

# OpenWrap OTT video API specification

OpenWrap supports OTT inventory using GET/POST methods. OpenWrap accepts BidRequest in OpenRTB 2.5 format for POST API, and the same specification for GET API, but using only key/value pairs.

## VAST GET endpoint

This endpoint returns standard VAST XML document. In case of error it returns an empty vast tag.

### 📌 Sample Request

http

```
https://ow.pubmatic.com/video/vast?
app.pub.id=5890&req.ext.wrapper.profileid=14330&imp.tagid=scenario_1&imp.vid.ext.adpod.adminduration=5&imp.vid.ext.adpod.admaxduratic
```

### Sample Response

XML

```
<VAST version="3.0">
  <Ad id="scenario_1_adid" sequence="1">
    <Wrapper>
      <AdSystem>
        <![CDATA[PubMatic]]>
      </AdSystem>
      <VASTAdTagURI>
        <![CDATA[https://ads.pubmatic.com/AdServer/js/ott/sampleads/scenario_2.xml]]>
      </VASTAdTagURI>
      <Impression>
        <![CDATA[https://t.pubmatic.com/wt?
adv=&af=video&aps=1&asip=1&au=scenario_1&bc=googssu_test_bidder&bidid=0d96c955-5b85-4645-a5bb-
f5b381115847&cc=US&di=-1&dur=10&eg=9&en=9&fsrc=0&ft=1&iid=e8f14b91-e5e2-4c8e-94b5-
ffe9910b9305&kgpv=scenario_1%40google.com%40693&orig=google.com&origbidid=3304005840955571719&pb=9.00&pdvid=16&pid=14330&plt=3&pn=vas
]]>
      </Impression>
      <Impression>
        <![CDATA[https://example.com/impression]]>
      </Impression>
      <Extensions>
        <Extension>
          <Pricing model="CPM" currency="USD">
            <![CDATA[9]]>
          </Pricing>
        </Extension>
      </Extensions>
      <Error>
        <![CDATA[https://st.pubmatic.com/track?
operId=8&adv=&au=scenario_1&bc=googssu_test_bidder&crId=cr_4801976892356705441&p=5890&pfi=3&pid=14330&pn=vastbidder&sURL=google.com&t
[ERRORCODE]]>
      </Error>
    </Wrapper>
  </Ad>
</VAST>
```

### Error

If there is failure in serving VAST server responds with **X-Ow-Status** header with JSON value containing

ErrorCode	Description
Error	Integer error code
Error	Granular error message

Example

```
{
  "ErrorCode": 700,
  "Error": "Missing Profile ID"
}
```

[See possible errors.](#)

## Query Parameters

[See Get API parameters](#)

## Handling Extended User IDs (EIDs)

[Refer to this section.](#)

## Assumptions

[Refer to endpoint assumptions.](#)

## Google SSU Integration

Google SSU supports VAST 3 and VAST 4 only. So ensure that imp.vid.protocols is recommended values are 3, 6, 7, 8.

See [video protocols](#) for more on values.

## JSON endpoint response

The JSON endpoint will cache all individual creatives for an ad pod and return the targeting keys for those creatives.

This endpoint will be used for integrating OpenWrap with SSAI and GAM for OTT inventory.

### Response object

Key	Type	Description
adpod	Array of adpod objects	Contains targeting key values for each impression and its respective slots.
ext	Object	Holds debug information.

### AdPod object

Key	Type	Description
id	String	Contains Impression ID.
targeting	Array of targeting object	Contains targeting objects for all ad slots of the adpod.
ext	Object	Holds ad pod-specific extension parameter.
modifiedurl	String	modifiedurl is owredirect updated with custom targeting keys. modifiedurl will always be present in response when owredirect is present, and is independent of the f parameter value.

### Targeting object

It is a map of the key-value objects which signifies targeting keys of the bid object. Below are some standard targeting keys.

Key	Partner Level Key	Description	Example
s<slotNo>_pwtddur	N/A	Duration of the video.  slotNo represents the current ad slot number. For example, s1=slot 1, s2=slot 2,	"s1_pwtddur"="60"

		etc.	
s<slotNo>_pwtpcat	N/A	<p>Bid category.</p> <p>This targeting key is available only when, supportdeals=true. See, <a href="#">Prioritizing deals for Ad Pods</a>.</p> <p>Interpreted as:</p> <p>pb = price bucket of the bid.</p> <p>cat = bid category.</p> <p>dur = duration of video bid.</p> <p>For example, passing, 10.00_sports_5s, indicates:</p> <p>pb (price bucket of the bid) = \$10.00</p> <p>cat (bid category) = IAB Sports category.</p> <p>dur (duration of video bid) = duration of 5 seconds.</p>	"s1_pwtpcat"="sports"
s<slotNo>_pwtpb	N/A	<p>Price bucket.</p> <p>This is the adpod ad slot key, here the ad slot represents the current adpod ad slot number. For example, s1, s2, s3, etc.</p> <p>This targeting key represents the price bucket of the bids</p>	"s1_pwtpb"="10.00"
s<slotNo>_pwtpcid	N/A	<p>Cache ID.</p> <p>Cache ID of adslot of adpod.</p> <p>This is the adpod ad slot key, here the ad slot represents the current adpod ad slot number. For example, s1, s2, s3, etc.</p> <p>This targeting key is available only when, supportdeals=true..</p> <p>Interpreted as:</p> <p>pb = price bucket of the bid.</p> <p>cat = bid category.</p> <p>dur = duration of video bid.</p> <p>For example, passing, 10.00_sports_5s, indicates:</p> <p>pb (price bucket of the bid) = \$10.00</p> <p>cat (bid category) = IAB Sports category.</p> <p>dur (duration of video bid) = duration of 5 seconds.</p>	"s1_pwtpcid"="2f54fe21-6e9b-467a-9e35-f1d9b6c6880e"
s<slotNo>_pwtpid	pwtpid_<partnerName>	<p>Partner name.</p> <p>Partner name</p> <p>This is the adpod adslot key, here the adslot represents the current adpod adslot number. For example, s1, s2, s3, etc.</p>	"s1_pwtpid"="pubmatic"

s<slotNo>_pwtdid	pwtdid_<partnerName>	Deal ID	"s1_pwtcid"="PUBDEAL"
s<slotNo>_pwtpid	pwtpid_<partnerName>	Partner name	"s1_pwtpid"="pubmatic"
pwtbst	pwtbst_<partnerName>	Winning bid status <ul style="list-style-type: none"> <li>1: Winning bid</li> <li>0: Non-winning bid</li> </ul>	"pwtbst": "1" "pwtbst_pubmatic": "1"
pwtecp	pwtecp_<partnerName>	eCPM value	"pwtecp": "5.00" "pwtecp_pubmatic": "5.00"
s<slotNo>_pwtpid	pwtpid_<partnerName>	Partner name	"s1_pwtpid"="pubmatic"
pwtssid	pwtssid_<partnerName>	Slot ID	"pwtssid": "47samurai_0x0_OW_CTV" "pwtssid_pubmatic": "47samurai_0x0_OW_CTV"
pwtasz	pwtasz_<partnerName>	Ad Size in WIDTHxHEIGHT	"pwtasz": "0x0" "pwtasz_pubmatic": "0x0"
pwtprofid	•	Profile ID	"pwtprofid": "2375"
pwtpubid	•	Publisher ID	"pwtpubid": "159396"
pwtverid	•	Version ID	"pwtverid": "1"
pwtplt	•	Platform <ul style="list-style-type: none"> <li>display</li> <li>amp</li> <li>in-app</li> <li>video</li> </ul>	"pwtplt": "video"
pwtcurl	•	OpenWrap cache URL	"pwtcurl": " <a href="https://ow.pubmatic.com">https://ow.pubmatic.com</a> "
pwtcpath	•	OpenWrap cache path	"pwtcpath": "/cache"
s<slotNo>_pwtcat	•	<p>This targeting key is available only when, supportdeals=true.</p> <p>Interpreted as:</p> <p>pb = price bucket of the bid.</p> <p>cat = bid category.</p> <p>dur = duration of video bid.</p> <p>For example, passing, 10.00_sports_5s, indicates:</p> <p>pb (price bucket of the bid) = \$10.00</p> <p>cat (bid category) = IAB Sports category.</p> <p>dur (duration of video bid) = duration of 5 seconds.</p>	"s1_pwtcat"="sports"
s_pwtdt	N/A	<p>Deal Priority targeting.</p> <p>This targeting key is only available when:</p> <ul style="list-style-type: none"> <li>supportdeals=true</li> </ul>	"s1_pwtdt"="pubm8"

		<ul style="list-style-type: none"><li>Deal tier configuration is present in the request.</li><li>Bid response has deal priority.</li><li>_dealtier is satisfied. For example, s1_pwtdt="pubm8" where "pubm" is the _dealtier prefix, and "8" is the deal priority in the bid response.</li></ul>	
--	--	--	--

Response headers

Content-Type	application/json
X-Ow-Status	Error details  ErrorCode – Integer error code  Error – Granular error message  <b>Sample Error Details</b> Expand source  { "ErrorCode": 700, "Error": "Missing Profile ID" }

Endpoint Example:

JSON

```
{
  "adpods": [
    {
      "id": "28635736ddc2bb1",
      "targeting": [
        {
          "s1_pwtcid": "20c47868-0d3b-43a7-9f40-70aad3cf9db7",
          "s1_pwtdid": "PUBDEAL1",
          "s1_pwtdur": "35",
          "s1_pwtspb": "5.00",
          "s1_pwtcat": "sports",
          "s1_pwtpid": "pubmatic"
        },
        {
          "s2_pwtcid": "24e0638a-224e-4a61-83e4-90a17ade1e4b",
          "s2_pwtdid": "PUBDEAL2",
          "s2_pwtdur": "30",
          "s2_pwtspb": "15.00",
          "s2_pwtcat": "sports",
          "s2_pwtpid": "pubmatic"
        },
        {
          "s3_pwtcid": "1fc70e5b-f738-4f3a-a20b-92489e53fa78",
          "s3_pwtdur": "20",
          "s3_pwtspb": "10.00",
          "s3_pwtcat": "sports",
          "s3_pwtpid": "appnexus"
        },
        {
          "s4_pwtcid": "2f54fe21-6e9b-467a-9e35-f1d9b6c6880e",
          "s4_pwtdur": "25",
          "s4_pwtspb": "5.00",
          "s4_pwtcat": "sports",
          "s4_pwtpid": "pubmatic"
        }
      ]
    }
  ]
}
```

Valid JSON Response Example with Response Headers:

## JSON

```

{
  "adpods": [
    {
      "id": "28635736ddc2bb1",
      "targeting": [
        {
          "pwtbst": "1",
          "pwtbst_pubmatic": "1",
          "pwtcid": "20c47868-0d3b-43a7-9f40-70aad3cf9db7",
          "pwtcid_pubmatic": "20c47868-0d3b-43a7-9f40-70aad3cf9db7",
          "pwtcpath": "/cache",
          "pwtcurl": "https://ow.pubmatic.com",
          "pwtddid": "PUBDEAL1",
          "pwtddid_pubmatic": "PUBDEAL1",
          "pwtddur": "35",
          "pwtecp": "5.00",
          "pwtecp_pubmatic": "5.00",
          "pwtpb_cat_dur": "10.00_sports_5s",
          "pwtpid": "pubmatic",
          "pwtpid_pubmatic": "pubmatic",
          "pwtplt": "video",
          "pwtprofid": "2375",
          "pwtpubid": "159396",
          "pwtsid": "47samurai_0x0_OW_CTV",
          "pwtsid_pubmatic": "47samurai_0x0_OW_CTV",
          "pwtsz": "0x0",
          "pwtsz_pubmatic": "0x0",
          "pwtverid": "1"
        },
        {
          "pwtbst": "1",
          "pwtbst_pubmatic": "1",
          "pwtcid": "24e0638a-224e-4a61-83e4-90a17ade1e4b",
          "pwtcid_pubmatic": "24e0638a-224e-4a61-83e4-90a17ade1e4b",
          "pwtcpath": "/cache",
          "pwtcurl": "https://ow.pubmatic.com",
          "pwtddid": "PUBDEAL1",
          "pwtddid_pubmatic": "PUBDEAL1",
          "pwtddur": "35",
          "pwtecp": "5.00",
          "pwtecp_pubmatic": "5.00",
          "pwtpid": "pubmatic",
          "pwtpid_pubmatic": "pubmatic",
          "pwtplt": "video",
          "pwtprofid": "2375",
          "pwtpubid": "159396",
          "pwtsid": "47samurai_0x0_OW_CTV",
          "pwtsid_pubmatic": "47samurai_0x0_OW_CTV",
          "pwtsz": "0x0",
          "pwtsz_pubmatic": "0x0",
          "pwtverid": "1"
        },
        {
          "pwtbst": "1",
          "pwtbst_pubmatic": "1",
          "pwtcid": "1fc70e5b-f738-4f3a-a20b-92489e53fa78",
          "pwtcid_pubmatic": "1fc70e5b-f738-4f3a-a20b-92489e53fa78",
          "pwtcpath": "/cache",
          "pwtcurl": "https://ow.pubmatic.com",
          "pwtddid": "PUBDEAL1",
          "pwtddid_pubmatic": "PUBDEAL1",
          "pwtddur": "35",
          "pwtecp": "5.00",
          "pwtecp_pubmatic": "5.00",
          "pwtpid": "pubmatic",
          "pwtpid_pubmatic": "pubmatic",
          "pwtplt": "video",
          "pwtprofid": "2375",
          "pwtsid": "47samurai_0x0_OW_CTV",
          "pwtsid_pubmatic": "47samurai_0x0_OW_CTV",
          "pwtsz": "0x0",
          "pwtsz_pubmatic": "0x0",
          "pwtverid": "1"
        }
      ]
    }
  ]
}

```

## Request Parameters for OpenWrap between SSAI and GAM (JSON Endpoint - GET)

The following parameters are only supported for Video JSON endpoint GET method:

```

"pwtsz": "0x0",

```

Parameters	Data Type	Description	Example
request.ext.wrapper.ssai	string	Identifies the name of the SSAI vendor from which the request is sent.	"mediatailor"
f	string	Response format for JSON endpoint. Supported values for f: "pubmatic", "redirect", "video" (GAM (302 redirect) 2. JSON: JSON formatted response from OpenWrap (existing behaviour). Default value of f parameter is json	"json"/ "redirect"
owredirect	string	Identifies the GAM URL where bids need to be redirected.  Use only when f="redirect"  <b>OpenWrap and cust_params:</b> <ul style="list-style-type: none"> <li>The summary of the OpenWrap bids will be added in the <b>cust_params</b> in GAM URL.</li> <li>Existing values <b>cust_params</b> will be retained and OpenWrap will append the new values.</li> <li>If there are key conflicts, then OpenWrap will replace its values. For example, if the publisher provided <b>cust_params</b> contains s1_pwtppb=456, and OpenWrap determines its value as s1_pwtppb=789, then OpenWrap will replace 456 with 789 (because s1_pwtppb is reserved key for OpenWrap).</li> <li>Reserved keys for OpenWrap in case of <b>cust_params</b>:</li> </ul> <p>&lt;NO&gt; will be replaced with slot no</p> <p>See Reserved Keys table below.</p>	<a href="https://pubads.g.doubleclick.net/gampad/ads?cust_params=s1_pwtppb%3D123">https://pubads.g.doubleclick.net/gampad/ads?cust_params=s1_pwtppb%3D123</a>

#### Reserved Keys

Reserved Key	Description	Example
s<NO>_pwtppb	Bid Price Bucket	s1_pwtppb
s<NO>_pwtcid	Creative cache ID	s1_pwtcid
s<NO>_pwtddur	Ad Duration	s1_pwtddur
s<NO>_pwtpid	Partner ID	s1_pwtpid

## POST API

OpenWrap supports CTV inventory as defined in the [Object: Video section of the IAB OpenRTB API Specification Version 2.5](#), with some minor differences. For example, PubMatic's CTV BidRequest implementation supports multiple video impressions. The following sample shows how a typical impression might appear using the /video/vast endpoint.

The CTV Video API supports three endpoints:

1. /video/openrtb
2. /video/vast

```

3<Video/iso="3.0"><Ad id="601364"><InLine><AdSystem><![CDATA[Acudeo Compatible]]></AdSystem><AdTitle><![
[CDATA[VAST 2.0 Instream Test 1]]></AdTitle><Description><![CDATA[VAST 2.0 Instream Test 1]]></Description>
<Impression><![CDATA[http://172.16.4.192:8842/wt?bidid=1-VIDEO12-89A1-41F1-8708-
978FD3C0912A&eg=5&en=5&iid=64b474fd-6dd9-4d55-bef1-
e8769070461a&kgpv=47samurai_0x0_OW_CTV%400x00&pdvid=1&pid=2375&pn=pubmatic&pubid=159396&purl=http%3A%2F%2Febay.com%2Finte%2Fautomation
</Impression><Impression><![CDATA[http://172.16.4.213/AdServer/AdDisplayTrackerServlet?
operTid=1&pubTid=5800&siteTid=47163&adTid=1405268&adType=1&adServerTid=743&kefact=70_000000&skavefact=70_000000&skadNetFrequency=0&skadwidth=

```

## Sample HTTP POST Impression

### HTTP

```
curl -v --location --request POST 'http://172.16.4.192:7878/video/vast' \
```

```
--header 'Content-Type: text/plain' \
```

```
--data-raw '{
```

```
  "id": "1559039248176",
```

1&amp;r

```
  "imp": [
```

```
    {
```

```
      "id": "28635736ddc2bb",
```

```
      "video": {
```

```
        "pos": 7,
```

```
        "companionad": [
```

```
          {
```

```
            "pos": 7,
```

```
            "format": [
```

```
              {
```

```
                "w": 320,
```

```
                "h": 480
```

```
              }
```

```
            ],
```

```
            "api": [
```

```
              5,
```

```
              6,
```

```
              7
```

```
            ]
```

```
          }
```

```
        ],
```

```
        "maxbitrate": 2000,
```

```
        "minduration": 15,
```

```
        "protocols": [
```

```
          2,
```

```
          3,
```

```
          5,
```

```
          6,
```

```
          7,
```

```
          8
```

```
        ],
```

```
        "mimes": [
```

```
          "video/3gpp",
```

```
          "video/mp4",
```

```
          "video/webm"
```

```
        ],
```

```
        "linearity": 1,
```

```
        "boxingallowed": 1,
```

```
        "playbackmethod": [
```

```
          1
```

```
        ],
```

```
        "delivery": [
```

```
          2
```

```
        ],
```

```
        "companiontype": [
```

```
          1,
```

```
          2,
```

```
          3
```

```
        ],
```

```
        "placement": 5,
```

```
        "playbackend": 1,
```

```
        "startdelay": 0
```

```
      },
```

```
      "tagid": "/15671365/DMDemo",
```

```
      "secure": 0,
```

```
      "ext": {
```

```
        "bidder": {}
```

```
      }
```

```
    }
```

```
  ],
```

```
  "app": {
```

```
    "name": "OpenWrapperSample",
```

```
    "bundle": "com.pubmatic.openbid.app",
```

```
    "maxduration": 140,
```



## API Limitations

POST method ignores banner, native and audio objects.

OpenWrap's HTTP POST method ignores banner, native and audio objects.

## Unsupported examples

The table below lists JSON payload snippets that illustrate OpenRTB 2.5 structures that OpenWrap does not support at this time.

Object	Description
<pre> {   "device": {     "type": "Mobile",     "model": "iPhone11,2",     "os": "iOS",     "version": "11.0",     "width": 375,     "height": 812,     "color": "black",     "language": "en",     "timezone": "America/New_York",     "carrier": "Verizon",     "mccmnc": "310150100",     "make": "Apple",     "model": "iPhone11,2",     "os": "iOS",     "version": "11.0",     "width": 375,     "height": 812,     "color": "black",     "language": "en",     "timezone": "America/New_York",     "carrier": "Verizon",     "mccmnc": "310150100"   },   "ad": {     "id": "5890",     "name": "Test Ad",     "description": "Test Ad Description",     "imageurl": "http://www.testad.com/image.jpg",     "audio": {       "url": "http://www.testad.com/audio.mp3"     },     "native": {       "title": "Test Ad Title",       "body": "Test Ad Body",       "image": "http://www.testad.com/image.jpg",       "icon": "http://www.testad.com/icon.png",       "button": "http://www.testad.com/button.png"     }   },   "inventory": {     "type": "Video",     "duration": 30,     "start": 0,     "end": 30,     "width": 1920,     "height": 1080,     "bitrate": 5000,     "scalable": true,     "delivery": "progressive"   },   "playbackmethod": {     "type": "HLS",     "url": "http://www.testad.com/hls/playlist.m3u8"   } } </pre>	<p>Full banner object unsupported. OpenWrap ignores the impression object if it contains a banner object.</p> <p>Sample impression with banner object Expand source</p> <p>Input BidRequest with banner object</p>
<pre> {   "device": {     "type": "Mobile",     "model": "iPhone11,2",     "os": "iOS",     "version": "11.0",     "width": 375,     "height": 812,     "color": "black",     "language": "en",     "timezone": "America/New_York",     "carrier": "Verizon",     "mccmnc": "310150100",     "make": "Apple",     "model": "iPhone11,2",     "os": "iOS",     "version": "11.0",     "width": 375,     "height": 812,     "color": "black",     "language": "en",     "timezone": "America/New_York",     "carrier": "Verizon",     "mccmnc": "310150100"   },   "ad": {     "id": "5890",     "name": "Test Ad",     "description": "Test Ad Description",     "imageurl": "http://www.testad.com/image.jpg",     "audio": {       "url": "http://www.testad.com/audio.mp3"     },     "native": {       "title": "Test Ad Title",       "body": "Test Ad Body",       "image": "http://www.testad.com/image.jpg",       "icon": "http://www.testad.com/icon.png",       "button": "http://www.testad.com/button.png"     }   },   "inventory": {     "type": "Video",     "duration": 30,     "start": 0,     "end": 30,     "width": 1920,     "height": 1080,     "bitrate": 5000,     "scalable": true,     "delivery": "progressive"   },   "playbackmethod": {     "type": "HLS",     "url": "http://www.testad.com/hls/playlist.m3u8"   } } </pre>	<p>Full banner object unsupported. OpenWrap ignores the impression object if it contains a banner object.</p> <p>Sample impression with banner object Expand source</p> <p>Input BidRequest with banner and video objects</p>
<pre> {   "device": {     "type": "Mobile",     "model": "iPhone11,2",     "os": "iOS",     "version": "11.0",     "width": 375,     "height": 812,     "color": "black",     "language": "en",     "timezone": "America/New_York",     "carrier": "Verizon",     "mccmnc": "310150100",     "make": "Apple",     "model": "iPhone11,2",     "os": "iOS",     "version": "11.0",     "width": 375,     "height": 812,     "color": "black",     "language": "en",     "timezone": "America/New_York",     "carrier": "Verizon",     "mccmnc": "310150100"   },   "ad": {     "id": "5890",     "name": "Test Ad",     "description": "Test Ad Description",     "imageurl": "http://www.testad.com/image.jpg",     "audio": {       "url": "http://www.testad.com/audio.mp3"     },     "native": {       "title": "Test Ad Title",       "body": "Test Ad Body",       "image": "http://www.testad.com/image.jpg",       "icon": "http://www.testad.com/icon.png",       "button": "http://www.testad.com/button.png"     }   },   "inventory": {     "type": "Video",     "duration": 30,     "start": 0,     "end": 30,     "width": 1920,     "height": 1080,     "bitrate": 5000,     "scalable": true,     "delivery": "progressive"   },   "playbackmethod": {     "type": "HLS",     "url": "http://www.testad.com/hls/playlist.m3u8"   } } </pre>	<p>Full banner object unsupported. OpenWrap ignores the impression object if it contains a banner object.</p> <p>Sample impression with banner and video objects Expand source</p> <p>Input BidRequest with banner and video objects</p>

Object	Description
<pre> } "cid": "17050", "crid": "creative-1_1_2", Note: Unnecessary use of -X or --request-uri inferred. * Trying 172.16.4.192:7878... * TCP_NODELAY set * Connected to 172.16.4.192 (172.16.4.192) port 7878 (#0) &gt; POST /video/vast HTTP/1.1 &gt; Host: 172.16.4.192:7878 &gt; User-Agent: curl/7.65.2 &gt; Accept: */* &gt; Content-Type: text/plain &gt; Content-Length: 1997 &gt; Expect: 100-continue &gt; * Mark bundle as not supporting multiuse &lt; HTTP/1.1 100 Continue BidRequest Imp Audio * We are completely uploaded and fine * Mark bundle as not supporting multiuse &lt; HTTP/1.1 200 OK &lt; Access-Control-Allow-Origin: * &lt; Content-Type: application/xml &lt; Date: Fri, 27 Mar 2020 16:37:11 GMT &lt; Transfer-Encoding: chunked &lt; &lt;VAST version="3.0"&gt;   &lt;Ad id="601364"&gt;     &lt;Inline&gt;       &lt;AdSystem&gt; ...       &lt;![CDATA[Acudeo Compatib]]&gt;     &lt;/AdSystem&gt;     &lt;AdTitle&gt;       &lt;![CDATA[VAST 2.0 Instream Test 1]]&gt;     &lt;/AdTitle&gt;     &lt;Description&gt;       &lt;![CDATA[VAST 2.0 Instream Test 1]]&gt;     &lt;/Description&gt;     &lt;Impression&gt;       &lt;![CDATA[/t.pubmatic.com/wt?bidid=28635736ddc2bb&amp;eg=12&amp;en=12&amp;iid=aa5237b4-ba9e-4960-ad9c-2910aa9e1346&amp;kgpv=%2F15671365%2FDMDemo%400x0&amp;pdvid=1&amp;pid=3514&amp;pn=pubmatic&amp;pubid=5890&amp;purl=https%3A%2F%2Fitunes.apple.com%2F%3Fvideobi]]&gt;     &lt;/Impression&gt;     &lt;Impression&gt;       &lt;![CDATA[http://172.16.4.213/AdServer/AdDisplayTrackerServlet?operId=1&amp;pubId=5890&amp;siteId=47163&amp;adId=1405268&amp;adType=13&amp;adServerId=243&amp;kfact=70.000000&amp;kaxefact=70.000000&amp;kadNetFrequency=0&amp;kadwidth=m5DoNSep-RXGDr&amp;kaxefact=Ad8WwRUCwD7qgzwwPE2LnS5-0u19u05amJl1YT6-XVfVq41&amp;imprId=48F73E1A-7F23-443D-A53C-30EE6BBF5F7F&amp;oid=48F73E1A-7F23-443D-A53C-30EE6BBF5F7F&amp;crId=creative-1_1_2&amp;ucrid=160175026529250297&amp;campaignId=17050&amp;creativeId=0&amp;pctr=0.000000&amp;wDSPByrId=511&amp;wDspId=6&amp;wbId=0&amp;swrId=0&amp;wAdvID=3170&amp;isRTB=1&amp;r8D7C-45B8-B733-92951F670AA1&amp;pmZoneId=zone1&amp;pageURL=www.yahoo.com&amp;lpu=ae.com]]&gt;     &lt;/Impression&gt;     &lt;Impression&gt;       &lt;![CDATA[https://doctracker.com/PSRM]]&gt;     &lt;/Impression&gt;     &lt;Error&gt;       &lt;![CDATA[http://172.16.4.213/track?operId=7&amp;p=5890&amp;s=47163&amp;a=1405268&amp;wa=243&amp;ts=1529929473&amp;wc=17050&amp;crId=creative-1_1_2&amp;ucrid=160175026529250297&amp;imprId=48F73E1A-7F23-443D-A53C-30EE6BBF5F7F&amp;advertiser_id=3170&amp;ecpm=70.000000&amp;er=[ERRORCODE]]&gt;     &lt;/Error&gt;     &lt;Creatives&gt;       &lt;Creative AdID="601364"&gt;         &lt;Linear skipoffset="70%"&gt;           &lt;video&gt;             &lt;Tracking event="close"&gt;               &lt;![CDATA[https://mytracking.com/linear/close]]&gt;             &lt;/Tracking&gt;             &lt;Tracking event="skip"&gt;               &lt;![CDATA[https://mytracking.com/linear/skip]]&gt;             &lt;/Tracking&gt;           &lt;/video&gt;           &lt;Tracking event="creativeView"&gt;             &lt;![CDATA[https://mytracking.com/linear/skip]]&gt;           &lt;/Tracking&gt;         &lt;/Linear&gt;       &lt;/Creative&gt;     &lt;/Creatives&gt;   &lt;/Ad&gt; &lt;/VAST&gt; </pre>	<p>Sample impression with audio Expand source</p> <p>Input BidRequest with audio object</p> <p>Resulting BidRequest</p> <p>OpenWrap removes an audio object from an impression if it is specified with video object in the same impression.</p> <p>Sample impression with audio and video Expand source</p> <p>Input BidRequest with audio and video objects</p> <p>Resulting BidRequest used throughout</p>

11/43

Object	Description
	<pre>"skip": 1, "skipmin": 10, "skipafter": 15, "battr": [   6,   7 ], Resultant BidRequest used throughout "playbackMethod": [   1 ] {   } } "imp":[{   }, {   "id": "4-VIDE012-89A1-41F1-8708-978FD3C0912A",   "impid": "28635736ddc2bb1_4",   /*Removed native object*/,   "adm":   "video": {} } "&lt;VAST version=\"3.0\"&gt;&lt;Ad id=\"601364\"&gt;&lt;InLine&gt;&lt;AdSystem&gt;&lt;![CDATA[Acudeo Compatible]]&gt;&lt;/AdSystem&gt;&lt;AdTitle&gt;&lt;![CDATA[VAST 2.0 Instream Test 1]]&gt;&lt;/AdTitle&gt;&lt;Description&gt;&lt;![CDATA[VAST 2.0 Instream Test 1]]&gt;&lt;/Description&gt; &lt;Impression&gt;&lt;![CDATA[/10.110.194.12:8842/wt?bidid=4-VIDE012-89A1-41F1-8708-978FD3C0912A&amp;eg=5&amp;en=5&amp;iid=64b474fd-6dd9-4d55-bef1-e8769070461a&amp;kgpv=47samurai_0x0_0W_CTV%400x0&amp;pdvid=1&amp;pid=2375&amp;pn=pubmatic&amp;pubid=159396&amp;purl=http%3A%2F%2Febay.com%2Finte%2Fautomation &lt;/Impression&gt;&lt;Impression&gt;&lt;![CDATA[http://172.16.4.213/AdServer/AdDisplayTrackerServlet?operId=1&amp;pubId=5890&amp;siteId=47163&amp;adId=1405268&amp;adType=13&amp;adServerId=243&amp;kefact=70.000000&amp;kaxefact=70.000000&amp;kadNetFrequency=0&amp;kadwidth= m5DoNsep-RXGDr&amp;ekaxefact=Ad8wWwRUCwAGir4ZzlleF0bKiC-qrCV0D0yp_eE7YizB_BQk&amp;ekpbmtpfact=Ad8wWwRUCwD7qgzwwPE2LnS5-0u19u05amJl1YT6-XVFvQ41&amp;imprId=48F73E1A-7F23-443D-A53C-30EE6BBF5F7F&amp;id=48F73E1A-7F23-443D-A53C-30EE6BBF5F7F&amp;crId=creative-1_1_2&amp;ucId=160175026529250297&amp;campaignId=17050&amp;creativeId=0&amp;pctr=0.000000&amp;wDspByrId=511&amp;wDspId=6&amp;wbId=0&amp;wrId=0&amp;wAdvID=3170&amp;isRTB=1&amp;r8D7C-45B8-B733-92951F670AA1&amp;pmZoneId=zone1&amp;pageURL=www.yahoo.com&amp;lpu=ae.com]]&gt;&lt;/Impression&gt;&lt;Impression&gt;&lt;![CDATA[http://172.16.4.213/track?operId=7&amp;pn=5890&amp;s=47163&amp;a=1405268&amp;wa=243&amp;ts=1529929473&amp;wc=17050&amp;crId=creative-1_1_2&amp;ucId=160175026529250297&amp;impid=48F73E1A-7F23-443D-A53C-30EE6BBF5F7F&amp;advertiser_id=3170&amp;com=70.000000&amp;er=[ERRORCODE]]]&gt;&lt;/Error&gt;&lt;Error&gt;&lt;![CDATA[https://Errortrack.com?p=1234&amp;er=[ERRORCODE]]]&gt;&lt;/Error&gt;&lt;Creatives&gt;&lt;Creative AdID=\"601364\"&gt;&lt;Linear</pre>

GET API parameters

Using the GET /yourtokenall BidRequest parameters and values encoded in the URL. The sections below show the Required parameters, followed by the Optional parameters, and a brief example for each.

Required parameters

OpenWrap rejects BidRequests that do not include the parameters in the following table.

OpenWrap Key	ORTB 2.5 Key	Type	Description	Example
imp.tagid	bidrequest.imp[0].tagid	String	The identifier for a specific ad placement or ad tag that initiated the auction. Use to troubleshoot issues and to help buyers optimize bids; for example, you can specify adUnitId here.	/ID/SampleAdUnit
imp.vid.mimes	bidrequest.imp[0].video.mimes	String Array	Comma separated String Array. Supported content MIME types include:: video/x-ms-wmv and video/mp4.	video%2F3gpp,video%2Fmp4,video%2Fwebm
site.pub.id / app.pub.id	bidrequest.site.publisher.id / bidrequest.app.publisher.id	String	Exchange-specific publisher ID. Requires at least one of either, site.pub.id or app.pub.id.	12345
req.ext.wrapper.profileid	bidrequest.ext.wrapper.profileid	Integer	OpenWrap requires a specific profile id for inventory type.	12345

Optional parameters

```
},
"ae.com"
```



Use the objects/parameters below as needed on a case-by-case basis.

### BidRequest object

The [BidRequest](#) object is the top-level parent for the other objects described in later sections. The next table shows the OpenWrap key to reference Req objects, and for comparison, the equivalent OpenRTB 2.5 key to reference BidRequest objects.

OpenWrap Key	ORTB 2.5 Key
req.[param]	bidrequest.[param]

The following table lists the parameters available to let you configure Req objects.

Parameter	Type	Description	Example
id	String	The unique ID of the BidRequest, provided by the exchange. OpenWrap auto-generates this if you do not provide it.	45067fec-eab7-4ca0-ad3a-87b01f21846a
test	Integer Default: 0	Boolean value that indicates test mode, in which auctions are not billable; for example, 0 = live mode, 1 = test mode.	1
at	Integer Default: 2	Auction type: 1 = First Price, 2 = Second Price Plus. Define exchange-specific auction types using values greater than 500.	2
tmax	Integer	Maximum time in milliseconds the exchange allows bids to be received, including Internet latency to avoid timeout. Supersedes any prior guidance from the exchange. Set this in the OpenWrap configuration file.	100
bseat	String Array	Blocklist of buyer seats (for example, advertisers, agencies), restricted from bidding on the impression. Bidders and the exchange must make the connection between seat IDs and the buyer's customers which the IDs represent.	nike,puma
wseat	String Array	White list of creative languages in ISO-639-1-alpha-2 alpha codes. Omission implies no specific restrictions, but buyers should consider language attributes in the Device and/or Content objects if available.	nike,puma
allimps	Integer Default: 0	Flags whether the exchange can verify that the offered impressions represent all available impressions in context (that is, all on the web page, or all video spots such as pre, mid, and post-roll), that support road-blocking. 0 = no or unknown, 1 = yes, the impressions offered represent all available.	1
wlang	String Array	White list of creative languages in ISO-639-1-alpha-2 alpha codes. Omission implies no specific restrictions, but buyers should consider language attributes in the Device and/or Content objects if available.	en,ca
cur	String Array	An array of allowed currencies for bids, on a BidRequest using ISO-4217 alpha codes. Use only if the exchange accepts multiple currencies. Currently, server-side OpenWrap works with only USD... Server-side OpenWrap replaces any other currency with USD.	USD
bcat	String Array	Blocked advertiser categories using the IAB content categories.	IAB-1,IAB-2
badv	String Array	Blocklist of advertisers by their domains; for example, ford.com.	ford.com,puma.com

bapp	String Array } }, "httpcalls": { "pubmatic": { { "requestbody":	Blocklist of apps by their platform-specific, exchange-independent identifiers.  <ul style="list-style-type: none"> <li>For Android, <a href="#">application IDs</a> are bundle or package names; for example, com.foo.mygame.</li> <li>For iOS, these are numeric IDs that you can obtain through your <a href="#">Apple Developer</a> account.</li> </ul>	com.foo.mygame,1234
------	---	---	---------------------

The BidRequest object supports ad pods: [{"id": "28635736ddc2bb1\_1", "video": {"mimes":

["video/3gpp", "video/mp4", "video/webm"], "minduration": 30, "maxduration": 35, "protocols":

Source Object 2, "h": 320, "w": 480, "startdelay": 2, "placement": 5, "linearity": 1, "skip": 1, "skipmin": 10, "skipafter": 15, "sequence": 6, 7, "minbitrate": 1200, "maxbitrate": 1999, "boxingallowed": 1, "playbackmethod":

The Source object is a child of BidRequest described above. The next table shows the OpenWrap key to reference Src objects, and for comparison, the

equivalent OpenRTB 2.5 key to reference Source objects. [{"id": "123", "bidfloor": 1.2, "bidfloorcur": "USD", "at": 1, "wseat":

["IAB-1", "IAB-2"], "wadomain":

OpenWrap Key	ORTB 2.5 Key
src.[param]	bidrequest.source.[param]

["video/3gpp", "video/mp4", "video/webm"], "minduration": 30, "maxduration": 35, "protocols":

[2, 3, 5, 6, 7, 8], "w": 320, "h": 480, "startdelay": 2, "placement": 5, "linearity": 1, "skip": 1, "skipmin": 10, "skipafter": 15, "sequence": 6, 7, "minbitrate": 1200, "maxbitrate": 1999, "boxingallowed": 1, "playbackmethod":

[1], "playbackend": 1, "delivery": [2], "pos": 7, "api": [1, 2], "companiontype": [1, 2, 3], "pmp":

Parameter Type Description Example

["IAB-1", "IAB-2"], "wadomain":

for "WD1", "Integer Entity responsible for the final impression sale decision where 0 = exchange, 1 = upstream

1.0, "instl": 1, "source": "47samurai\_0x0\_0W\_CTV", "bidfloor": 1.1, "bidfloorcur": "USD", "secure": 0, "iframebuster":

["1"], "exp": 1, "id": "28635736ddc2bb1\_3", "video": {"mimes":

tid "video/3gpp" "video/mp4" "video/webm"}, "minduration": 30, "maxduration": 35, "protocols":

[2, 3, 5, 6, 7, 8], "w": 320, "h": 480, "startdelay": 2, "placement": 5, "linearity": 1, "skip": 1, "skipmin": 10, "skipafter": 15, "sequence": 6, 7, "minbitrate": 1200, "maxbitrate": 1999, "boxingallowed": 1, "playbackmethod":

chain "playbackend": 1, "delivery": [2], "pos": 7, "api": [1, 2], "companiontype": [1, 2, 3], "pmp":

["private\_auction": 1, "deals": [{"id": "123", "bidfloor": 1.2, "bidfloorcur": "USD", "at": 1, "wseat":

["IAB-1", "IAB-2"], "wadomain":

["WD1", "Integer"] Supply chain string containing embedded syntax described in the IAC Payment Protocol v1.0.

chain "String Supply chain string representing the links in the supply chain as well as an indicator as to

whether the supply chain is complete. This value should be in serialized format and encoded. Refer to

https://github.com/InteractiveAdvertisingBureau/openrtb/blob/master/supplychainobject.md

to learn more about serializing the SupplyChain object.

["IAB-1", "IAB-2"], "wadomain":

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["WD1", "Integer"] Supply chain string containing embedded syntax described in the IAC Payment Protocol v1.0.

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https://github.com/InteractiveAdvertisingBureau/openrtb/blob/master/supplychainobject.md

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to learn more about serializing the SupplyChain object.

["IAB-1", "IAB-2"], "wadomain":

OpenWrap Key	Type	Description	Example
displaymanagerver	String	A version of ad mediation partner SDK technology or player responsible for serving ads (typically video or mobile).	PubMaticSPK-1.0
instid	Integer	Used by some ad servers to customize ad by a partner. Recommended for video and/or apps.	1
bidfloor	Float	The minimum bid for this impression expressed in CPM.	1.1
bidfloorcur	String	Currency specified using ISO-4217 alpha codes.	USD
clickbrowser	Integer	Indicates the type of browser opened upon clicking the creative in an app.	0 = embedded 1 = Native
secure	Integer	Flag to indicate if the impression requires secure HTTPS URL to create assets and markup.	1 = secure 0 = non-secure
iframepublisher	String	An array of exchange specific names of supported iframe publishers.	1
env	Integer	AdSense Mobile to the number of persons that may elapse between the auction and the actual impression.	1
pmp	String	An extensible PMP object containing configuration JSON for any private marketplace deals active for the impression.	Sample PMP Object JSON-Expand source



16/43



Parameter	Type	Description	Example
ad id="601364"	String	Line<AdSystem>Acudeo Compatible</AdSystem><AdTitle>VAST 2.0 Instream Test 1</AdTitle><Description>VAST 2.0 Instream Test 1</Description><Impression><!--	
seats=16.4.213	String	Array of buyer seats (for example, advertisers, agencies) allowed to bid on this deal.	nike,puma
operId=1&pubId=5890&siteId=47163&adId=1405268&adType=13&adServerId=243&kefact=70.000000&kaxefact=70.000000&kad	Array	IDs of seats and the buyer's customers to which they refer must be coordinated between bidders and the exchange a priori.	NetFrequency=0&kadwidth=
m5DoNsep=RXGDr&ekaxefact=Ad8WwRUCwAGir4Zz11eF0bKiC=qrCV000yp_eE7YizB_B0k&ekpbmtfact=Ad8WwRUCwDqgzwwPE2LnS5-0u19u05amJl1YT6-XVfV041&imprId=48F73E1A-7F23-443D-A53C-30EE6BBF5F7F&oid=48F73E1A-7F23-443D-A53C-30EE6BBF5F7F&crId=creative-	Object	Omission implies no seat restrictions.	
1_1_2&ucrid=160175026529250297&impid=48F73E1A-7F23-443D-A53C-30EE6BBF5F7F&advertiser_id=3170&ecpm=70.000000&e=1]]</Error><Error><!--	Array	Array of advertiser domains (for example, advertiser.com) allowed to bid on this deal.	ad.com,page.com
[CDATA[https://Errortrack.com?pe=1234&er=[ERRORCODE]]]></Error><Creatives><Creative AdID='601364'><Linear	Object	Omission implies no advertiser restrictions.	
skipoffset=1000'><Tracking event='skip'><!-- [CDATA[http://mytracking.com/linear/close]]></Tracking><Tracking event='skip'><!-- [CDATA[https://mytracking.com/linear/skip]]></Tracking><Tracking	Object	Placeholder for exchange-specific extensions to OpenRTB.	See Ext section below.

## Video object

The video object is a child of the impression object, described above. The next table shows the OpenWrap key to reference Vid objects, and for comparison, the equivalent OpenRTB 2.5 key to reference Video objects.

OpenWrap Key	ORTB 2.5 Key
imp.vid.[param]	bidrequest.imp[0].video.[param]

The following table lists the parameters available to configure Video objects.

Parameter	Type	Description	Example
miniduration	Integer	Minimum video duration of ad (or ad pod) in seconds.	5
maxiduration	Integer	Maximum video duration of ad (or ad pod) in seconds.	120
protocols	Array	Array of supported video protocols.	2,3,5,6,7,8
w	Integer	Width of the video player in device independent pixels (DIPS).	320
h	Integer	Height of the video player in device independent pixels (DIPS).	480
startdelay	Integer	Indicates the start delay in seconds for pre, mid, or post-roll ad placements.	0
placement	Integer	Placement type for the impression.	5
plcmnt	Integer	Placement type for the impression.	1
linearity	Integer	Determines whether the impression is linear, nonlinear, and so on. Leaving unspecified implies all are allowed.	1
skip	Integer	Determines whether the user can skip the video ad.	1
skipmin	Integer	Videos of total duration greater than this number of seconds can be skippable; only applicable if the ad is skippable.	1
skipafter	Integer	Number of seconds a video must play before skipping is enabled; only applicable if the ad is skippable.	1
sequence	Integer	If the BidRequest offers multiple ad impressions, the sequence number facilitates coordinated delivery of multiple creatives.	1
battr	Integer	Blocked creative attributes.	1,2,3

Parameter	Type	Description	Example
maxextended	Integer	Maximum extended ad duration, if allowed. <pre> "device": {   "type": 1,   "didmd5": "EA7583CD-A667-48BC-B806-42ECB2B48606",   "didsha1": "EA7583CD-A667-48BC-B806-42ECB2B48606",   "dnt": 0,   "dpidmd5": "EA7583CD-A667-48BC-B806-42ECB2B48606",   "dpidsha1": "EA7583CD-A667-48BC-B806-42ECB2B48606",   "flashver": "1.1",   "geo": {     "lat": 72.6,     "lon": 72.6,     "metro": "Mumbai",     "region": "Maharashtra",     "type": 1,     "utcoffset": 120,     "zip": "123456"   },   "h": 768,   "w": 1280,   "ip": "172.16.8.74",   "ip6": "2001:db8::8a2e:370:7334",   "js": true,   "language": "en-us",   "lmt": 1,   "macmd5": "EA7583CD-A667-48BC-B806-42ECB2B48606",   "macsha1": "EA7583CD-A667-48BC-B806-42ECB2B48606",   "make": "Apple",   "model": "iPhone-X",   "os": "iOS",   "osv": "10",   "ppi": 4096,   "pxratio": 1.3,   "ua": "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/74.0.3729.169 Safari/537.36" } </pre>	10
minbitrate	Integer	Minimum bit rate in Kbps.	1200
maxbitrate	Integer	Maximum bit rate in Kbps.	2000
boxingallowed	Integer	Determines whether 4:3 content is letter-boxed into 16:9 aspect ratio.	1
playbackmethod	Integer Array	Playback methods that may be in use. Unspecified implies that any method is possible. Typically only one method ever used. As a result, a future version of the specification may define this parameter as an integer. The best practice is to use only the first element of this array in preparation for this change.	1
delivery	Integer Array	Supported delivery methods; for example, streaming, progressive. Unspecified implies that all are supported.	2
pos	Integer	Ad position on screen.	7
api	Integer Array	List of supported API frameworks for this impression. Unlisted APIs equal unsupported.	2

### Site object

The site object is a child of BidRequest described above. The next table shows the OpenWrap key to reference Site objects, and for comparison, the equivalent OpenRTB 2.5 key to reference Site objects.

OpenWrap Key	ORTB 2.5 Key
site.[param]	bidrequest.site.[param]

The following table lists the parameters available to let you configure Site objects.

Parameter	Type	Description	Example
id	String	Exchange-specific site ID	123
name	String	Site name (may be based at the publisher's request).	EbayShopping
domain	String	Domain of the site (for example, "mysite.foo.com").	ebay.com
cat	String Array	Array of IAB content categories of the site.	IAB1-5
sectioncat	String Array	Array of IAB content categories that describe the current section of the site.	IAB1-5
pagecat	String Array	Array of IAB content categories that describe the current page or view of the site.	IAB1-5
page	String	URL of the page where the impression will be shown.	http%3A%2F%2Febay.com%2Fhome
ref	String	Referrer URL that caused navigation to the current page.	http%3A%2F%2Febay.com%2Fhome
search	String	Search string that caused navigation to the current page.	NewCloths

Parameter	Type	Description	Example
mobile	Integer	Indicates if the site has been programmed to optimize layout when viewed on mobile devices, where 0 = no, 1 = yes.	1
privacypolicy	Integer	Indicates if the site has a privacy policy.	1
keywords	String	Comma separated list of keywords about the site .	Clothes
cnt.net.id	String	Content Network Id	
cnt.net.name	String	Content Network Name	
cnt.net.domain	String	Content Network Domain	
cnt.chan.id	String	Content Channel Id	
cnt.chan.name	String	Content Channel Name	
cnt.chan.domain	String	Content Channel Domain	

The Site object can also contain the following parameter objects:

Object	OpenWrap Key	ORTB 2.5 Key
Content	site.cnt.[param]	bidrequest.site.content.[param]
Publisher	site.pub.[param]	bidrequest.site.publisher.[param]

### App object

The [App](#) object is a child of BidRequest described above. The next table shows the OpenWrap key to reference App objects, and for comparison, the equivalent OpenRTB 2.5 key to reference App objects.

OpenWrap Key	ORTB 2.5 Key
app.[param]	bidrequest.app.[param]

The following table lists the parameters available to let you configure App objects.

OpenWrap Key	Type	Description	Example
id	String	Exchange-specific app ID.	1234
name	String	App name (may be aliased at the publisher's request).	MyFooGame
bundle	String	A platform-specific application identifier intended to be unique to the app and independent of the exchange. On Android, this should be a bundle or package name (for example, com.foo.mygame). On iOS, it is typically a numeric ID	com.foo.mygame
domain	String	Domain of the app (for example, "mygame.foo.com")	mygame.foo.com
storeurl	String	App store URL for an installed app; for IQG2.1 compliance.	<a href="https://play.google.com/store/apps/details?id=com.foo.mygame">https://play.google.com/store/apps/details?id=com.foo.mygame</a>
cat	Array	Array of IAB content categories of the app.	IAB1-5,IAB1-6

OpenWrap Key	Type	Description	Example
sectioncat	String Array	Array of IAB content categories that describe the current section of the app.	IAB1-5
pagecat	String Array	Array of IAB content categories that describe the current page or view of the app.	IAB1-5
ver	String	Application version.	1.1
privacypolicy	Integer	Indicates the app has a privacy policy. 0 = No 1 = Yes	1
paid	Integer	0 = app is free 1 = the app is a paid version	1
keywords	String	Comma separated list of keywords about the app.	Games
app.ext.inventorypartnerdomain	String	A domain to be used for inventory authorization in the case of inventory sharing arrangements between an app owner and content owner.	"programmerA.com"
cnt.net.id	String	Content Network ID	
cnt.net.name	String	Content Network Name	
cnt.net.domain	String	Content Network Domain	
cnt.chan.id	String	Content Channel Id	
cnt.chan.name	String	Content Channel Name	
cnt.chan.domain	String	Content Channel Domain	

The App object can also contain the following parameter objects:

Object	OpenWrap Key	ORTB 2.5 Key
Content	app.cnt.[param]	bidrequest.app.content.[param]
Publisher	app.pub.[param]	bidrequest.app.publisher.[param]

#### Publisher object

The [Publisher](#) object is a child of the Site and App objects, described above. The next table shows the OpenWrap keys to reference Pub objects, and for comparison, the equivalent OpenRTB 2.5 keys to reference Publisher objects.

OpenWrap Key	ORTB 2.5 Key
app.pub.[param]	bidrequest.app.publisher.[param]
site.pub.[param]	bidrequest.site.publisher.[param]

The following table lists the parameters available to let you configure Pub objects.

Parameter	Type	Description	Example
id	String	Exchange-specific publisher ID.	5890
name	String	Publisher name (may be aliased at the publisher's request).	TestPublisher
cat	String Array	Array of IAB content categories that describe the publisher.	IAB1-5
domain	String	Highest level domain of the publisher; for example, "publisher.com").	publisher.com

#### Content object

The Content object is a child of the Bid and App objects, described above. The next table shows the OpenWrap keys to reference Cnt objects, and for comparison, the equivalent OpenRTB 2.5 keys to reference Content objects.

OpenWrap Key	ORTB 2.5 Key
app.cnt.[param]	bidrequest.app.content.[param]
site.cnt.[param]	bidrequest.site.content.[param]

The following table lists the parameters available to let you configure Content objects.

Parameter	Type	Description	Example
id	String	ID uniquely identifying the content.	381d2e0b-548d-4f27-bfdd-e6e66f43557e
episode	Integer	Episode number.	1
title	String	Content title. Video Examples: "Search Committee" (television), "A New Hope" (movie), or "Endgame" (made for web). Non-Video Example: "Why an Antarctic Glacier Is Melting So Quickly" (Time magazine article)	StarWars
series	String	Content series. Video Examples: "The Office" (television), "Star Wars" (movie), or "Arby 'N' The Chief" (made for web). Non-Video Example: "Ecocentric" (Time Magazine blog).	StarWars
season	String	Content season (for example, "Season 3").	Season3
artist	String	Artist credited with the content.	GeorgeLucas
genre	String	Genre that best describes the content (for example, rock, pop, etc).	Action
album	String	Album to which the content belongs; typically for audio.	Action
isrc	String	International Standard Recording Code conforming to ISO-3901.	2
url	String	URL of the content, for buy-side contextualization or review.	http://www.pubmatic.com/test/
cat	String Array	Array of IAB content categories that describe the content producer.	IAB1-1,IAB1-2
prodq	Integer	Production quality.	1
context	Integer	Type of content (game, video, text, etc.).	1
contentrating	String	Content rating (for example, MPAA).	MPAA
userrating	String	User rating of the content (for example, number of stars, likes, etc.).	9-Stars
qagmediarating	Integer	Media rating per IQG guidelines	1
keywords	String	Comma separated list of keywords describing the content.	ActionMovies
livestream	Integer	0 = Not Live 1 = Content is Live (for example, stream, live blog).	1
sourcerelationship	Integer	0 = Indirect 1 = Direct	1
len	Integer	Length of content in seconds; appropriate for video or audio.	12000
language	String	Content language using ISO-639-1-alpha-2.	en-US

Parameter	Type	Description	Example
embeddable	Integer	Indicator of whether or not the content is embeddable (for example, an embeddable video player). "private_auction": 1 0 = No "secure": 0, "tagid": "47samurai_0x0_OW_CTV", "video": { "api": { "IAB-1", "IAB-2"}	1

The Content object can also contain the Producer parameter object.

#### Producer object

The [Producer](#) object is a parameter object for the Content, described above. The next table shows the OpenWrap keys to reference Prod objects from App and Site contexts, and for comparison, the equivalent OpenRTB 2.5 keys.

OpenWrap Keys	ORTB 2.5 Keys
app.cnt.prod.[param]	bidrequest.app.content.producer.[param]
site.cnt.prod.[param]	bidrequest.site.content.producer.[param]

The following table lists the parameters available to let you configure Prod objects.

Parameter	Type	Description	Example
id	String	Content producer or originator ID. Useful if content is syndicated and may be posted on a site using embed tags	Prod123
name	String	Content producer or originator name; for example, "Warner Bros".	GaryKurtz
cat	String Array	Array of IAB content categories that describe the content producer.	IAB1-5,IAB1-6
domain	String	Highest level domain of the content producer; for example, "producer.com".	producer.com

#### Device object

The [Device](#) object is a child of BidRequest described above. The next table shows the OpenWrap key to reference Dev objects, and for comparison, the equivalent OpenRTB 2.5 key to reference Device objects.

OpenWrap Key	ORTB 2.5 Key	Type	Description	Example
dev.[param]	bidrequest.device.[param]			

The following table lists the parameters available to let you configure Device objects.

Parameter	Type	Description	Example	
ua	String	Browser user agent string. It can be derived from User-Agent header if not specified.	Mozilla%2F5. 0%20 (Windows%20NT%206. 1%3B%20Win64%3B%20x64%3B%20rv%3A47.0) %20Gecko%2F20100101%20Firefox%2F47.0	
dnt	Integer	Standard "DoNotTrack" flag as set in the header by the browser. 0 = Tracking is unrestricted 1 = Do Not Track. Note: Consult each bidder's documentation to understand how they process this field.	1	
lmt	Integer	"Limit Ad Tracking" signal commercially endorsed (for example, iOS, Android)	1	



Parameter	Type	Description	Example	
	<pre> }, "id": "28635736ddc2bb1_4", "iframebuster": [   "1" ], "instl": 1, "pmp": {   "deals": [     {       "at": 1,       "bidfloor": 1,       "bidfloortop": 1,       "bidfloorcur": "USD",       "id": "123",       "wdomain": [         "WD1",         "WD2"       ],       "wseat": [         "IAB-1",         "IAB-2"       ]     }   ],   "private_auction": 1,   "secure": 0,   "tagid": "47samurai_0x0_0REMOTE_ADDR",   "video": {     "api": [       1,       2     ],     "battr": [       6,       7     ],     "boxingallowed": 1,     "companiontype": [       1,       2,       3     ],     "delivery": [       2     ],     "h": 480,     "linearity": 1,     "maxbitrate": 1999,     "maxduration": 35,     "mimes": [       "video/3gpp",       "video/mp4",       "video/webm"     ],     "minbitrate": 1200,     "minduration": 30,     "placement": 5,     "playbackend": 1,     "playbackmethod": [       1     ],     "pos": 7,     "protocols": [       2,       3,       5,       6,       7,       8     ],     "sequence": 4,     "skip": 1,     "skipafter": 15,     "skipmin": 10,     "startdelay": 2, </pre>	<p>0 = tracking is unrestricted</p> <p>1 = tracking must be limited per commercial guidelines.</p> <p>Note: Consult each bidder's documentation to understand how they process this field.</p> <p>IPv4 address closest to device.</p> <p>It can be derived from request headers in following sequence.</p> <p>* HTTP_RLNCLIENTIPADDR * HTTP_SOURCE_IP * HTTP_X_CLUSTER_CLIENT_IP * HTTP_X_FORWARDED_IP * REMOTE_ADDR</p>	127.0.0.1	
ip	String			
ipv6	String	IP address closest to device as IPv6.	2001:db8::8a2e:370:7334	
devicetype	Integer	The general type of device.	1	
make	String	Device make (for example, "Apple")	Samsung	
model	String	Device model (for example, "iPhone")	Galaxy-A70S	
os	String	Device operating system (for example, "iOS").	Android	
osv	String	Device operating system version (for example, "3.1.2")	MarshMellow	
hwv	String	Hardware version of the device (for example, "5S" for iPhone 5S).	A70s	
h	Integer	Physical height of the screen in pixels	768	
w	Integer	Physical width of the screen in pixels	1366	
ppi	Integer	Screen size as pixels per linear inch.	4096	
pxratio	Float	The ratio of physical pixels to device independent pixels	1.3	
js	Integer	Support for JavaScript.	1	
geofetch	Integer	Indicates if the geolocation API will be available to JavaScript code running in the banner	0	

Parameter	Type	Description	Example	
	<pre>       "w": 320     },     "regs": {       "ext": { </pre>	0 = No  1 = Yes		
flashver	<pre>       "gdpr": 1,       "us_privacy": "1YNN"     }   },   "site": {     "cat": [       "IAB1-5" </pre>	Version of Flash supported by the browser.	1.1	
language	<pre>       "cat": [         "IAB1-5" </pre>	Browser language using ISO-639-1-alpha-2.	en-US	
carrier	<pre>       "content": {         "album": "Action",         "artist": "George Lucas",         "cat": [           "IAB1-1",           "IAB1-2" </pre>	Carrier or ISP (for example, "VERIZON") using exchange-curated string names, which once deduced, should be published to bidders.	VERIZON	
mccmnc	<pre>       "contentrating": "MPAA",       "context": 1,       "embeddable": 1,       "episode": 1,       "genre": "Action",       "id": "381d2e0b-548d-4f27-bfdd-e6e66f43557e",       "isrc": "2",       "keywords": "ActionMovies",       "language": "en-US",       "len": 12000,       "livestream": 1,       "prodq": 1,       "producer": {         "cat": [           "IAB1-5",           "IAB1-6" </pre>	Mobile carrier as the concatenated MCC-MNC code (for example, "310-005" identifies Verizon Wireless CDMA in the USA).  See the Wikipedia article on Mobile country codes for further examples.  Note that the dash between the MCC and MNC segments is required to ensure accurate parsing.	310-005	
connectiontype	<pre>       "IAB1-6"     ], </pre>	Network connection type.	2	
ifa	<pre>       "domain": "producer.com",       "id": "123",       "name": "GaryKurtz"     },     "qagmediarating": 1,     "season": "Season3",     "series": "StarWars",     "sourcerelease": 1,     "title": "StarWars",     "url": "http://www.pubm.com/test",     "userrating": "9-Stars",     "videoquality": 1   },   "domain": "ebay.com",   "ext": {     "amp": 0   },   "id": "123",   "keywords": "Cloths",   "mobile": 1,   "name": "EbayShopping",   "page": "http://ebay.com/intel/automation/s2s/pwt_parameter_validation_multi_slot_multi_size.html?videobid=5",   "pagecat": [     "IAB1-5"   ],   "privacypolicy": 1,   "publisher": {     "cat": [       "IAB1-5"     ],     "domain": "publisher.com",     "id": "159396",     "name": "Test Publisher"   },   "ref": "http://ebay.com/home",   "search": "NewCloths",   "sectioncat": [ </pre>	ID sanctioned for advertiser use in the clear (that is, not hashed).	EA7583CD-A667-48BC-B806-42ECB2B48606	
didsha1	<pre>       "qagmediarating": 1,       "season": "Season3",       "series": "StarWars",       "sourcerelease": 1,       "title": "StarWars",       "url": "http://www.pubm.com/test",       "userrating": "9-Stars",       "videoquality": 1     },     "domain": "ebay.com",     "ext": {       "amp": 0     },     "id": "123",     "keywords": "Cloths",     "mobile": 1,     "name": "EbayShopping",     "page": "http://ebay.com/intel/automation/s2s/pwt_parameter_validation_multi_slot_multi_size.html?videobid=5",     "pagecat": [       "IAB1-5"     ],     "privacypolicy": 1,     "publisher": {       "cat": [         "IAB1-5" </pre>	Hardware device ID (for example, IMEI); hashed via SHA1.	613b4d2f6a09ee5f820d670a1d5b1cc4ccc08bc2	
didmd5	<pre>       "url": "http://www.pubm.com/test",       "userrating": "9-Stars",       "videoquality": 1     },     "domain": "ebay.com",     "ext": {       "amp": 0     },     "id": "123",     "keywords": "Cloths",     "mobile": 1,     "name": "EbayShopping",     "page": "http://ebay.com/intel/automation/s2s/pwt_parameter_validation_multi_slot_multi_size.html?videobid=5",     "pagecat": [       "IAB1-5"     ],     "privacypolicy": 1,     "publisher": {       "cat": [         "IAB1-5" </pre>	Hardware device ID (for example, IMEI); hashed via MD5.	12d2cd0eacd05dae666c4a5ff3067e42	
dpidsha1	<pre>       "domain": "ebay.com",       "ext": {         "amp": 0       },       "id": "123",       "keywords": "Cloths",       "mobile": 1,       "name": "EbayShopping",       "page": "http://ebay.com/intel/automation/s2s/pwt_parameter_validation_multi_slot_multi_size.html?videobid=5",       "pagecat": [         "IAB1-5" </pre>	Platform device ID (for example, Android ID); hashed via SHA1.	613b4d2f6a09ee5f820d670a1d5b1cc4ccc08bc2	
dpidmd5	<pre>       "domain": "ebay.com",       "ext": {         "amp": 0       },       "id": "123",       "keywords": "Cloths",       "mobile": 1,       "name": "EbayShopping",       "page": "http://ebay.com/intel/automation/s2s/pwt_parameter_validation_multi_slot_multi_size.html?videobid=5",       "pagecat": [         "IAB1-5" </pre>	Platform device ID (for example, Android ID); hashed via MD5.	12d2cd0eacd05dae666c4a5ff3067e42	
macsha1	<pre>       "domain": "ebay.com",       "ext": {         "amp": 0       },       "id": "123",       "keywords": "Cloths",       "mobile": 1,       "name": "EbayShopping",       "page": "http://ebay.com/intel/automation/s2s/pwt_parameter_validation_multi_slot_multi_size.html?videobid=5",       "pagecat": [         "IAB1-5" </pre>	MAC address of the device; hashed via SHA1.	613b4d2f6a09ee5f820d670a1d5b1cc4ccc08bc2	
macmd5	<pre>       "domain": "ebay.com",       "ext": {         "amp": 0       },       "id": "123",       "keywords": "Cloths",       "mobile": 1,       "name": "EbayShopping",       "page": "http://ebay.com/intel/automation/s2s/pwt_parameter_validation_multi_slot_multi_size.html?videobid=5",       "pagecat": [         "IAB1-5" </pre>	MAC address of the device; hashed via MD5.	12d2cd0eacd05dae666c4a5ff3067e42	
dev.ext.ifa_type	<pre>       "domain": "publisher.com",       "id": "159396",       "name": "Test Publisher"     },     "ref": "http://ebay.com/home",     "search": "NewCloths",     "sectioncat": [ </pre>	string	This parameter is used to identify the source of the IFA, whether that is device-generated or whether it is a publisher-provided IFA or a temporary/session IFA. Without this context, the usefulness of the IFA is limited.  The following are recommended values for the ifa_type	"sessionid"



Parameter	Type	Description	Example	
	<pre>{,   "source": {     "tid": "IAB1-5"   } }</pre>		See ifa_type table below	
dev.ext.session_id	<pre>bidrequest.device.ext.session_id "tmax": 989, "user": {   "buyeruid": "45067fec-eab7-4ca0-ad3a-87b01f21846a",   "customdata": "StarWars",   "data": [     {       "ext": {}, </pre>	string	The session ID parameter accepts a UUID value, which is a privacy-preserving advertising identifier used for frequency capping purposes only.	"EA7583C1A667-48B1B806-42ECB2B4"

ifa\_type

Type	Device or platform
aaaid	Android ID
afai	Amazon Fire ID
dpid	Device provided id, based on historical usage
idfa	Apple ID
msai	Microsoft ID
ppid	Publisher Provided ID
rida	Roku Id
sessionid	SessionID / Synthetic ID
sspid	SSP provided id

The Device object can also contain the Geo parameter object.

User object

The User object is a child of BidRequest described above. The next table shows the OpenWrap key to reference User objects, and for comparison, the equivalent OpenRTB 2.5 key to reference User objects.

The User object can also contain the Geo parameter object.

OpenWrap Key	ORTB 2.5 Key
user.[param]	bidrequest.user.[param]

The following table lists the parameters available to let you configure User objects.

Parameter	Type	Description	Example
id	String	Exchange-specific ID for the user.	45067fec-eab7-4ca0-ad3a-87b01f21846a
buyeruid	String	Buyer-specific ID for the user as mapped by the exchange for the buyer.  At least one of buyeruid or idis recommended.	45067fec-eab7-4ca0-ad3a-87b01f21846a
yob	Integer	Year of birth as a 4-digit integer.	1990
gender	String	Gender, where "M" = male, "F" = female, "O" = known to be other (that is, omitted is unknown).	M
keywords	String	Comma separated list of keywords, interests, or intent.	Movies
customdata	String	Optional feature to pass bidder data that was set in the exchange's cookie.  The string must be in base85 cookie-safe characters and be in any format.	StarWars

Parameter	Type	Description	Example
		Proper JSON encoding must be used to include "escaped" quotation marks.	
ext.consent	String	GDPR consent string should be passed here.	BOEFEAyOEFEAyAHABDENAI4AAAB9vABAASA
data	oRTB user data JSON Array	Additional user data. Each Data object represents a different data source.  The field value should be url encoded.	[{"name":" <a href="#">publisher.com</a> ","segment":[{"id":"1"}]}
<a href="#">user.ext.eids</a>	oRTB eids JSON array	Universal User ID support: establishing pseudonymous IDs for users.  The field value should be URL encoded.	[{"source":" <a href="#">id5-sync.com</a> ","uids":[{"id":"LENGTH_GREATER_THAN_10","atype":1,"ext":{}}]}

**Data object**

Parameter	Type	Description
id	string	Exchange-specific ID for the data provider.
name	string	Exchange-specific name for the data provider
segment	object array	An array of Segment objects that contain the actual data values.
ext	object	Placeholder for exchange-specific extensions to OpenRTB.

**Segment object**

Key	Data type	Description
id	string	ID of the data segment specific to the data provider.
value	string	String representation of the data segment value.
name	string	Name of the data segment specific to the data provider.
ext	Object	Placeholder for exchange-specific extensions to OpenRTB.

**EID object**

Key	Data type	Description
source	string	Source or technology provider responsible for the set of included IDs. Expressed as a top-level domain.
id	string	Unique identifier for user information generated using valid partner response.
uids	object array	An array of extended ID UID objects from the given source.
ext	object	Optional vendor-specific extensions.

**UID object**

Key	Data type	Description
id	string	Cookie or platform-native identifier.
atype	integer	Type of user agent the match is from. It is highly recommended to set this, as many DSPs separate app-native IDs from browser-based IDs and require a type value for ID resolution.
ext	object	Optional vendor-specific extensions.

**Geo object**

The [Geo](#) object is a child of the Device and User objects, described above. The next table shows the OpenWrap keys to reference the Geo object from Device and User contexts, and for comparison, the equivalent OpenRTB 2.5 keys.

OpenWrap Keys	ORTB 2.5 Keys
dev.geo.lat.[param]	bidrequest.device.geo.[param]

OpenWrap Keys	ORTB 2.5 Keys
user.geo.lat.[param]	bidrequest.user.geo.[param]

The following table lists the parameters available to let you configure Geo objects.

Parameter	Type	Description	Example
lat	Float	Latitude from -90.0 to +90.0, where negative is south.	72.6
lon	Float	Longitude from -180.0 to +180.0, where negative is west.	72.6
type	Integer	Source of location data; recommended when passing lat/lon.	1
accuracy	Integer	Estimated location accuracy in meters;  Recommended when lat/lon are specified and derived from a device's location services (that is, type = 1).  Note that this is the accuracy as reported from the device. Consult OS specific documentation (for example, Android, iOS) for exact interpretation.	10
lastfix	Integer	Number of seconds since this geolocation fix was established.  Note that devices may cache location data across multiple fetches.  Ideally, this value should be from the time the actual fix was taken.	0
ipservice	Integer	Service or provider used to determine geolocation from IP address if applicable (that is, type = 2).	1
country	String	Country code using ISO-3166-1-alpha-3	India
region	String	Region code using ISO-3166-2; 2-letter state code if USA.	Maharashtra
regionfips104	String	Region of a country using FIPS 10-4 notation.  While OpenRTB supports this attribute, it has been withdrawn by NIST in 2008.	MAHA
metro	String	Google metro code; similar to but not exactly Nielsen DMAs.	Mumbai
city	String	City using United Nations Code for Trade and Transport Locations.	Mumbai
zip	String	Zip or postal code.	123456
utcoffset	Integer	Local time as the number +/- of minutes from UTC.	120

### Regulation object

The [Regs](#) object is a child of BidRequest described above. The next table shows the OpenWrap key to reference Regs objects, and for comparison, the equivalent OpenRTB 2.5 key to reference Regs objects. Note that the Regs uses the [Ext](#) object to accommodate newer regulations like GDPR and US Privacy, which are not covered in the oRTB 2.5 specification.

OpenWrap Key	ORTB 2.5 Key
regs.[param]	bidrequest.regs.[param]

The following table lists the parameters available to let you configure User objects.

Parameter	Type	Description	Example
coppa	Integer	Indicates whether the BidRequest is subject to the COPPA regulations established by the US FTC.  0 = No  1 = Yes	1
gpp	String	Contains the Global Privacy Platform's consent string. See the	DBACNYACPXxRfAPXxRfAAfKABENB-CgAAAAAAAAAAYgAAAAAAAA1YNN

		<a href="#">Global Privacy Platform specification</a> for more details.	
gpp_sid	Array Integer	<p>Array of the section(s) of the string which should be applied for the transaction. See the <a href="#">GPP Section Information</a> for more details.</p> <ul style="list-style-type: none"> <li>• Generally, gpp_sid contains only one value, but there are edge cases where more than one may apply.</li> <li>• GPP Section 3 (Header) and 4 (Signal Integrity) are not required.</li> </ul>	<p>2,6</p> <p><b>Sample GET Request for GPP params</b> Expand source</p> <p><a href="http://hbopenbid.pubmatic.com/video/openrtb?regs.gpp=DBACNYA~CPXxRfAPXxRfAAfKABENB-CgAAAAAAAAAAyGAAAAAAAA~1YNN&amp;regs.gpp_sid=2,6">http://hbopenbid.pubmatic.com/video/openrtb?regs.gpp=DBACNYA~CPXxRfAPXxRfAAfKABENB-CgAAAAAAAAAAyGAAAAAAAA~1YNN&amp;regs.gpp_sid=2,6</a></p>
ext.gdpr	Integer	<p>Indicates whether GDPR applies to the BidRequest.</p> <p>0 = No</p> <p>1 = Yes</p>	1
ext.us_privacy	String	CCPA string for the BidRequest, in <a href="#">US Privacy string format</a> .	1YNN

## OpenWrap-specific Extension object

The [Ext](#) object is a child of BidRequest described above. The next table shows the OpenWrap key to reference Ext objects, and for comparison, the equivalent OpenRTB 2.5 key to reference Ext objects.

OpenWrap Key	ORTB 2.5 Key
req.ext.wrapper.[param]	bidrequest.ext.[param]

The following table lists the parameters available to let you configure User objects.

Parameter	Type	Description	Example
versionid	Integer	PubMatic OpenWrap specific profile versionid.	1
sumry_disable	Integer	<p>PubMatic OpenWrap should return detailed summary in response extension:</p> <p>0 = Summary will be returned in response extension</p> <p>1 = Summary will not be returned in response extension</p>	1
clientconfig	Integer	PubMatic OpenWrap specific configuration.	1

## Dynamic Extension object

We can add any number of extension parameters dynamically by providing nested objects separated by dot, resulting in a **String Parameter**.

To learn about supporting other data types in the Ext object...

Contact the [PubMatic OpenWrap Team](#).

Passing sample ext parameter such as, req.ext.ow.bidder.name=pubmatic and req.ext.ow.pubmatic.consent=present:

## Dynamic Extension Parameter example

```
{
  "ext": {
    "ow": {
      "bidder": {
        "name": "pubmatic"
      },
      "pubmatic": {
        "consent": "present"
      }
    }
  }
}
```

```
    }
  }
}
```

Data types currently unsupported for ext object:

- JSON Integer
- JSON Double
- JSON Array Integer
- JSON Array Double
- JSON Array String
- JSON Array Objects

You can use the Ext object to add String parameters to the object keys shown below:

Extension Prefix Keys	ORTB 2.5 Key
req.ext	bidrequest.ext
src.ext	bidrequest.source.ext
regs.ext	bidrequest.regs.ext
imp.ext	bidrequest.imp[0].ext
imp.vid.ext	bidrequest.imp[0].video.ext
site.ext	bidrequest.site.ext
app.ext	bidrequest.app.ext
site.pub.ext	bidrequest.site.publisher.ext
site.cnt.ext	bidrequest.site.content.ext
site.cnt.prod.ext	bidrequest.site.content.producer.ext
app.pub.ext	bidrequest.app.publisher.ext
app.cnt.ext	bidrequest.app.content.ext
app.cnt.prod.ext	bidrequest.app.content.producer.ext
dev.ext	bidrequest.device.ext
dev.geo.ext	bidrequest.device.geo.ext
user.ext	bidrequest.user.ext
user.geo.ext	bidrequest.user.geo.ext

Example BidRequest

Sample Video BidRequest Using cURL

```
cURL

"http://172.16.4.192:7878/video/vast?
curl -v imp.tagid=%2F15671365%2FDMDemo&app.pub.id=5890&req.ext.wrapper.profileid=3514&req.ext.wrapper.versionid=1&imp.vid.mimes=video
* Trying 172.16.4.192:7878...
* TCP_NODELAY set
* Connected to 172.16.4.192 (172.16.4.192) port 7878 (#0)
> GET /video/vast?
imp.tagid=%2F15671365%2FDMDemo&app.pub.id=5890&req.ext.wrapper.profileid=3514&req.ext.wrapper.versionid=1&imp.vid.mimes=video/3gpp,vi
HTTP/1.1
> Host: 172.16.4.192:7878
> User-Agent: curl/7.65.2
> Accept: */*
>
* Mark bundle as not supporting multiuse
< HTTP/1.1 200 OK
< Access-Control-Allow-Origin: *
< Content-Type: application/xml
```

```
< Date: Mon, 16 Mar 2020 12:54:18 GMT
< Transfer-Encoding: chunked
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1_1_2&ucrid=160175026529250297&impid=48F73E1A-7F23-443D-A53C-30EE6BBF5F7F&advertiser_id=3170&ecpm=70.000000&e=4]]></Tracking>
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```

## GET API limitations

- GET API supports single video impression only. It currently does not support multiple impressions.
- Use standard URL encoding for all String parameters to ensure the requested URL doesn't break.
- The default format for all String Array parameters is comma-separated.
- The dynamic extension parameters currently support only JSON string and JSON object data types. No other JSON data types are supported at this time.

## AdPod object

AdPod is an Extension object of the BidRequest, or Impression.Video objects described above.

You reference AdPod objects using the Extension object hierarchy and the table below shows the object path to use for the HTTP GET and POST methods.

GET API	POST API	Scope notes
req.ext.adpod.[param]	bidrequest.ext.adpod.[param]	BidRequest parameters are global in scope, including default values.
imp.vid.ext.adpod.[param]	video.ext.adpod.[param]	Impression.Video object parameters override global scope parameters from BidRequest.

The following table lists the parameters available to let you configure AdPod objects.

Parameter	Type	Required (with a defined AdPod object)	Description	Default value (with a defined AdPod object)
offset	Integer	No	Defines the position where the AdPod might play in a long video; for example, 30 min from start. This helps define duration based rules to determine when the same ads can/cannot play.	0
minads	Integer	No	Minimum number of ads to include in the AdPod.	1
maxads	Integer	No	Maximum number of ads to include in the AdPod.	3
adminduration	Integer	No	Minimum duration in seconds for each ad in the AdPod.	video.minduration/2
admaxduration	Integer	No	Maximum duration in seconds for each ad in the AdPod.	video.maxduration/2
excladv	Integer	No	Percentage of ads allowed to have the same advertiser in the AdPod.	100
excliabcat	Integer	No	Percentage of ads allowed to have the same IAB category in the AdPod.	100
<b>BIDREQUEST-ONLY PARAMETERS</b>				
adpod (POST method only)	Object	Yes	New object for defining an AdPod object.	
crosspodexcladv	Integer	No	Percentage of ads allowed to have the same advertiser across all AdPods in the BidRequest.	100
crosspodexcliabcat	Integer	No	Percentage of ads allowed to have the same IAB categories across all AdPod s in the BidRequest .	100
excliabcatwindow	Integer	No	The number of minutes during which the exclusive IAB rule applies. If two AdPods render within a window, then the rule applies, otherwise the rule resets.	100
excladvwindow	Integer	No	The number of minutes during which the exclusive advertiser rule applies. If two AdPod s render within a window, then the rule applies, otherwise the rule resets.	100

## OTT/CTV endpoints

Endpoint	Description
/video/openrtb	OpenRTB endpoint returns IAB Standard OpenRTB 2.5 formatted response for a BidRequest.
/video/vast	VAST endpoint returns VAST-format XML response for a video BidRequest.
/video/json	This CTV video endpoint will cache individual AdPod creatives and return targeting values in response.

## OpenRTB endpoint response

IAB Standard [Open RTB 2.5](#) BidResponse format.

### OpenRTB response for ad pod request

```
{
  "id": "1559039248176",
  "seatbid": [
    {
      "bid": [
        {
          "id": "67036be7-6fe8-43e3-843b-87cfdc737b78",
          "impid": "28635736ddc2bb",
          "price": 9,
          "adm": "<VAST version=\"4.0\"><Ad id=\"20001\" sequence=\"1\"><InLine><AdSystem version=\"4.0\"><![CDATA[iabtechl
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95068baf3bd&kgpv=%2F15671365%2FDMDEmo1%40300x250&pdvid=0&pid=3634&pn=pubmatic&pubid=5890&purl=https%3A%2F%2Fitunes.apple.com%2Fus%2F
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[CDATA[https://aktrack.pubmatic.com/track?param=clickTracking_01]]></ClickTracking><ClickTracking id=\"blog\"><![
[CDATA[https://aktrack.pubmatic.com/track?param=clickTracking_02]]></ClickTracking><ClickTracking id=\"blog\"><![
[CDATA[https://aktrack.pubmatic.com/track?param=clickTracking_03]]></ClickTracking><ClickTracking id=\"blog\"><![
[CDATA[https://aktrack.pubmatic.com/track?param=clickTracking_04]]></ClickTracking><ClickThrough id=\"blog\"><![CDATA[https://pubmati
```



```

</ClickThrough><CustomClick><![CDATA[https://pubmatic.com]]></CustomClick></VideoClicks><MediaFiles><MediaFile id="5241" delivery=
OpenRTB response for non-ad pod request
type="video/mp4" width="1440" height="780" minBitrate="360" maxBitrate="1080" scalable="1" maintainAspectRatio
codec="0"><![CDATA[https://ads.pubmatic.com/openbidsdk/creative/video/1280x720.mp4]]></MediaFile><![CDATA[/MediaFiles]]></MediaFil
{
  "id": "1559039248176",
  "seatbid": [
    {
      "bid": [
        {
          "id": "VIDEO12-89A1-41F1-8708-978FD3C0912A",
          "impid": "28635736ddc2bb",
          "price": 8,
          "adm": "<VAST version=\"3.0\"><Ad id=\"601364\"><InLine><AdSystem><![CDATA[Acudeo Compatible]]></AdSystem><AdTitl
978FD3C0912A&eg=8&en=8&iid=eaae0f32-4df7-4637-9873-6ccd8e15cc68&kgpv=%2F15671365%2FDMDemo1%400x0&pdvid=2&pid=2336&pn=pubmatic&pubid=5
[CDATA[http://172.16.4.213/AdServer/AdDisplayTrackerServlet?
operId=1&pubId=5890&siteId=47163&adId=1405268&adType=13&adServerId=243&kefact=70.000000&kaxefact=70.000000&kadNetFrequency=0&kadwidth=
m5DoNSep-RXGDr&ekaxefact=Ad8wWwRUCwAGir4ZzlleF0bKiC-qrcV0D0yp_eE7YizB_BQk&ekpbmtpfact=Ad8wWwRUCwD7qgzwwPE2LnS5-0u19u05amJl1YT6-XVfvQ4
1_1_2&ucrid=160175026529250297&campaignId=17050&creativeId=0&spctr=0.000000&wDSPByrId=511&wDspId=6&wbId=0&wrId=0&wAdvId=3170&isRTB=1&r
[CDATA[https://127.0.0.1:8080/wt?operId=8&crId=creative-1_1_2&p=5890&pid=2336&pn=pubmatic&ts=1620146146&v=2&ier=[ERRORCODE]]></Error
30EE6BBF5F7F&advertiser_id=3170&ecpm=70.000000&er=[ERRORCODE]]></Error><Error><![CDATA[https://Errortrack.com?p=1234&er=[ERRORCODE]]
event=\"skip\"><![CDATA[https://mytracking.com/linear/skip]]></Tracking><Tracking event=\"creativeView\"><![CDATA[http://172.16.4.213
30EE6BBF5F7F&advertiser_id=3170&ecpm=70.000000&e=1]]></Tracking><Tracking event=\"start\"><![CDATA[http://172.16.4.213/track?operId=7
<Tracking event=\"midpoint\"><![CDATA[http://172.16.4.213/track?operId=7&p=5890&s=47163&a=1405268&wa=243&ts=1529929473&wc=17050&crId=
[CDATA[http://172.16.4.213/track?operId=7&p=5890&s=47163&a=1405268&wa=243&ts=1529929473&wc=17050&crId=creative-1_1_2&ucrid=1601750265
operId=7&p=5890&s=47163&a=1405268&wa=243&ts=1529929473&wc=17050&crId=creative-1_1_2&ucrid=160175026529250297&impid=48F73E1A-7F23-443D
operId=7&p=5890&s=47163&a=1405268&wa=243&ts=1529929473&wc=17050&crId=creative-1_1_2&ucrid=160175026529250297&impid=48F73E1A-7F23-443D
operId=7&p=5890&s=47163&a=1405268&wa=243&ts=1529929473&wc=17050&crId=creative-1_1_2&ucrid=160175026529250297&impid=48F73E1A-7F23-443D
delivery=\"progressive\" type=\"video/mp4\" bitrate=\"500\" width=\"400\" height=\"300\" scalable=\"true\" maintainAspectRatio=\"true
</InLine></Ad></VAST>\",
      "adomain": [
        "ae.com"
      ],
      "cid": "17050",
      "crid": "creative-1_1_2",
      "dealid": "PUBDEAL1",
      "h": 0,
      "w": 0
    }
  ],
  "seat": "pubmatic"
},
"cur": "USD"
}

```

## OpenRTB response for non-ad pod request

### Response Headers

Content-Type: application/json

### Valid OpenRTB BidResponse

```

* Response Headers
* Mark bundle as not supporting multiuse
< HTTP/1.1 200 OK
< Access-Control-Allow-Origin: *
< Content-Type: application/json
< Date: Mon, 16 Mar 2020 12:41:32 GMT
< Content-Length: 47
<
{
  "id": "1559039248176",
  "seatbid": [{
    "bid": [{
      ,
      "impid": "28635736ddc2bb1",
      "price": 1.1,
      "adm": "<VAST version=\"3.0\"><![CDATA[\n]]><Ad id=\"1\"><![CDATA[\n]]><Wrapper><![CDATA[\n]]><AdSystem><![CD
[CDATA[\n]]><Error><![CDATA[http://aktrack.pubmatic.com/track?operId=7&p=159586&s=659893&a=2621943&wa=243&ts=1584005486&wc=23216&crId
[CDATA[https://image8.pubmatic.com/AdServer/ImgSync?&fp=1&mpc=10&p=159586&gdpr=1&gdpr_consent=B0EFEAy0EFEAyAHABDENAI4AAAB9vABAASA&pmc
c3a3-4788-8ade-7cf019dda1d3&kgpv=%2F15671365%2FDMDemo%400x0&pdvid=2&pid=1887&pn=pubmatic&pubid=159586&purl=http%3A%2F%2Febay.com%2Fin
[CDATA[http://aktrack.pubmatic.com/AdServer/AdDisplayTrackerServlet?
operId=1&pubId=159586&siteId=659893&adId=2621943&adType=13&adServerId=243&kefact=1.100000&kaxefact=1.100000&kadNetFrequency=0&kadwidth

```

```
&ekaxefact=bgFqXlA7BAA_y0cAZgRlplvbsz1ViYMZk-
Zo0tN6t7tIV4yN&ekbmtptfact=bgFqXmI7BAA0igLz24ttvLAd0ktmDVm7f9Pi73FoFB6wxU7X&enpp=bgFqXnU7BABugqBx5MZqgLua_IKRd28xZtH0asI114bVcfhP&crI
A0E7-4009-9D16-82DB0CE6ADF1&imprId=E43A994E-0139-453F-A0A6-111E3D0BFBAD&oid=E43A994E-0139-453F-A0A6-111E3D0BFBAD&country=Ind&pageURL=
&fp=1&mpc=10&p=159586&gdpr=1&gdpr_consent=B0EFEAy0EFEAyAHABDENAI4AAAB9vABAASA&pmc=1&pu=https%3A%2F%2Fimage4.pubmatic.com%2FAdServer%2
[CDATA[http://aktrack.pubmatic.com/track?operId=7&p=159586&s=659893&a=2621943&wa=243&ts=1584005486&wc=23216&crId=adt:13_m:1+2+6+7+8_x
[CDATA[http://aktrack.pubmatic.com/track?operId=7&p=159586&s=659893&a=2621943&wa=243&ts=1584005486&wc=23216&crId=adt:13_m:1+2+6+7+8_x
[CDATA[http://aktrack.pubmatic.com/track?operId=7&p=159586&s=659893&a=2621943&wa=243&ts=1584005486&wc=23216&crId=adt:13_m:1+2+6+7+8_x
[CDATA[http://aktrack.pubmatic.com/track?operId=7&p=159586&s=659893&a=2621943&wa=243&ts=1584005486&wc=23216&crId=adt:13_m:1+2+6+7+8_x
[CDATA[http://aktrack.pubmatic.com/track?operId=7&p=159586&s=659893&a=2621943&wa=243&ts=1584005486&wc=23216&crId=adt:13_m:1+2+6+7+8_x
[CDATA[http://aktrack.pubmatic.com/track?operId=7&p=159586&s=659893&a=2621943&wa=243&ts=1584005486&wc=23216&crId=adt:13_m:1+2+6+7+8_x
<VideoClicks><![CDATA[\n]]><ClickTracking><![CDATA[http://aktrack.pubmatic.com/track?operId=7&p=159586&s=659893&a=2621943&wa=243&ts=1
[CDATA[\n]]></VideoClicks><![CDATA[\n]]></Linear><![CDATA[\n]]></Creative><![CDATA[\n]]></Creatives><![CDATA[\n]]></Extensions><![CDAT
[CDATA[https://ads.pubmatic.com/AdServer/js/showad.js#PIX&ptask=DSP&SPug=1&fp=1&mpc=10&u=45067fec-eab7-4ca0-ad3a-87b01f21846a&p=15958
</VAST>",
    "adomain": [
      "ae.com"
    ],
    "cid": "23216",
    "crid": "adt:13_m:1+2+6+7+8_x:3_y:3_t:0_va:3_c:23216_tpbt:shashank_nuad:1x1_sc:1_off",
    "h": 0,
    "w": 0
  }],
  "seat": "pubmatic"
}],
"cur": "USD"
}
```

## Error response

OpenWrap OTT/CTV OpenRTB endpoint uses two error formats according to the type of error.

### 1. Input parameter error...

```
{
  "ErrorCode": 6,
  "Error": "Invalid Configuration"
}
```

### 2. SSP Response error...

```
{
  "id": "0a0e40c8-f66d-4c11-9e9a-f7993b6065bb",
  "seatbid": [
    {
      "bid": [
        {
          "id": "90b5a5fc-7b46-47db-8380-820c216ff426",
          "impid": "90b5a5fc-7b46-47db-8380-820c216ff426",
          "price": 0,
          "h": 0,
          "w": 0,
          "ext": {}
        }
      ],
      "seat": "pubmatic"
    }
  ],
  "ext": {
    "matchedimpression": {
      "pubmatic": 0
    },
    "responsetimemillis": {
      "pubmatic": 55
    },
    "tmaxrequest": 489
  }
}
```

## VAST endpoint response

The VAST endpoint returns a standard VAST XML response. In the cases of Request ERROR, Application ERROR, or No Bid, the endpoint returns an empty VAST tag with error details in the response headers. Supported VAST versions: [VAST 2.0](#), [VAST 3.0](#).

#### Response headers

Content-Type	application/xml
X-Ow-Status	<p>Error details:</p> <p><b>ErrorCode</b> - Integer Error Code</p> <p><b>Error</b> - Granular Error Message</p> <p><b>Sample Error Details</b> Expand source</p> <pre>{"ErrorCode":700,"Error":"Missing Profile ID"}</pre>

#### Endpoint examples

##### Valid VAST response with headers...

```
* Response Headers
* Mark bundle as not supporting multiuse
< HTTP/1.1 200 OK
< Access-Control-Allow-Origin: *
< Content-Type: application/xml
< Date: Mon, 16 Mar 2020 12:19:43 GMT
< Transfer-Encoding: chunked
<
<VAST version="3.0">
  <Ad id="601364">
    <InLine>
      <AdSystem>
        <![CDATA[Acudeo Compatible]]>
      </AdSystem>
      <AdTitle>
        <![CDATA[VAST 2.0 Instream Test 1]]>
      </AdTitle>
      <Description>
        <![CDATA[VAST 2.0 Instream Test 1]]>
      </Description>
      <Impression>
        <![CDATA[/t.pubmatic.com/wt?bidid=ed49d230-b9fa-4d62-9d4f-2f2ec9e9142a&seg=15&en=15&iid=35226ad9-acd2-4e16-984b-7d4552f2ec9e9142a_%2F15671365%2FDMDemo&tst=1584361062]]>
      </Impression>
      <Impression>
        <![CDATA[http://172.16.4.213/AdServer/AdDisplayTrackerServlet?operId=1&pubId=5890&siteId=47163&adId=1405268&adType=13&adServerId=243&kefact=70.000000&skaxefact=70.000000&kadNetFrequency=0&kadwidth=m5DoNSep-RXGDr&ekaxefact=Ad8wWwRUCwAGir4ZzlleF0bKiC-qrcV0D0yp_eE7YizB_BQk&ekpbmtpfact=Ad8wWwRUCwD7qgzwwPE2LnS5-0u19u05amJl1YT6-XVFvQ41_1_2&ucrid=160175026529250297&campaignId=17050&creativeId=0&pctr=0.000000&wDSPByrId=511&wDspId=6&wbId=0&wAdvID=3170&isRTB=1&r]]>
      </Impression>
      <Impression>
        <![CDATA[https://dsptracker.com/{PSPM}]]>
      </Impression>
      <Error>
        <![CDATA[http://172.16.4.213/track?operId=7&p=5890&s=47163&a=1405268&wa=243&ts=1529929473&wc=17050&crId=creative-1_1]]>
      </Error>
      <Error>
        <![CDATA[https://Errortrack.com?p=1234&er=[ERRORCODE]]]>
      </Error>
      <Creatives>
        <Creative AdID="601364">
          <Linear skipoffset="70%">
            <TrackingEvents>
              <Tracking event="close">
                <![CDATA[https://mytracking.com/linear/close]]>
              </Tracking>
              <Tracking event="skip">
                <![CDATA[https://mytracking.com/linear/skip]]>
              </Tracking>
              <Tracking event="creativeView">
                <![CDATA[http://172.16.4.213/track?operId=7&p=5890&s=47163&a=1405268&wa=243&ts=1529929473&wc=17050&cr]]>
              </Tracking>
            </TrackingEvents>
          </Linear>
        </Creative>
      </Creatives>
    </InLine>
  </Ad>
</VAST>
```

```
<Tracking event="start">
  <![CDATA[http://172.16.4.213/track?operId=7&p=5890&s=47163&a=1405268&wa=243&ts=1529929473&wc=17050&cr
</Tracking>
<Tracking event="midpoint">
  <![CDATA[http://172.16.4.213/track?operId=7&p=5890&s=47163&a=1405268&wa=243&ts=1529929473&wc=17050&cr
</Tracking>
<Tracking event="firstQuartile">
  <![CDATA[http://172.16.4.213/track?operId=7&p=5890&s=47163&a=1405268&wa=243&ts=1529929473&wc=17050&cr
</Tracking>
<Tracking event="thirdQuartile">
  <![CDATA[http://172.16.4.213/track?operId=7&p=5890&s=47163&a=1405268&wa=243&ts=1529929473&wc=17050&cr
</Tracking>
<Tracking event="complete">
  <![CDATA[http://172.16.4.213/track?operId=7&p=5890&s=47163&a=1405268&wa=243&ts=1529929473&wc=17050&cr
</Tracking>
</TrackingEvents>
<Duration>
```

VAST Error Response

```
* Response Headers
* Mark bundle as not supporting multiuse
< HTTP/1.1 200 OK
< Access-Control-Allow-Origin: *
< Content-Type: application/xml
< X-OW-Status: {"ErrorCode":700,"Error":"Missing Profile ID"}
< Date: Mon, 16 Mar 2020 12:20:41 GMT
< Content-Length: 21
<
* Connection #0 to host 172.16.4.192 left intact
<VAST version="2.0"/>
```

```
<: [CDATA[https://stagingams.pubmatic.com:8443/openwrap/media/puomatic.mp4]]>
```

CTV VIDEO GET Endpoint: Ensuring Compatibility with Demand Side Platforms

When OpenWrap Over The Top (OTT) sends the field **user.ext.eids** containing extended user identifiers (EID) to a Demand Side Platforms (DSP), OpenWrap OTT removes valid prefixes from the ID attributes of UIDs, irrespective of source. This ensures that IDs are compatible with the DSP.

```
<Pricing model="CPM" currency="USD">
  <![CDATA[15]]>
</Pricing>
</Ad>
</VAST>
```

Prefixes are case sensitive.

Table of Prefixes

The table below provides the list of prefixes that are removed:

Third Party User ID System	Prefix in user.ext.eids.id	EID Source (user.ext.eids.source)
Unified ID 2.0	UID2:	uidapi.com
ID	ID5:	id5-sync.com
Blockgraph ID	BGID:	blockgraph.com
European Unified ID	euid:	euid.eu
Google PAIR ID	PAIRID:	google.com
LiveRamp IDL	IDL:	liveramp.com
Yahoo Connect ID	connectid:	yahoo.com
First ID	firstid:	first-id.fr
Utiq	utiq:	utiq.com

See also [GET API parameters](#)

Code Samples

Input to OpenWrap:

```
{code:java}
\[{ "source": "uidapi.com", "uids": [{ "id": "" }, { "id": "AgAACYa0cG2jcVcM42x6" } ] }, { "source": "liveramp.com", "uids":
[ { "id": "AgAACYa0cG2jcVcM42x6" } ], { "source": "yahoo.com", "uids": [ { "id": "" }, { "id": "" } ] } ] {code}
```

**Outgoing request from OpenWrap:**

```
{code: java}
\[{{"source": "uidapi.com", "uids": [{"id": "AgAACYa0cG2jcVcM42xG"}]} {"source": "liveramp.com", "uids": [{"id": "AgAACYa0cG2jcVcM42xG"}]}] {code}
```

**Only One Object Present in EIDS and that is also invalid, OpenWrap will remove eids object from request**

```
{code: java}
\[{{"source": "uidapi.com", "uids": [{"id": ""}]}] {code}
```

**Prebid Ext Parameters (req.ext.prebid)**

GET API Parameter	POST API Parameter Object	Type	Mandatory(If Content object transparency is Expected)	Description	Example
req.ext.prebid.transparency.content	req.ext.prebid.transparency.content	Object	Y	<p>PubMatic OpenWrap specific content object transparency rules for bidders.</p> <p>Use <b>bidder code</b> as key for bidder to content object transparency rule mappings. Use <b>default</b> key for setting fallback rule to be used when bidder specific rule is not mentioned.</p> <p>Content Object Transparency Rule parameter:</p> <p>See Parameters table below</p>	<pre>{   "pubmatic":{     "include":false,     "keys":[       "genre"     ]   },   "default":{     "include":false,     "keys":[       "genre"     ]   } }</pre>

**Parameters**

Parameter	Description
include	<p>Determines whether content object parameter mentioned in keys should be passed to bidder or not as part of orb content object.</p> <ul style="list-style-type: none"> <li>include = true - keys will be part of content object. If keys = empty, the send complete object</li> <li>include = false - keys will not be send as part of content object. if keys = empty don't send orb content object.</li> </ul>
keys	<p>The content object fields that need to be included/excluded from content object in request. This parameter is used to send full/partial content object to bidders.</p> <p>Keys can be any of the attributes mentioned in Content Object (3.2.16) table. Nested object for keys are not supported.</p>

**CTV endpoint assumptions**

- Currently, OpenWrap server-side works only in USD currency. OpenWrap currently automatically replaces any other currency with USD. Note that ECPM values are also reported in USD.
- Server Side Auction is done for all CTV requests whether or not the req.ext.wrapper.ssauuction parameter is defined.

- Creative Blocked Attributes, Blocked Domains, Blocked Categories, and Allowlisted Categories are not yet implemented by OpenWrap CTV video. OpenWrap will forward the request to partners via prebid and it is the partner's sole responsibility to serve creatives based on these attributes.
- Profile level platform is not checked for CTV endpoints, which means Display/InApp other profiles are served for video request.
- Profile ID is mandatory for CTV requests using both GET and POST methods.

## BidResponse specification

The following sections describe the objects that make up a BidResponse.

- Multiple impressions can be generated for each ad pod request.
- Standard OpenRTB response will be rendered for non-ad pod requests.

### BidResponse object

The table below describes the parent BidResponse object, which encapsulates the SeatBid object array.

PARAMETER	TYPE	Supports ad pod requests?	DESCRIPTION
id	string	Yes	ID of the bid request to which this is a response.
seatbid	object array	Yes	Array of seatbid objects; 1+ required if a bid is to be made.
bidid	string	No	Bidder generated response ID to assist with logging/tracking.
cur	string	Yes	Bid currency using ISO-4217 alpha codes.default USD.
customdata	string	Yes	Optional feature to allow a bidder to set data in the exchange's cookie. The string must be in base85 cookie-safe characters and be in any format. Proper JSON encoding must be used to include "escaped" quotation marks.
nbr	integer	No	Reason for not bidding.
ext	object	Yes	Placeholder for bidder-specific OpenRTB extensions.

### SeatBid object

The table below lists the parameters for the SeatBid object, whose main function is to deliver an array of Bid objects for the Impressions in the BidRequest.

Parameter	Type	Supports ad pod requests?	Description
bid	object array	Yes	Array of 1 or more Bid objects ( <a href="#">Section 4.2.3</a> ) each related to an impression. Multiple bids can relate to the same impression.
seat	string	Yes	ID of the buyer seat on whose behalf the bid was made.  For example, an advertiser, agency, or in the case of a BidRequest with AdPods, the seat value is pubmatic_ow.
group	integer	NA	0 = impressions can be won individually  1 = impressions must be won or lost as a group
ext	object	NA	Placeholder for bidder-specific extensions to OpenRTB.

### Bid object

The table below lists the parameters for the Bid objects, which represent a winning bid for an Impression. The BidResponse object can encapsulate many Bids within a SeatBid object's bid property.

Parameter	Type	Supports ad pod requests?	Description
id	string	Yes	Bidder generated bid ID to assist with logging/tracking.
impid	string	Yes	ID of the Imp object in the related bid request.

Parameter	Type	Supports ad pod requests?	Description
price	float	Yes	Bid price expressed as CPM although the actual transaction is for a unit impression only. Note that while the type indicates float, integer math is highly recommended when handling currencies (e.g., BigDecimal in Java).
nurl	string	No	Win notice URL called by the exchange if the bid wins (not necessarily indicative of a delivered, viewed, or billable ad); optional means of serving ad markup.
burl	string	No	Billing notice URL called by the exchange when a winning bid becomes billable based on exchange-specific business policy (e.g., typically delivered, viewed, etc.).
lurl	string	No	Loss notice URL called by the exchange when a bid is known to have been lost. Exchange-specific policy may preclude support for loss notices or the disclosure of winning clearing prices resulting in <code>#{AUCTION_PRICE}</code> macros being removed (i.e., replaced with a zero-length string).
adm	string	Yes	Optional means of conveying ad markup in case the bid wins; supersedes the win notice if markup is included in both.
adid	string		ID of a preloaded ad to be served if the bid wins.
adomain	string array	Yes	Advertiser domain for block list checking (e.g., <code>"ford.com"</code> ). This can be an array of for the case of rotating creatives. Exchanges can mandate that only one domain is allowed.
bundle	string	No	A platform-specific application identifier intended to be unique to the app and independent of the exchange. On Android, this should be a bundle or package name (e.g., <code>com.foo.mygame</code> ). On iOS, it is a numeric ID.
iurl	string	No	URL without cache-busting to an image that is representative of the content of the campaign for ad quality/safety checking.
cid	string	No	Campaign ID to assist with ad quality checking; the collection of creatives for which iurl should be representative.
crid	string	No	Creative ID to assist with ad quality checking.
tactic	string	No	Tactic ID to enable buyers to label bids for reporting to the exchange the tactic through which their bid was submitted. The specific usage and meaning of the tactic ID should be communicated between buyer and exchanges a priori.
cat	string array	Yes	IAB content categories of the creative.
attribute	integer array	No	Set of attributes describing the creative
api	integer	No	API required by the markup if applicable
protocol	integer	No	Video response protocol of the markup if applicable.
qamediarating	integer	No	Creative media rating per IQG guidelines.
language	string	No	Language of the creative using ISO-639-1-alpha-2. The non-standard code <code>"xx"</code> may also be used if the creative has no linguistic content (e.g., a banner with just a company logo).
dealid	string	No	Reference to the <code>deal.id</code> from the bid request if this bid pertains to a private marketplace direct deal.
w	integer	No	Width of the creative in device independent pixels (DIPS)
h	integer	No	Height of the creative in device independent pixels (DIPS).
wratio	integer	No	Relative width of the creative when expressing size as a ratio. Required for Flex Ads.
hratio	integer	No	Relative height of the creative when expressing size as a ratio. Required for Flex Ads.
exp	integer	No	Advisory as to the number of seconds the bidder is willing to wait between the auction and the actual impression.
ext	object	Yes	Placeholder for bidder-specific extensions to OpenRTB.

## Endpoint error codes

Error Code	Error Message	HTTP Status Code	Scenarios
500	Empty Response	500	Any Panic in Program
600	Missing Request ID	400	req.id is not specified
601	Missing Impressions	400	req.imp is not specified
602	Missing Site/App Object	400	req.site and req.app both not present
603	Site App Both Present	400	req.site and req.app both present in request
604	Missing Publisher ID	400	req.site.publisher.id or req.app.publisher.id not specified
605	Missing Tag ID	400	req.imp.tagid is not specified
606	Missing Impression ID	400	req.imp.id is not specified
607	Missing Ad Type(Banner/Video)	400	banner/native/audio/video any one not specified in request
608	Missing Ad Sizes	400	banner.w, banner.h, or banner.format is not specified
609	Missing MIMEs	400	video.mimes or audio.mimes not specified
610	Missing Native Request Payload	400	native.request payload not specified
611	Missing Video Object	400	video object missing for ctv requests
700	Missing Profile ID	400	mandatory profile id missing in request

## Enumerated value definitions

The expandable tables below define the enumerated values you will to configure the various objects and parameters that make up your BidRequests.

### Video Protocols

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

### Playback methods

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

### Ad position



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

## Video placement types

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

## API frameworks

Value	Description
1	VPAID 1.0
2	VPAID 2.0
3	MRAID-1
4	ORMMA
5	MRAID-2
6	MRAID-3

## Video linearity

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

## Start delay

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

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

### Content context

Value	Description
1	Video: a video file or stream such as Internet TV broadcasts.
2	Game: an interactive software game.
3	Music: an audio file or stream such as Internet radio broadcasts.
4	Application: an interactive software application.
5	Text: a primarily textual document such as a web page, eBook, or news article.
6	Other: none of the other categories applies.
7	Unknown.

### Content delivery methods

Value	Description
1	Streaming
2	Progressive
3	Download

### Playback cessation modes

Value	Description
1	On video completion or when terminated by user
2	On leaving viewPort or when terminated by user
3	On leaving viewPort continues as a floating/slider unit until video completion or when terminated by user

### Production quality

Value	Description
0	Unknown
1	Professionally Produced
2	Prosumer
3	User Generated (UGC)

### Inventory Quality Guidelines (IQG) ratings

Value	Description
1	All Audiences
2	Everyone Over 12
3	Mature Audiences

### Device type

Value	Description
1	Mobile/Table

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

Connection type

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

Location type

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



IP location services

Value	Description
1	ip2location
2	Neustar (Quova)
3	MaxMind
4	NetAcuity(Digital Element)

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← Multi-format support for AMP

Deal Prioritization for Ad Pods for CTV →

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