratio**	*float*	The ratio of physical pixels to device independent pixels, for example, `1.0`
*dnt**	*integer*	Do not track. • `0`: do not track is set to false • `1`: do not track is set to true in the browser, for example, `0`
*lmt**	*integer*	Limit Ad Tracking. Signal commercially endorsed (e.g., iOS, recommended Android): • `0`: tracking is unrestricted, • `1`: tracking must be limited per commercial guidelines, for example, `0`
*devicetype**	*integer*	Device type as defined by OpenRTB, for example, `4`
*ipv6**	*string*	IP address in IPv6, for example, `fe80:0:0:0:200:f8ff:fe21:67cf`
*js**	*integer*	1 if the device supports JavaScript; otherwise 0.
*flashver**	*string*	Flash version detected, for example, `10.1`

7.9 Geo Object Properties

The information provided in the Geo Object is based on MaxMind database[29], except latitude and longitude values.

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

Table 7.29: Geo Object Properties

Value	Type	Description
lat*	float	Latitude from -90 to 90. South is negative, for example, `52.35`
lon*	float	Longitude from -180 to 180. West is negative, for example, `4.9167`
type*	integer	Source of location data as defined by OpenRTB, for example, `1`
country*	string	Country using ISO-3166-1[30] Alpha-2, for example `NL`
region*	string	Region using ISO-3166-2 or FIPS region codes, for example, `07`
city*	string	City name as provided by MaxMind, for example, `Alkmaar`
zip*	string	Zip/postal code, for example, `"90210"`
utcoffset*	integer	Local time as the number +/- of minutes from UTC, for example, `-240`

7.9.1 Geo Object Example

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

7.10 User Object

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

---

[29] https://www.maxmind.com/en/geoip2-services-and-databases
[30] http://www.iso.org/iso/home/standards/country_codes.htm

Table 7.30: User Object Properties

Value	Type	Description
id*	*string*	Unique BidSwitch ID of this user, for example, `252eb154-b3e5-473f-bad8-9b6d7f8646e5`.
buyeruid*	*string*	The Buyer user ID as mapped by BidSwitch for the DSP. For in-app traffic the lowercase IDFA, or Android ID is used. For example, `"38f72eaf-5d6f-4143-824f-deaf753d7239"`
keywords*	*string*	Comma separated list of keywords, interests, or intent, for example, `Cars, sports, vacation`
yob*	*integer*	Year of birth as a 4-digit integer, for example, `1977`
gender*	*string*	Specifies the user gender, for example, `"F"` • `"M"` = Male • `"F"` = Female • `"O"` = Known to be other, or omitted if unknown
data*	*array of objects*	Additional data. Each data object represents a different data source, for more information, see the *Data Object* (page 69) section.
ext*	*object*	For more information, see the *User Ext Object Properties* (page 58) section.

7.10.1 User Ext Object Properties

Table 7.31: User Ext Object Properties

Value	Type	Description
ug	integer	User group set up for the target user during cookie syncing, for example 1. This takes the following values: • `0`: unmatched user • `1`: matched user • `2-6`: custom user group.
cookie_age*	*integer*	Number of days since the user cookie has been dropped, for example, `10`

7.10.2 User Object Example

```
{
   "user":{
      "id":"45asdf987656789adfad4678rew656789",
      "buyeruid":"1234567890",
      "keywords":"sports, entertainment",
      "yob":1976,
      "gender":"F",
```

```
    "ext":{
        "ug":1,
        "cookie_age":15
    }
  }
}
```

7.11 Site Object

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

Table 7.32: Site Object Properties

Value	Type	Description
publisher	*object*	Publisher object, for more information, see the *Publisher Object* (page 66) section.
id*	*string*	An exchange specific identifier comprised of the Supplier's exchange name, and the target site ID appended following an underscore. For example, if a Supplier such as Rubicon sends a bid request for site ID `"123"`, the field becomes `"rubicon_123"`
name*	*string*	Site name (may be masked by publisher request), for example, `"Test Site"`
domain*	*string*	Domain of the site, used for advertiser side blocking. `"testsite.com"`
cat*	*array of strings*	Array of IAB content categories for the site. `["IAB1", "IAB2-3"]`
page*	*string*	URL of the page where the impression will be shown. `"http://testsite.com/main.asp"`
ref*	*string*	Referrer URL that caused navigation to the current page, for example, `"http://testsite.com/main.asp"`
privacypolicy*	*integer*	Indicates if the site has a privacy policy. • `0` = No • `1` = Yes.
mobile*	*integer*	Mobile-optimized signal. • `0` = No • `1` = Yes.

7.11.1 Site Object Example

```
{
   "site":{
      "id":"SSPid_1345135123",
      "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,
      "publisher":{
         "id":"SSPid_12345",
         "name":"Publisher A"
      }
   }
}
```

7.12 App Object

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

Table 7.33: App Object Properties

Value	Type	Description
publisher	*object*	Publisher object, for more information, see the *Publisher Object* (page 66) section.
id*	*string*	The application ID prefixed with the exchange name followed by an underscore. For example, if Rubicon sends a bid request for App ID "123", the field becomes `"rubicon_123"`
name*	*string*	Application name, for example, `"Test App"`
domain*	*string*	The domain of the app, for example, `"mygame.example.com"`
cat*	*array of strings*	Array of IAB content categories for the publisher site, for example, `["IAB1", "IAB2- 3"]`
bundle*	*string*	Application bundle or package name, for example, `"com.example.mygame"`
paid*	*integer*	Specifies if the App is a free or paid version. • `0` = The app is free, • `1` = The app is a paid version.
storeurl*	*string*	App store's URL for the mobile application, for example `"http://media-apps.cc/android"`
ver*	*string*	Application version, for example `"1.1"`
privacypolicy*	*integer*	Indicates if the app has a privacy policy. • `0` = No • `1` = Yes.

7.13 TV Object

Table 7.34: TV Object Properties

Value	Type	Description
publisher	*object*	Publisher object, for more information, see the *Publisher Object* (page 66) section.

7.14 DOOH Object

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

Table 7.35: DOOH Object Properties

Value	Type	Description
publisher	*object*	Publisher object, for more information, see the *Publisher Object* (page 66) section.
audience*	*float*	Expected number of people reached by the impression, e.g. `10.5`
impmultiply*	*float*	The number by which the Buyer is expected to multiply their bid price. For example, if the bidfloor for the Bid Requst, or Deal, is $1.50 and `impmultiply = 4.0` then the minimum expected bid price is $6.00. The default value is `1`.

```
{
  "dooh":{
    "publisher":{
      "id":"rubicon_234563",
      "cat":[
        "IAB1"
      ]
    },
    "audience":1.56,
    "impmultiply":1.34
  }
}
```

7.15 Metric Object

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

Table 7.36: Metric Object Properties

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

7.15.1 Metric JSON Example

```
{
  "metric":[
```

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

7.16 Private Marketplace Object

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

Table 7.37: Private Marketplace Object Properties

Value	Type	Description
*private_auction**	*integer*	A value of 1 indicates that only bids submitted inside `pmp.deals` will take part in the auction. A value of 0 indicates that bids without deal information may also be considered for serving.
deals	*array of objects*	Array of Deal objects., for more information, see the *Deal Object* (page 64) section.

7.16.1 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
      }
    ]
  }
}
```

7.17 Source Object

Table 7.38: Source Object Properties

Value	Type	Description
fd	*integer*	Indicates the entity responsible for the final impression sale decision, using the following values: • `0` = The exchange behind BidSwitch • `1` = An upstream source (usually header bidder) For example a bid request containing `ext.ssp='rubicon'` and `source.fd=0` implies that the auction is run at Rubicon SSP. If the same request has `source.fd=1` then the auction is run at a header bidder upstream from Rubicon SSP. **Note**: The BidSwitch platform never acts as the decision maker.

7.18 Deal Object

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

Table 7.39: Deal Object Properties

Value	Type	Description
id	*string*	Deal id, for example, `"AA-1234"`
wseat*	*array of strings*	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. • The BidSwitch taxonomy uses the Buyer ID as the single seat ID value. • The seat in the Supplier taxonomy may represent the whole Buyer or some entity on the Buyer side (e.g. agency) • A bid request may contain multiple seat IDs in the Supplier taxonomy. • The bid response should contain the appropriate seat value corresponding to one of values of the `wseat` field, see the *Seat Bid Object* (page 90) section.
bidfloor*	*float*	Deal price in CPM. If `deal.at = 3` then this is the exact price of the deal, otherwise this is the bid floor of the deal, for example, `1.3`
bidfloorcur*	*string*	Bid floor currency specified using ISO-4217[31] alpha codes, for example, `"USD"`
at*	*integer*	Auction type. • `1` for first price auction. • `2` for second price auction. • `3` for fixed price deal.

7.18.1 Deal Object Example

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

---

[31] http://www.iso.org/iso/home/standards/currency_codes.htm

```
            "at":2
        }
    ]
  }
}
```

7.19 Publisher Object

Table 7.40: Publisher Object Properties

Value	Type	Description
id	*string*	An exchange specific identifier comprised of the the Supplier exchange name, and the publisher ID appended following an underscore. For example, if a Supplier such as Rubicon sends the publisher ID `"25"`, then the value of the field becomes `rubicon_25`. For Google AdX bid requests the Google Seller network ID is used.
*name**	string	Publisher name, for example `"AAP"`
*cat**	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.

7.19.1 Publisher Object Example

```
{
    "publisher":{
        "id":"SSPid_12345",
        "name":"Publisher A"
    }
}
```

7.20 Ext Object

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

Table 7.41: Ext Object Properties

Value	Type	Description
ssp	*string*	The Supplier identification string, for example `"rubicon"`
google*	*object*	*Google Object* (page 68). This field is optional and is used only in Google AdX bid requests.
gumgum*	*object*	*Gumgum Object* (page 68). This field is optional and is used only in Gumgum bid requests.
adtruth*	*object*	*Adtruth Object* (page 68). This field is optional and is present if the corresponding data is provided by the Supplier.
tv*	*object*	*TV Object* (page 61) describing the programmatic TV. One of these objects should be present in the request: `site`, `app`, `ext.tv`, or `ext.dooh`.
dooh*	*object*	*DOOH Object* (page 61) describing the Digital Out Of Home inventory. One of these objects should be present in the request: `site`, `app`, `ext.tv`, or `ext.dooh`.
clktrkrq*	*integer*	1 for bid requests that require click tracking macro in the bid response, 0 otherwise.
s2s_nurl*	integer	1 indicates a bid request that only uses a server-to-server win notification for won auctions. This has the following implications for the `${AUCTION_PRICE}` macro: • The `adm` field cannot contain the `${AUCTION_PRICE}`. For v5.1 and v5.2 the `nurl` field should contain the macro. • As of v5.2, the `burl` field should contain the `${AUCTION_PRICE}` • BidSwitch expects that `nurl` calls for Bid Requests with `s2s_nurl` set to 1 should return a HTTP status 200 or 204, see the *Server-to-Server (s2s) Calls* (page 118) section for more information. See the *5.x Updating Overview* (page 20) and *burl Field Overview* (page 25) sections for more information.
is_secure*	integer	0 for non-secure pages; 1 for secure pages. Creatives for secure pages should be SSL-compliant. Deprecated since version 2.6: Use `imp.secure` instead, see *Impression Object* (page 33).
wt*	*float*	The SmartSwitch bid weight. This field shows the total number of bid requests with the same SmartSwitch Score that this Bid Request represents. This number can be used to calculate the amount of traffic of this type that would be received if SmartSwitch were turned off. Any bid request that you receive with this weight (X) is highly likely to be sent X times without SmartSwitch filtering. See the SmartSwitch Bid Request Weight[32] section for more details. When this field value equals 1, there are no unsent bid requests with a matching score.

---

[32] https://docs.bidswitch.com/support/smart-switching-bid-weight.html#ss-bid-weight

7.20.1 Google Object

Table 7.42: Google Object Properties

Value	Type	Description
detected_vertical*	*array of objects*	List of detected vertical values as defined by Google, see *Detected_vertical Object* (page 68).

7.20.2 Detected_vertical Object

Table 7.43: Detected Vertical Object Properties

Value	Type	Description
id	integer	The vertical id as defined by AdX docs, for example, `1014`
weight	float	Weight for this vertical, in the (0.0, 1.0] range. More relevant verticals have higher weights, for example, `1.0`

7.20.3 Adtruth Object

Table 7.44: Adtruth Object Properties

Value	Type	Description
tdl_millis*	int64	Time Difference Linking (TDL), which allows for differentiation between similarly configured devices that might share a DeviceInsight identifier, for example, `19534993`
RECIPE VERSION_x	string	The specific AdTruth device identification recipe version and the corresponding DeviceInsight identifier. There might be multiple AdTruth recipe versions, for example, `"WEB_APP_BRIDGE_4_0":"4FD87B97751E9C305FD2AF1AA2D3"`

7.20.4 Gumgum Object

Table 7.45: Gumgum Object Properties

Value	Type	Description
cat	*array of string*	Site or application category in Gumgum taxonomy, for example, `["GGE23-1", "GGE22"]`. The full taxonomy can be found in this Google doc[33]

---

[33] https://docs.google.com/spreadsheets/d/1qt3thvCHjpDzdpybpwNySkB8LNmEjvCyQrJKH6MYQio/export? format=csv&id=1qt3thvCHjpDzdpybpwNySkB8LNmEjvCyQrJKH6MYQio&gid=0

7.21 Regulation Object

Table 7.46: Regulation Object Properties

Value	Type	Description
coppa	*integer*	Flag indicating whether or not this request falls under the COPPA regulations established by the USA FTC, • 0 = No. • 1 = Yes.

7.22 Data Object

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

Table 7.47: Data Object Properties

Value	Type	Description
id *	*string*	Exchange-specific ID for the data provider, for example `"BSW001"`
name	*string*	Exchange-specific name for the data provider, for example `"domain-origin"`
segment	*array of objects*	Array of Segment objects that contain the actual data values, see *Segment Object* (page 69).

7.22.1 Segment Object

Table 7.48: Segment Object Properties

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

```
{
   "data":[
      {
         "name":"domain-origin",
         "segment":[
            {
```

```
                    "name":"status",
                    "value":"verified"
                },
                {
                    "name":"domain",
                    "value":"abcd.com"
                }
            ]
        }
    ]
}
```

7.23 Bid Request JSON Examples

7.23.1 Banner Ad Example

```
{
  "id":"c6987c2b-edb4-4b7b-b8cf-157af1d485e3",
  "site":{
    "id":"gumgum_www.answers.com_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":{
      "name":"www.answers.com",
      "id":"gumgum_946353442_12535"
    },
    "name":"www.answers.com",
    "cat":[
      "IAB24"
    ],
    "domain":"answers.com",
    "ext":{
```

```
    },
    "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
  },
  "user":{
    "id":"5e29eb00-c30a-416e-9d2a-2e18901f0916",
    "ext":{
      "cookie_age":64
    },
    "buyeruid":"CAESEHL-9O4oJOAiC1Y0O2EHTcE"
  },
  "device":{
    "pxratio":0,
    "language":"en",
    "mccmnc":"310-005",
    "w":1920,
    "geo":{
      "country":"US",
      "lon":-80.237,
      "city":"West Palm Beach",
      "lat":26.638,
      "zip":"33414",
      "region":"FL",
      "type":2
    },
    "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,
          "battr":[
            1,
            3,
            5,
            6,
            8,
            9,
            10,
            14,
            15,
            16
          ],
          "w":160,
          "format":[
            {
              "h":300,
              "w":300
            },
            {
              "h":350,
              "w":300
            }
          ],
          "btype":[
            1
          ]
        },
        "exp":300,
        "tagid":"gumgum_25108",
        "bidfloorcur":"USD",
        "ext":{

        },
        "secure":0,
        "instl":0
    }
  ],
  "bcat":[
    "IAB25-3",
    "BSW1",
    "BSW2",
    "BSW10",
    "BSW4",
    "IAB26"
  ],
  "ext":{
    "wt":1,
    "clktrkrq":0,
    "is_secure":0,
```

```
    "ssp":"gumgum"
  },
  "at":2
}
```

7.23.2 In App Example

```
{
    "regs":{
        "coppa":0
    },
    "id":"4ecfe2ab-c275-48fb-8c0b-c7103579eaa0",
    "source":{
        "fd":0,
    },
    "app":{
        "id":"adaptv_",
        "publisher":{
            "name":"",
            "id":"adaptv_11690"
        },
        "storeurl":"https://play.google.com/store/apps/details?id=com.zynga.looney",
        "bundle":"com.zynga.looney",
        "cat":[
            "IAB1"
        ],
        "name":"looney tunes dash!"
    },
    "wseat":[
        "68"
    ],
    "user":{
        "id":"dfc68ac9-9530-44b0-bdea-44cf153d7cea",
        "ext":{
            "ug":1
        }
    },
    "device":{
        "dpidsha1":"0d7e6f65e1db717f0ed298bd268cc6415fa72124",
        "language":"en",
        "mccmnc":"310-005",
        "geo":{
            "country":"US",
            "lon":-78.83,
            "city":"Hamburg",
            "lat":42.71,
            "zip":"14075",
            "region":"NY",
            "type":2
        },
        "ifa":"dfc68ac9-9530-44b0-bdea-44cf153d7cea",
```

```
        "lmt":0,
        "os":"android",
        "devicetype":4,
        "ip":"72.88.84.159",
        "ua":"Mozilla/5.0 (Linux; Android 6.0.1; SM-G920P Build/MMB29K; wv) AppleWebKit/
→537.36 (KHTML, like Gecko) Version/4.0 Chrome/51.0.2704.81 Mobile Safari/537.36",
        "dpidmd5":"c65cf7c5bffe94c62cf20c5e465d92f7"
    },
    "tmax":120,
    "cur":[
        "USD"
    ],
    "imp":[
        {
            "bidfloor":0.02268,
            "metric":[
                {
                    "type":"viewability",
                    "value":0.85
                }
            ],
            "id":"1",
            "instl":0,
            "exp":300,
            "bidfloorcur":"USD",
            "ext":{

            },
            "secure":0,
            "video":{
                "protocols":[
                    2,
                    5
                ],
                "placement":2,
                "playbackend":1,
                "minduration":5,
                "playbackmethod":[
                    1
                ],
                "maxduration":30,
                "startdelay":0,
                "linearity":1,
                "mimes":[
                    "video/mp4"
                ]
            }
        }
    ],
    "bcat":[
        "IAB25-3",
        "BSW1",
        "BSW2",
```

```
      "BSW10",
      "BSW4",
      "IAB26"
  ],
  "ext":{
      "is_secure":0,
      "wt":1,
      "clktrkrq":0,
      "ssp":"adaptv"
  },
  "at":2
}
```

7.23.3 Native Ad

```
{
  "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"
  },
  "wseat":[
      "167"
  ],
  "source":{
      "fd":0,
   },
  "user":{
      "id":"793ff4b0-d077-4002-aeb6-b8ea64dd4b2b",
      "ext":{
          "ug":1
      }
  },
  "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"
    ],
    "imp":[
        {
            "bidfloor":0.324,
            "id":"1",
            "native":{
                "request":{
                    "plcmtcnt":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
                },
                "id":5,
                "required":0
            },
            {
                "id":6,
                "data":{
                    "len":100,
                    "type":2
                },
                "required":1
            }
        ],
        "ver":1
    }
},
"exp":1800,
"bidfloorcur":"USD",
"ext":{

},
"instl":0
    }
],
"bcat":[
    "IAB25-3",
    "BSW1",
    "BSW2",
    "BSW10",
    "BSW4",
    "IAB26"
],
"ext":{
    "wt":2463.818181818182,
    "clktrkrq":0,
    "ssp":"pubnative",
    "s2s_nurl":1
},
"at":2
}
```

7.23.4 Private Deal Example

```json
{
    "id":"500da108-85f8-44af-ac98-d7adcf9e0daf",
    "site":{
        "id":"spotx_SpotX_www.businessinsider.com",
        "publisher":{
            "name":"",
            "id":"spotx_84548"
        },
        "domain":"businessinsider.com",
        "ext":{

        },
        "page":"https://www.businessinsider.com/japanese-potato-changed-olivia-munns-
→appearance-2016-2"
    },
    "wseat":[
        "145"
    ],
    "pmp":{
        "private_auction":1,
        "deals":[
            {
                "bidfloor":10.8,
                "id":"14a44.a7993.d401",
                "bidfloorcur":"USD",
                "at":2
            }
        ]
    },
    "user":{
        "ext":{
            "ug":0
        }
    },
    "device":{
        "dpidsha1":"",
        "model":"Chrome - Windows",
        "mccmnc":"310-005",
        "language":"en",
        "geo":{
            "country":"US",
            "city":"Jackson Heights",
            "region":"NY",
            "zip":"11372"
        },
        "make":"Google",
        "osv":"NT 6.1",
        "os":"Windows 7",
        "devicetype":2,
        "ip":"98.14.26.33",
        "ua":"Mozilla/5.0 (Windows NT 6.1) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/
→43.0.2342.0 Safari/537.36",
```

```
      "dpidmd5":"",
      "dnt":0
   },
   "tmax":415,
   "cur":[
      "USD"
   ],
   "imp":[
      {
         "bidfloor":0.011232,
         "metric":[
            {
               "type":"viewability",
               "value":0.85
            }
         ],
         "id":"1",
         "pmp":{
            "private_auction":1,
            "deals":[
               {
                  "bidfloor":10.8,
                  "id":"14a44.a7993.d401",
                  "bidfloorcur":"USD",
                  "at":2
               }
            ]
         },
         "instl":0,
         "exp":300,
         "tagid":"spotx_http://search.spotxchange.com/vast/2.00/149110?VPAID=1&content_
↪type=game&vmaxd=30&player_width=640&player_height=480&content_page_url=http%3A%2F
↪%2Fwww.businessinsider.com%2Fjapanese-potato-changed-olivia-munns-appearance-2016-2&
↪cb=1468903661330&adtid=T6GDD32DDC8UD5OOS5I6QROV40&viewability=0",
         "bidfloorcur":"USD",
         "ext":{

         },
         "secure":0,
         "video":{
            "protocols":[
               2,
               5
            ],
            "companiontype":[
               1,
               2,
               3
            ],
            "placement":2,
            "playbackend":1,
            "minduration":1,
            "maxduration":60,
```

```json
                "startdelay":0,
                "api":[
                    1
                ],
                "linearity":1,
                "h":480,
                "delivery":[
                    2
                ],
                "ext":{
                    "player_type":3
                },
                "mimes":[
                    "video/x-flv",
                    "video/mp4",
                    "application/x-shockwave-flash"
                ],
                "w":640,
                "companionad":[
                    {
                        "h":250,
                        "id":"1",
                        "w":300
                    }
                ]
            }
        }
    ],
    "bcat":[
        "IAB25-3",
        "BSW1",
        "BSW2",
        "BSW10",
        "BSW4",
        "IAB26"
    ],
    "ext":{
        "is_secure":0,
        "wt":1,
        "clktrkrq":0,
        "ssp":"spotx"
    },
    "at":2
}
```

7.23.5 Video Example

```json
{
    "regs":{
        "coppa":0
    },
```

```
    "id":"75c0238c-3b52-4b87-957a-817f83e853f1",
    "site":{
        "id":"adaptv_",
        "publisher":{
            "name":"",
            "id":"adaptv_4182"
        },
        "cat":[
            "IAB1"
        ],
        "ext":{

        },
        "page":"http://kissasian.com"
    },
    "wseat":[
        "126"
    ],
    "source":{
        "fd":0,
     },
    "user":{
        "id":"b457c658-ffdc-415c-8d91-30d864f4a5f5",
        "ext":{
            "cookie_age":153,
            "ug":1
        },
        "buyeruid":"7bcb7e7c-eff0-43ad-8522-b5c9251f0d43"
    },
    "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,
        "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,
        "id":"1",
        "instl":0,
        "exp":300,
        "bidfloorcur":"USD",
        "ext":{

        },
        "secure":0,
        "video":{
            "protocols":[
                2,
                5
            ],
            "placement":2,
            "skip":1,
            "playbackend":1,
            "minduration":5,
            "playbackmethod":[
                3
            ],
            "maxduration":60,
            "startdelay":0,
            "linearity":1,
            "mimes":[
                "video/mp4"
            ]
        }
    }
    ],
    "bcat":[
        "IAB25-3",
        "BSW1",
        "BSW2",
        "BSW10",
        "BSW4",
        "IAB26"
    ],
    "ext":{
        "wt":1,
        "clktrkrq":0,
        "is_secure":0,
        "ssp":"adaptv",
        "s2s_nurl":1
    },
    "at":2
}
```

7.23.6 Audio Ad 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"
        ],
        "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",
    "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":{
    "wt":1,
    "clktrkrq":0,
    "is_secure":0,
    "ssp":"google"
},
"user":{
    "id":"45asdf987656789adfad4678rew656789",
    "buyeruid":"1234567890",
    "ext":{
```

```
      "cookie_age":64
    },
    "cur":[
      "USD"
    ]
  }
}
```

7.23.7 TV Ad Example

```
{
  "id":"1234534625253",
  "wseat":[
    "58"
  ],
  "imp": [
    {
      "id": "1",
      "bidfloor": 15,
      "exp": 360,
      "video": {
        "mimes": [
          "video/x-flv",
          "video/mp4",
          "application/x-shockwave-flash",
          "application/javascript"
        ],
        "placement":2,
        "skip":0,
        "playbackend":1,
        "minduration": 30,
        "maxduration": 30,
        "protocols": [
          3,
          6
        ]
      }
    }
  ],
  "source":{
    "fd":0,
  },
  "device": {
    "geo": {
      "country": "US",
      "region": "TX"
    },
    "devicetype": 6
  },
  "user": {
    "id": "45asdf987656789adfad4678rew656789",
```

```
        "keywords": "A_18_24,COLLEGE,HHI_75_100,M_18_24,HH_SINGLE",
        "data": [
            {
                "name": "program_types",
                "segment": [
                    {
                        "name": "HOCKEY_DEC",
                        "value": "8"
                    },
                    {
                        "name": "BASEBALL_DEC",
                        "value": "9"
                    },
                    {
                        "name": "FOOTBALL_DEC",
                        "value": "8.1"
                    }
                ]
            }
        ]
    },
    "tmax": 150,
    "cur": "USD",
    "ext": {
        "ssp": "dish",
        "tv": {
            "publisher": {
                "id": "dish_"
            }
        }
    }
}
```

7.23.8 DOOH Ad Example

```
{
  "id":"1234534625253",
  "wseat": [
    "58"
  ],
  "imp": [
    {
      "id": "06d690d1-bac0-43fa-9257-f6d62d984231",
      "bidfloor": 15,
      "exp": 360,
      "video": {
        "mimes": [
          "video/x-flv",
          "video/mp4"
        ],
        "placement":2,
```

```json
      "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": {
    "lat": 35.012344,
    "lon": -115.12345,
    "country": "US",
    "region": "NY",
    "city": "White Plains",
    "zip": "10601"
  },
  "devicetype": 6
},
"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",
                "name": "auto intenders"
            }
          ]
        }
      ]
    },
    "tmax": 150,
    "exp": 300,
    "cur": "USD",
    "source":{
        "fd":0,
        },
    "ext": {
      "ssp": "rubicon",
      "dooh": {
        "publisher": {
          "id": "rubicon_234563",
          "cat": [
            "IAB1"
          ]
        },
        "audience":19.5,
        "impmultiply":1
      },
      "s2s_nurl": 1
    }
}
```

CHAPTER 8

BID RESPONSE

This is the top level object that is returned by the Buyer. Each bid response sent from the Buyer to BidSwitch should contain the following fields.

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

Bid responses for in-app inventory match banner or video response formats.

Table 8.1: Bid Response Object Properties

Value	Type	Description
id	*string*	Specifies the ID of the bid request to which this is a response to, for example, `"d7d1e107-fe7c-4a57-9592-d1d41fa702d9"`
seatbid	*array of objects*	An array of Seat Bid objects, see the *Seat Bid Object* (page 90) section. The length of the array can be either 1+ (for yes-bid) or 0 (for no-bid).
*cur**	*string*	Sets the bidding currency using ISO-4217[34] alphabetic codes. If not provided USD is assumed, `"USD"`
ext	*object*	The bid response extension object. This field may be omitted in No Bid Responses, see the *Bid Response Ext Object* (page 90) section.

---

[34] http://www.iso.org/iso/home/standards/currency_codes.htm

8.1 Bid Response Ext Object

Table 8.2: Bid Response Ext Object Properties

Value	Type	Description
protocol	*string*	The latest BidSwitch protocol version this bid response is compliant with, for example `"5.2"`

```
{
  "id": "1234567890",
  "ext": {
    "protocol": "5.2"
  },
}
```

8.2 Seat Bid Object

Formally there can be multiple bids within the Seat Bid object for two reasons.

- There can be several slots in each request.

- When there is more than one bid for a single slot.

BidSwitch allows no more than two bids for a single ad slot. Bids belonging to the same seat must be in the same `seatbid.bid` array, i.e. all `seatbid.seat` values must be unique per response.

Table 8.3: Seat Bid Object Properties

Value	Type	Description
bid	*array of objects*	Array of Bid Objects, see *Bid Object* (page 91). The maximum number of bid objects per single bid request ad slot is two.
seat*	string	ID of the bidder seat on whose behalf this bid is made. The value should match one of the values supplied in the `wseat` field of the bid request and it is REQUIRED if the `wseat` field is present in bid request. For example, `"34"`

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

8.3 Bid Object

Table 8.4: Bid Object Properties

Value	Type	Description
id	*string*	A bidder generated ID for the bid object, used for tracking and debugging purposes, for example `3`.
impid	*string*	The ID of the impression object (`imp`) from the bid request to which this bid response applies, for example `"1"`
price	*float*	The bid price as a float value, expressed as CPM. All prices assumed to be in USD if the `cur` parameter is omitted, for example `1.23`

adm*	*string*	Creative markup for banner ads.
		• For protocol version 4.x this field should not contain the win price macro.
		• From version 5.x, this field can contain the win price macro unless the bid request contains `ext.s2s_nurl` field value equal to `1`, see the *5.x Updating Overview* (page 20) section for more information.
		• This field is required for banner ads, and is ignored for video or native bid responses.
		• The *adm* field is supported from protocol 4.0 onwards, so bid responses containing the `adm` field but not containing the `ext.protocol` value of `4.0+` are deemed invalid.
		• No more than one win price macro can be used in the `adm` field, otherwise BidSwitch records multiple impression events.
		`<a href=\"http://adserver.com/click?`
		`adid=125&tracker=${CLICK_URL:URLENCODE}\"> <img`
		`src=\"http://image1.cdn.com/impid=102\"/></a>`

burl	*string*	Specifies the billing notice URL called by BidSwitch using a server-to-server call when BidSwitch records a billable impression.
		• Introduced with **v5.2** of the BidSwitch protocol, the `burl` is called in a Server-to-Server(s2s) notification.
		• This field should contain the win price macro, see the *Macros* (page 126) section.
		• See the *Using the burl Field* (page 20) section for more details.
		• BidSwitch expects that `burl` calls should return a HTTP status `200` or `204`, see the *Server-to-Server (s2s) Calls* (page 118) section for more information.
		• The field is supported in protocol 5+ versions only.
		`"burl":"https://adserver.com/winnotice?`
		`impid=102&winprice=${AUCTION_PRICE}"`

Table 8.5: Bid Object Properties

Value	Type	Description

nurl	*string*	The win notice URL called if the bid wins.
		• This field should not be used for submitting creative markup.
		• The URL can contain the win price macro, see the *Macros* (page 126) and *5.x Updating Overview* (page 20) sections.
		• This URL will be mostly called from the user's browser and should thus be SSL-compliant for requests with `imp.secure` set to `1`.
		• For video responses, you should use the `bid.ext.vast_url` field to pass the VAST URL, see *Video Ext Object* (page 43).
		• For v5.0 and v5.1, if the Bid Request set the `ext.s2s_nurl` field value to `1` this URL will be called by a s2s call.
		• BidSwitch expects that `nurl` calls for Bid Requests with `ext.s2s_nurl` set to `1` should return a HTTP status `200` or `204`, see the *Server-to-Server (s2s) Calls* (page 118) section for more information.
		• As of v5.2, if the bid request set the `ext.s2s_nurl` field value to `1`, only the `burl` field will be called. Therefore, use the `burl` field to pass the win price macro. See the *burl Field Overview* (page 25) section for more details.
		`http://adserver.com/winnotice?`
		`impid=102&winprice=${AUCTION_PRICE}`
		Note: This describes the behaviour in version 4.0+, which changed since version 2.x. For more information about the 2.x behaviour, see the *nurl Response Difference* (page 17) section.

*iurl**	*string*	Sample image URL (without cache busting) for content checking. **REQUIRED**: for banner bid requests. `"http://adserver.com/preview?impid=102"`
*language**	*string*	The Alpha-2 ISO 639-1[35] code for the creative's language, for example, `jp`. The nonstandard code `"xx"` may also be used if the creative has no linguistic content (e.g., a banner with just a company logo). Use this field instead of the deprecated `bid.ext.language` field. **REQUIRED** in bid responses to BrightRoll SSP (rmx).

---

[35] http://www.iso.org/iso/home/standards/language_codes.htm

Table 8.6: Bid Object Properties

Value	Type	Description
adid*	string	ID that references the ad to be served if the bid wins. Either the `adid` field or `crid` field should be present in the response, for example `"3021"`
adomain	array of strings	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, `["advertiser.com"]`
cid*	string	Campaign ID or similar that is used by the Buyer to track and organize their campaigns, for example, `102` **Notes**: This field is REQUIRED for Rubicon, Nexage, Smaato and MoPub.
crid*	string	Creative ID to assist with ad quality checking. Either the `adid` field or `crid` field should be present in the response, for example ``3021''
attr*	array of integers	Creative attributes as defined in the OpenRTB protocol, for example, `[1,3]`.
dealid*	string	Reference to the `deal.id` from the bid request, if this bid pertains to a private marketplace direct deal, for example, `"AA-1234"`
h*	integer	The height of the creative in pixels when an alternative ad size is used, relevant for banner ads only. `250`
w*	integer	The width of the creative in pixels when an alternative ad size is used, relevant for banner ads only. `300`
cat*	array of strings **	The IAB category of the creative. **REQUIRED** in bid responses to BrightRoll SSP (RMX), MoPub, Smaato and YieldOne bids. If the Supplier only accepts one category in the bid response the first array element will be used, for example, `["IAB1"]`
ext*	object	This field may be required under certain circumstances, see *Bid Ext Object* (page 94).

Note: (**) For backward compatibility, this field can also be a string when using the BidSwitch 4.0 protocol.

8.3.1 Bid Ext Object

Table 8.7: Bid Ext Object Properties

Value	Type	Description
asid*	*string*	Required only for Microad premium inventor responses. If the Buyer is using a 3rd party ad server, specify which one, for example, `"Sizmek/Sizmek"`. See the *MicroAd 3PAS List* (page 149) section for more information
country*	*string*	Required only for Microad premium inventory responses and uses ISO 3166-1 Alpha-3 country codes, for example `JPN`. Specifies the target country of the Ad campaign. If you have multiple GEO targets, set the main one here.
advertiser_name*	*string*	The name of the advertiser serving the creative, for example, `"Coca-Cola"` • **REQUIRED** in bid responses to Ströer (AdScale), Centro, and BRX. • Recommended in responses to YieldOne bids.
agency_name*	*string*	The name of the agency representing the advertiser, for example, `"CCA"` **REQUIRED** in bids responses to Ströer (AdScale) bids.
agency_id*	*string*	ID of the agency representing the advertiser, for example, ''123''
lpdomain*	*array of strings*	The actual landing page URL of the creative. We highly recommend that you always fill this field, especially for mobile application ads, and for all Google responses, for example: • `"adomain":["angrybirds.com"]` • `"lpdomain":["https://itunes.apple.com/ru/app/angry-birds/id343200656?mt=8", "https://play.google.com/store/apps/details?id=com.rovio.angrybirds"]`

Table 8.8: Bid Ext Object Properties

Value	Type	Description
*language**	*string*	The Alpha-2 ISO 639-1[36] code for the creative's language, for example, `jp`. Deprecated since version 5.2.: Use `seatbid.bid.language` instead.
*google**	*object*	Contains additional information for Google bids. This field is recommended. See the *Supplier Specific Fields* (page 102) section for more details.
*yieldone**	*object*	Contains additional information for YieldOne bids. This field is recommended. See the *Supplier Specific Fields* (page 102) section for more details.

*vast_url**	*string*	The URL pointing to the location of the VAST document for bid responses to video traffic, for example, `"http://adserver.com/vast?impid=102"`
		    • This bid response field is required if the `video.ext.vast_url_rq` bid request field is set to `1`.
		    • If the `video.ext.vast_url_rq` bid request field is set to `0` or missing, you can include the VAST URL in the `nurl` field.
		For more information see the *Video Ext Object* (page 43) section.
		Note:
		    • The VAST URL should NOT contain a win price macro.
		    • The VAST document should NOT contain impression tracking URLs with win price macros.

*daast_url**	*string*	The URL pointing to the location of the DAAST document for the bid response, for example, `"http://adserver.com/daast?impid=102"`
		REQUIRED for bid responses to audio traffic.
		Note:
		    • The DAAST URL should NOT contain a win price macro.
		    • The DAAST document should NOT contain impression tracking URLs with win price macros.

*duration**	*integer*	Video ad duration in seconds, for example, `13` **REQUIRED** in bid responses to BrightRoll Video (brx).
*native**	*object*	Contains the details of the native response, for more information, see *Native Response Object* (page 97).

---

[36] http://www.iso.org/iso/home/standards/language_codes.htm

Table 8.9: Bid Ext Object Properties

Value	Type	Description
deal*	*string*	This is the ID of the deal between a publisher and a seat. It is used only if an exchange supports private auctions. If the bid is associated with a direct deal then this field is required and its value should be equal to one of the elements in the `pmp.deals` field in the bid request object. Deprecated since version 2.5: use `seatbid.bid.dealid` instead.
img_url*	*string*	The URL of the creative image. In order to receive the user cookie and win price, this URL should point to the Buyer handler and redirect to the actual creative location. The url may contain the win price macro, e.g. `${AUCTION_PRICE}`, but not the click macro. If this field is present, the `nurl` field of the bid response will be ignored. **Note**: This field is only valid in 2.x bid responses, see the *Deprecated 2.x Properties* (page 17) section for more details.
click_url*	*string*	The creative click URL. Required if the `img_url` field is present. **Note**: This field is only valid in 2.x bid responses, see the *Deprecated 2.x Properties* (page 17) section for more details.
js_url*	*string*	A Javascript-based win notice URL. • For in-app inventory, the ad markup should be returned using this URL. • For website or video inventory this field may be used as a substitute for the `nurl` field. • Ad markup should be in JavaScript format. • The URL may contain macros, see the *Macros* (page 126) section for more details. **Note**: This field is only valid in 2.x bid responses, see the *Deprecated 2.x Properties* (page 17) section for more details.

Note: Some of the fields are required by certain Suppliers. Responses to bid requests from these Suppliers without the required fields will be discarded.

8.3.2 Required Bid Response Fields Per Supplier

Table 8.10: Required Bid Response Fields Per Supplier

Supplier	Required field(s)
BrightRoll Video (brx)	`ext.advertiser_name`, `ext.duration`
BrightRoll SSP (rmx)	`cat`, `ext.language`
Centro	`ext.advertiser_name`
LiveIntent	Ad markup should contain the ad image tag and no more than one pixel.
MicroAd (For Premium Inventory)	`cat`, `ext.country`, `ext.asid`. See also the *MicroAd 3PAS List* (page 149) section.
Millennial Media (nexage)	`cid`
MoPub	`cid`, `cat`
Rubicon	`cid`
Smaato	`cid`, `cat`
Ströer (adscale)	`ext.advertiser_name`, `ext.agency_name`
YieldOne	`cat`

8.4 Native Response Object

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

Table 8.11: Native Object Properties

Value	Type	Description
assets	*array of objects*	List of native ad assets.
link	*object*	The *Native Link Object* (page 100). 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.
imptrackers **	*array of strings*	An array of impression tracking URLs, expected to return a 1x1 image or 204 response, for example, [`"http://adserver.com/native?impid=102"`] **Note:** This field should NOT contain the win price macro.
*ext**	*object*	*Native Ext Object* (page 98)
*ver**	*integer*	Version of the Native Markup version in use, for example, 1.
*jstracker**	string	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. **Note:** Currently the only Supplier that supports this field is TripleLift.

Note: (**) imptrackers array should be used with following constraints:

For Rubicon, only one element is guaranteed to be triggered. Place the trackers in the order of importance, otherwise this array is optional and may not be present in each response.

8.4.1 Native Ext Object

Table 8.12: Native Ext Object Properties

Value	Type	Description
viewtracker*	*string*	The view tracking URL that will be called when the ad is visible, if supported by the Supplier, for example, `"http://adserver.com/native_view?impid=102"`
adchoiceurl*	*string*	A Buyer specific AdChoices URL that will replace default Supplier AdChoices URL, for example, ''`https://adserver.com/privacy`''.

8.4.2 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 8.13: Native Asset Object Properties

Value	Type	Description
id	*integer*	A unique asset ID, must match one of the asset IDs in the bid request, for example, `1`.
required*	*integer*	Set to `1` if the asset is required (bidder requires it to be displayed), default is `0`, for example, `1`.
title*	*object*	Title object for a title asset, see, *Native Assets Title Object* (page 99).
img*	*object*	Image object for an image asset, see, *Native Assets Image Object* (page 99).
video*	*object*	Video object for a video asset, see, *Native Asset Video Object* (page 100).
data*	*object*	Data object for a data asset, see, *Native Asset Data Object* (page 100).
link **	*object*	Link object for a call to action. • The link object applies if the asset item is activated (clicked). • If there is no link object on the asset, the parent link object on the bid response applies. See *Native Link Object* (page 100).

8.4.3 Native Assets Title Object

Table 8.14: Native Asset Title Object Properties

Value	Type	Description
text*	string	The text associated with the title element. `"Our product is the best!"`

8.4.4 Native Assets Image Object

Table 8.15: Native Asset Image Object Properties

Value	Type	Description
url	*string*	URL of the image asset, for example, `"http://adserver.com/image?impid=102"`.
h	*integer*	Height of the image in pixels, for example, `250`.
w	*integer*	Width of the image in pixels, for example, `300`.

(*) The field is optional and may not be present in each response.

8.4.5 Native Asset Video Object

Table 8.16: Native Asset Video Object Properties

Value	Type	Description
vasttag	*string*	Vast XML, use the following example to format your VAST XML response. See the VAST Tag example below, *Video Asset vasttag Example* (page 101).
ext*	*object*	*Native Asset Video Object Extension* (page 100)

8.4.6 Native Asset Video Object Extension

Table 8.17: Native Asset Video Object Extension Properties

Value	Type	Description
playbackmethod*	*integer*	Desired video playback method

8.4.7 Native Asset Data Object

Table 8.18: Native Asset Data Object Properties

Value	Type	Description
value	*string*	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''.

8.4.8 Native Link Object

Table 8.19: Native Link Object Properties

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

8.4.9 Native Response Example

```
{
  "seatbid":[
    {
      "bid":[
```

```
        {
          "ext":{
            "native":{
              "ver":1,
              "jstracker":"<html></head><body></body><script src='./jquery.js'></script>
→</html>",
              "link":{
                "url":"http://adserver.com/click?impid=102"
              },
              "imptrackers":[
                "http://adserver.com/native?impid=102"
              ],
              "assets":[
                {
                  "id":1,
                  "video":{
                    "ext":{
                      "playbackmethod":1
                    }
                  },
                  "required":1,
                  "title":{
                    "text":"A test Native Ad"
                  }
                }
              ]
            }
          }
        }
      ]
    }
  ]
}
```

8.4.10 Video Asset vasttag Example

```xml
<?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>
```

8.5 Supplier Specific Fields

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

8.5.1 Google Object Properties

Table 8.20: Google Object Properties

Value	Type	Description
*attribute**	*integer array*	List of creative attributes as defined by Google, for example, `[32, 22]`
*vendor_type**	*integer array*	List of creative vendor types as defined by Google, for example, `[42, 43]` See the Google RTB Docs Download[37] page for this information.

8.5.2 Yieldone Object Properties

Table 8.21: Yieldone Object Properties

Value	Type	Description
*creative_type**	*string*	Creative type as defined by YieldOne, for example, `"HTML"`
*creative_category_id**	*integer*	Creative category as defined by YieldOne. The field is recommended for YieldOne bids, for example, 79

---

[37] https://developers.google.com/ad-exchange/rtb/downloads

8.6 Bid Response JSON Examples

If the Buyer opts to not bid on the bid request, it should respond with a HTTP 204 response. BidSwitch also accepts bid responses with an empty array of seatbid objects as valid nobid responses.

8.6.1 Banner Bid Response

The following example shows an ad being served from the `adm` field, with the bid price for the impression being $9.43 CPM.

```
{
  "id": "1234567890",
  "ext": {
    "protocol": "5.2"
  },
  "seatbid": [
    {
      "bid": [
        {
          "id": "1",
          "impid": "102",
          "price": 9.43,
          "adid": "314",
          "cid": "42",
          "cat": ["IAB12"],
          "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>",
          "nurl": "http://adserver.com/winnotice?impid=102&winprice=${AUCTION_PRICE}",
          "iurl": "http://adserver.com/preview?crid=314",
          "adomain": [
            "advertiserdomain.com"
```

```
            ],
            "ext": {
                "advertiser_name": "Coca-Cola",
                "agency_name": "CC-advertising"
            }
        }
    ],
    "seat": "4"
    }
  ]
}
```

8.6.2 Secure Banner Bid Response

The following example shows an ad being served from the `adm` field, with the bid price for the impression being $9.43 CPM, and suitable for serving in HTTPS environment.

```
{
  "id":"1234567890",
  "ext":{
    "protocol":"5.2"
  },
  "seatbid":[
    {
      "bid":[
        {
          "id":"1",
          "impid":"102",
          "price":9.43,
          "adid":"314",
          "cid":"42",
          "language": "en",
          "burl":"https://adserver.com/imp?impid=102&winprice=${AUCTION_PRICE}",
          "cat":[
              "IAB12"
          ],
          "adm":"<a href=\"https://adserver.com/clickadid=12345&tracker=${CLICK_
↪URL:URLENCODE}\"><img src=\"https://image1.cdn.com/impid=102\"/></a>",
          "nurl":"https://adserver.com/winnotice?impid=102&winprice=${AUCTION_PRICE}
↪",
          "iurl":"http://adserver.com/preview?crid=314",
          "adomain":[
              "advertiserdomain.com"
          ],
          "ext":{
              "advertiser_name":"Coca-Cola",
              "agency_name":"CC-advertising"
          }
        }
      ],
      "seat":"8"
```

```
    }
  ]
}
```

8.6.3 Video Bid Response

```
{
    "cur":"USD",
    "ext":{
        "protocol":"5.2"
    },
    "id":"e9c3e120-ffcb-4300-9c98-644cb26f95df",
    "seatbid":[
        {
            "bid":[
                {
                    "adid":"3",
                    "nurl":"http://adserver.com/winnotice?impid=102&winprice=${AUCTION_PRICE}
↪",
                    "adomain":[
                        "nokia.com"
                    ],
                    "cid":"11",
                    "language": "en",
                    "burl":"https://adserver.com/imp?impid=102&winprice=${AUCTION_PRICE}",
                    "ext":{
                        "vast_url":"http://adserver.com/vast?impid=102",
                        "duration":15,
                        "advertiser_name":"Nokia"
                    },
                    "id":"1c3ff810-3623-4b04-8396-9e7ca071cb72",
                    "impid":"1",
                    "price":4.079077199308326
                }
            ],
            "seat":"1"
        }
    ]
}
```

8.6.4 Secure Video Bid Response

```
{
  "cur":"USD",
  "ext":{
      "protocol":"5.2"
  },
  "id":"e9c3e120-ffcb-4300-9c98-644cb26f95df",
  "seatbid":[
```

```
    {
        "bid":[
            {
                "adid":"3",
                "language": "en",
                "burl":"https://adserver.com/imp?impid=102&winprice=${AUCTION_PRICE}",
                "nurl":"https://adserver.com/winnotice?impid=102&winprice=${AUCTION_PRICE}
↪",
                "adomain":[
                    "nokia.com"
                ],
                "cid":"11",
                "ext":{
                    "vast_url":"https://adserver.com/vast?impid=102",
                    "duration":15,
                    "advertiser_name":"Nokia"
                },
                "id":"1c3ff810-3623-4b04-8396-9e7ca071cb72",
                "impid":"1",
                "price":4.079077199308326
            }
        ],
        "seat":"1"
    }
]
}
```

8.6.5 Secure Audio Bid Response

```
{
  "cur":"USD",
  "ext":{
      "protocol":"5.2"
  },
  "id":"e9c3e120-ffcb-4300-9c98-644cb26f95df",
  "seatbid":[
    {
        "bid":[
            {
                "adid":"3",
                "burl":"https://adserver.com/imp?impid=102&winprice=${AUCTION_PRICE}",
                "nurl":"https://adserver.com/winnotice?impid=102&winprice=${AUCTION_PRICE}
↪",
                "adomain":[
                    "nokia.com"
                ],
                "cid":"11",
                "language": "en",
                "ext":{
                    "daast_url":"https://adserver.com/daast?impid=102",
                    "duration":15,
```

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

8.6.6 Native Bid Response

The following example shows a native bid response with the title and image asset specified.

```
{
  "id":"1234567890",
  "ext":{
    "protocol":"5.2"
  },
  "seatbid":[
    {
      "bid":[
        {
          "id":"1",
          "impid":"102",
          "price":9.43,
          "adid":"314",
          "cid":"42",
          "language": "en",
          "burl":"https://adserver.com/imp?impid=102&winprice=${AUCTION_PRICE}",
          "cat":[
            "IAB12"
          ],
          "nurl":"http://adserver.com/winnotice?impid=102&winprice=${AUCTION_PRICE}",
          "adomain":[
            "advertiserdomain.com"
          ],
          "ext":{
            "advertiser_name":"Coca-Cola",
            "agency_name":"CC-advertising",
            "native":{
              "ver":1,
              "jstracker":"<html></head><body></body><script src='./jquery.js'></
→script></html>",
              "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"
                }
            },
            {

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

8.6.7 Secure Native Bid Response

The following example shows a native bid response with the title and image asset specified for serving in an HTTPS environment.

```
{
  "id":"1234567890",
  "ext":{
    "protocol":"5.2",
    "id":3,
    "required":1,
    "img":{
        "url":"https://adserver.com/image?crid=314"
    }
  },
  "seatbid":[
    {
        "bid":[
            {
                "id":"1",
                "impid":"102",
                "price":9.43,
                "adid":"314",
                "cid":"42",
                "cat":[
                    "IAB12"
                ],
                "nurl":"https://adserver.com/winnotice?impid=102&winprice=${AUCTION_PRICE}
↪",
```

```
                "adomain":[
                    "advertiserdomain.com"
                ],
                "language":"en",
                "burl":"https://adserver.com/imp?impid=102&winprice=${AUCTION_PRICE}",
                "ext":{
                    "advertiser_name":"Coca-Cola",
                    "agency_name":"CC-advertising",
                    "native":{
                        "ver":1,
                        "jstracker":"<html></head><body></body><script src='./jquery.js'></
→script></html>",
                        "link":{
                            "url":"https://adserver.com/click?impid=102"
                        },
                        "imptrackers":[
                            "https://adserver.com/native?impid=102"
                        ],
                        "assets":[
                            {
                                "id":1,
                                "required":1,
                                "title":{
                                    "text":"A test Native Ad"
                                }
                            },
                            {

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

8.6.8 Multi-bid Response

The following bid response example contains two bids, one for $9.43 CPM and one for $5.50 CPM. Both bids target the same ad slot, both would take part in the auction and if the first one is discarded due to publisher-side blocklist then the second one would be able to win the auction.

```
{
    "id":"1234567890",
    "ext":{
        "protocol":"5.2"
    },
    "seatbid":[
```

```
    {
        "bid":[
            {
                "id":"1",
                "impid":"102",
                "price":9.43,
                "adid":"314",
                "cid":"42",
                "cat":[
                    "IAB12"
                ],
                "adm":"<a href=\"http://adserver.com/click?adid=12345&tracker=${CLICK_
→URL:URLENCODE}\"><img src=\"http://image1.cdn.com/impid=102\"/></a>",
                "nurl":"http://adserver.com/winnotice?impid=102&winprice=${AUCTION_PRICE}
→",
                "iurl":"http://adserver.com/preview?crid=314",
                "adomain":[
                    "advertiserdomain.com"
                ],
                "language":"en",
                "burl":"https://adserver.com/imp?impid=102&winprice=${AUCTION_PRICE}",
                "ext":{
                    "advertiser_name":"Coca-Cola",
                    "agency_name":"CC-advertising"
                }
            },
            {
                "id":"2",
                "impid":"102",
                "price":5.5,
                "adid":"413",
                "cid":"43",
                "cat":[
                    "IAB12"
                ],
                "adm":"<a href=\"http://adserver.com/click?adid=12345&tracker=${CLICK_
→URL:URLENCODE}\"><img src=\"http://image1.cdn.com/impid=102\"/></a>",
                "nurl":"http://adserver.com/winnotice?impid=413&winprice=${AUCTION_PRICE}
→",
                "iurl":"http://adserver.com/preview?crid=413",
                "burl":"https://adserver.com/imp?impid=102&winprice=${AUCTION_PRICE}",
                "adomain":[
                    "advertiserdomain.com"
                ],
                "ext":{
                    "advertiser_name":"Coca-Cola",
                    "agency_name":"CC-advertising"
                }
            }
        ],
        "seat":"1"
    }
]
```

8.6. Bid Response JSON Examples   **110**

```
}
```

8.6.9 Private Deal Bid Response

```
{
  "id":"1234567892",
  "ext":{
      "protocol":"5.2"
  },
  "cur":"USD",
  "seatbid":[
      {
          "bid":[
              {
                  "id":"1114125-afaff2f-af2251",
                  "impid":"1",
                  "price":9.43,
                  "adid":"314",
                  "burl":"https://adserver.com/imp?impid=102&winprice=${AUCTION_PRICE}",
                  "dealid":"deal-1",
                  "adm":"<a href=\"http://adserver.com/click?adid=12345&tracker=${CLICK_
→URL:URLENCODE}\"> <img src=\"http://image1.cdn.com/impid=102\"/></a>",
                  "nurl":"http://adserver.com/winnotice?impid=102&winprice=${AUCTION_PRICE}",
                  "adomain":[
                      "advertiserdomain.com"
                  ]
              }
          ],
          "seat":"58"
      }
  ]
}
```

8.6.10 Buyer No Bid Response

The following example shows a No Bid Response coming from a Buyer, which is an empty bid response.

Note: The preferred No Bid Response format is an empty HTTP 204 response.

```
{
  "id": "1234567891",
  "ext": {
    "protocol": "5.2"
  },
   "seatbid": []
}
```

8.6.11 BidSwitch No Bid Reason

The following example shows a No Bid Reason coming from BidSwitch, which includes the reason code using the `nbr` field.

```
{
    "id":"1234567890",
    "seatbid":[

    ],
    "nbr":4
}
```

8.6.12 TV/DOOH Bid Response

```
{
    "cur":"USD",
    "ext":{
        "protocol":"5.2"
    },
    "id":"e9c3e120-ffcb-4300-9c98-644cb26f95df",
    "seatbid":[
        {
            "bid":[
                {
                    "adid":"3",
                    "burl":"https://adserver.com/imp?impid=102&winprice=${AUCTION_PRICE}",
                    "nurl":"http://adserver.com/winnotice?impid=102&winprice=${AUCTION_PRICE}
↪",
                    "adomain":[
                        "nokia.com"
                    ],
                    "cid":"11",
                    "language":"en",
                    "ext":{
                        "vast_url":"http://adserver.com/vast?impid=102",
                        "duration":15,
                        "advertiser_name":"Nokia"
                    },
                    "id":"1c3ff810-3623-4b04-8396-9e7ca071cb72",
                    "impid":"1",
                    "price":4.079077199308326
                }
            ],
            "seat":"1"
        }
    ]
}
```

CHAPTER 9 _____

_____IN-APP USER OPTIMIZATION

Buyers can optimise their BidStream by putting users into groups, as explained in the SmartSwitch User Optimization[38] section. This enables BidSwitch to send more traffic from users marked as valuable to Buyers. To sync app users with the most appropriate user group, use one of the following methods.

Real-time User-Group Syncing The Buyer makes a call to the BidSwitch Mobile-Users Sync endpoint and using the appropriate URL parameters assigns a user to their group. This is the preferred method as it updates user group records immediately.

User-Group TSV Upload Using this method, the Buyer uploads a daily TSV file with user group information.

9.1 Real-time User-Group Syncing

To sync a particular app user with a user group, the Buyer should make a call to the BidSwitch Mobile-Users Sync endpoint. You can do this from within the app, or using a server-to-server call.

- If making the call from within the app, use the following endpoint `http(s)://x.bidswitch.net/sync_ifa` and provide the required parameters.

- If using a server-to-server call, the endpoint domain is region specific:
    - US: `us-east.bidswitch.net`
    - EU: `eu.bidsiwtch.net`
    - APAC: `apac-jp.bidswitch.net`

---

[38] https://docs.bidswitch.com/support/smart-switching-user-groups.html#smart-switch

Table 9.1: App-User Sync URL Parameters

Value	Type	Description
dsp_id	*string*	The ID assigned to the Buyer by BidSwitch, for example, 123
ifa	*string*	The native identifier for advertisers. An ID assigned by the device or browser for use as an advertising identifier, for example Apple's IDFA or Android's Advertising ID.
user_group	*integer*	Sets the user group with which to sync this user. The valid values for user groups are 0 - 5. • 0: Unwanted users. • 1: Regular users. No explicit interest in receiving ad requests. • 2 - 5: Valuable users: The Buyer wants to receive as many ad requests as possible from these users

```
# Example Syntax
http(s)://x.bidswitch.net/sync_ifa?dsp_id=${dsp_id}&ifa=${ifa}&user_group=${user_group}

# Example HTTP
http://x.bidswitch.net/sync_ifa?dsp_id=1&ifa=ABC&user_group=2

#Example HTTPS
https://x.bidswitch.net/sync_ifa?dsp_id=1&ifa=ABC&user_group=2

# Example Server to Server
https://apac-jp.bidswitch.net/sync_ifa?dsp_id=1&ifa=ABC&user_group=2
```

9.2 User-Group TSV Upload

Buyers can also upload a daily TSV (tab separated values) file. To do this, use the following steps:

1. Generate a pair of public/private SSH keys.

2. Email BidSwitch support (support@bidswitch.com) requesting an SFTP account and attach your public key to the ticket.

3. BidSwitch will provide connection details when setup is complete.

4. When everything has been setup, you will need to generate a `.tsv` file.

5. Send the `.tsv` file with the following fields:

   • *IFA*: The native identifier for advertisers.

   • *Region*: [US or EU or AS], select only 1.

   • *User group*: Select only 1 numerical value. This value should be in the range 0 - 5. See the table in the *Real-time User-Group Syncing* (page 113) section for the significance of the numbers.

6. The file needs to have the `.tsv` extension or it cannot be processed by the system.

7. Place the TSV file(s) in the upload folder.

8. Once processed the file will be removed from the upload folder and placed in the processed folder

The TSV file format should look similar to:

```
UUID<tab>region<tab>user_group
```

Note: Each TSV file cannot contain more than a 1000 rows. If necessary, please create multiple files of 1000 records/lines.

BIDSWITCH DATA CENTRES

Table 10.1: BidSwitch Data Centres

Geo	Data Centre	Hostname
US East	Berkeley County, South Carolina	`us-east.bidswitch.net`
US West	The Dalles, Oregon	`us-west.bidswitch.net`
APAC	Northeastern Asia-Pacific	`apac-jp.bidswitch.net`
Europe	St. Ghislain, Belgium	`eu.bidswitch.net`

IP Values

- To find the actual range of IP Addresses, use the instructions on this page: Where can I find Compute Engine IP ranges?[39]

- See also Google Cloud Platform zones[40].

---

[39] https://cloud.google.com/compute/docs/faq#where_can_i_find_short_product_name_ip_ranges
[40] https://cloud.google.com/compute/docs/regions-zones/regions-zones

CHAPTER 11

BUYER BEST PRACTICES

The following list mentions a number of best practices which can improve your experience when using BidSwitch.

- Integrate with the latest version of the BidSwitch protocol, see the BidSwitch Buyer Protocol v5.2[41] section

- Ensure user groups are well defined for SmartSwitch as this increases the quality of traffic sent to Buyers, see the SmartSwitch User Optimization[42] section

- Don't demand more than your QPS limit as it could result in server overload, QPS Overview[43]

- To reduce latency between your servers and BidSwitch, set your server locations as close as possible. See the *BidSwitch Data Centres* (page 116) section

- To reduce latency between your servers use `gzip` when sending or receiving data, see the *Data Format* (page 125) section

- Keep connections alive

---

[41] https://docs.bidswitch.com/standards/standards.html#bsw-proto
[42] https://docs.bidswitch.com/support/smart-switching-user-groups.html#smart-switch
[43] https://docs.bidswitch.com/support/smart-switching-overview.html#qps-ref

CHAPTER 12

SERVER-TO-SERVER (S2S) CALLS

BidSwitch calls the Buyer endpoint using a s2s call in the following cases:

- The initial call from the Supplier/Publisher side was done using a s2s call

- BidSwitch is calling the Buyer `burl`

- BidSwitch is calling the Buyer `nurl` as the BidSwitch Bid Request had the `ext.s2s_nurl` field set to `1`.

An easy way to determine whether the call from BidSwitch is s2s is to check the user agent. For s2s calls it is always `"BidSwitch/1.0"`

One advantage of s2s impression calls is increased control of the call delivery, and thus minimizing any discrepancies between partners' reporting and/or invoicing.

Expected s2s Behaviour

- BidSwitch expects HTTP `200` or `204` responses to s2s calls, if you have recorded a valid impression.

- If BidSwitch receives a response code > `299` it denotes the impression as not properly recorded on the Buyer side, and will lead to discrepancies between BidSwitch and the Buyer.

- BidSwitch does not redirect the call if it receives a `302` response.

- If the response code is >= `400`, or there was a timeout, BidSwitch makes 1 retry to check if a valid impression was recorded on the Buyer side.

- BidSwitch will bill based on its numbers, regardless of Buyer response. See the Buyer Discrepancy API[44] section for details about managing discrepancies.

---

[44] https://docs.bidswitch.com/api/discrepancy-api-buyer.html#discrepancy-api-buy

BUYER USER MATCHING

User matching, or cookie syncing, is the process of matching a Supplier's cookie ID to a Buyer's cookie ID. BidSwitch has an integrated user matching functionality to facilitate this between Buyers and Suppliers . User matching information is managed within the BidSwitch database, so there is no need for Buyers to implement user matching logic to store user mappings. **Note:** To sync app users, see the *In-App User Optimization* (page 113) section.

When sending bid requests to the Buyer, BidSwitch will send both the Buyer User ID and the BidSwitch User ID in the `buyeruid` and `id` fields of the *User Object* (page 57).

Table 13.1: Supplier-Buyer User Matching

Supplier to BidSwitch Bid Request	BidSwitch to Buyer Bid Request
```{ "user":{ "id":"ssp-cookie-1234", "buyeruid":"bsw-cookie-54321", } }```	```{ "user":{ "id":"bsw-cookie-54321", "buyeruid":"DSP-cookie-5678", } }```

Note: If the user ID is not available, then only the BidSwitch user ID will be sent. There are cases when the BidSwitch ID is not available either, in this case neither ID can be sent to the DSP.

13.1 Buyer Initiated User Matching

To sync a particular user with BidSwitch, the Buyer should redirect the user's browser to the BidSwitch sync URL, http://x.bidswitch.net/sync, expecting to receive a 1x1 `.gif` image as a result, and provide the following HTTP request parameters.

Note:

- The BidSwitch matching URL also supports secure HTTPS connections.

- Fields marked with asterisk (*) are optional.

Table 13.2: HTTP Request Parameters

Value	Type	Description
dsp_id	*string*	The ID assigned to the Buyer by BidSwitch, for example, `123`
user_id	*string*	The User ID in the Buyers's system, for example `123456`. If the value is an empty string, the user is considered unmatched and no further sync requests are sent for this user, for the duration of the time set with the `expires` parameters. See *Not Syncing Certain Users* (page 121) for more details.
expires*	*integer*	Expiration time in days for user matching, for example `5`. The default value is `90`. See the *Cookie Syncing Best Practices* (page 120) section about how to get the most out of user matching.
user_group*	*integer*	Sets the user group with which to sync this user. The valid values for user groups are `0 - 5`, with `0` always being considered unmatched users in BidSwitch. See the *User Group Syncing* (page 121) section for more details.

```
# User sync
https://x.bidswitch.net/sync?dsp_id=123&user_id=1234567890&expires=30

# Do Not User Sync
# Redirecting a user to the following URL will not sync the
# specified user for the next 5 days, and will consider bids
# from this user as user-unmatched for the given DSP
http://x.bidswitch.net/sync?dsp_id=123&user_id=&expires=5
```

13.2 Cookie Syncing Best Practices

While it is also the responsibility of Buyers to play an active part in the cookie syncing process, BidSwitch strongly recommends the following Supplier practices to maximise ROI.

- If there is any cookie logic, ensure that BidSwitch is set with a high priority.

- Set the BidSwitch cookie expiration date to less than 30 days. Ideally between 5 - 10 days. This will enable the Supplier to cookie sync with BidSwitch more often.

- Aim to cookie sync user data with BidSwitch once per day.

13.3 User Group Syncing

During cookie syncing, when a Buyer sends their cookie ID to BidSwitch, it is possible to append the `user_group` parameter to the pixel. This specifies which group BidSwitch should place the user in for SmartSwitch filtering.

- To learn more about SmartSwitch, see the SmartSwitch Overview[45] section.

- To learn about how user groups can improve the quality of inventory in your BidStream, see the SmartSwitch User Optimization[46] section.

- For in-app syncing, see the *In-App User Optimization* (page 113) section.

Supplier Initiated Cookie Sync Response:

```
## Syntax
http://x.bidswitch.net/sync?dsp_id=[DSP_ID]&user_id=[DSP_COOKIE_ID]&expires=30&ssp=[SSP_
↪NAME]&user_group=[NUMERICAL_VALUE]

## Example
http://x.bidswitch.net/sync?dsp_id=1&user_id=1235ABC&expires=30&ssp=rubicon&user_group=5
```

Buyer initiated cookie sync:

```
## Syntax
http://x.bidswitch.net/sync?dsp_id=[DSP_ID]&user_id=[DSP_COOKIE_ID]&expires=30&user_
↪group=[NUMERICAL_VALUE]

## Example
http://x.bidswitch.net/sync?dsp_id=1&user_id=1235ABC&expires=30&user_group=5
```

13.4 Not Syncing Certain Users

A Buyer may differentiate between valuable and not valuable users. The latter are usually users that don't have any re-targeting or third party data recorded for them. It is highly recommended that in the case of a sync request for a not valuable user, the Buyer responds with a 302 redirect to the BidSwitch sync url with an empty `user_id` parameter, for example,

```
http://x.bidswitch.net/sync?dsp_id=123&user_id=&expires=5&ssp=rubicon
```

---

[45] https://docs.bidswitch.com/support/smart-switching-overview.html#ss-overview
[46] https://docs.bidswitch.com/support/smart-switching-user-groups.html#smart-switch

13.5 BidSwitch Initiated User Matching

Brief Overview

1. The Buyer provides an endpoint to BidSwitch that can handle the `$SSP` and `$BSW_PARAM` values

2. BidSwitch syncs with this endpoint, filling in the `$SSP` value, and the Buyer responds with the user syncing details for their user. Depending on the user syncing context BidSwitch may also fill in the custom parameter macro `${BSW_PARAM}`

3. The Buyer responds with their information for this user, which is stored by BidSwitch and synced with the Supplier

Providing a Usable Endpoint

BidSwitch can initiate user synchronization, once the partner issues BidSwitch the above mentioned matching URL that redirects to the pixel URL described in the *Buyer Initiated User Matching* (page 119) section, with properly populated required parameters (`dsp_id`, `user_id`, and `ssp`), and if applicable, the optional parameters (`expires`, `user_group`, and `bsw_param`)

Note: This URL should be for a pixel that performs a 302 redirect, rather than for an `iframe` with a script inside it. The only redirect from the Buyer's matching URL should be to the BidSwitch pixel.

The matching redirect URL, issued by a Buyer should contain the `${SSP}` and `${BSW_PARAM}` macros. These macros are substituted on the BidSwitch side before sending a user to the partner. The values sent in these macros should be returned to BidSwitch, as in the following example matching URL, provided by the partner.

```
# Example DSP URL
http://www.dsp-example.com/bsw_sync?bidswitch_ssp_id=${SSP}

# Example DSP URL with additional param for cookie-less user sync
http://www.dsp-example.com/bsw_sync?bidswitch_ssp_id=${SSP}&bsw_custom_parameter=${BSW_
↪PARAM}
```

Here, the `bidswitch_ssp_id` and `bsw_custom_parameter` parameters name can be changed to any other name chosen by the Buyer.

How BidSwitch Syncs and User with this Endpoint

When BidSwitch sends a call to the partner matching URL will take the following form:

```
# Example DSP Call
http://www.dsp-example.com/bsw_sync?bidswitch_ssp_id=rubicon
```

```
# Example DSP call with additional param
http://www.dsp-example.com/bsw_sync?bidswitch_ssp_id=rubicon&bsw_custom_
↪parameter=abcd1234
```

How the Buyer should respond to the call

On receiving a call to the above URL, the partner server should respond with a `302` redirect to the BidSwitch matching URL with the following valid values:

- `dsp_id`, `user_id`, and `expires` (optional) parameters as described in the *Buyer Initiated User Matching* (page 119) section

- Provide the Supplier name using the `${SSP}` macro

- Return the BidSwitch user ID in the `${BSW_PARAM}` field, so that BidSwitch can map it to the `user_id`

Table 13.3: URL sync Parameters

Value	Type	Description
dsp_id	*string*	The ID assigned to the Buyer by BidSwitch, for example, `123`
ssp	*string*	The ID assigned to the Buyer by BidSwitch, for example, `123`. This field should contain the `${SSP}` value passed in the initial BidSwitch call
user_id	*string*	The User ID in the Buyers's system, for example `123456`. If the value is an empty string, the user is considered unmatched and no further sync requests are sent for this user, for the duration of the time set with the `expires` parameters. See *Not Syncing Certain Users* (page 121) for more details.
*bsw_param**	*string*	Used to pass the BidSwitch User ID in the event of cookie-less user syncing. This field should contain the `${BSW_PARAM}` value passed in the initial BidSwitch call
*expires**	*integer*	Expiration time in days for user matching, for example `5`. The default value is `90`. See the *Cookie Syncing Best Practices* (page 120) section about how to get the most out of user matching.
*user_group**	*integer*	Sets the user group with which to sync this user. The valid values for user groups are `0 - 5`, with `0` always being considered unmatched users in BidSwitch. See the *User Group Syncing* (page 121) section for more details.

```
# Example DSP Return Call
http://x.bidswitch.net/sync?dsp_id=123&user_id=123&expires=5&ssp=rubicon

# Example DSP Return Call with additional param
http://x.bidswitch.net/sync?dsp_id=123&user_id=123&expires=5&ssp=rubicon&bsw_
↪param=abcd1234
```

Further Information

In addition to HTTP, the matching redirect URL provided by the partner should also support secure HTTPS connections. If BidSwitch initiates a user call using HTTPS protocol, the partner should redirect the user to the BidSwitch matching URL using a secure HTTPS connection.

After BidSwitch initiates user matching, it associates the value of the `user_id` parameter with the user's browser and makes it available in any later bid requests from this user's browser. This will be sent in the `buyeruid` field of the JSON bid request.

Note: The `user_id` should not exceed 36 characters.

13.6 User Syncing FAQ

How do I delete a user group? A user group will be deleted automatically if it doesn't contain any users, or all users are expired.

How do I remove users from a group? You can sync the users in question with a new user group, or you can sync users with the option `user_group=0` to place them in the unsynced user group.

Once set, will our feed include only bid requests from those user groups? No, the user group is only 1 parameter among others such as geo, ssp, publisher, site, domain, etc. See the SmartSwitch Overview[47] section for more information. Each of these parameters is important and the `user_group` is only one amongst the others.

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[47] https://docs.bidswitch.com/support/smart-switching-overview.html#ss-overview

CHAPTER 14 _____

DATA FORMAT

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 BidSwitch and the bidder, as this reduces latency times between servers.

In order to configure the bidder side to receive Compressed JSON bid requests, please contact BidSwitch support at support@bidswitch.com.

Once enabled, BidSwitch starts sending bid requests in Compressed JSON. All such bid requests carry an extra HTTP header `Content-Encoding:  gzip`. It is recommended for the bidder to check for this HTTP header to distinguish between JSON and Compressed JSON bid request formats.

Sending bid responses in Compressed JSON doesn't require special configuration. The bidder is only required to set an extra HTTP header, `Content-Encoding:  gzip`, in the responses where the compression is used.

CHAPTER 15

MACROS

15.1 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 15.1: Win Price Macro Description

Value	Description
${AUCTION_PRICE}	Settlement price for the auction. The substituted value will be defined as CPM. See the *Bid Object* (page 91) section for usage details. This macro can be used, but with restrictions per protocol version. • In version 4.x, the win price macro should be used in `nurl` field, and the click tracking macro may be used in the `adm` field • In version 5.x, the win price can be used in the `adm` or `nurl` field, with restrictions. See the *5.x Updating Overview* (page 20) section for details. • In version 5.2, the win price can also be used in the `burl` field, with certain restrictions. See the *Using the burl Field* (page 20) section for details.

Table 15.2: Valid Use of Win Price Macro Quick Reference

	v4.x	v5.0 & v5.1	v5.2
Browser Notification	`nurl`	`nurl | adm`	`nurl | adm`
s2s or Browser Notification	`nurl`	`nurl | adm`	`(nurl | adm) + burl`
s2s notification only, specified in the Bid Request using `ext.s2s_nurl = 1`	`nurl`	`nurl`	`nurl | burl` **

Note:

- Please see the field descriptions in the *Bid Object* (page 91) section for more precise details about each, and the *5.x Updating Overview* (page 20) and *Using the burl Field* (page 20) sections for more details.

- ** As it is an s2s call only, if the the `burl` field is given, the `nurl` field is ignored. Therefore, you should set the `${AUCTION_PRICE}` macro in the field that will be called. See the *Using the burl Field* (page 26) section for complete details.

15.2 Supplier Click Tracking URL Macro

Some Suppliers require the Buyer to add a Supplier click URL macro to all creatives for click reporting. Buyers wishing to bid on such bid requests should add the click tracking macro to the creative markup in the `adm` field. The Supplier will replace the macro with the Supplier click tracking URL. If the Seller doesn't support click tracking macros, then BidSwitch will replace the tracking macro with an empty string.

Note:

- This is a strict requirement if the bid request contains `ext.clktrkrq` field and is strongly recommended in other cases.

- In the case of video and native inventory, click tracking is handled on the Supplier side and the click macro is not used, as well as the `adm` field.

Table 15.3: Click Tracking Macro

Value	Type
${CLICK_URL:URLENCODE}	A placeholder for the Supplier click tracking URL in urlencoded form. Required for bids to Suppliers that support click tracking. No more than one click tracking macro can be used in the `bid.adm` field.

The Supplier click URL (if present) 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 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
```

CHAPTER 16

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 16.1: Sensitive Categories Fields

Bid Requests	Bid Response
  • `bcat` • `site.cat` • `app.cat` 	`seatbid.bid.cat`

Table 16.2: 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

16.1 Supported Rich Media Frameworks

Table 16.3: 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

CHAPTER 17

CHAPTER 17

SUPPLIER CUSTOM CATEGORIES

17.1 Dish Demographics

Table 17.1: Dish Demographic Targeting Groups

Value	Target Group
A_18_PLUS	Adult Age 18+ (Year Old)
A_18_24	Adult Age 18-24 (Year Old)
A_18_34	Adult Age 18-34 (Year Old)
A_18_44	Adult Age 18-44 (Year Old)
A_18_54	Adult Age 18-54 (Year Old)
A_25_PLUS	Adult Age 25+ (Year Old)
A_25_54	Adult Age 25-54 (Year Old)
A_35_PLUS	Adult Age 35+ (Year Old)
A_45_PLUS	Adult Age 45+ (Year Old)
A_55_PLUS	Adult Age 55+ (Year Old)
KIDS_0_10	Children Age 0-10
KIDS_NONE	Children Age 0-17 Blank
KIDS_11_15	Children Age 11-15
	Continued on next page

Table 17.1 – continued from previous page

Value	Target Group
KIDS_16_17	Children Age 16-17
COLLEGE	Education: Any Level of College (Adv)
GRADSCHOOL	Education: Graduate School (Adv)
HIGHSCHOOL	Education: High School or Less (Adv)
AFRICAN_AM	Ethnic Group: African Am (Code A)
ASIAN	Ethnic Group: Asian (B, C, D, H, I)
CAUCASIAN	Ethnic Group: Caucasian (E, G, K, L, J)
HISPANIC	Ethnic Group: Hispanic (Code Y)
NATIVE_AM	Ethnic Group: Native Am (Code F)
OTHER_ETH	Ethnic Group: Other (Code O or Blank)
F_18_PLUS	Female Age 18+ (Year Old)
F_18_24	Female Age 18-24 (Year Old)
F_18_34	Female Age 18-34 (Year Old)
F_18_44	Female Age 18-44 (Year Old)
F_18_54	Female Age 18-54 (Year Old)
F_25_PLUS	Female Age 25+ (Year Old)
F_25_54	Female Age 25-54 (Year Old)
F_35_PLUS	Female Age 35+ (Year Old)
F_45_PLUS	Female Age 45+ (Year Old)
F_55_PLUS	Female Age 55+ (Year Old)
GEO_STATE	Geographic State Code
HH_OWNER	Home: Owner (Adv 3 or 4)
HH_RENTER	Home: Renter (Adv 1 or 2)
HHI_100150	Income: $100K - $149,999 (Adv Target)
HHI_150_P	Income: $150K or More (Adv Target)
HHI_LESS30	Income: $29,999 or Less (Adv Target)
HHI_30_75	Income: $30K - $74,999 (Adv Target)
HHI_75_100	Income: $75K - $99,999 (Adv Target)
SPANISH_SP	Language: Spanish (Code S8)
M_18_PLUS	Male Age 18+ (Year Old)
M_18_24	Male Age 18-24 (Year Old)
M_18_34	Male Age 18-34 (Year Old)
M_18_44	Male Age 18-44 (Year Old)
M_18_54	Male Age 18-54 (Year Old)
M_25_PLUS	Male Age 25+ (Year Old)
M_25_54	Male Age 25-54 (Year Old)
M_35_PLUS	Male Age 35+ (Year Old)
M_45_PLUS	Male Age 45+ (Year Old)
M_55_PLUS	Male Age 55+ (Year Old)
HH_MARRIED	Marital Status: Married (Adv 1 or 3)
HH_SINGLE	Marital Status: Single (Adv 2 or 4)

17.2 Dish Program Types

Table 17.2: Dish Program Types

Value	Program Type
HOCKEY_DEC	Hockey Propensity Model
BASEBALL_DEC	Baseball Propensity Model
FOOTBALL_DEC	Football Propensity Model
SITCOM_DEC	Sitcom Propensity Model
AA_COMEDY_DEC	African Am Comedy Propensity Model
COMEDY_DEC	Comedy Propensity Model
WKDY_MORNING_DEC	Early AM Propensity Model
FIGHTING_DEC	Fighting Propensity Model
KIDS_DEC	Kids & Family Propensity Model
REAL_WOMEN_DEC	Real Women Propensity Model
COP_DEC	Cop Show Propensity Model
CULT_DEC	Cult Movie Propensity Model
REAL_ADV_DEC	Real Action/Adventure Propensity Model
HORROR_DEC	Horror Propensity Model
REAL_ADV_TR	Real Action/Adventure Traffic Ind
BASKETBALL_DEC	Basketball Propensity Model
REAL_MUSIC_DEC	Real Music Propensity Model
SOCCER_DEC	Soccer Propensity Model
SUN_AM_NEWS_DEC	Sunday AM News Propensity Model
GOLF_TENNIS_DEC	Golf & Tennis Propensity Model
DRAMA_DEC	Drama Propensity Model
PPV_DEC	PPV Propensity Model
ROMCOM_DEC	Romantic Comedy Propensity Model
SCI_FI_DEC	Sci-Fi Propensity Model
ACTION_DEC	Action Propensity Model
WWE_DEC	WWE Propensity Model
NASCAR_DEC	Nascar Propensity Model
INDY_DEC	Indy Propensity Model

17.3 GumGum Taxonomy 2016

Table 17.3: GumGum Custom Taxonomy

Event Identifer	Event Name	Starts At	Ends At	Days Before	Days After	Recur Years
GGE9-2	Rose Bowl	2016-01-01	2016-01-01	14	14	1
GGE9-3	Sugar Bowl	2016-01-01	2016-01-01	14	14	1
						Continued on next page

Table 17.3 – continued from previous page

Event Identifer	Event Name	Starts At	Ends At	Days Before	Days After	Recur Years
GGE1-9	People's Choice Awards	2016-01-06	2016-01-06	14	14	1
GGE5-1	CES	2016-01-06	2016-01-09	14	14	1
GGE1-5	Golden Globes	2016-01-10	2016-01-10	14	14	1
GGE9-1	BCS National Championship	2016-01-11	2016-01-11	14	14	1
GGE1-3	Critics' Choice Awards	2016-01-17	2016-01-17	14	14	1
GGE7-2	Sundance Film Festival	2016-01-21	2016-01-31	14	14	1
GGE21-1	Australian Open	2016-01-24	2016-02-01	30	30	1
GGE22-2	Winter X Games	2016-01-28	2016-01-31	14	14	1
GGE1-11	SAG Awards	2016-01-30	2016-01-30	14	14	1
GGE1-7	NAACP Awards	2016-02-05	2016-02-05	14	14	1
GGE9-4	Super Bowl	2016-02-07	2016-02-07	14	14	1
GGE23-8	Mardi Gras	2016-02-09	2016-02-09	14	14	1
GGE6-2	NY Fashion Week	2016-02-11	2016-02-18	14	14	1
GGE11-1	NBA All-Star Game	2016-02-13	2016-02-13	14	14	1
GGE23-12	Valentine's day	2016-02-14	2016-02-14	14	14	1
GGE3-5	Grammy Awards	2016-02-15	2016-02-15	14	14	1
GGE12-1	NASCAR Daytona 500	2016-02-17	2016-02-22	14	14	1
GGE22-4	X Games Europe	2016-02-24	2016-02-28	14	14	0
GGE1-1	Academy Awards (Oscars)	2016-02-28	2016-02-28	14	14	1
GGE25-4	Spring Break	2016-03-01	2016-04-01	30	30	1
GGE1-8	Nickelodeon Kids' Choice Awards	2016-03-12	2016-03-12	14	14	1
GGE11-6	NCAA March Madness	2016-03-15	2016-03-27	30	30	1
GGE7-3	SXSW	2016-03-15	2016-03-19	14	14	1
GGE23-11	St. Patrick's Day	2016-03-17	2016-03-17	14	14	1
GGE8-14	Ultra Music Festival	2016-03-18	2016-03-20	14	14	1
GGE26-2	Easter	2016-03-27	2016-03-27	14	14	1
GGE25-3	Prom night	2016-04-01	2016-05-01	30	30	1
GGE11-4	NCAA Final Four (Men)	2016-04-02	2016-04-02	14	14	1
GGE11-5	NCAA Final Four (Women)	2016-04-03	2016-04-05	14	14	1
GGE14-4	The Masters	2016-04-04	2016-04-10	14	14	1
GGE16-1	NCAA Frozen Four	2016-04-07	2016-07-09	14	14	1
GGE2-1	BAFTA Video Game Awards	2016-04-07	2016-04-07	14	14	1
GGE1-6	MTV Movie Awards	2016-04-10	2016-04-10	14	14	1
					Continued on next page	

Table 17.3 – continued from previous page

Event Identifer	Event Name	Starts At	Ends At	Days Before	Days After	Recur Years
GGE16-2	Stanley Cup	2016-04-13	TBD July 2016	30	30	1
GGE25-5	Tax Filing	2016-04-15	2016-04-15	14	14	1
GGE8-3	Coachella	2016-04-15	2016-04-24	14	14	1
GGE11-3	NBA Playoffs	2016-04-16	2016-06-01	30	30	1
GGE17-1	Boston Marathon	2016-04-18	2016-04-18	14	14	1
GGE23-4	Earth Day	2016-04-22	2016-04-22	14	14	1
GGE3-2	Billboard Latin Music Awards	2016-04-27	2016-04-27	14	14	1
GGE22-3	X Games Asia	2016-04-28	2016-05-01	14	14	1
GGE8-12	Stagecoach Country Music Festival	2016-04-29	2016-05-01	14	14	1
GGE25-2	Graduation	2016-05-01	2016-05-01	30	30	1
GGE1-4	Daytime Emmy Awards	2016-05-01	2016-05-01	14	14	1
GGE23-2	Cinco de Mayo	2016-05-05	2016-05-05	14	14	1
GGE15-1	Kentucky Derby	2016-05-05	2016-05-08	14	14	1
GGE23-9	Mother's Day	2016-05-08	2016-05-08	14	14	1
GGE14-5	The Players Championship	2016-05-10	2016-05-15	14	14	1
GGE8-11	Sasquatch!	2016-05-20	2016-05-22	14	14	1
GGE20-1	FA Cup	2016-05-21	2016-05-21	30	30	1
GGE3-3	Billboard Music Awards	2016-05-22	2016-05-22	14	14	1
GGE21-2	French Open	2016-05-22	2016-06-05	30	30	1
GGE24-3	Memorial Day	2016-05-30	2016-05-30	14	14	1
GGE11-2	NBA Finals	2016-06-02	2016-06-02	30	30	1
GGE22-1	Summer X Games	2016-06-02	2016-06-05	14	14	1
GGE8-7	Governor's Ball	2016-06-03	2016-06-05	14	14	1
GGE3-4	CMT Music Awards	2016-06-08	2016-06-08	14	14	1
GGE14-2	LPGA Championship	2016-06-09	2016-06-12	14	14	1
GGE8-2	Bonnaroo Festival	2016-06-09	2016-06-12	14	14	1
GGE14-7	US Open	2016-06-16	2016-06-19	14	14	1
GGE8-6	Firefly	2016-06-16	2016-06-19	14	14	1
GGE10-1	College World Series	2016-06-17	2016-06-29	30	30	1
GGE8-4	Electric Daisy Carnival	2016-06-17	2016-06-19	14	14	1
GGE23-5	Father's Day	2016-06-19	2016-06-19	14	14	1
GGE1-2	BET Awards	2016-06-23	2016-06-26	14	14	1
GGE21-3	Wimbledon	2016-06-27	2016-07-10	30	30	1
GGE13-1	Tour de France	2016-07-02	2016-07-05	30	30	1
GGE24-1	Independence Day	2016-07-04	2016-07-04	14	14	1
						Continued on next page

Table 17.3 – continued from previous page

Event Identifer	Event Name	Starts At	Ends At	Days Before	Days After	Recur Years
GGE10-3	MLB All-Star Game	2016-07-12	2016-07-12	14	14	1
GGE4-1	ESPN ESPYS	2016-07-13	2016-07-13	14	14	1
GGE14-1	British Open	2016-07-14	2016-07-17	14	14	1
GGE7-1	Comicon	2016-07-21	2016-07-24	14	14	1
GGE8-13	Tomorrowland	2016-07-22	2016-07-24	14	14	1
GGE14-8	US PGA Championship	2016-07-28	2016-07-31	14	14	1
GGE8-9	Lollapalooza	2016-07-29	2016-07-31	14	14	1
GGE8-8	HARDfest	2016-07-30	2016-07-31	14	14	1
GGE25-1	Back to School	2016-08-01	2016-09-01	30	30	1
GGE18-1	Summer Olypmics	2016-08-05	2016-08-21	30	30	4
GGE8-10	Outside Lands	2016-08-05	2016-08-07	14	14	1
GGE1-12	Teen Choice Awards	2016-08-14	2016-08-14	14	14	1
GGE10-2	Little League World Series	2016-08-18	2016-08-28	14	14	1
GGE3-6	MTV Video Music Awards	2016-08-28	2016-08-28	14	14	1
GGE21-4	US Open	2016-08-29	2016-09-11	30	30	1
GGE8-5	Electric Zoo Festival	2016-09-02	2016-09-04	14	14	1
GGE24-2	Labor Day	2016-09-05	2016-09-05	14	14	1
GGE1-10	Primetime Emmy Awards	2016-09-18	2016-09-18	14	14	1
GGE14-3	PGA Ryder Cup	2016-09-27	2016-10-02	14	14	1
GGE8-1	Austin City Limits Music Festival	2016-09-30	2016-10-11	14	14	1
GGE10-4	MLB World Series	2016-10-27	2016-11-04	30	30	1
GGE23-6	Halloween	2016-10-31	2016-10-31	14	14	1
GGE6-3	Victoria's Secret Fashion Show	2016-11-22	2016-11-22	14	14	1
GGE24-4	Thanksgiving	2016-11-24	2016-11-24	14	14	1
GGE23-1	Black Friday	2016-11-25	2016-11-25	14	14	1
GGE23-3	Cyber Monday	2016-11-28	2016-11-28	14	14	1
GGE26-3	Hanukkah	2016-12-24	2017-01-01	14	14	1
GGE26-1	Christmas	2016-12-25	2016-12-25	14	14	1
GGE23-7	Kwanzaa	2016-12-26	2017-01-01	14	14	1
GGE23-10	New Year's Eve	2016-12-31	2016-12-31	14	14	1
GGE19-1	America's Cup	2017-06-17	2017-06-27	30	30	4
GGE14-6	Presidents Cup	2017-09-26	2017-10-01	14	14	1
GGE18-2	Winter Olympics	2018-02-09	2018-02-25	30	30	4
GGE20-2	World Cup	2018-06-14	2018-07-15	30	30	1

Table 17.3 – continued from previous page

Event Identifer	Event Name	Starts At	Ends At	Days Before	Days After	Recur Years
GGE3-1	American Music Awards	TBD November 2016	TBD November 2016	14	14	1
GGE6-1	LA Fashion Week	TBD October 2016	TBD October 2016	14	14	1

17.4 YieldOne Inventory Category Mapping

Table 17.4: YieldOne Inventory Category Mapping

IAB Category	YieldOne Category	Parent Category	Child Category
IAB 19-35	1	Information search	Keyword search & directory
IAB 19-35	2	Information search	Translation & dictionary
IAB 19-35	3	Information search	Geographic Maps
IAB 19-35	4	Information search	Airlines, Railway & Road
IAB 22-3	5	Information search	Product & Price compare
IAB 12	6	News & Business	General News
IAB 12-1	7	News & Business	International, politics & society
IAB 3	8	News & Business	Business, Economy & Finance
IAB 3	9	News & Business	Investment
IAB 12	10	News & Business	Weather
IAB 12	11	News & Business	Culture & Arts
IAB 12	12	News & Business	IT
IAB 12	13	News & Business	Other news, column
IAB 17-2	14	Sport	Baseball
IAB 17-12	15	Sport	Football
IAB 17-15	16	Sport	Golf
IAB 17-20	17	Sport	Martial Arts
IAB 17	18	Sport	Marine Sports
IAB 17	19	Sport	Winter sports
IAB 17	20	Sport	Other Sports
IAB 21	21	Lifestyle	Real Estate
IAB 10-7	22	Lifestyle	Interior & household goods
IAB 8	23	Lifestyle	Gourmet & Food
IAB 23	24	Lifestyle	Regional and local
IAB 24	25	Lifestyle	Psychological & divination
IAB 18-1	26	Lifestyle	Beauty & Cosmetics
IAB 18-3	27	Lifestyle	Fashion
IAB 14-4	28	Lifestyle	Love & Marriage
IAB 6	29	Lifestyle	Child birth & care
			Continued on next page

Table 17.4 – continued from previous page

IAB Category	YieldOne Category	Parent Category	Child Category
IAB 2	30	Cars & vehicles	Vehicle Information
IAB 2	31	Cars & vehicles	Bike Information
IAB 2	32	Cars & vehicles	Ships and airplanes
IAB 1-6	33	Hobbies & Entertainment	Music
IAB 1-5	34	Hobbies & Entertainment	Film & theater
IAB 9	35	Hobbies & Entertainment	Variety
IAB 9-30	36	Hobbies & Entertainment	Game
IAB 24	37	Hobbies & Entertainment	Gambling
IAB 9-11	38	Hobbies & Entertainment	Anime & Comic
IAB 1-1	39	Hobbies & Entertainment	Magazines
IAB 9-23	40	Hobbies & Entertainment	Cameras & AV equipment
IAB 1-7	41	Hobbies & Entertainment	TV
IAB 16	42	Hobbies & Entertainment	Pet
IAB 9	43	Hobbies & Entertainment	Other Hobbies & Entertainment
IAB 25-3	44	Hobbies & Entertainment	Gravure & Adult
IAB 20	45	Travel, Leisure & Events	Travel & Hotels
IAB 9	46	Travel, Leisure & Events	Leisure, Resort & Outdoor
IAB 9	47	Travel, Leisure & Events	Fishing
IAB 7	48	Health care	Health & medical care
IAB 5	49	Education & Career	School, Education & License
IAB 4	50	Education & Career	job
IAB 5-3	51	Education & Career	Art
IAB 4	52	Education & Career	History, Languages, Literature, Philosophy, Religion
IAB 4	53	Education & Career	Social science
IAB 4	54	Education & Career	Science
IAB 4	55	Education & Career	Engineering technology

Continued on next page

Table 17.4 – continued from previous page

IAB Category	YieldOne Category	Parent Category	Child Category
IAB 22	56	Online shopping	Online shopping
IAB 22	57	Online shopping	Auction
IAB 19	58	Content service	Video
IAB 19	59	Content service	Image & Design
IAB 19	60	Content service	Music & Ring tone
IAB 19	61	Content service	Game
IAB 19	62	Content service	Software
IAB 19-23	63	Community	Mail Services
IAB 19-23	64	Community	ML, Chat & Forum
IAB 19-34	65	Community	Homepage Services
IAB 14-1	66	Community	Dating
IAB 19	67	Community	Targeted & Opt In
IAB 19	68	Community	Present & prizes
IAB 19	69	Community	Questionnaire
IAB 19-23	70	Community	Blog

17.5 YieldOne Product Category Mapping

Table 17.5: YieldOne Product Category Mapping

IAB cat	IAB Description	Category	Product	Product Category
IAB19-22	MP3/MIDI	19	Electric appliances	Audio products
IAB19-22	MP3/MIDI	20	Electric appliances	Digital audio players
IAB19-17	Home Video/DVD	21	Electric appliances	Plasma display TVs/liquid crystal display TVs
IAB19-17	Home Video/DVD	22	Electric appliances	DVD players/recorders
IAB19-5	Cameras & Camcorders	23	Electric appliances	Cameras
IAB19-5	Cameras & Camcorders	24	Electric appliances	Digital cameras
IAB19-5	Cameras & Camcorders	25	Electric appliances	Video cameras
IAB19	Technology & Computing	26	Electric appliances	PCs
IAB3-4	Business Software	27	Electric appliances	PC software
IAB19-9	Computer Peripherals	28	Electric appliances	Printers
IAB19	Technology & Computing	29	Electric appliances	Telephones/facsimiles

Table 17.5 – continued from previous page

IAB cat	IAB Description	Category	Product	Product Category
IAB19-9	Computer Peripherals	30	Electric appliances	PC peripheral equipment
IAB19-9	Computer Peripherals	31	Electric appliances	Scanners
IAB19-28	Portable	32	Electric appliances	Portable software
IAB19	Technology & Computing	33	Electric appliances	Electronic dictionaries
IAB19-9	Computer Peripherals	34	Electric appliances	Batteries
IAB2-2	Auto Repair	35	Transportation equipment/supplies	Automobiles/ motorcycles/ after-purchase servicing
IAB2-15	Mororcycles	36	Transportation equipment/supplies	Motorcycles
IAB17-3	Bicycling	37	Transportation equipment/supplies	Vehicles
IAB2	Automotive	38	Transportation equipment/supplies	Passenger vehicles
IAB20	Travel	39	Transportation equipment/supplies	Car navigation systems
IAB2-21	Trucks & Accessories	40	Transportation equipment/supplies	Automobile supplies
IAB2-21	Trucks & Accessories	41	Transportation equipment/supplies	Motorcycle supplies
IAB19	Technology & Computing	42	Accurate instruments	Semiconductors
IAB19	Technology & Computing	43	Accurate instruments	Medical equipment
IAB19	Technology & Computing	44	Accurate instruments	Industrial parts
IAB10-1	Appliances	45	Commercial equipment/office supplies	Office supplies
IAB10-9	Remodeling & Construction	46	Commercial equipment/office supplies	Office furniture
IAB18-5	Clothing	47	Commercial equipment/office supplies	Office wear/ uniforms/ footwear
IAB19-9	Computer Peripherals	48	Commercial equipment/office supplies	OA supplies/toner
IAB10-1	Appliances	49	Commercial equipment/ office supplies	Business equipment
IAB4-7	Nursing	50	Household equipment/ supplies	Nursing services/nursing care products

Continued on next page

Table 17.5 – continued from previous page

IAB cat	IAB Description	Category	Product	Product Category
IAB10-7	Interior Decorating	51	Household equipment/supplies	Home DIY tools
IAB10-7	Interior Decorating	52	Household equipment/supplies	Furniture/ interior goods
IAB10-1	Appliances	53	Household equipment/ supplies	Household equipment
IAB10-1	Appliances	54	Household equipment/ supplies	HVAC equipment
IAB10-1	Appliances	55	Household equipment/ supplies	Kitchen electric appliances
IAB10-1	Appliances	56	Household equipment/ supplies	Daily electric appliances(vacuum cleaners, washing machines, clothes irons, etc.)
IAB10-9	Remodeling & Construction	57	Household equipment/ supplies	Renovation
IAB16	Pets	58	Hobby/ leisure goods	Pet supplies
IAB1-6	Music	59	Hobby/ leisure goods	Musical instrument
IAB9	Hobbies & Interests	60	Hobby/ leisure goods	Toys
IAB17-32	Saltwater Fishing	61	Hobby/ leisure goods	Fishing supplies
IAB19-17	Home Video/ DVD	62	Hobby/ leisure goods	Visual software(video, DVD, etc.)
IAB1-6	Music	63	Hobby/ leisure goods	Audio software(CD, MD, etc.)
IAB9-30	Video & Computer Games	64	Hobby/ leisure goods	Portable video game units
IAB9-30	Video & Computer Games	65	Hobby/ leisure goods	Household video game units
IAB9-30	Video & Computer Games	66	Hobby/ leisure goods	Video game software
IAB17	Sports	67	Hobby/ leisure goods	Sports equipment
IAB9-32	Video & Computer Games	68	Hobby/ leisure goods	Online games
IAB3	Business	69	Energy/ raw materials	Gasoline
IAB3	Business	70	Energy/ raw materials	Gas
IAB3	Business	71	Energy/ raw materials	Electricity
IAB3	Business	72	Energy/ raw materials	Wind-power generation

Table 17.5 – continued from previous page

IAB cat	IAB Description	Category	Product	Product Category
IAB3	Business	73	Energy/ raw materials	Solar power generation
IAB3	Business	74	Energy/ raw materials	Nuclear power generation
IAB3	Business	75	Energy/ raw materials	Hydraulic power generation
IAB8-12	Health/ Lowfat Cooking	76	Medicine/ hygiene products	Specified health food
IAB8-12	Health/ Lowfat Cooking	77	Medicine/ hygiene products	Health drink(nutritional supplements)
IAB7	Health & Fitness	78	Medicine/ hygiene products	Drugs and medicines
IAB7	Health & Fitness	79	Medicine/ hygiene products	Contact lenses
IAB7	Health & Fitness	80	Cosmetics/ dentifrice/ detergent	Grooming products
IAB18-1	Beauty	81	Cosmetics/ dentifrice/ detergent	Body-care products
IAB7-17	Dental Care	82	Cosmetics/ dentifrice/ detergent	Toothpastes/ toothbrushes
IAB18-1	Beauty	83	Cosmetics/ dentifrice/ detergent	Hair care products
IAB18-1	Beauty	84	Cosmetics/ dentifrice/ detergent	Cosmetics
IAB8-12	Health/ Lowfat Cooking	85	Cosmetics/ dentifrice/ detergent	Healthcare products
IAB8	Food & Drink	86	Food products	Fresh food products
IAB16	Pets	87	Food products	Pet food products
IAB8	Food & Drink	88	Food products	Condiments/ processed food products
IAB8-12	Health/ Lowfat Cooking	89	Food products	Health food products
IAB8-8	Desserts & Baking	90	Beverages/ luxury grocery items	Confectioneries
IAB8	Food & Drink	91	Beverages/ luxury grocery items	Alcoholic beverages(whiskey, beer, refined sake, etc.)
IAB8	Food & Drink	92	Beverages/ luxury grocery items	Cold beverages(juice, coke, etc.)
IAB8-6	Coffee/ Tea	93	Beverages/ luxury grocery items	Sugar-free drinks(tea, mineral water, etc.)
				Continued on next page

Table 17.5 – continued from previous page

IAB cat	IAB Description	Category	Product	Product Category
IAB8-6	Coffee/ Tea	94	Beverages/ luxury grocery items	Coffee beverages
IAB9-9	Cigars	95	Beverages/ luxury grocery items	Cigarettes
IAB10-1	Appliances	96	Textiles/ personal effects	Detergents
IAB10-1	Appliances	97	Textiles/ personal effects	Kitchen equipment
IAB18-5	Clothing	98	Textiles/ personal effects	Personal effects(clothes)
IAB18-6	Accessories	99	Textiles/ personal effects	Personal effects(jewelry, accessories)
IAB10	Home & Garden	100	Textiles/ personal effects	Bedding
IAB10	Home & Garden	101	Textiles/ personal effects	Fragrance/ air fresheners
IAB6-2	Babies & Toddlers	102	Textiles/ personal effects	Baby products
IAB18	Style & Fashion	103	Textiles/ personal effects	Laundry services
IAB9-23	Photography	104	Publications	Photographic development services
IAB12	News	105	Publications	Newspapers
IAB19-13	Desktop Publishing	106	Publications	Printing services
IAB1-1	Books & Literature	107	Publications	Books/ magazines
IAB13	Personal Finance	108	Finance/ insurance/ securities	Banks/ securities
IAB13-2	Credit/ Debt & Loans	109	Finance/ insurance/ securities	Credit cards
IAB13-2	Credit/ Debt & Loans	110	Finance/ insurance/ securities	Consumer finance
IAB13-6	Insurance	111	Finance/ insurance/ securities	Life insurance/ non-life insurance
IAB13-11	Stocks	112	Finance/ insurance/ securities	Online securities
IAB13-8	Mutual Funds	113	Finance/ insurance/ securities	Financial commodities
IAB13-5	Hedge Fund	114	Finance/ insurance/ securities	Investment products(except finance)
IAB13	Personal Finance	115	Finance/ insurance/ securities	Online banks
IAB13	Personal Finance	116	Finance/ insurance/ securities	Electronic money

Table 17.5 – continued from previous page

IAB cat	IAB Description	Category	Product	Product Category
IAB22	Shopping	117	Department stores/ shops/ commercial firms	Convenience stores
IAB22	Shopping	118	Department stores/ shops/ commercial firms	Guides for electronics retail stores
IAB22	Shopping	119	Department stores/ shops/ commercial firms	Guides for department stores
IAB22	Shopping	120	Department stores/ shops/ commercial firms	Guides for supermarkets
IAB21	Real Estate	121	Real estate/ construction	Real estate for residential housing, condominiums, etc.
IAB20	Travel	122	Transportation/ sightseeing/ amusement	Domestic travel information
IAB20	Travel	123	Transportation/ sightseeing/ amusement	Overseas travel information
IAB20-3	Air Travel	124	Transportation/ sightseeing/ amusement	Air ticket information
IAB20-25	Theme Parks	125	Transportation/ sightseeing/ amusement	Leisure facility(amusement parks, etc.)
IAB1-5	Movies	126	Transportation/ sightseeing/ amusement	Guides for movies, dramas, etc.
IAB1	Arts & Entertainment	127	Transportation/ sightseeing/ amusement	Events information(concerts, etc.)
IAB20	Travel	128	Transportation/ sightseeing/ amusement	Rental cars
IAB20	Travel	129	Transportation/ sightseeing/ amusement	Transportation services
IAB3-10	Logistics	130	Transportation/ sightseeing/ amusement	Delivery services

Table 17.5 – continued from previous page

IAB cat	IAB Description	Category	Product	Product Category
IAB3-10	Logistics	131	Transportation/ sightseeing/ amusement	Moving services
IAB8	Food & Drink	132	Transportation/ sightseeing/ amusement	Food services
IAB17	Sports	133	Transportation/ sightseeing/ amusement	Sports events information
IAB20-18	Hotels	134	Transportation/ sightseeing/ amusement	Hotels/ accommodations
IAB17-15	Golf	135	Transportation/ sightseeing/ amusement	Golf memberships
IAB7-1	Exercise	136	Transportation/ sightseeing/ amusement	Sports gyms
IAB13-2	Credit/ Debt & Loans	137	Transportation/ sightseeing/ amusement	Car leasing
IAB11	Law, Gov't & Politics	138	Government office/ municipality/ religious organizations	Political bodies
IAB11	Law, Gov't & Politics	139	Government office/ municipality/ religious organizations	Economic groups
IAB11	Law, Gov't & Politics	140	Government office/ municipality/ religious organizations	Independent Administrative Institutions
IAB11	Law, Gov't & Politics	141	Government office/ municipality/ religious organizations	Nonprofit organizations
IAB11	Law, Gov't & Politics	142	Government office/ municipality/ religious organizations	Public office
IAB5	Education	143	Educational services/ universities, etc.	Seminars/ lectures
IAB5	Education	144	Educational services/ universities, etc.	Learning materials

Continued on next page

Table 17.5 – continued from previous page

IAB cat	IAB Description	Category	Product	Product Category
IAB5-6	Distance Learning	145	Educational services/ universities, etc.	Overseas educational programs/ working holiday programs
IAB5-1	7-12 Education	146	Educational services/ universities, etc.	Elementary schools/ junior high schools
IAB5	Education	147	Educational services/ universities, etc.	High schools
IAB5-5	College Life	148	Educational services/ universities, etc.	Universities
IAB5	Education	149	Educational services/ universities, etc.	Private tutoring schools
IAB5	Education	150	Educational services/ universities, etc.	Correspondence education
IAB5	Education	151	Educational services/ universities, etc.	Career colleges/ vocational schools
IAB5	Education	152	Educational services/ universities, etc.	Qualifying examinations
IAB19-6	Cell Phones	153	Telecom/ telecommunications	Personal Handyphone System
IAB1-7	Television	154	Telecom/ telecommunications	Show public relations
IAB19-6	Cell Phones	155	Telecom/ telecommunications	Mobile phones(except PHS)
IAB19-6	Cell Phones	156	Telecom/ telecommunications	Communication services(telephones)
IAB19-18	Internet Technology	157	Telecom/ telecommunications	Communication services(internet)
IAB19	Technology & Computing	158	Information handling services/ software companies	Application software
IAB19	Technology & Computing	159	Information handling services/ software companies	Information handling services
IAB19	Technology & Computing	160	Information handling services/ software companies	Server related

Continued on next page

Table 17.5 – continued from previous page

IAB cat	IAB Description	Category	Product	Product Category
IAB19	Technology & Computing	161	Information handling services/ software companies	Storage related
IAB19-8	Computer Networking	162	Information handling services/ software companies	Networking equipment
IAB4	Careers	163	Temporary-employment agencies/ recruitment companies	Job/ job-transfer/ part-time job information
IAB4	Careers	164	Temporary-employment agencies/ recruitment companies	Temporary-employment agencies/ recruitment companies
IAB19-18	Internet Technology	165	Information websites/ e-mail services	Introduction of web services
IAB11-2	Legal Issues	166	Other business services	Legal services(law firms, etc.)
IAB13-12	Tax Planning	167	Other business services	Accounting services(certified public accountants, etc.)
IAB24	Uncategorized	168	Other business services	Funeral services
IAB19	Technology & Computing	169	Other business services	Telegrams
IAB3-10	Logistics	170	Other business services	Postal services
IAB7	Health & Fitness	171	Hospitals/ esthetic clinics/ hair salons	Health services
IAB18-1	Beauty	172	Hospitals/ esthetic clinics/ hair salons	Beauty services
IAB7	Health & Fitness	173	Hospitals/ esthetic clinics/ hair salons	Hospitals
IAB18-1	Beauty	174	Hospitals/ esthetic clinics/ hair salons	Hair salons/ barbers
IAB18-1	Beauty	175	Hospitals/ esthetic clinics/ hair salons	Esthetic salons
IAB22	Shopping	176	Catalog companies	Mail-order services
IAB14-4	Marriage	177	Marriage information companies	Marriage information services
IAB14-4	Marriage	178	Marriage information companies	Wedding services
IAB9-23	Photography	179	Others	Photography services

Table 17.5 – continued from previous page

IAB cat	IAB Description	Category	Product	Product Category
IAB2-3	Buying/ Selling Cars	180	Others	Secondhand dealers/ appraisal services(vehicles, motorcycles)
IAB9	Hobbies & Interests	181	Others	Secondhand dealers/ appraisal services(CD, DVD, books, games.)
IAB10-1	Appliances	182	Others	Secondhand dealers/ appraisal services(PCs, home electrical appliances)
IAB10-5	Home Repair	183	Others	House cleaning
IAB25	Non-Standard Content	184	Others	Bicycle racing
IAB25	Non-Standard Content	185	Others	Motorcycle racing
IAB22	Shopping	186	Others	Gift cards
IAB3-1	Advertising	187	Others	Enterprises public relations
IAB24	Uncategorized	188	Others	Charities
IAB10-3	Environmental Safety	189	Others	Ecology
IAB1-7	Television	190	Others	Pay broadcasting
IAB9	Hobbies & Interests	191	Others	Fortune-telling services
IAB25	Non-Standard Content	192	Others	Japanese pinball
IAB25	Non-Standard Content	193	Others	Horse racing
IAB25	Non-Standard Content	194	Others	Motorboat racing
IAB3-1	Advertising	195	Others	Prize advertisements
IAB9	Hobbies & Interests	196	Others	Lotteries
IAB19-25	Network Security	197	Others	Security services
IAB24	Uncategorized	198	Others	Secondhand dealers/ appraisal services(others)
IAB12-3	Local News	199	Others	Recall
IAB2	Automotive	200	Civil engineering/ construction equipment	Shovel dozers
IAB24	Uncategorized	1001	DoubleClickBid Manager	DoubleClickBid Manager

Continued on next page

Table 17.5 – continued from previous page

IAB cat	IAB Description	Category	Product	Product Category
IAB24	Uncategorized	1002	CRITEO	CRITEO
IAB24	Uncategorized	1003	BrandScreen	BrandScreen
IAB24	Uncategorized	1004	Turn	Turn

17.6 MicroAd 3PAS List

As used with the `bid.ext.asid` field for MicroAd Premium inventory. MicroAd maintain their Third-Party Ad Server (3PAS) list on Github, the below information is a copy of this, you can see their list here: https://github.com/MicroAd-Products/COMPASS_SPEC/wiki

Table 17.6: 3PAS list

Value	Description	Desc
1	Sizmek/Sizmek	Sizmek/Sizmek
2	Yahoo/Yahoo Ad Exchange	Yahoo/Yahoo Ad Exchange
3	Fringe81/iogous	Fringe81/iogous
4	Google/DFA	Google/DFA
5	Google/DFP	Google/DFP
6	AppNexus/AppNexus	AppNexus/AppNexus
7	Scigineer/Deqwas	Scigineer/Deqwas
8	•	•
9	Conversant/Mediaplex	Conversant/Mediaplex
10	Atlas Solutions/Atlas	Atlas Solutions/Atlas
11	•	•
12	DAC/i-Effect	DAC/i-Effect
13	Rakuten/Rakuten	Rakuten/Rakuten
14	TAGGY/TAGGY	TAGGY/TAGGY
15	Fringe81/digitalice	Fringe81/digitalice
16	Silver Egg Technology/silveregg	Silver Egg Technology/silveregg
17	•	•
18	•	•
19	•	•

Continued on next page

Table 17.6 – continued from previous page

Value	Description	Desc
20	•	•
21	LOCKON/ViewThruEBiS	LOCKON/ViewThruEBiS
22	•	•
23	•	•
24	Media Forum/MediaFORGE	Media Forum/MediaFORGE
25	•	•
26	AdElement Media Solutions/AdElement	AdElement Media Solutions/AdElement
27	Full Speed/AdMatrix	Full Speed/AdMatrix
28	GoldSpot Media/GoldSpot	GoldSpot Media/GoldSpot
29	Ozone Media Solutions/OzoneMedia	Ozone Media Solutions/OzoneMedia
30	•	•
31	RichMediaAds/RichMediaAds	RichMediaAds/RichMediaAds
32	HDT	HDT
33	AdExtent/AdExtent	AdExtent/AdExtent
34	HTD China	HTD China
35	Mobile 360/ Rich Media Ads	Mobile 360/ Rich Media Ads
36	Housing.com	Housing.com
37	Hitokuse/Smart Canvas	Hitokuse/Smart Canvas
38	Zedo Ad Server	Zedo Ad Server
39	unis	unis
41	Loka Platform	Loka Platform
42	Momentum/BlackSwan	Momentum/BlackSwan
43	iForex	iForex
44	DCM/Adsever	DCM/Adsever
45	AdWays/Blue Bee Box	AdWays/Blue Bee Box
46	Kaizen Platform	Kaizen Platform
47	guile	guile
48	kuaizi	kuaizi
49	Swiffy	Swiffy
76	Hitokuse/Chameleon	Hitokuse/Chameleon
81	mars media group	mars media group
82	Hitokuse/360banner	Hitokuse/360banner
90	BLADE Indonesia Adserver	BLADE Indonesia Adserver

Table 17.6 – continued from previous page

Value	Description	Desc
91	Integral Ad Science	Integral Ad Science