Event & Conversion API

v1.0

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About This Document

The IAB Tech Lab Events & Conversion API was developed by the CAPI Working Group.

Significant Contributions from: Steven Ware Jones, Meta, Sean Bedford, Meta, Randy Weinstein, Basis Technology, Alan Merzon, Google, Chandan Giri, Google, Akchat Jha, Walmart, Barbara Kalicki, Publicis Sapient, Melissa DeLuca, NBC Universal, Celina Mbale, Paramount, Steven Huang, Bytedance, Matt Reid, Roku, Brian May

IAB Tech Lab Lead: Jill Wittkopp, VP Product, IAB Tech Lab

Overview

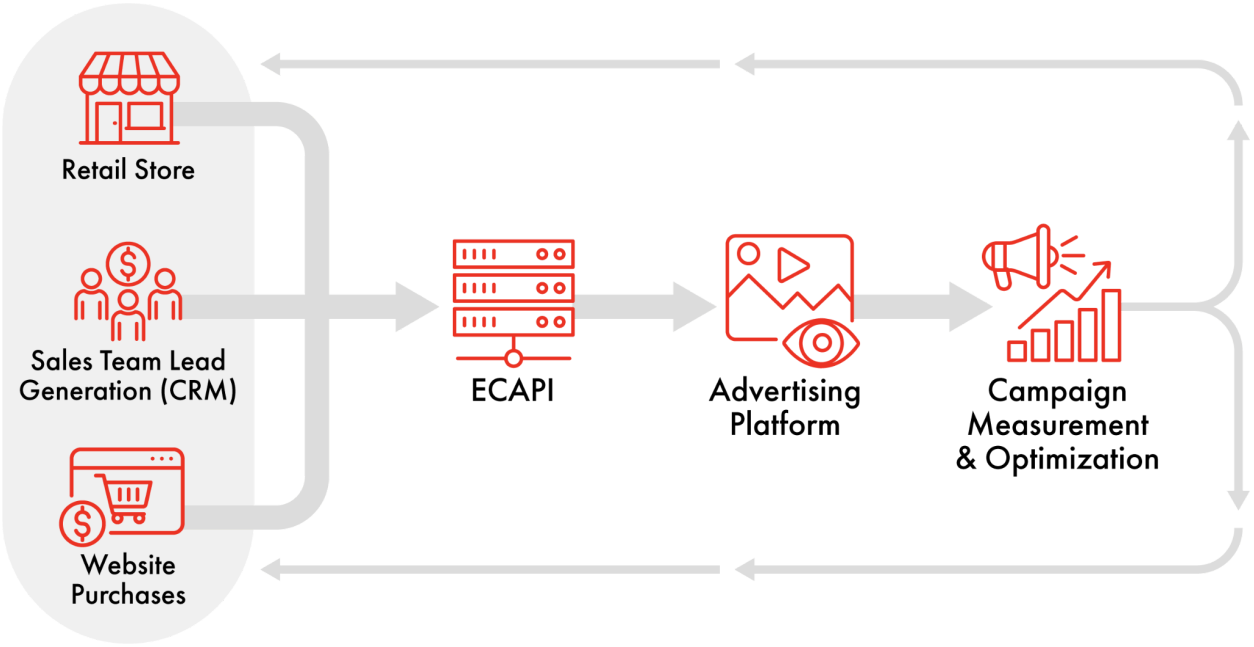
The Event & Conversion API (commonly known as CAPI) is designed to standardize communication of marketing-related events from advertisers' systems to advertising platforms and partners. The recipients are able to leverage this information to optimize marketing campaigns toward desired outcomes and to better measure and report on marketing campaign performance across complete marketing funnels.

How an Event & Conversion API works

The Event & Conversion API defines a set of full-funnel events that are of interest to advertisers. By providing these events to partners, advertisers enable them to:

- Optimize ad campaigns toward desired outcomes
- Measure campaign performance throughout the marketing funnel

These capabilities enable advertising platforms and partners to improve campaign ROI through more effective targeting and better insight into what strategies lead to high value events.



API Conventions

This API adheres to many of the conventions of RESTful APIs. The base protocol assumes communication is HTTPS, and JSON is used to represent the body of requests and responses. Requests should be made with HTTP headers of "Accept: application/json" and "Content-Type: application/json" to indicate that the body of the request will be JSON and that JSON is expected in return. Individual advertising platforms and partners will have specific requirements

for advertising partner integrations and implementations should start with a review of their guidance.

While most of the fields are designated by the standard as optional, there are fields which are defined as required and conditionally required. Pay close attention to these fields during integration. Additionally, partners and platforms may require that certain fields be present for various business use cases. When this is the case, it is expected that they will communicate to partners these minimum requirements. Receivers should be aware that they may encounter unexpected values for fields that aren't strictly defined, that optional fields may be populated inconsistently, and that extension (ext) fields may be added, removed or otherwise altered.

Normalization

This standard includes a number of fields which are SHA256 hashed. In order to maintain consistency across implementations and ensure equivalent inputs produce the same hash value, inputs must be normalized in the same way by all participants prior to hashing. The standard recommends that values consist of lowercase Roman alphabet characters (a-z). Whitespace should be trimmed. There should be no irrelevant formatting and no punctuation. In cases where special characters are required, the text must be encoded in UTF-8 format.

Versioning

When breaking changes are made to this specification, they will be indicated by incrementing the major version number (1.x, 2.x, etc.).

Customized Extensions

This API specification allows for implementation-specific customization through extension (ext) objects which are included as the last field in every object definition in the standard. It is assumed that advertisers will work directly with partners and platforms to define and implement support for extensions as needed.

Using Events API

This API is intended for server to server transmission from advertisers to their advertising partners/platforms to support measurement and optimization use cases.

Sending Events

Advertisers will communicate events to partners through server-to-server calls to partner API endpoints. To send new events, the advertiser should make a `POST` request to the chosen

partner's API endpoint. Requirements for accessing APIs will be partner specific and advertisers should work with each partner when implementing support for the relationship.

Advertising partners/platforms may support incoming webhooks or other modes of communication through their API endpoints for events and advertisers are urged to discuss available options with their integration partners.

ID-Based Record Processing

Receiving systems will assume that every unique event has a unique combination of data_set_id and event ID (see the Core Event Object, below for definitions). Event ID is expected to be the same for all records related to a specific event and if no ID is present, records will be assumed to be for unique events unless the recipient supports other ways of matching records (see below). If an advertiser is generating records for the same event via multiple channels (e.g., both a server-side event is generated and a pixel fires when an item is carted) and they want the records to be merged, both the server-side event and pixel fire should include the same event ID. If it is not possible to provide the same ID for the event across multiple channels, advertisers should only submit a given event from a single channel to avoid creating multiple records for the same event. Some advertising platforms and partners may have the capability to match records based on other fields if no ID is provided; when working with them, IDs should not be included for channels producing records that should be merged.

When platforms receive an event record with an ID, they are expected to look up the associated data_set_id + ID to determine if the record is for a new or existing event. If the data_set_id + ID is not found, a new record should be added to the data store. If the data_set_id + ID is found, the records should be merged. Merge rules are implementation specific. Please see partner-specific documentation for further details.

When platforms receive an event record with no ID, they may or may not attempt to determine if a record is for a new or existing event by using other fields. If they don't use alternative matching methods, multiple records for the same event will be created if records are received from multiple channels. If they do use alternate methods, records will be processed as if they had an ID: if no match is found, a new record should be added and if a match is found, the records should be merged.

Recipients may impose record update time limits and discard any new records with an ID that matches that of an existing record after the time limit has been exceeded.

Individual vs Batch Events

Advertisers may choose to send events individually as they occur or in batches, assuming the partners/platforms they are working with support batch processing. While capturing events as

close to the time of occurrence as possible generally provides the most value, there are use cases for which batching events makes more sense; examples include offline events from a retail store and lead qualification events from a CRM.

Advertising partners/platforms that support batch processing will have requirements for how data is packaged and delivered and advertisers are expected to consult with them to determine how to submit batch data.

Event Payload

Core Event Object

These are the core attributes necessary to operationalize data received through the Event & Conversion API.

Field	Type	Description
data_set_id	string, required	An identifier, coordinated by both parties, that indicates the destination for the data on the receiving system, this may be an advertiser or account related id. Note that this field is used to separate ID spaces: records with the same ID and data_set_id are assumed to refer to a single event, while records with records with the same ID and different data_set_ids are assumed to refer to unique, unrelated events. If this field is missing or invalid, the record may be discarded.
id	string, strongly recommended	This ID can be any unique string chosen by the advertiser. If records for the same event are sent from multiple sources (e.g. a pixel and CAPI), they should include the same event_id; see ID-Based Record Process, above for why. For events without an intrinsic ID

		number, a random number (so long as the same random number is sent between browser, server and other event sources) can be used. If the same ID is not guaranteed to be provided for the same event by different sources, it is preferred that this field be omitted.
timestamp	integer, required	The unix epoch timestamp of the event. For example,1746558464 (May 06 2025 19:07:44 GMT+0000). If this field is missing or invalid, the record may be discarded.
event_type	enum, required	The type of the event; see event_type list below. If event_type is “custom”, the custom_event field (below) must be populated. If this field is missing or invalid, the record may be discarded.
custom_event	string, optional	Required if the enum of event_type is custom. If this field is populated and event_type is not “custom”, it will be ignored. If the event_type field (above) is “custom” and this field is missing or invalid, the record may be discarded.
user_data	object	The object specifies information about the user associated with the event.
value	float, recommended	The total value of the event to the advertiser. This could be the total price of the order or the advertiser's determined value of a specific event to their business. If this field value is set, the currency_code (below) is required.

currency_code	string, recommended	The ISO 4217 currency code. This field is required when “value” (above) is set. The currency reported here applies to all monetary fields. If value is set and this field is missing or invalid, the record may be discarded.
source	enum, recommended	This field specifies where the event took place. See source list below.
properties	object	This object specifies additional properties associated with the event.
ext	object	Placeholder for implementation-specific extensions.

event_type: Event Type Enumerations

There are many ways in which businesses describe the events of importance to them. For this standard, we sought to support the most common use cases in the ‘standard events’ table. We also included an Additional Events table, which identifies less common types that were still deemed worthy of standardization, but lower priority for overall support.

Standard Events

These are the events advertisers most commonly want to share with a partner or platform.

Event Name	Event Description
purchase	A purchase
page_view	A page on the advertiser website was viewed.
ad_impression	A user was exposed to an ad impression.
add_to_wishlist	An item was added to a wishlist.
add_to_cart	An item was added to a cart for purchase.

viewed_cart	A purchase cart was viewed.
viewed_item	An item or product page was viewed.
begin_checkout	A user has begun a checkout flow.
add_payment_info	A user submitted their payment information in a checkout flow.
remove_from_cart	An item was removed from a cart.
refund	One or more items was refunded to a user.
generate_lead	A lead was generated.
qualify_lead	A user is identified as a qualified lead.
close_convert_lead	A lead has been converted and closed.
disqualify_lead	A lead has become disqualified.
close_unconvert_lead	A user is identified as failing to become a converted lead.
sign_up	A user signed up for an account or offer.
search	A user has performed a search.
unlock_achievement	A user unlocked an achievement.
install	An app install.
customize_product	A user customized a product.
contact	A user contact.
donate	A donation was made.
find_location	A user searches for a location.
schedule	A user schedules an appointment.
start_trial	A user begins a trial.
subscribe	A user subscribes to a product or service.
custom	Custom event identified in the custom_event field in the Core Event Parameters (Object). When this event type is indicated, the custom_event field must contain a value or the record is invalid.

Additional Events

While still common, these are generally deemed a lower priority of events that advertisers share with a partner/platform.

Event Name	Event Description
add_shipping_info	A user submitted shipping information.
share	A user shared content.
select_content	A user selected content.
select_item	A user selected an item from a list.
select_promotion	A user selected a promotion from a list.
view_item_list	A user viewed a list of items.
view_promotion	A user viewed a promotion.
view_search_results	A user was presented with the results of a search.
spend_virtual_currency	A user spent virtual currency.
earn_virtual_currency	A user earned virtual currency.
working_lead	A user contacted, or was contacted by, a representative.
login	A user logged in to a website or app.
join_group	A user joined a group.
level_up	A user leveled up in a game.
post_score	A user posted a score.
tutorial_begin	A user started an on-boarding process.
tutorial_complete	A user completed an on-boarding process.

user_data: User Data Object

Metadata about the user associated with the event. As noted in the Disclaimer section of the Introduction, each implementer is responsible for ensuring their implementation complies with applicable laws, regulations, or self-regulatory frameworks.

Field	Type	Description
customer_identifier	string	SHA256 hashed customer identifier provided by the advertiser. The receiver will treat it as a custom label. See Normalization for details.
uids	object, array	array of user id objects
customer_segments	string array	Identifies a general category of the customer associated with the event, e.g., Gold Member or High Spender or Frequent Shopper.
email_address	string array	SHA256 hashed email addresses. See Normalization for details.
phone_numbers	string array	SHA256 hashed phone numbers Remove symbols, letters, and any leading zeros. Phone numbers must include a (+) prefix and country code to be used for matching (e.g., the number 1 must precede a phone number in the United States). Always include the country code as part of your customers' phone numbers, even if all of your data is from the same country.
utcoffset	integer	Local time as the number +/- of minutes from UTC.
address	object array	These should be addresses known to be associated with the user. See address object for details.
gpp_string	string	Contains the Global Privacy Platform's consent string. See the Global Privacy Platform specification for more details.
gpp_sid	integer array	Array of the section(s) of the string which should be applied for this transaction. Generally will contain one and only one value, but there are edge cases where more than one may apply. GPP Section 3 (Header) and 4 (Signal

		Integrity) do not need to be included. See the GPP Section Information for more details.
mmt_only	boolean, may be required in relevant jurisdictions.	A flag that indicates we should not use this event for ads delivery optimization. If set to true, we only use the event for attribution.
click_id	string	Click ID for the appropriate partner/platform that is receiving the conversion event. This may be shared as a campaign ID.
impression_id	string	Impression id for the appropriate partner/platform receiving the conversion event.
event_ip_address	string	The IP address corresponding to the event. This must be a valid IPV4 or IPV6 address.
event_user_agent	string	The user agent for the browser corresponding to the event.
ifa	string	Device identifier for advertising.
landing_ip_address	string	The IP address from which the consumer most recently accessed the campaign landing page after clicking on an ad before the conversion event.
landing_user_agent	string	The user agent recorded at the time the landing_ip_address (above) was captured.
age_range	integer	See enumeration below in age_range .
gender	string	SHA256 hashed gender. See Normalization for details.
ext	object	Placeholder for implementation-specific extensions.

uids: User ID Object

Defines a user identifier, including agent type information.

Field	Type	Description
id	string	SHA256 hashed identifier for the user. See Normalization for details.
source	string	Canonical domain of the ID.
atype	integer	Type of user agent the ID is from. Refer to List: Agent Types in AdCOM 1.0
ext	object	Placeholder for implementation-specific extensions.

address: Address Object

Defines an address associated with an event.

Field	Type	Description
first_name	string	SHA256 hashed first name. See Normalization for details.
last_name	string	SHA256 hashed last name. See Normalization for details.
street	string	SHA256 hashed street address. See Normalization for details.
city	string	City. using Roman alphabet a-z characters is recommended. Lowercase only with no punctuation. If using special characters, the text must be encoded in UTF-8 format.
state	string	State. using Roman alphabet a-z characters is

		recommended. Lowercase only with no punctuation. If using special characters, the text must be encoded in UTF-8 format.
country_code	string	Country code using the 2-letter country codes in ISO 3166-1 is recommended. Lowercase only with no punctuation. alpha-3
postal_code	string	SHA256 hashed postal code. See Normalization for details. This is a 5 digit code for US zip codes. For the UK, the postal code is the area, district, and sector format.
address_type	enum	Labels the address as either a billing or shipping address if known. ● billing ● shipping ● unknown
ext	object	Placeholder for implementation-specific extensions.

age_range: Age Range Enumeration

Age range of the user associated with an event.

Enumeration	Age Range
1	18-20
2	21-21
3	25-29
4	30-34
5	35-39

6	40-44
7	44-49
8	50-54
9	55-59
10	60-64
11	65-69
12	70-74
13	75+

source

Values that specify where your event occurred.

Source	Description
email	Event happened over email.
website	Event happened via a website.
app	Event happened via an app.
phone_call	Event happened via a phone call.
chat	Event happened over chat.
physical_store	Event happened in person in a physical store.
system_generated	Event happened automatically, such as a subscription renewal set to auto-pay.
business_messaging	Event occurred via a business messaging app.
other	Event happened in a way that’s not listed.

properties: Additional Properties Object

Additional metadata that may be provided for some event types.

Field	Type	Description
transaction_id	string	Identifier for a transaction associated with the event.
items	object array	Items and associated item metadata associated with the event.
page_url	string	The URL of a page.
ad_source	string	The value of the utm_source parameter.
referrer	string	Traffic referrer for the event.
coupon	string array	A coupon name/code associated with the event.
shipping	float	Shipping cost associated with the event. The currency is assumed to be what is defined in the core event object currency field.
tax	float	Tax cost associated with a transaction. The currency is assumed to be what is defined in the core event object currency field.
payment_type	string array	The chosen payment method.
shipping_tier	string	The shipping tier associated with the event.
virtual_currency_name	string	Virtual currency used to purchase the items associated with the event.
virtual_item_name	string	Name of the virtual item purchased.
lead_source	string	The source of the lead.
lead_status	string	The status of the lead.
lead_reason	string	The reason for the lead.
ad_platform	string	The ad platform.
ad_format	string	The ad format used.

ad_unit_name	string	The ad unit name.
login_method	string	The method used to login.
group_id	string	The ID of the group associated with the event.
character_level	number	The level of the character associated with the event.
character	string	The character that leveled up.
post_score	number	A score associated with the event that will be posted.
achievement_id	string	The ID of an achievement associated with the event.
search_term	string	The term used for the search.
creative_name	string	The name of the promotional creative.
creative_slot	string	The name of the promotional creative slot associated with the item.
promotion_id	string	The promotion id.
promotion_name	string	The name used to identify a specific promotion or strategic campaign.
availability	enum	Value must be ● available_soon ● for_rent ● for_sale ● off_market ● recently_sold ● sale_pending.
body_style	enum	Body style of the vehicle: ● convertible ● coupe ● hatchback ● minivan ● truck ● suv ● sedan ● van ● wagon

		• crossover • other
condition_of_vehicle	string	Condition of vehicle. • new • used
arrival_date	string	The date for arrival at the destination in YYYYMMDD or YYYY-MM-DD.
departure_date	string	The date of departure in YYYYMMDD or YYYY-MM-DD.
destination_airport	string	Use the official IATA code of the destination airport.
destination_ids	string	If you have a destination catalog, you can associate one or more destinations in your destination catalog with a specific hotel event.
drivetrain	enum	Drivetrain of the vehicle: • 4x2 • 4x4 • awd • fwd • rwd • other • none
exterior_color	string	Exterior color.
fuel_type	enum	Fuel type of the vehicle: • diesel • electric • flex • gasoline • hybrid • petrol • plugin_hybrid • other • none
lease_end_date	string	Lease end date specified using YYYYMMDD or YYYY-MM-DD.

lease_start_date	string	Lease start date using YYYYMMDD or YYYY-MM-DD.
listing_type	enum	Value must be ● for_rent_by_agent ● for_rent_by_owner ● for_sale_by_agent ● for_sale_by_owner ● foreclosed ● new_construction ● new_listing.
make	string	Make or brand of the vehicle.
model	string	Model of the vehicle.
transmission	enum	Transmission of the vehicle: ● automatic ● manual ● other ● none
vin	string	Vehicle Identification Number associated with the event.
ext	object	Placeholder for implementation-specific extensions.

item: Item Object

The item object is a part of the properties object. It focuses on event specific metadata related to items/products associated with events.

Field	Type	Description
id	string	Unique ID that identifies a UPC or SKU
name	string	Product name.
price	float	Product price. The currency is assumed to be what is defined in the core event object currency field.

discount	float	The unit monetary discount value associated with the item. The currency is assumed to be what is defined in the core event object currency field.
quantity	float	The quantity of the item.
brand	string	The brand of the item.
affiliation	string	A product affiliation to designate a supplying company or brick and mortar store location.
category	string	Descriptive category of the product. The taxonomy used should be declared in the cattax field.
cattax	enum	The taxonomy used in the category field. IAB Tech Lab Ad Product Taxonomy 2.0 is recommended.
item_coupon	string	The coupon name/code associated with the event.
item_list_id	string	The ID of the list in which the item was presented to the user.
item_list_name	string	The name of the list in which the item was presented to the user.
item_item_variant	string	The item variant or unique code or description for additional item details/options.
item_location_id	string	The physical location associated with the item.
ext	object	Placeholder for implementation-specific extensions.

Verifying the Integration

Data quality is critical when it comes to Event & Conversion API integrations. Receiving systems will have verification processes not only for the event communication transactions, but for the data received as well in order to ensure data integrity meets requirements for supporting measurement and optimization use cases. Individual platforms and partners will inform advertisers of their data integrity requirements.

Response Codes

HTTP status codes are used by the receiving partner or platform to communicate the status of requests made by the advertiser:

Code	Name	Description
200	OK	The request was successful.
400	Bad Request	The request could not be interpreted successfully.
401	Unauthorized	The request did not contain correct authentication information.
404	Not Found	The resource does not exist.
429	Too Many Requests	The bidder has exceeded the rate limit set by the exchange and must wait before trying again.
500	Internal Service Error	The exchange has encountered technical difficulties.