
BID SWITCH

ENGINEERED BY
IPONWEB

BidSwitch Protocol

Release 5.0

Oct 24, 2016

1	Compatibility and Deprecation	2
1.1	Deprecation	2
1.2	Deprecation Timeframe	2
1.3	Backward Compatibility	3
2	Protocol Release Notes	4
2.1	V5.0 - July 2016	4
2.2	V4.3 - May 2016	4
2.2.1	Protocol Changes	5
2.3	V4.2 - March 2016	5
2.4	V4.1 - September 2015	7
2.5	V4.0 - May 2015	7
2.6	V2.6 - February 2015	9
2.7	V2.5 - December 2014	9
2.8	V2.4 - October 2014	10
2.9	V2.3 - September 2014	11
2.10	V2.2 - June 2014	12
2.11	V2.1 - April 2014	12
2.12	V2.0 - February 2014	13
3	Protocol Version Differences	14
3.1	nurl Response Difference	14
3.2	Deprecated 2.x Properties	15
3.3	Valid Response Formats	16
4	5.x Updating Overview	18
4.1	URL Formatting	18
4.2	Server to Server Restriction	19
4.3	Upgrading from 4.x	19
4.4	Upgrading from 2.x	19
5	Bid Request	22
5.1	Impression Object	24

5.1.1	Example Impression Object JSON	26
5.1.2	Impression Ext	27
5.1.3	Impression Ext Google Object	27
5.1.4	Impression Ext Yieldone Object	28
5.2	Banner Object	28
5.2.1	Banner Ext Object	30
5.2.2	Banner JSON Example	30
5.3	Format Object	30
5.4	Video Object	31
5.4.1	Video Ext Object	33
5.4.2	Video Object Example	33
5.5	Audio Object	35
5.5.1	Audio Object Example	37
5.6	Native Object	38
5.6.1	Native Object Example	39
5.7	Native Request Object	39
5.7.1	Native Asset Object	40
5.7.2	Native Asset Title Object	40
5.7.3	Native Asset Image Object	41
5.7.4	Native Asset Video Object	41
5.7.5	Native Asset Data Object	42
5.8	Device Object Properties	42
5.9	Geo Object Properties	44
5.9.1	Geo Object Example	45
5.10	User Object	45
5.10.1	User Ext Object Properties	46
5.10.2	User Object Example	46
5.11	Site Object	46
5.11.1	Site Object Example	47
5.12	App Object	48
5.13	TV Object	48
5.14	Private Marketplace Object	49
5.14.1	Private Marketplace Object Example	49
5.15	Deal Object	49
5.15.1	Deal Object Example	50
5.16	Publisher Object	51
5.16.1	Publisher Object Example	51
5.17	Ext Object	51
5.17.1	Google Object	52
5.17.2	Detected_vertical Object	52
5.17.3	Adtruth Object	53
5.17.4	Gumgum Object	53
5.18	Regulation Object	53
5.19	Data Object	53
5.19.1	Segment Object	54
5.20	Bid Request JSON Examples	54
5.20.1	Banner Ad Example	55
5.20.2	In App Example	57

5.20.3	Native Ad	59
5.20.4	Private Deal Example	62
5.20.5	Video Example	64
5.20.6	Audio Ad Example	66
5.20.7	TV Ad Example	68
6	Bid Response	71
6.1	Bid Response Ext Object	71
6.2	Seat Bid Object	72
6.3	Bid Object	73
6.3.1	Bid Ext Object	75
6.3.2	Required Bid Response Fields Per Supplier	77
6.4	Native Response Object	77
6.4.1	Native Ext Object	78
6.4.2	Native Assets Object	78
6.4.3	Native Assets Title Object	79
6.4.4	Native Assets Image Object	79
6.4.5	Native Asset Video Object	79
6.4.6	Native Asset Data Object	80
6.4.7	Native Link Object	80
6.5	Supplier Specific Fields	80
6.6	Bid Response JSON Examples	81
6.6.1	Banner Bid Response	81
6.6.2	Secure Banner Bid Response	82
6.6.3	Video Bid Response	83
6.6.4	Secure Video Bid Response	83
6.6.5	Secure Audio Bid Response	84
6.6.6	Native Bid Response	85
6.6.7	Secure Native Bid Response	86
6.6.8	Multi-bid Response	87
6.6.9	Private Deal Bid Request Response	89
6.6.10	Buyer No Bid Response	89
6.6.11	BidSwitch No Bid Reason	90
7	BidSwitch Data Centres	91
8	Buyer Best Practices	92
9	Buyer User Matching	93
9.1	Buyer Initiated User Matching	93
9.2	Cookie Syncing Best Practices	94
9.3	User Group Syncing	94
9.4	Not Syncing Certain Users	95
9.5	BidSwitch Initiated User Matching	95
9.6	User Group In App Syncing	96
10	Data Format	98
11	Macros	99

11.1	Win price macro	99
11.2	SSP Click Tracking URL Macro	99
11.3	Click Tracker at Google Adx	100
12	Sensitive Categories and Rich Media	101
12.1	Supported Rich Media Frameworks	102
13	Supplier Custom Categories	103
13.1	Dish Demographics	103
13.2	Dish Program Types	105
13.3	GumGum Taxonomy 2016	105
13.4	YieldOne Inventory Category Mapping	109
13.5	YieldOne Product Category Mapping	111

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

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

BidSwitch acts as an intermediary between buyers and suppliers by developing a custom supplier protocol based on the OpenRTB 2.x standards. This lets all parties integrated with the BidSwitch platform conduct business with each other through a single point of integration. The BidSwitch Protocol defines the protocol for interaction between DSPs and BidSwitch.

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 RTB Protocol* (page ??) documentation, use this section and the *Protocol Version Differences* (page 14) 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.

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 2.1¹ | BidSwitch 2.2² | BidSwitch 2.3³
BidSwitch 2.4⁴ | BidSwitch 2.5⁵ | BidSwitch 2.6⁶
- BidSwitch 4.0⁷ | BidSwitch 4.1⁸ | BidSwitch 4.2⁹ | BidSwitch 4.3¹⁰
- BidSwitch 5.0¹¹ | BidSwitch 5.1¹²

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

- [5.0](#) (page 4)
- [4.3](#) (page 4) | [4.2](#) (page 5) | [4.1](#) (page 7) | [4.0](#) (page 7)
- [2.6](#) (page 9) | [2.5](#) (page 9) | [2.4](#) (page 10) | [2.3](#) (page 11) | [2.3](#) (page 12) | [2.1](#) (page 12) | [2.0](#) (page 13)

2.1 V5.0 - July 2016

Added

- Added the *5.x Updating Overview* (page 18) section
- Added the `seatbid.bid.ext.daast_url` bid response field.
- Added the audio bid response example.

Updated

- 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 73) section.
- Updated the *Macros* (page 99) section with added win price macro usage options.
- Updated the *nurl Response Difference* (page 14) section with information about how to use the `nurl` and `adm` fields correctly.

2.2 V4.3 - May 2016

Added the *Compatibility and Deprecation* (page 2) and *Protocol Version Differences* (page 14) sections to help users keep their BidSwitch integration up to date.

2.2.1 Protocol Changes

Added

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 *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 7).
- Removed the *ext.creative_params* and *data* bid request fields.

2.3 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 98) 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 9).

2.4 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 *SSP Click Tracking URL Macro* (page 99) section.
- Updated the *Bid Request JSON Examples* (page 54) section, added new example requests and responses.

Removed

Removed fields and objects deprecated in *V2.5 - December 2014* (page 9).

2.5 V4.0 - May 2015

Added

- Added the *Supported Rich Media Frameworks* (page 102) section.

- Added native inventory support.
- 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*
- Added the *Data Object* (page 53) and *Segment Object* (page 54).

Updated

- Updated the *imp.banner.btype* bid request field description.
- Updated the *seatbid.bid.nurl* bid response field description.
- Updated the *Macros* (page 99) 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 10).
- 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 section for more details about how this affects the different major versions, *Protocol Version Differences* (page 14):
 - *seatbid.bid.ext.js_url*
 - *seatbid.bid.ext.img_url*
 - *seatbid.bid.ext.click_url*

2.6 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 24) section for more details.

General

- Removed creative preview section.
- Removed fields and objects deprecated in *V2.3 - September 2014* (page 11).
- Updated request and response samples.

2.7 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 12).
- Deprecated the *seatbid.bid.ext.deal* bid response field.

2.8 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.ext.inventory_class*
- *imp.displaymanagerapp*
- *imp.displaymanagerver*
- *imp.ext.yieldone.allowed_creative_types*
- *imp.video.pos* and *imp.instl*

Added the following bid response field:

- *seatbid.bid.ext.yieldone.creative_type*

Updated

Changed the `imp.pmp.deals.at` values to comply with OpenRTB 2.2¹³.

Removed

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

2.9 V2.3 - September 2014

Added

- Added *Video Object Example* (page 33).
- 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*

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 93) 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.

¹³ http://www.iab.com/wp-content/uploads/2015/06/OpenRTBAPISpecificationVersion2_2.pdf

Removed

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

2.10 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*

2.11 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.

2.12 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.

Note:

- This section covers the difference between 2.x and 4.x. For 5.x information see the *5.x Updating Overview* (page 18) 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 14) 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 71) section for more details.
- In 4.x the `adm` field is required for display ads, see the *Bid Object* (page 73) 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 15) 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 73) section.

Table 3.1: nurl Version Differences

Version	Properties
2.x	<p>The win notice URL.</p> <ul style="list-style-type: none"> • 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 <i>Macros</i> (page 99) section. • For application banner inventory this field will be IGNORED, use <code>ext.js_url</code> instead.
4.x	<p>The win notice URL.</p> <ul style="list-style-type: none"> • This field should not be used for submitting creative markup. • The URL should contain the win price macro, see the <i>Macros</i> (page 99) section. • As this URL is called from the user's browser, it should be SSL-compliant for requests with <code>imp.secure</code> set to 1. • This URL will be called by a server to server call if the bid request has the <code>ext.s2s_nurl</code> field value set to 1.
5.x	<p>The win notice URL.</p> <ul style="list-style-type: none"> • Similar to 4.x, except that the win price macro can only be used in one field per bid response. Either the <code>adm</code> or <code>nurl</code> field. See the <i>5.x Updating Overview</i> (page 18) or <i>Bid Object</i> (page 73) 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 75) section for the latest protocol standards.

Table 3.2: Bid Ext 2.X Objects

Field	Value	Description
<i>img_url*</i>	<i>string</i>	The URL of the creative image. In order to receive the user cookie and win price, this url should point to the DSP handler and redirect to the actual creative location. The url may contain the win price macro, e.g. <code>\${AUCTION_PRICE}</code> , but not the click macro. If this field is present, the <code>nurl</code> field of the bid response will be ignored.
<i>click_url*</i>	<i>string</i>	The creative click URL. Required if the <code>img_url</code> field is present.
<i>js_url*</i>	<i>string</i>	A Javascript-based win notice URL. <ul style="list-style-type: none"> • 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 <code>nurl</code> field. • Ad markup should be in JavaScript format. • The URL may contain macros, see the <i>Macros</i> (page 99) section for more details.

3.3 Valid Response Formats

For valid 4.x response examples, see the *Buyer No Bid Response* (page 89) section. If you wish to check for valid 2.x response formats see the 2.x guides, for example 2.6¹⁴ or 2.5¹⁵.

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",
          "price": 9.43,

```

¹⁴ https://my.bidswitch.net/bidswitch_assets/api_spec/BidSwitch_specs_2.6.pdf

¹⁵ https://my.bidswitch.net/bidswitch_assets/api_spec/BidSwitch_specs_2.5.pdf

```
        "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"
}
]
```

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 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.

4.1 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 ``). 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 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.

4.3 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 “5.1”

```
{
  "id": "1234567890",
  "ext": {
    "protocol": "5.1"
  },
}
```

- If you are currently using the 4.x protocol, then no other changes are required.
- You still have the option of using the `nurl` field to send the impression clearing price as supported in 4.x versions.

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.
-

4.4 Upgrading from 2.x

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

1. Set the bid response `ext.protocol` field to “5.1”
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. Use the following examples as a guide to carrying out these changes

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


```

{
  "seatbid": {
    "bid": {
-     "nurl": "http://dsp.com/imp?bc=12345aaabbb&price=${AUCTION_PRICE}"
+     "adm": "<iframe src=\"http://dsp.com/imp?bc=12345aaabbb&price=${AUCTION_PRICE}\"
→"></iframe>"
    }
  },
  "ext": {
-   "protocol": "2.6"
+   "protocol": "5.1"
  }
}

```

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": "5.1"
  }
}

```

Example 3: Replacing the `ext.img_url` field with `adm` and wrapping the impression link with the `` 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": "5.1"
  }
}

```

```
}  
}
```

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.
 - Click tracking is also different from v2.x to v5.x, to learn more about it see the *SSP Click Tracking URL Macro* (page 99) section.
-

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

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

Table 5.1: Bid Request Object Properties

Value	Type	Description
<i>id</i>	<i>string</i>	Unique ID of the bid request, provided by BidSwitch, for example, "b5ba5ed2-547e-4e86-8a84-34a440dad6db"
<i>imp</i>	<i>array of objects</i>	Array of objects representing the impressions offered, for more information, see the <i>Impression Object</i> (page 24) section.
<i>device</i>	<i>object</i>	Device object with details about the device to which the impression will be delivered, for more information, see the <i>Device Object Properties</i> (page 42) section.
<i>user</i>	<i>object</i>	User Object which describes the user, for more information, see the <i>User Object</i> (page 45) section.
<i>tmax</i>	<i>integer</i>	Maximum amount of time in milliseconds to submit a bid before the auction is complete, for example, 120.
<i>cur</i>	<i>array of strings</i>	Array of allowed currencies for bids on this bid request using ISO-4217 ¹⁶ alpha codes, for example, ["USD", "EUR"]
<i>ext</i>	<i>object</i>	Ext Object used for SSP specific properties, for more information, see the <i>Ext Object</i> (page 51) section.
<i>at*</i>	<i>integer</i>	Auction type, the default value is 2. <ul style="list-style-type: none"> • 1: the first price auction. • 2: the second price auction.
<i>site*</i>	<i>object</i>	Site Object describing the site. Either site, app or ext.tv object should be present. For more information, see the <i>Site Object</i> (page 46) section.
<i>app*</i>	<i>object</i>	App Object describing the mobile application. Either site, app or ext.tv object should be present, for more information, see the <i>App Object</i> (page 48) section.
<i>bcat*</i>	<i>array of strings</i>	Blocked Advertiser Categories, using the IAB taxonomy, and extended with additional sensitive categories listed in the <i>Sensitive Categories and Rich Media</i> (page 101) section. Creatives belonging to at least one of the listed categories are not permitted for bidding in the current bid request, for example ["IAB10-1", "IAB25", "BSW3"]
<i>badv*</i>	<i>array of strings</i>	Array of strings of blocked top-level domains of advertisers, for example, ["mysite.com", "mysite2.com"]

¹⁶ http://www.iso.org/iso/home/standards/currency_codes.htm

Table 5.2: Bid Request Object Properties

Value	Type	Description
<i>wseat*</i>	<i>array of strings</i>	<p>Array of buyer seats allowed to bid on this auction, for example [58,61,99]. If present, the allowed seat IDs may be supplied in BidSwitch or SSP taxonomy.</p> <p>A bid request may contain multiple seat IDs in SSP taxonomy. The bid response should contain the appropriate seat value corresponding to one of values of the wseat field, for more details see the <i>Bid Object</i> (page 73) section.</p>
<i>allimps*</i>	<i>integer</i>	<p>Flag to indicate if the SSP 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.</p> <ul style="list-style-type: none"> • 0 = no or unknown • 1 = yes, the impressions offered represent all that are available.
<i>regs*</i>	<i>object</i>	<p>A regulations object that specifies any industry, legal, or governmental regulations in force for this request, for more information, see the <i>Regulation Object</i> (page 53) section.</p>

5.1 Impression Object

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

Table 5.3: Impression Object Properties

Value	Type	Description
<i>id</i>	<i>string</i>	ID of the impression being shown unique within the bid request, for example "1"
<i>banner</i> *	<i>object</i>	Banner Object describing the ad properties. Required for banner impressions. For more information, see the <i>Banner Object</i> (page 28) section.
<i>video</i> *	<i>object</i>	Video Object describing the ad properties. Required for video impressions. For more information, see the <i>Video Object</i> (page 31) section.
<i>audio</i> *	<i>object</i>	Audio Object describing the ad properties. Required for audio impressions. For more information, see the <i>Audio Object</i> (page 35) section.
<i>native</i> *	<i>object</i>	Native Object describing the ad properties. Required for native impressions. For more information, see the <i>Native Object</i> (page 38) section.
<i>bidfloor</i> *	<i>float</i>	Bid floor in CPM as set by the SSP, for example, 0.01080
<i>bidfloorcur</i> *	<i>string</i>	Bid floor currency specified using ISO-4217 alpha codes, for example, "USD".
<i>instl</i> *	<i>integer</i>	Specifies if the ad is an interstitial. <ul style="list-style-type: none"> • 0 = not interstitial, the default value. • 1 = the ad is interstitial or full screen
<i>tagid</i> *	<i>string</i>	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 SSP sends a bid request for a placement ID "43256", the value becomes "rubicon_43256"
<i>secure</i> *	<i>integer</i>	Specifies if the page is SSL compliant: <ul style="list-style-type: none"> • 0 for insecure pages, the default value. • 1 for secure pages. Creative assets for secure pages should be SSL-compliant.

Table 5.4: Impression Object Properties

Value	Type	Description
<i>iframebuster*</i>	<i>array of strings</i>	Array of names of supported iframe busters, for example, ["dc", "rb"], for more information, see the <i>Supported Rich Media Frameworks</i> (page 102) section.
<i>pmp</i>	<i>object</i>	Private Marketplace object, for more information, see the <i>Private Marketplace Object</i> (page 49) section.
<i>displaymanager*</i>	<i>string</i>	Name of the ad mediation partner, SDK technology, or native player responsible for rendering the ad (typically video or mobile), for example, "SOMA"
<i>displaymanagerver*</i>	<i>string</i>	Version of the ad mediation partner, SDK technology, or native player responsible for rendering the ad (typically video or mobile), for example, "1.1"
<i>exp*</i>	<i>integer</i>	Impression expiry timeout, in seconds, for example, "300". An impression will be considered expired if it is registered later than <code>imp.exp</code> seconds after the auction.
<i>ext*</i>	<i>object</i>	See the <i>Impression Ext</i> (page 27) section.

5.1.1 Example Impression Object JSON

```
{
  "imp": [
    {
      "id": "1",
      "bidfloor": 0.426,
      "banner": {
        "w": 300,
        "h": 250,
        "pos": 1,
        "topframe": 0,
        "expdir": [
          1,
          3
        ]
      }
    }
  ]
}
```

5.1.2 Impression Ext

Table 5.5: Impression Extension Properties

Value	Type	Description
<i>rubicon</i>	<i>object</i>	Rubicon extension.
<i>google</i>	<i>object</i>	See <i>Impression Ext Google Object</i> (page 27)
<i>yieldone*</i>	<i>object</i>	See <i>Impression Ext Yieldone Object</i> (page 28)
<i>inventory_class*</i>	<i>integer</i>	Inventory class according to the SSP classification. The SSP classification is maintained by each DSP and is not a BidSwitch list, for example 1
<i>viewability*</i>	<i>integer</i>	This is an estimate of the likelihood that this slot will be viewable by the end user. Estimation is based on SSP-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

5.1.3 Impression Ext Google Object

Table 5.6: Google Impression Extension Properties

Value	Type	Description
<i>excluded_attribute*</i>	<i>array of integers</i>	List of excluded creative attributes as defined by Google, for example, [70,28,30,32,22]
<i>allowed_vendor_type*</i>	<i>array of integers</i>	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:

5.1.4 Impression Ext Yeldone Object

Table 5.7: Yeldone Impression Extension Properties

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

5.2 Banner Object

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

Table 5.8: Banner Object Properties

Value	Type	Description
<i>id</i>	<i>string</i>	Unique identifier for the banner object, for example, 3. Can be used to tracking multiple banner objects in a companion banner array.
<i>w</i>	integer	Width of the impression in pixels, for example, 300
<i>h</i>	<i>integer</i>	Height of the impression in pixels, for example 250
<i>battr*</i>	<i>array of integers</i>	Blocked creative attributes as defined in the OpenRTB protocol, for example, [1,23]
<i>btype</i>	<i>array of integers</i>	Blocked banner ad types as defined in the OpenRTB protocol, for example, [4,21]
<i>pos*</i>	<i>integer</i>	Ad Position as defined in the OpenRTB protocol, for example, 1
<i>topframe*</i>	<i>integer</i>	Indicates if the banner is in the top frame as opposed to an iframe. <ul style="list-style-type: none"> • 0 = no • 1 = yes.
<i>mimes*</i>	<i>array of strings</i>	Content MIME types supported, Possible values include "text/html" and "application/x-shockwave-flash", for example: ["application/x-shockwave-flash", "image/jpg"]
<i>expdir*</i>	<i>array of integers</i>	Possible expansion directions for an expandable ad, for example, [2,5]. This can take the following values: <ul style="list-style-type: none"> • 1: Left • 2: Right • 3: Up • 4: Down • 5: Full screen If the field is not present, expandable creatives are not allowed.
<i>format</i>	<i>array or objects</i>	An array of format objects, see <i>Format Object</i> (page 30), denoting the alternative sizes that may be used for bidding. If one of the alternative ad sizes is used in the bid response, then the <code>seatbid.bid.h</code> and <code>seatbid.bid.w</code> fields are required in the bid response.
<i>api*</i>	<i>array of integers</i>	List of supported API frameworks for this impression as defined in the OpenRTB, for example [3,5]
<i>ext*</i>	<i>object</i>	See the <i>Banner Ext Object</i> (page 30) section.

For an example banner ext object, see the *Banner Ad Example* (page 55) section.

5.2.1 Banner Ext Object

Table 5.9: Banner Ext Object Properties

Value	Type	Description
<i>extra_sizes</i>	<i>array or objects</i>	An array of format objects, see <i>Format Object</i> (page 30), denoting the alternative sizes that may be used for bidding. If one of the alternative ad sizes is used in the bid response, then the <code>seatbid.bid.h</code> and <code>seatbid.bid.w</code> fields are required in the bid response. Deprecated since version 4.3: use <code>imp.banner.format</code> instead.

5.2.2 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
      }
    ]
  }
}
```

5.3 Format Object

Table 5.10: Format Object Properties

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

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

5.4 Video Object

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

Table 5.11: Video Object Properties

Value	Type	Description
<i>mimes</i>	<i>array of strings</i>	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"]
<i>minduration</i>	<i>integer</i>	Minimum video ad duration in seconds, for example, 2
<i>maxduration</i>	<i>integer</i>	Maximum video ad duration in seconds, for example, 15
<i>linearity*</i>	<i>integer</i>	Indicates if the impression must be linear or nonlinear, for example, 1. If none is specified, it is assumed all are allowed <ul style="list-style-type: none"> • 1: Linear/In-stream • 2: Non-Linear/Overlay
<i>protocols</i>	<i>array of integers</i>	Accepted video bid response protocols as defined in OpenRTB, for example [2,5]
<i>pos*</i>	<i>integer</i>	Ad Position as defined in OpenRTB, for example 1
<i>w*</i>	<i>integer</i>	Width of the player in pixels, for example, 600
<i>h*</i>	<i>integer</i>	Height of the player in pixels, for example 400
<i>startdelay*</i>	<i>integer</i>	Indicates the start delay in seconds. If the start delay value is greater than 0, then the position is mid-roll and the value indicates the start delay. <ul style="list-style-type: none"> • > 0: Mid-Roll (value indicates start delay in second) • 0: Pre-roll • -1: Generic mid-roll • -2: Generic post-roll
<i>battr*</i>	<i>array of integers</i>	Blocked creative attributes as defined in OpenRTB, for example, [6]
<i>minbitrate*</i>	<i>integer</i>	Minimum bit rate in Kbps, for example 680
<i>maxbitrate*</i>	<i>integer</i>	Maximum bit rate in Kbps, for example 990
<i>api*</i>	<i>array of integers</i>	List of supported API frameworks for this impression as defined in OpenRTB, for example, [1,2]
<i>maxextended*</i>	<i>integer</i>	Maximum extended video ad duration if extension is allowed. <ul style="list-style-type: none"> • 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 <i>maxduration</i> value.
<i>boxingallowed*</i>	<i>integer</i>	Indicates if letter-boxing of 4:3 content into a 16:9 window is allowed: <ul style="list-style-type: none"> • 0 = no • 1 = yes.

Table 5.12: Video Object Properties

Value	Type	Description
<i>playbackmethod*</i>	<i>array of integers</i>	Allowed playback methods as defined in the OpenRTB, for example [1,2]. If none are specified, it is assumed all are allowed.
<i>delivery*</i>	<i>array of integers</i>	Supported delivery methods (e.g., streaming, progressive) as defined in OpenRTB. If none specified, assume all are supported, for example, [1,2]
<i>sequence*</i>	<i>integer</i>	If multiple ad impressions are offered in the same bid request, the sequence number will allow for the coordinated delivery of multiple creatives, for example, 2.
<i>companionad*</i>	<i>object array</i>	Array of Banner objects if companion ads are available. See the <i>Banner Object</i> (page 28) section for more information.
<i>companiontype*</i>	<i>array of integers</i>	List of allowed companion ad types, for example [1,2] Possible values: <ul style="list-style-type: none"> • 1: Static Resource • 2: HTML Resource • 3: iframe Resource
<i>ext*</i>	<i>object</i>	See the <i>Video Ext Object</i> (page 33) section

5.4.1 Video Ext Object

Table 5.13: Video Ext Object Properties

Value	Type	Description
<i>skippable</i>	<i>integer</i>	Indicates whether the video ad may be skippable (i.e. contain a skip button). The values are: <ul style="list-style-type: none"> • 0: allow skippable • 1: require skippable • 2: deny skippable
<i>player_type</i>	<i>integer</i>	Video player type based on detected player size: <ul style="list-style-type: none"> • 1: Small player (Less than 300px) • 2: Medium player (between 300px and 600px) • 3: Large player (greater than 600px)
<i>outstream*</i>	<i>integer</i>	Indicates that the video is outstream, for example 1

5.4.2 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,
"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
],
"batrr":[
  13,
  14
],
"companionad":[
  {
    "id":"1234567893-1",
    "w":300,
    "h":250,
    "pos":1,
    "batrr":[
      13,
      14
    ],
    "expdir":[
      2,
      4
    ]
  },
  {
    "id":"1234567893-2",
```

```
        "w":728,  
        "h":90,  
        "pos":1,  
        "battr":[  
            13,  
            14  
        ]  
    }  
],  
"companiontype":[  
    1,  
    2  
]  
}  
}
```

5.5 Audio Object

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

Table 5.14: Audio Object Properties

Value	Type	Description
<i>mimes</i>	<i>array of strings</i>	Content MIME types supported, for example ["audio/mp4", "audio/mpeg"]
<i>minduration</i>	<i>integer</i>	Minimum audio ad duration in seconds, for example, 2
<i>maxduration</i>	<i>integer</i>	Maximum audio ad duration in seconds, for example, 15
<i>protocols</i>	<i>array of integers</i>	Accepted audio bid response protocols as defined in OpenRTB, for example [9,10]
<i>startdelay*</i>	<i>integer</i>	Indicates the start delay in seconds, or generic values below: <ul style="list-style-type: none"> • 0: Pre-roll • -1: Generic mid-roll • -2: Generic post-roll
<i>battr*</i>	<i>array of integers</i>	Blocked creative attributes as defined in OpenRTB, for example, [6]
<i>minbitrate*</i>	<i>integer</i>	Minimum bit rate in Kbps, for example 32
<i>maxbitrate*</i>	<i>integer</i>	Maximum bit rate in Kbps, for example 320
<i>api*</i>	<i>array of integers</i>	List of supported API frameworks for this impression as defined in the OpenRTB guide, for example, [1,2]
<i>maxextended*</i>	<i>integer</i>	Maximum extended audio ad duration if extension is allowed. <ul style="list-style-type: none"> • 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 <i>maxduration</i> value.
<i>delivery*</i>	<i>array of integers</i>	Supported delivery methods (e.g., streaming, progressive) as defined in OpenRTB. If none specified, assume all are supported, for example, [1,2]
<i>maxseq*</i>	<i>integer</i>	The maximum number of ads that can be played in an ad pod, for example, 1
<i>feed*</i>	<i>integer</i>	Type of audio feed, for example, 1

Table 5.15: Audio Object Properties

Value	Type	Description
<i>sequence*</i>	<i>integer</i>	If multiple ad impressions are offered in the same bid request, the sequence number will allow for the coordinated delivery of multiple creatives, for example, 2
<i>stitched*</i>	<i>integer</i>	Indicates if the ad is stitched with audio content or delivered independently, for example, 1
<i>nvool*</i>	<i>integer</i>	Volume normalization mode as defined in OpenRTB, for example, 1
<i>companionad*</i>	<i>array of objects</i>	Array of Banner objects if companion ads are available. See the Banner Object (page 28) section for more information.
<i>companiontype*</i>	<i>array of integers</i>	Supported DAAST companion ad types, for example [1,2] Possible values: <ul style="list-style-type: none"> • 1: Static Resource • 2: HTML Resource • 3: iframe Resource

5.5.1 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
  ]
}
}

```

5.6 Native Object

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

Table 5.16: Native Object

Value	Type	Description
<i>request</i>	<i>object</i>	Contains the <i>Native Request Object</i> (page 39) object.
<i>battr*</i>	<i>array of integers</i>	Blocked creative attributes as defined in OpenRTB., for example, [1,3]
<i>api*</i>	<i>array of integers</i>	List of supported API frameworks for this impression as defined in OpenRTB, for example [2,3,5]

5.6.1 Native Object Example

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

5.7 Native Request Object

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

Table 5.17: Native Request Object

Value	Type	Description
<i>ver*</i>	<i>integer</i>	Version of the Native Markup in use, for example, 1
<i>layout*</i>	<i>integer</i>	The Layout ID of the native ad unit as described in OpenRTB Native specification, for example, 3
<i>adunit*</i>	<i>integer</i>	The Ad unit ID of the native ad unit as described in OpenRTB Native specification.
<i>plcmcnt*</i>	<i>integer</i>	The number of identical placements in this Layout, for example, 1
<i>seq*</i>	<i>integer</i>	0 for the first ad, 1 for the second ad, and so on. This is not the sequence number of the content in the stream.
<i>assets</i>	<i>array of objects</i>	An array of Asset Objects. Any bid must comply with this array of elements. See the <i>Native Asset Object</i> (page 40) section for more details.

5.7.1 Native Asset Object

Table 5.18: Native Asset Object Properties

Value	Type	Description
<i>id</i>	<i>integer</i>	Unique asset id, for example 2
<i>required*</i>	<i>integer</i>	Set to 1 if asset is required (exchange will not accept a bid without it), default is 0.
<i>title **</i>	<i>object</i>	Native title object, see the <i>Native Asset Title Object</i> (page 40) for more details.
<i>img **</i>	<i>object</i>	Native image object, see the <i>Native Asset Image Object</i> (page 41) for more details.
<i>video **</i>	<i>object</i>	Native video object, see the <i>Native Asset Video Object</i> (page 41) for more details.
<i>data **</i>	<i>object</i>	Native asset data object, see the <i>Native Asset Data Object</i> (page 42) section for more details.

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

5.7.2 Native Asset Title Object

Table 5.19: Native Asset Title Object

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

5.7.3 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 5.20: Native Asset Image Object

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

5.7.4 Native Asset Video Object

Table 5.21: Native Asset Video Object

Value	Type	Description
<i>mimes</i>	<i>array of strings</i>	Content MIME types supported, for example, ["video/mpeg", "video/mp4"]
<i>minduration</i>	<i>integer</i>	Minimum video ad duration in seconds, for example, 2
<i>maxduration</i>	<i>integer</i>	Maximum video ad duration in seconds, for example 15
<i>protocols</i>	<i>array of integers</i>	Accepted video bid response protocols as defined in OpenRTB, for example, [2,5]

5.7.5 Native Asset Data Object

Table 5.22: Native Asset Data Object

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

5.8 Device Object Properties

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

Table 5.23: Device Object Properties

Value	Type	Description
<i>geo</i>	<i>object</i>	Geo Object as derived from the device's location services, or supplied by the SSP if the device IP is missing. For more information, see the <i>Geo Object Properties</i> (page 44) section.
<i>ip</i> *	<i>string</i>	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
<i>ua</i> *	<i>string</i>	Browser or application user agent string, for example, "Mozilla/5.0 (Windows NT 6.3; WOW64; rv:35.0) Gecko/20100101Firefox/35.0"
<i>language</i> *	<i>string</i>	Alpha-2/ISO 639-1 code of browser language, for example, en
<i>carrier</i> *	<i>string</i>	Carrier or ISP derived from the IP address, for example, WIFI
<i>connectiontype</i> *	<i>integer</i>	Connection type as defined in OpenRTB, for example, 2
<i>didsha1</i> *	<i>string</i>	Hardware device ID (e.g., IMEI); hashed via SHA1, for example, CCF6DC12B98AEB2346AFE1BEE7860DF01FDE158B
<i>didmd5</i> *	<i>string</i>	Hardware device ID (e.g., IMEI); hashed via MD5. 93D05D4D69DEE2BC6645D9F0A0C1938C
<i>dpidsha1</i> *	<i>string</i>	Platform device ID (e.g., Android ID); hashed via SHA1, for example, CCF6DC12B98AEB2346AFE1BEE7860DF01FDE158B
<i>dpidmd5</i> *	<i>string</i>	Platform device ID (e.g., Android ID); hashed via MD5, for example, 93D05D4D69DEE2BC6645D9F0A0C1938C
<i>ifa</i> *	<i>string</i>	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, <ul style="list-style-type: none"> • Android "035911ea-467d-4056-903b-65cf44f5633b" • iOS "AAAAAAAAA-BBBB-CCCC-1111-22222220000"
<i>make</i> *	<i>string</i>	Device make, for example, Apple
<i>model</i> *	<i>string</i>	Device mode, for example, iPhone
<i>os</i>	<i>string</i>	Device operating system, for example, iOS
<i>osv</i> *	<i>string</i>	Device operating system version, for example, 3.1.2
<i>w</i> *	<i>integer</i>	Physical height of the screen in pixels, for example, 750
<i>h</i> *	<i>integer</i>	Physical width of the screen in pixels, for example, 1334
<i>pxratio</i> *	<i>float</i>	The ratio of physical pixels to device independent pixels, for example, 1.0

Table 5.24: Device Object Properties

Value	Type	Description
<i>dnt*</i>	<i>integer</i>	Do not track. <ul style="list-style-type: none"> • 0: do not track is set to false • 1: do not track is set to true in the browser, for example, 0
<i>lmt*</i>	<i>integer</i>	Limit Ad Tracking. Signal commercially endorsed (e.g., iOS, recommended Android): <ul style="list-style-type: none"> • 0: tracking is unrestricted, • 1: tracking must be limited per commercial guidelines, for example, 0
<i>devicetype*</i>	<i>integer</i>	Device type as defined by OpenRTB, for example, 4
<i>ipv6*</i>	<i>string</i>	IP address in IPv6, for example, <code>fe80:0:0:0:200:f8ff:fe21:67cf</code>
<i>js*</i>	<i>integer</i>	1 if the device supports JavaScript; otherwise 0.
<i>flashver*</i>	<i>string</i>	Flash version detected, for example, 10.1

5.9 Geo Object Properties

The information provided in the Geo Object is based on [MaxMind database](#)¹⁷, except latitude and longitude values.

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

Table 5.25: Geo Object Properties

Value	Type	Description
<i>lat*</i>	<i>float</i>	Latitude from -90 to 90. South is negative, for example, 52.35
<i>lon*</i>	<i>float</i>	Longitude from -180 to 180. West is negative, for example, 4.9167
<i>type*</i>	<i>integer</i>	Source of location data as defined by OpenRTB, for example, 1
<i>country*</i>	<i>string</i>	Country using ISO-3166-1 ¹⁸ Alpha-2, for example NL
<i>region*</i>	<i>string</i>	Region using ISO-3166-2 or FIPS region codes, for example, 07
<i>city*</i>	<i>string</i>	City name as provided by MaxMind, for example, Alkmaar
<i>zip*</i>	<i>string</i>	Zip/postal code, for example, "90210"
<i>utcoffset*</i>	<i>integer</i>	Local time as the number +/- of minutes from UTC, for example, -240

¹⁷ <https://www.maxmind.com/en/geop2-services-and-databases>

¹⁸ http://www.iso.org/iso/home/standards/country_codes.htm

5.9.1 Geo Object Example

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

5.10 User Object

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

Table 5.26: User Object Properties

Value	Type	Description
<i>id*</i>	<i>string</i>	Unique BidSwitch ID of this user, for example, 252eb154-b3e5-473f-bad8-9b6d7f8646e5.
<i>buyeruid*</i>	<i>string</i>	The DSP 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
<i>keywords*</i>	<i>string</i>	Comma separated list of keywords, interests, or intent, for example, Cars,sports,vacation
<i>yob*</i>	<i>integer</i>	Year of birth as a 4-digit integer, for example, 1977
<i>gender*</i>	<i>string</i>	Specifies the user gender, for example, "F" <ul style="list-style-type: none"> • "M" = Male • "F" = Female • "0" = Known to be other, or omitted if unknown
<i>data*</i>	<i>array of objects</i>	Additional data. Each data object represents a different data source, for more information, see the <i>Data Object</i> (page 53) section.
<i>ext*</i>	<i>object</i>	For more information, see the <i>User Ext Object Properties</i> (page 46) section.

5.10.1 User Ext Object Properties

Table 5.27: User Ext Object Properties

Value	Type	Description
<i>ug</i>	integer	User group set up for the target user during cookie syncing, for example 1. This takes the following values: <ul style="list-style-type: none">• 0: unmatched user• 1: matched user• 2-6: custom user group.
<i>cookie_age*</i>	integer	Number of days since the user cookie has been dropped, for example, 10

5.10.2 User Object Example

```
{
  "user":{
    "id":"45asdf987656789adfad4678rew656789",
    "buyeruid":"1234567890",
    "keywords":"sports, entertainment",
    "yob":1976,
    "gender":"F",
    "ext":{
      "ug":1,
      "cookie_age":15
    }
  }
}
```

5.11 Site Object

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

Table 5.28: Site Object Properties

Value	Type	Description
<i>publisher</i>	<i>object</i>	Publisher object, for more information, see the <i>Publisher Object</i> (page 51) section.
<i>id*</i>	<i>string</i>	An exchange specific identifier comprised of the SSP's exchange name, and the target site ID appended following an underscore. For example, if an SSP such as Rubicon sends a bid request for site ID "123", the field becomes "rubicon_123"
<i>name*</i>	<i>string</i>	Site name (may be masked by publisher request), for example, "Test Site"
<i>domain*</i>	<i>string</i>	Domain of the site, used for advertiser side blocking. "testsite.com"
<i>cat*</i>	<i>array of strings</i>	Array of IAB content categories for the site. ["IAB1", "IAB2-3"]
<i>page*</i>	<i>string</i>	URL of the page where the impression will be shown. "http://testsite.com/main.asp"
<i>ref*</i>	<i>string</i>	Referrer URL that caused navigation to the current page, for example, "http://testsite.com/main.asp"
<i>privacypolicy*</i>	<i>integer</i>	Indicates if the site has a privacy policy. <ul style="list-style-type: none"> • 0 = No • 1 = Yes.
<i>mobile*</i>	<i>integer</i>	Mobile-optimized signal. <ul style="list-style-type: none"> • 0 = No • 1 = Yes.

5.11.1 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"
    }
  }
}
```

5.12 App Object

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

Table 5.29: App Object Properties

Value	Type	Description
<i>publisher</i>	<i>object</i>	Publisher object, for more information, see the <i>Publisher Object</i> (page 51) section.
<i>id*</i>	<i>string</i>	The application ID prefixed with the exchange name followed by an underscore. For example, if Rubicon SSP sends a bid request for App ID “123”, the field becomes "rubicon_123"
<i>name*</i>	<i>string</i>	Application name, for example, "Test App"
<i>domain*</i>	<i>string</i>	The domain of the app, for example, "mygame.example.com"
<i>cat*</i>	<i>array of strings</i>	Array of IAB content categories for the publisher site, for example, ["IAB1", "IAB2-3"]
<i>bundle*</i>	<i>string</i>	Application bundle or package name, for example, "com.example.mygame"
<i>paid*</i>	<i>integer</i>	Specifies if the App is a free or paid version. <ul style="list-style-type: none"> • 0 = The app is free, • 1 = The app is a paid version.
<i>storeurl*</i>	<i>string</i>	App store's URL for the mobile application, for example "http://media-apps.cc/android"
<i>ver*</i>	<i>string</i>	Application version, for example "1.1"
<i>privacypolicy*</i>	<i>integer</i>	Indicates if the app has a privacy policy. <ul style="list-style-type: none"> • 0 = No • 1 = Yes.

5.13 TV Object

Table 5.30: TV Object Properties

Value	Type	Description
<i>publisher</i>	<i>object</i>	Publisher object, for more information, see the <i>Publisher Object</i> (page 51) section.

5.14 Private Marketplace Object

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

Table 5.31: Private Marketplace Object Properties

Value	Type	Description
<i>private_auction*</i>	<i>integer</i>	A value of 1 indicates that only bids submitted inside <code>pmp.deals</code> will take part in the auction. A value of 0 indicates that bids without deal information may also be considered for serving.
<i>deals</i>	<i>array of objects</i>	Array of Deal objects., for more information, see the <i>Deal Object</i> (page 49) section.

5.14.1 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
      }
    ]
  }
}
```

5.15 Deal Object

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

Table 5.32: Deal Object Properties

Value	Type	Description
<i>id</i>	<i>string</i>	Deal id, for example, "AA-1234"
<i>wseat*</i>	<i>array of strings</i>	<p>Array of buyer seats allowed to bid on this Direct Deal, for example, [58,99]. If present, the allowed seat IDs may be supplied in BidSwitch or SSP taxonomy.</p> <ul style="list-style-type: none"> • BidSwitch taxonomy uses the DSP ID as the single seat ID value. • The seat in the SSP taxonomy may represent the whole DSP or some entity on the DSP side (e.g. agency) • A bid request may contain multiple seat IDs in the SSP taxonomy. • The bid response should contain the appropriate seat value corresponding to one of values of the <i>wseat</i> field, see the <i>Seat Bid Object</i> (page 72) section.
<i>bidfloor*</i>	<i>float</i>	Deal price in CPM. If <i>deal.at</i> = 3 then this is the exact price of the deal, otherwise this is the bid floor of the deal, for example, 1.3
<i>bidfloorcur*</i>	<i>string</i>	Bid floor currency specified using ISO-4217 ¹⁹ alpha codes, for example, "USD"
<i>at*</i>	<i>integer</i>	<p>Auction type.</p> <ul style="list-style-type: none"> • 1 for first price auction. • 2 for second price auction. • 3 for fixed price deal.

5.15.1 Deal Object Example

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

¹⁹ http://www.iso.org/iso/home/standards/currency_codes.htm

```

    }
  ]
}

```

5.16 Publisher Object

Table 5.33: Publisher Object Properties

Value	Type	Description
<i>id</i>	<i>string</i>	An exchange specific identifier comprised of the the SSP's exchange name, and the publisher ID appended following an underscore. For example, if an SSP such as Rubicon sends the publisher ID "25", then the value of the field becomes <code>rubicon_25</code> . For Google AdX bid requests the Google seller network ID is used.
<i>name*</i>	string	Publisher name, for example "AAP"

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

5.16.1 Publisher Object Example

```

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

```

5.17 Ext Object

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

Table 5.34: Ext Object Properties

Value	Type	Description
<i>ssp</i>	<i>string</i>	The SSP identification string, for example "rubicon"
<i>google*</i>	<i>object</i>	<i>Google Object</i> (page 52). This field is optional and is used only in Google AdX bid requests.
<i>gumgum*</i>	<i>object</i>	<i>Gumgum Object</i> (page 53). This field is optional and is used only in Gumgum bid requests.
<i>adtruth*</i>	<i>object</i>	<i>Adtruth Object</i> (page 53). This field is optional and is present if the corresponding data is provided by the SSP.
<i>tv*</i>	<i>object</i>	<i>TV Object</i> (page 48) describing the programmatic TV. Either site, app, or ext.tv object should be present.
<i>clktrkrq*</i>	<i>integer</i>	1 for bid requests that require click tracking macro in the bid response, 0 otherwise.
<i>s2s_nurl*</i>	<i>integer</i>	1 for bid requests that imply server-to-server win notifications in case of a won auction.
<i>is_secure*</i>	<i>integer</i>	0 for non-secure pages; 1 for secure pages. Creatives for secure pages should be SSL-compliant. Deprecated since version 2.6: Use <code>imp.secure</code> instead, see <i>Impression Object</i> (page 24).

5.17.1 Google Object

Table 5.35: Google Object Properties

Value	Type	Description
<i>detected_vertical*</i>	<i>array of objects</i>	List of detected vertical values as defined by Google, see <i>Detected_vertical Object</i> (page 52).

5.17.2 Detected_vertical Object

Table 5.36: 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

5.17.3 Adtruth Object

Table 5.37: Adtruth Object Properties

Value	Type	Description
<i>tdl_millis*</i>	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"

5.17.4 Gumgum Object

Table 5.38: Gumgum Object Properties

Value	Type	Description
<i>cat</i>	<i>array of string</i>	Site or application category in Gumgum taxonomy, for example, ["GGE23-1", "GGE22"]. The full taxonomy can be found in this Google doc ²⁰

5.18 Regulation Object

Table 5.39: Regulation Object Properties

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

5.19 Data Object

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

²⁰ <https://docs.google.com/spreadsheets/d/1qt3thvCHjpDzdpybpwNySkB8LNmEjvCyQrJKH6MYQio/export?format=csv&id=1qt3thvCHjpDzdpybpwNySkB8LNmEjvCyQrJKH6MYQio&gid=0>

Table 5.40: Data Object Properties

Value	Type	Description
<i>id</i> *	<i>string</i>	Exchange-specific ID for the data provider, for example "BSW001"
<i>name</i>	<i>string</i>	Exchange-specific name for the data provider, for example "domain-origin"
<i>segment</i>	<i>array of objects</i>	Array of Segment objects that contain the actual data values, see <i>Segment Object</i> (page 54).

5.19.1 Segment Object

Table 5.41: Segment Object Properties

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

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

5.20 Bid Request JSON Examples

- *Banner Ad Example* (page 55)
- *In App Example* (page 57)
- *Native Ad* (page 59)
- *Private Deal Example* (page 62)
- *Video Example* (page 64)

- *Audio Ad Example* (page 66)
- *TV Ad Example* (page 68)

5.20.1 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"
    ],
    "user": {
      "id": "5e29eb00-c30a-416e-9d2a-2e18901f0916",
      "ext": {
        "cookie_age": 64
      },
      "buyeruid": "CAESEHL-904oJOAiC1Y002EHTcE"
    },
    "device": {
      "pxratio": 0,
      "language": "en",
      "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,
      "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,
    "inst1":0
  }
],
"bcat":[
  "IAB25-3",
  "BSW1",
  "BSW2",
  "BSW10",
  "BSW4",
  "IAB26"
],
"ext":{
  "wt":1,
  "clktrkrq":0,
  "is_secure":0,
  "ssp":"gumgum"
},
"at":2
}

```

5.20.2 In App Example

```

{
  "regs":{
    "coppa":0
  },
  "id":"4ecfe2ab-c275-48fb-8c0b-c7103579eaa0",
  "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",
    "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,
      "id":"1",
      "instl":0,
      "exp":300,
      "bidfloorcur":"USD",
      "ext":{

      },
      "secure":0,
      "video":{
        "protocols":[
          2,
          5
        ],
        "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
}

```

5.20.3 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"
  ],
  "user":{
    "id":"793ff4b0-d077-4002-aeb6-b8ea64dd4b2b",
    "ext":{
      "ug":1
    }
  },
  "device":{
    "connectiontype":3,
    "model":"Micromax A096",
    "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":{
        "plcmcnt":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":{

},
"inst1":0
}
],
"bcat":[
  "IAB25-3",
  "BSW1",
  "BSW2",
  "BSW10",
  "BSW4",
  "IAB26"
],
"ext":{
  "wt":2463.818181818182,
  "clktrkrq":0,
  "ssp":"pubnative",
  "s2s_nurl":1
},
"at":2
}

```

5.20.4 Private Deal Example

```

{
  "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",
    "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,
      "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=T6GDD32DDC8UD500S5I6QR0V40&viewability=0",
      "bidfloorcur": "USD",
      "ext": {

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

```

5.20.5 Video Example

```

{
  "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"
],
"user":{
  "id":"b457c658-ffdc-415c-8d91-30d864f4a5f5",
  "ext":{
    "cookie_age":153,
    "ug":1
  },
  "buyeruid":"7bcb7e7c-eff0-43ad-8522-b5c9251f0d43"
},
"device":{
  "language":"en",
  "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
      ],
      "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
}

```

5.20.6 Audio Ad Example

```

{
  "id":"1234534625253",
  "wseat":[
    "58"
  ],
  "imp":[
    {
      "id":"1",
      "secure":1,
      "audio":{
        "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
]
```



```

    }
  }
},
"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",
  "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"
},
"user":{
  "id":"45asdf987656789adfad4678rew656789",
  "buyeruid":"1234567890",
  "ext":{
    "ug":1
  }
},
"cur":[
  "USD"
],
"ext":{
  "ssp":"google"
}
}

```

5.20.7 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"
      ],
      "minduration": 30,
      "maxduration": 30,
      "protocols": [
        3,
        6
      ]
    }
  }
],
"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_"  
    }  
  }  
}  
}
```

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

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

Table 6.1: Bid Response Object Properties

Value	Type	Description
<i>id</i>	<i>string</i>	ID of the bid request, for example, "d7d1e107-fe7c-4a57-9592-d1d41fa702d9"
<i>seatbid</i>	<i>array of objects</i>	Array of Seat Bid objects, see <i>Seat Bid Object</i> (page 72). The length of the array can be either 1+ (for yes-bid) or 0 (for no-bid).
<i>cur*</i>	<i>string</i>	Bid currency using ISO-4217 ²¹ alphabetic codes. If not provided USD is assumed, "USD"
<i>ext</i>	<i>object</i>	Ext Object. This field may be omitted in nobid responses, see <i>Bid Response Ext Object</i> (page 71).

6.1 Bid Response Ext Object

Table 6.2: Bid Response Ext Object Properties

Value	Type	Description
<i>protocol</i>	<i>string</i>	The latest BidSwitch protocol version this bid response is compliant with, "4.3"

```
{
  "id": "1234567890",
  "ext": {
    "protocol": "4.3"
  },
}
```

²¹ http://www.iso.org/iso/home/standards/currency_codes.htm

6.2 Seat Bid Object

Formally there can be multiple bids within the Seat Bid object for two reasons. The first one is that there can be several slots in each request. The second one is when there are 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 enlisted in the same `seatbid.bid` array, i.e. all `seatbid.seat` values must be unique per response.

Table 6.3: Seat Bid Object Properties

Value	Type	Description
<i>bid</i>	<i>array of objects</i>	Array of Bid Objects, see <i>Bid Object</i> (page 73). The maximum number of bid objects per single bid request ad slot is two.
<i>seat</i>	string	ID of the bidder seat on whose behalf this bid is made. The value should match one of the values supplied in <code>wseat</code> field in the bid request. "34"

6.3 Bid Object

Table 6.4: Bid Object Properties

Value	Type	Description
<i>id</i>	<i>string</i>	ID for the bid object chosen by the bidder for tracking and debugging purposes. 3
<i>impid</i>	<i>string</i>	ID of the impression object from bid request to which this bid applies. "1"
<i>price</i>	<i>float</i>	Price as a float value, CPM. All prices assumed to be in USD, if cur parameter is omitted. 1.23
<i>adm</i> *	<i>string</i>	<p>Creative markup for banner ads.</p> <ul style="list-style-type: none"> For protocol version 4.x this field should not contain the win price macro. From version 5.x, this field can contain it, see the <i>5.x Updating Overview</i> (page 18) section for more information. The field is REQUIRED for banner ads, and is ignored for video or native bid responses. The <i>adm</i> field is supported from protocol 4.0, so bid responses containing the <i>adm</i> field but not containing the <i>ext.protocol</i> value of 4.0+ are deemed invalid <pre> </pre>
<i>nurl</i>	<i>string</i>	<p>Win notice URL.</p> <ul style="list-style-type: none"> This field should NOT be used for submitting creative markup. The URL can contain the win price macro, see the <i>Macros</i> (page 99) and <i>5.x Updating Overview</i> (page 18) sections. This URL will be mostly called from user's browser and should thus be SSL-compliant for requests with <i>imp.secure</i> set to 1. This URL will be called by a server to server call if the bid request contained <i>ext.s2s_nurl</i> field value equal to 1 <pre>http://adserver.com/winnotice?impid=102&winprice=\${AUCTION_PRICE}</pre> <p>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 <i>nurl Response Difference</i> (page 14) section.</p>
<i>iurl</i> *	<i>string</i>	<p>Sample image URL (without cache busting) for content checking. REQUIRED: for banner bid requests.</p> <pre>"http://adserver.com/preview?impid=102"</pre>
<i>adid</i> *	<i>string</i>	ID that references the ad to be served if the bid wins. Either <i>adid</i> field or <i>crid</i> field should be present in the response. "3021"

Table 6.5: Bid Object Properties 2

Value	Type	Description
<i>adomain</i>	<i>array of strings</i>	Advertiser’s primary or top-level domain for advertiser checking. This can be a list of domains if there is a rotating creative. Note that some SSPs allow only one domain. To those SSPs BidSwitch only sends the first domain from the list, for example, ["advertiser.com"]
<i>cid*</i>	<i>string</i>	Campaign ID or similar that is used by the bidder to track and organize their campaigns, for example, 102 Notes: This field is REQUIRED for Nexage and MoPub.
<i>crld*</i>	<i>string</i>	Creative ID to assist with ad quality checking. Either <i>adid</i> field or <i>crld</i> field should be present in the response. “3021”
<i>attr*</i>	<i>array of integers</i>	Creative attributes as defined in OpenRTB, for example, [1,3]
<i>dealid*</i>	<i>string</i>	Reference to the <i>deal.id</i> from the bid request, if this bid pertains to a private marketplace direct deal, for example, "AA-1234"
<i>h*</i>	<i>integer</i>	The height of the creative when an alternative ad size is used, relevant for banner ads only. 250
<i>w*</i>	<i>integer</i>	The width of the creative when an alternative ad size is used, relevant for banner ads only. 300
<i>cat*</i>	<i>array of strings</i> **	The IAB category of the creative. REQUIRED in bid responses to YAX (RMX), MoPub, and YieldOne bids. If the supplier only accepts one category in the bid response the first array element will be used, for example, ["IAB1"]
<i>ext*</i>	object	This field may be required under certain circumstances, see <i>Bid Ext Object</i> (page 75).

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

6.3.1 Bid Ext Object

Table 6.6: Bid Ext Object Properties

Value	Type	Description
<i>advertiser_name*</i>	<i>string</i>	The name of the advertiser serving the creative, for example, "Coca-Cola" <ul style="list-style-type: none"> • REQUIRED in bid responses to AdScale, Centro, BRX, and Improve Digital. • Recommended in responses to YieldOne bids.
<i>agency_name*</i>	<i>string</i>	The name of the agency representing the advertiser, for example, "CCA" <p>REQUIRED in bids responses to AdScale bids.</p>
<i>agency_id*</i>	<i>string</i>	ID of the agency representing the advertiser, for example, "123"
<i>lpdomain*</i>	<i>array of strings</i>	The actual landing page domain of the creative if different from adomain value. Recommended for mobile application ads, for example, "adomain":["angrybirds.com"] and "lpdomain":["play.google.com","itunes.apple.com"]
<i>language*</i>	<i>string</i>	The Alpha-2 ISO 639-1 ²² code for the creative's language, for example, jp. <p>REQUIRED in bid responses to YAX (RMX) and OpenX Japan bids.</p>
<i>google*</i>	<i>object</i>	Contains additional information for Google bids. This field is recommended. See the <i>Supplier Specific Fields</i> (page 80) section for more details.
<i>yieldone*</i>	<i>object</i>	Contains additional information for YieldOne bids. This field is recommended. See the <i>Supplier Specific Fields</i> (page 80) section for more details.
<i>vast_url*</i>	<i>string</i>	The URL pointing to the location of the VAST document for bid responses to video traffic, for example, "http://adserver.com/vast?impid=102" <ul style="list-style-type: none"> • This bid response field is required if the <code>video.ext.vast_url_rq</code> bid request field is set to 1. • If the <code>video.ext.vast_url_rq</code> bid request field is set to 0 or missing, you can include the VAST URL in the <code>nurl</code> field. <p>For more information see the <i>Video Ext Object</i> (page 33) section.</p> <p>Note: The VAST document should NOT contain impression tracking URLs with win price macros.</p>

²² http://www.iso.org/iso/home/standards/language_codes.htm

Table 6.7: Bid Ext Object Properties 2

Value	Type	Description
<i>daast_url*</i>	<i>string</i>	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: that the DAAST document should NOT contain impression tracking urls with win price macros.
<i>duration*</i>	<i>integer</i>	Video ad duration in seconds, for example, 13 REQUIRED in bid responses to BRX.
<i>native*</i>	<i>object</i>	Contains the details of the native response, for more information, see <i>Native Response Object</i> (page 77).
<i>deal*</i>	<i>string</i>	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 <code>seatbid.bid.dealid</code> instead.
<i>img_url*</i>	<i>string</i>	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. <code>#{AUCTION_PRICE}</code> , but not the click macro. If this field is present, the <code>nurl</code> field of the bid response will be ignored. Note: This field is only valid in 2.x bid responses, see the <i>Deprecated 2.x Properties</i> (page 15) section for more details.
<i>click_url*</i>	<i>string</i>	The creative click URL. Required if the <code>img_url</code> field is present. Note: This field is only valid in 2.x bid responses, see the <i>Deprecated 2.x Properties</i> (page 15) section for more details.
<i>js_url*</i>	<i>string</i>	A Javascript-based win notice URL. <ul style="list-style-type: none"> • 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 <code>nurl</code> field. • Ad markup should be in JavaScript format. • The URL may contain macros, see the <i>Macros</i> (page 99) section for more details. Note: This field is only valid in 2.x bid responses, see the <i>Deprecated 2.x Properties</i> (page 15) section for more details.

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

6.3.2 Required Bid Response Fields Per Supplier

Table 6.8: Required Bid Response Fields

Supplier	Required bid response fields
AdScale	<code>ext.advertiser_name</code> , <code>ext.agency_name</code>
BRX	<code>ext.advertiser_name</code> , <code>ext.duration</code>
Centro	<code>ext.advertiser_name</code>
Improve Digital	<code>ext.advertiser_name</code>
LiveIntent	Ad markup should contain the ad image tag and no more than one pixel.
MoPub	<code>cid</code> , <code>cat</code>
Nexage	<code>cid</code>
OpenX Japan	<code>ext.language</code>
YAX (RMX)	<code>cat</code> , <code>ext.language</code>

6.4 Native Response Object

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

Table 6.9: Native Object Properties

Value	Type	Description
<i>assets</i>	<i>array of objects</i>	List of native ad assets.
<i>link</i>	<i>object</i>	Destination Link. This is the default link object for the ad. Individual assets can also have a link object which applies if the asset is activated (clicked). If the asset has no link object, the parent link object applies.
<i>imptrackers</i> **	<i>array of strings</i>	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.
<i>ext</i> *	<i>object</i>	See, <i>Native Ext Object</i> (page 78).
<i>ver</i> *	<i>integer</i>	Version of the Native Markup version in use, for example, 1.

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.

6.4.1 Native Ext Object

Table 6.10: Native Ext Object Properties

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

6.4.2 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 6.11: Native Asset Object Properties

Value	Type	Description
<i>id</i>	<i>integer</i>	Unique asset ID, must match one of the asset IDs in the bid request, for example, 1.
<i>required*</i>	<i>integer</i>	Set to 1 if asset is required (bidder requires it to be displayed), default is 0, for example, 1.
<i>title*</i>	<i>object</i>	Title object for a title asset, for more information see, <i>Native Assets Title Object</i> (page 79).
<i>img*</i>	<i>object</i>	Image object for an image asset, for more information see, <i>Native Assets Image Object</i> (page 79).
<i>video*</i>	<i>object</i>	Video object for a video asset, for more information see, <i>Native Asset Video Object</i> (page 79).
<i>data*</i>	<i>object</i>	Data object for a data asset, for more information see, <i>Native Asset Data Object</i> (page 80).
<i>link**</i>	<i>object</i>	Link object for a call to action. <ul style="list-style-type: none"> • 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 <i>Native Link Object</i> (page 80).

6.4.3 Native Assets Title Object

Table 6.12: Native Asset Title Object Properties

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

6.4.4 Native Assets Image Object

Table 6.13: Native Asset Image Object Properties

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

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

6.4.5 Native Asset Video Object

Table 6.14: Native Asset Video Object Properties

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

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

```

6.4.6 Native Asset Data Object

Table 6.15: Native Asset Data Object Properties

Value	Type	Description
<i>value</i>	<i>string</i>	The formatted string of data to be displayed. Can contain a formatted value such as “5 stars” or “\$10” or “3.4 stars out of 5”.

6.4.7 Native Link Object

Table 6.16: Native Link Object Properties

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

6.5 Supplier Specific Fields

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

Table 6.17: Google Object Properties

Value	Type	Description
<i>attribute*</i>	<i>integer array</i>	List of creative attributes as defined by Google, for example, [32,22]
<i>vendor_type*</i>	<i>integer array</i>	List of creative vendor types as defined by Google, for example, [42,43]

Table 6.18: Yieldone Object Properties

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

6.6 Bid Response JSON Examples

If the DSP 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.

- *Banner Bid Response* (page 81)
- *Secure Banner Bid Response* (page 82)
- *Video Bid Response* (page 83)
- *Secure Video Bid Response* (page 83)
- *Secure Audio Bid Response* (page 84)
- *Native Bid Response* (page 85)
- *Secure Native Bid Response* (page 86)
- *Multi-bid Response* (page 87)
- *Private Deal Bid Request Response* (page 89)
- *BidSwitch No Bid Reason* (page 90)

6.6.1 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": "5.1"
  },
  "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"
    ],
    "ext": {
        "advertiser_name": "Coca-Cola",
        "language": "en",
        "agency_name": "CC-advertising"
    }
}
],
"seat": "4"
}
]
}

```

6.6.2 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": "5.1"
  },
  "seatbid": [
    {
      "bid": [
        {
          "id": "1",
          "impid": "102",
          "price": 9.43,
          "adid": "314",
          "cid": "42",
          "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",
        "language": "en",
        "agency_name": "CC-advertising"
      }
    ],
    "seat": "8"
  }
]
}

```

6.6.3 Video Bid Response

```

{
  "cur": "USD",
  "ext": {
    "protocol": "5.1"
  },
  "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",
          "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"
    }
  ]
}

```

6.6.4 Secure Video Bid Response

```

{
  "cur": "USD",

```



```

"ext":{
  "protocol":"5.1"
},
"id":"e9c3e120-ffcb-4300-9c98-644cb26f95df",
"seatbid":[
  {
    "bid":[
      {
        "adid":"3",
        "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"
  }
]
}

```

6.6.5 Secure Audio Bid Response

```

{
  "cur":"USD",
  "ext":{
    "protocol":"5.1"
  },
  "id":"e9c3e120-ffcb-4300-9c98-644cb26f95df",
  "seatbid":[
    {
      "bid":[
        {
          "adid":"3",
          "nurl":"https://adserver.com/winnotice?impid=102&winprice=${AUCTION_PRICE}
→",
          "adomain":[
            "nokia.com"
          ],
          "cid":"11",
          "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"
}
]
}

```

6.6.6 Native Bid Response

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

```

{
  "id":"1234567890",
  "ext":{
    "protocol":"5.1"
  },
  "seatbid":[
    {
      "bid":[
        {
          "id":"1",
          "impid":"102",
          "price":9.43,
          "adid":"314",
          "cid":"42",
          "cat":[
            "IAB12"
          ],
          "nurl":"http://adserver.com/winnotice?impid=102&winprice=${AUCTION_PRICE}",
          "adomain":[
            "advertiserdomain.com"
          ],
          "ext":{
            "advertiser_name":"Coca-Cola",
            "language":"en",
            "agency_name":"CC-advertising",
            "native":{
              "ver":1,
              "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"
}
]
}

```

6.6.7 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":"5.1",
    "id":3,
    "required":1,
    "img":{
      "url":"https://adserver.com/image?crd=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"
      ]
    }
  ]
}

```

```

    ],
    "ext":{
      "advertiser_name":"Coca-Cola",
      "language":"en",
      "agency_name":"CC-advertising",
      "native":{
        "ver":1,
        "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"
}
]
}

```

6.6.8 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":"5.1"
  },
  "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"
        ],
        "ext":{
            "advertiser_name":"Coca-Cola",
            "language":"en",
            "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",
        "adomain":[
            "advertiserdomain.com"
        ],
        "ext":{
            "advertiser_name":"Coca-Cola",
            "language":"en",
            "agency_name":"CC-advertising"
        }
    }
],
    "seat":"1"
}
]
}

```

6.6.9 Private Deal Bid Request Response

```
{
  "id": "1234567892",
  "ext": {
    "protocol": "5.1"
  },
  "cur": "USD",
  "seatbid": [
    {
      "bid": [
        {
          "id": "1114125-afaff2f-af2251",
          "impid": "1",
          "price": 9.43,
          "adid": "314",
          "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"
    }
  ]
}
```

6.6.10 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": "5.1"
  },
  "seatbid": []
}
```

6.6.11 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
}
```

Table 7.1: BidSwitch Data Centres and IP Addresses

Geo	Data Centre	IP Values
US East	Amazon Virginia	Search for <code>us-east-1</code> in the following the list. https://ip-ranges.amazonaws.com/ip-ranges.json
US West	Amazon California	Search for <code>us-west-1</code> in the following the list. https://ip-ranges.amazonaws.com/ip-ranges.json
APAC	Amazon Japan	Search for <code>ap-northeast-1</code> in the following the list. https://ip-ranges.amazonaws.com/ip-ranges.json
Europe	Amazon Frankfurt	Search for <code>eu-central-1</code> in the following the list. https://ip-ranges.amazonaws.com/ip-ranges.json

For measuring latency and timeouts, the following BidSwitch hosts can be pinged:

- `apac-jp.bidswitch.net`
- `eu.bidswitch.net`
- `us-east.bidswitch.net`
- `us-west.bidswitch.net`

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 RTB Protocol* (page ??) section
- Ensure user groups are well defined for SmartSwitch as this increases the quality of traffic sent to buyers.
- Don't demand more than your QPS limit as it could result in server overload.
- To reduce latency between your servers and BidSwitch, set your server locations as close as possible. See the *BidSwitch Data Centres* (page 91) section
- To reduce latency between your servers use `gzip` when sending or receiving data, see the *Data Format* (page 98) section
- Keep connections alive

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.

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 45).

Table 9.1: Supplier Buyer User Matching

Supplier to BidSwitch Bid Request	BidSwitch to DSP Bid Request
<pre>{ "user":{ "id":"ssp-cookie-1234", "buyeruid":"bsw-cookie-54321", } }</pre>	<pre>{ "user":{ "id":"bsw-cookie-54321", "buyeruid":"DSP-cookie-5678", } }</pre>

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.

9.1 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 9.2: HTTP Request Parameters

Value	Type	Description
<i>dsp_id</i>	<i>string</i>	The ID assigned to the buyer by BidSwitch, for example, 123
<i>user_id</i>	<i>string</i>	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 <code>expires</code> parameters. See <i>Not Syncing Certain Users</i> (page 95) for more details.
<i>expires*</i>	<i>integer</i>	Expiration time in days for user matching, for example 5. The default value is 90. See the <i>Cookie Syncing Best Practices</i> (page 94) section about how to get the most out of user matching.
<i>user_group*</i>	<i>integer</i>	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 <i>User Group Syncing</i> (page 94) 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
```

9.2 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 seller 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 SSP to cookie sync with BidSwitch more often.
- Aim to cookie sync user data with BidSwitch once per day.

9.3 User Group Syncing

During cookie syncing, when a DSP sends their cookie ID to BidSwitch, it is able to append a parameter called `user_group` to the pixel that specifies which group BidSwitch should place the user in. There are two restrictions with usage group numbering

1. The valid values are 0 -5
2. User group 0 is considered as “not matched” in BidSwitch, so

- The UUID is not stored
- In the case of website traffic, users will be filtered out by “*Only users synced by buyer*” targeting

Note: For in-app syncing, see the *User Group In App Syncing* (page 96) section.

SSP 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
```

DSP 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
```

9.4 Not Syncing Certain Users

A DSP 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 DSP 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
```

9.5 BidSwitch Initiated User Matching

BidSwitch can also initiate user synchronization. The partner issues BidSwitch a matching URL that redirects to the pixel URL described in the *Buyer Initiated User Matching* (page 93) section, with properly populated `dsp_id`, `user_id`, and `expires` parameters.

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 DSP's matching URL should be to the BidSwitch pixel.

The matching redirect URL, issued by a DSP should contain the `${SSP}` macro. This macro is substituted with the SSP ID on the BidSwitch side before sending a user to the partner. The value of the macro should be sent back to BidSwitch in the SSP parameter. An example of the matching URL, provided by the partner is shown below

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

Here, the `bidswitch_ssp_id` parameter name can be changed to any other name chosen by the DSP. On receiving a call to the above URL, the partner should respond with a 302 redirect to the BidSwitch matching URL with valid `dsp_id`, `user_id` and `expires` parameters as described in the *Buyer Initiated User Matching* (page 93) section, and providing one additional SSP parameter with the value of the `${SSP}` macro. So sending a call to the partner matching URL in the form of the following example.

```
http://www.dsp-example.com/bsw_sync?bidswitch_ssp_id=rubicon
```

The DSP server should respond with a 302 redirect to the BidSwitch matching URL based on the following example `dsp_id`, `user_id` and `expires` parameters.

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

In addition to HTTP protocol, 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.

9.6 User Group In App Syncing

As there is no pixel syncing in mobile applications. DSPs need to 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:
 - IDFA
 - Region [US or EU or AS], select only 1.
 - User group, for example, [2], select only 1 numerical value. This value should be in the range 0 -5
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 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.

- *Win price macro* (page 99)
- *SSP Click Tracking URL Macro* (page 99)
- *Click Tracker at Google Adx* (page 100)

11.1 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 that the substitution is simple in the sense that wherever a legal macro is found, it will be replaced without regard for syntax correctness.

- 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` field, with restrictions. See the *5.x Updating Overview* (page 18) section for details.

Table 11.1: Macros

Value	Type
<code>\${AUCTION_PRICE}</code>	Settlement price for the auction. The substituted value will be defined as CPM. See the <i>Bid Object</i> (page 73) section for usage details.

11.2 SSP Click Tracking URL Macro

Some SSPs require the DSP to add an SSP click url macro in all creatives for click reporting. DSPs wishing to bid on such bid requests should add the click tracking macro to the creative markup in the `adm` field. The SSP will replace the macro with the SSP click tracking url. If the SSP 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 SSP side and the click macro is not used, as well as the `adm` field.

Table 11.2: Click Tracking Macro

Value	Type
<code>#{CLICK_URL:URLENCODE}</code>	A placeholder for the SSP click tracking URL in urlencoded form. Required for bids to SSPs that support click tracking. No more than one click macro can be used in the <code>bid.adm</code> field

The SSP 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 DSP 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
```

11.3 Click Tracker at Google Adx

Google requires all certified third-party ad tags that host and serve creatives allow Google dynamically generate a unique click URL and pass it through the ad tag upon each ad request. If a user clicks on the ad, the third-party vendor will make an HTTP request to the Google click URL from the user’s browser in order for Google to be able to track clicks on the ad.

The Google click URL contains a number of different key-value pairs that are delimited with characters such as “&” and “?”.

Depending on the implementation method, the Google click URL’s key-value pairs can conflict with the third-party key-value pairs that use these same delimiters. Therefore, the Google click URL may need to be *escaped* in order to eliminate any code conflicts. You can read more about it here on the google website, [Google Click Tracking macro](#)²³, and use the following escaped URL as an example for how to implement it.

```
http://googleads.g.doubleclick.net/pagead/aclk%3Fsa%3D1%26ai%3DBsD-
→iGQbNSun3LJvqjQTgOMWeDOcTkEmu5vD7CsCNtwGQTE9QMEAAAA%26num%3D1%26client%3Dca-mongoogle
→%26adurl%3D
```

²³ <https://support.google.com/adxbuyer/answer/3187721?hl=en>

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 12.1: Sensitive Categories Fields

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

Table 12.2: 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

12.1 Supported Rich Media Frameworks

Table 12.3: 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

- *Dish Demographic Categories* (page 103)
- *Dish Program Types* (page 105)
- *GumGum Taxonomy 2016* (page 105)
- *YieldOne Inventory Category Mapping* (page 109)
- *YieldOne Product Category Mapping* (page 111)

13.1 Dish Demographics

Table 13.1: 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
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)
Continued on next page	

Table 13.1 – continued from previous page

Value	Target Group
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)

13.2 Dish Program Types

Table 13.2: 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

13.3 GumGum Taxonomy 2016

Table 13.3: GumGum Custom Taxonomy

Event Identifier	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 13.3 – continued from previous page

Event Identifier	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 13.3 – continued from previous page

Event Identifier	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 13.3 – continued from previous page

Event Identifier	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 Olympics	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

Continued on next page

Table 13.3 – continued from previous page

Event Identifier	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

13.4 YieldOne Inventory Category Mapping

Table 13.4: 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 13.4 – 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 13.4 – 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

13.5 YieldOne Product Category Mapping

Table 13.5: 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

Continued on next page

Table 13.5 – 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	Motorcycles	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 13.5 – continued from previous page

IAB cat	IAB Description	Category	Product	Product Category
IAB10-7	Interior Decorating	51	Household equip-ment/supplies	Home DIY tools
IAB10-7	Interior Decorating	52	Household equip-ment/supplies	Furniture/ interior goods
IAB10-1	Appliances	53	Household equip-ment/ supplies	Household equip-ment
IAB10-1	Appliances	54	Household equip-ment/ supplies	HVAC equipment
IAB10-1	Appliances	55	Household equip-ment/ supplies	Kitchen electric ap-pliance
IAB10-1	Appliances	56	Household equip-ment/ supplies	Daily electric ap-pliance(vacuum cleaners, washing machines, clothes irons, etc.)
IAB10-9	Remodeling & Con-struction	57	Household equip-ment/ 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 soft-ware(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 materi-als	Gasoline
IAB3	Business	70	Energy/ raw materi-als	Gas
IAB3	Business	71	Energy/ raw materi-als	Electricity
IAB3	Business	72	Energy/ raw materi-als	Wind-power genera-tion

Continued on next page

Table 13.5 – 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 13.5 – 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

Continued on next page

Table 13.5 – 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 electron- ics retail stores
IAB22	Shopping	119	Department stores/ shops/ commercial firms	Guides for depart- ment stores
IAB22	Shopping	120	Department stores/ shops/ commercial firms	Guides for supermar- kets
IAB21	Real Estate	121	Real estate/ con- struction	Real estate for resi- dential housing, con- dominiums, etc.
IAB20	Travel	122	Transportation/ sightseeing/ amuse- ment	Domestic travel in- formation
IAB20	Travel	123	Transportation/ sightseeing/ amuse- ment	Overseas travel infor- mation
IAB20-3	Air Travel	124	Transportation/ sightseeing/ amuse- ment	Air ticket informa- tion
IAB20-25	Theme Parks	125	Transportation/ sightseeing/ amuse- ment	Leisure facil- ity(amusement parks, etc.)
IAB1-5	Movies	126	Transportation/ sightseeing/ amuse- ment	Guides for movies, dramas, etc.
IAB1	Arts & Entertain- ment	127	Transportation/ sightseeing/ amuse- ment	Events informa- tion(concerts, etc.)
IAB20	Travel	128	Transportation/ sightseeing/ amuse- ment	Rental cars
IAB20	Travel	129	Transportation/ sightseeing/ amuse- ment	Transportation ser- vices
IAB3-10	Logistics	130	Transportation/ sightseeing/ amuse- ment	Delivery services

Continued on next page

Table 13.5 – 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 13.5 – 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 Handy-phone 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 13.5 – 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

Continued on next page

Table 13.5 – 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 13.5 – 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