



GA4 Guide

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Summary

Google Analytics 4 (GA4) is the latest version of Google analytics (GA) service that enables you to measure traffic and engagement across your websites and apps. This is a major upgrade from GA after the Universal Analytics (UA) launch in 2012. GA4 has the flexibility to measure many different kinds of data, delivering a strong analytics experience that's designed for the future. It allows businesses to see unified user journeys across their websites and apps, use Google's machine learning technology to surface and predict new insights, and most importantly, it's built to keep up with a changing ecosystem. This document will act as a guide highlighting the key aspects associated with GA4 and the nuances between GA4 and UA. The document presents a single window approach to most details about GA4

Note that due to the changing nature of GA4 some information in this document may be outdated depending on when it is viewed. To keep up to date you can [view this page](#)

Background

In October 2021, Google announced the launch of Google Analytics 4(GA4). GA4 uses a significantly different data structure and data collection logic. An events-based model processes each user interaction as a standalone event. This change is significant because historically Google Analytics (GA) relied on a session-based model which grouped user interactions within a given time frame. By moving to an event-based model, GA4 is more flexible and better able to predict user behavior.

GA4 will be the default and only option for tracking from 1st July 2023 while the previous version of GA (Universal Analytics) is no longer being supported. This means that migrating to GA4 is the only way forward to continue using GA. It also means that GA4 will be the default option available for tracking in GA.

GA4 has introduced multi-platform functionality and user-centric measurement. There are quite a few new features that we've been enjoying since GA4's release. In this document, we explore the details of GA4 and the key differences that distinguish GA4 from Universal Analytics (UA).

GA4 Features

GA4 is a new property designed for the future of measurement:

- Collects both website and app data to better understand the customer journey

What this means for you

- GA4 allows tracking of websites and apps in the same GA4 property
 - Its is also possible to track multiple sites in a single GA4 property
 - Properties can be differentiated within reports using comparisons
- Uses event-based data instead of session-based

What this means for you

- All user interactions are tracked through events
 - This adds additional flexibility to collect more information about user interactions
 - You will no longer see the UI reports split up by pageviews, events and sessions
- Includes privacy controls such as cookieless measurement, and behavioral and conversion modeling

What this means for you

- GA4 provides higher accuracy of collected data
 - It provides better protection against spam referrals
 - GA4 handles many of the measurement cases on its own which would have to be done manually in UA
- Predictive capabilities offer guidance without complex models

What this means for you

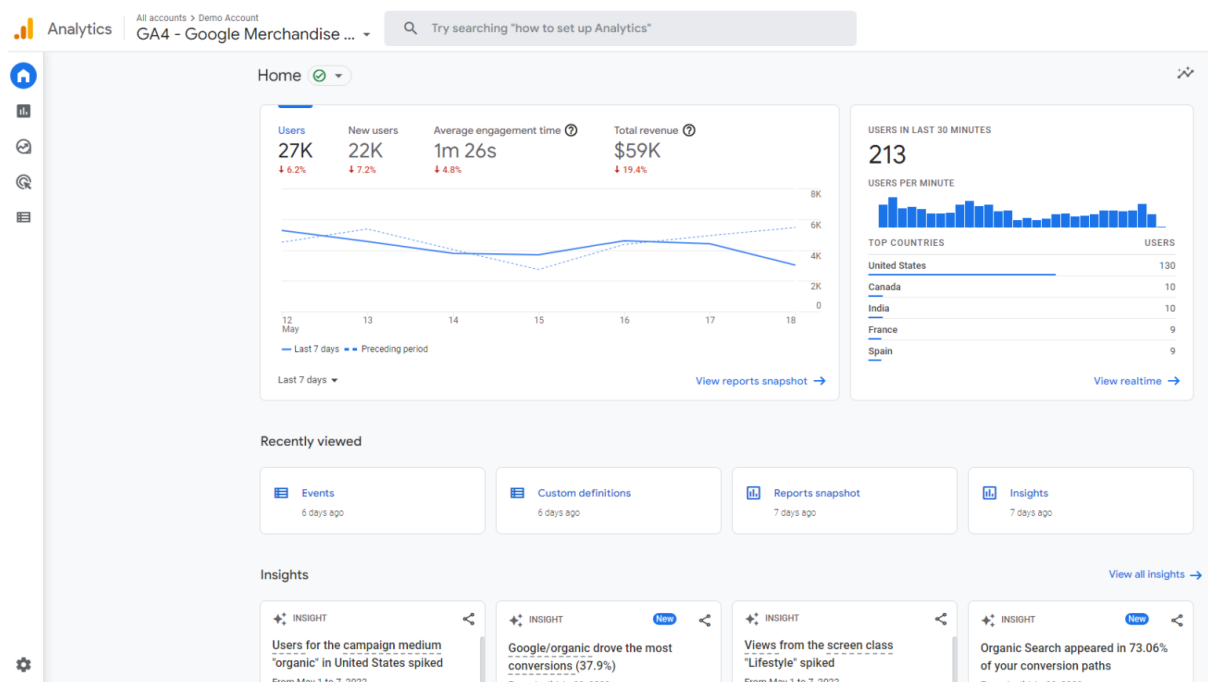
- GA4 calculates three metrics: purchase probability, churn probability and revenue prediction based on availability of required inputs. For more details [read more](#)
- Direct integrations to media platforms help drive actions on your website or app

What this means for you

- GA4 can be easily integrated with multiple media platforms and can be readily used to connect with details on those platforms, the one standout here that is not available in GA3 is the big query connection discussed later in this document.

New report interface

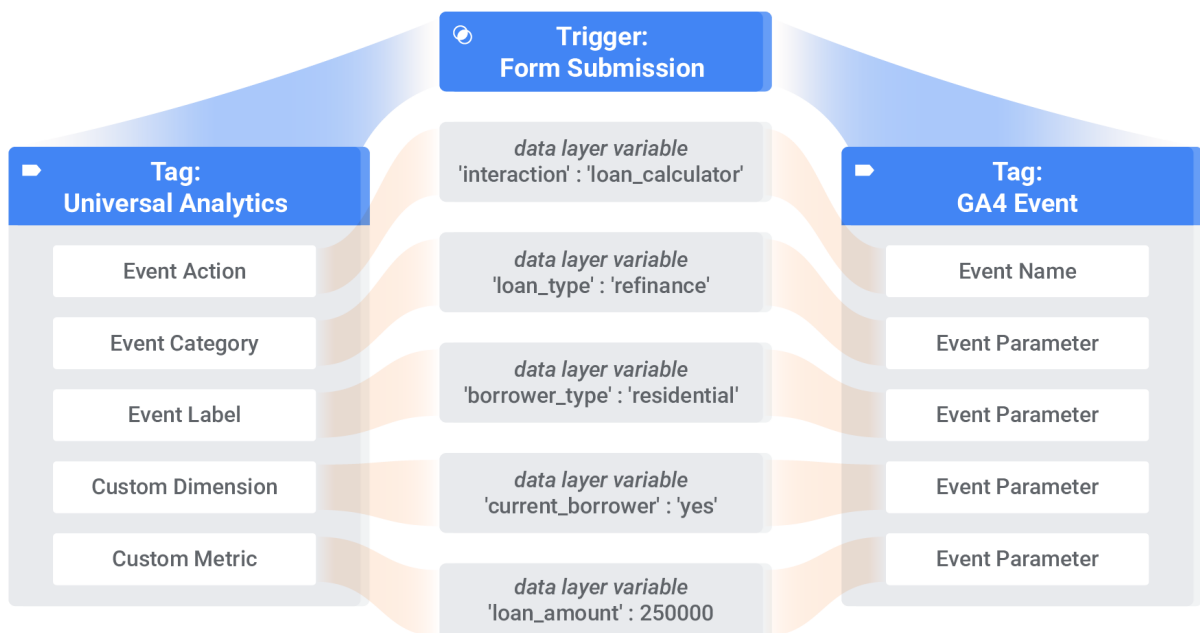
Report interface of GA4 has undergone major change as compared to Universal analytics. Many of the reports have either been removed completely or added to newly created categories. The dashboard highlights multiple metrics including insights and last accessed reports.



Event based measurement

GA4 tracks all measurements as events. Each event can track parameters that capture additional information about the event. GA4 captures some events automatically (automatically collected and enhanced measurement events) while other events (recommended and custom events) require additional implementation.

You will note the absence of event category, action and label; everything including pageviews and sessions are now sent as an event, additional descriptors about the event e.g. device type etc are sent along with the event as parameters.



Predictive insights

GA4 provides predictive metrics that allow data-driven decisions on a large scale. Predictive metrics include metrics like purchase probability, churn probability and revenue prediction that can be used to create audiences based on their predicted behaviors. GA4 needs to be trained to produce predictive models with certain prerequisites being met.

To train predictive models successfully, Analytics requires that the following criteria are met:

1. A minimum number of positive and negative examples of purchasers and churned users. In the last 28 days, over a seven-day period, at least 1,000 returning users must have triggered the relevant predictive condition (purchase or churn) and at least 1,000 returning users must not.
2. Model quality must be sustained over a period of time to be eligible.
3. To be eligible for both the purchase probability and predicted revenue metrics, a property has to send the purchase (recommended for collection) and/or in_app_purchase (collected automatically) events. When you collect the purchase event, you need to also collect the value and currency parameters for that event.









Predictive metrics for each eligible model will be generated for each active user once per day. If the model quality for your property falls below the minimum threshold,

then Analytics will stop updating the corresponding predictions and they may become unavailable in Analytics.

Suggested audiences
Additional audience suggestions for you to consider

GENERAL TEMPLATES **PREDICTIVE** NEW

Analytics builds predictive audiences based on behaviors such as buying or churning. [Learn more](#)

 Likely 7-day purchasers Users who are likely to make a purchase in the next 7 days. ELIGIBILITY STATUS  Ready to use ?	 Likely 7-day churning users Active users who are likely to not visit your property in the next 7 days. ELIGIBILITY STATUS  Not eligible to use ?
 Likely first-time 7-day purchasers Users who are likely to make their first purchase in the next 7 days. ELIGIBILITY STATUS  Ready to use ?	 Likely 7-day churning purchasers Purchasing users who are likely to not visit your property in the next 7 days. ELIGIBILITY STATUS  Not eligible to use ?

These audiences can then be targeted using Google Ads campaigns or even on social media. These metrics can also improve website performance. You can create custom funnels for different audiences based on their behaviors and needs.

Cross device tracking

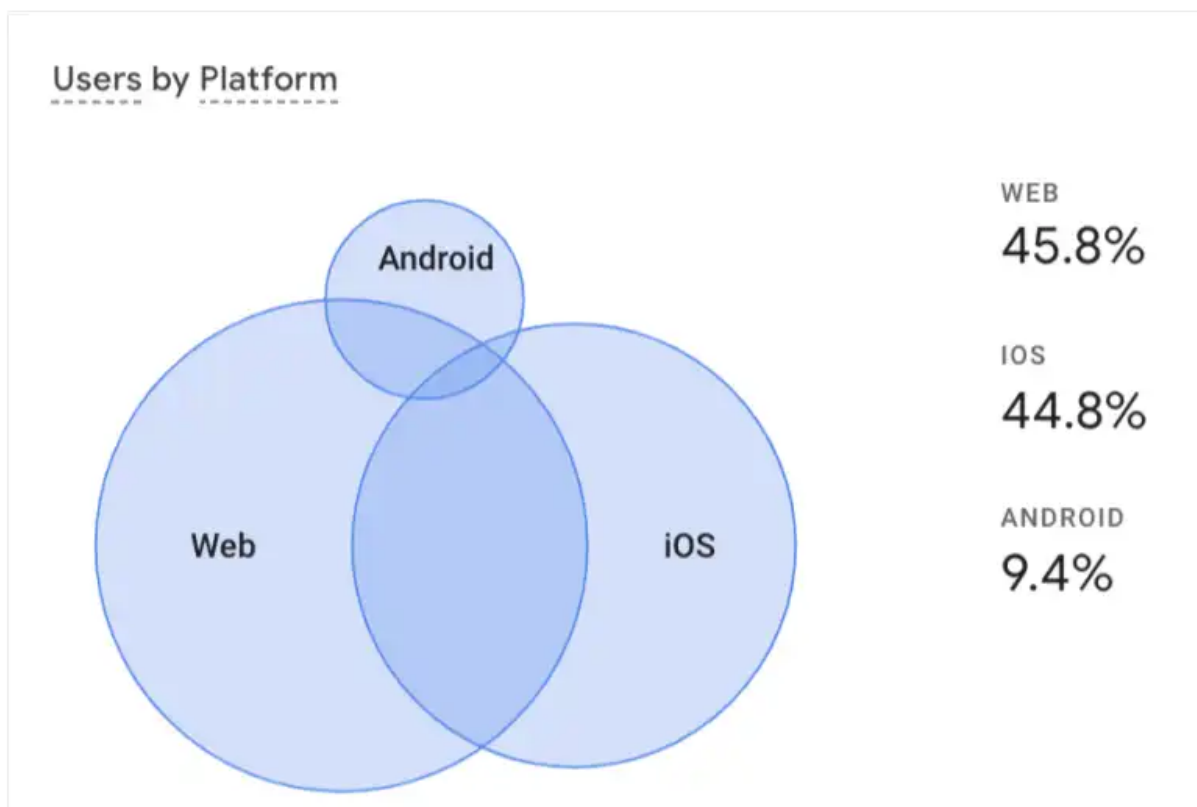
GA4 tracks both web and app data in one property. Cross-platform tracking enables you to see the complete customer journey, including acquisition, engagement, monetization, and retention. GA4 can track the user experience from start to finish—and from platform to platform. When users log in from different platforms, the reports will connect the user's data to their unique ID and pick up where it left off.

In GA4, Google signals enables connecting data about devices and activities from different sessions using your User-ID or Google-signals data. For reports to include Google-signals data you need a monthly average of 500 users per day per property. GA4 improves the accuracy of user counts in reporting, and uses cross-platform audience criteria to evaluate users who do not have a user ID.

Cross-device activity is tracked when you log-in to a Google account using the following:

- iOS devices* (*For iOS 14+ devices, you must use User-ID tracking for cross-device tracking)
- Android devices
- Google Chrome
- Google Chrome web browser
- Other web browsers
- Client apps that require a Google account
- Other apps that require a Google account

In UA, the Cross Device reports are only available in User ID views. User-ID views only display data for sessions in which an ID is sent to UA. The date range is limited to 90 days in the Cross Device reports. Revenue is attributed differently in the Cross Device reports than in other reports. **Note that GA4 also can use user id when implemented to duplicate users across platforms (additionally to signals).**

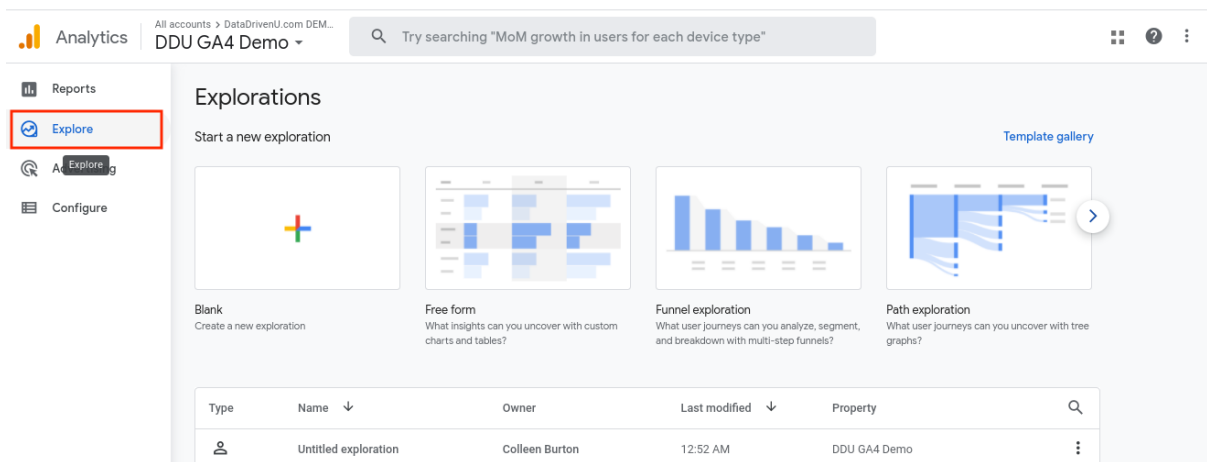


Exploration dashboards

Explorations is a new reporting feature that goes beyond standard reports and helps uncover deeper insights about your customers' behavior. Using exploration reports, you can uncover ad hoc insights with templates or create a custom analysis previously unavailable in the GA3 interface.

When you want to explore data in more detail, you can use explorations to to:

- Quickly perform ad hoc queries
- Easily configure and switch between techniques
- Sort, refactor, and drill down into the data
- Focus on the most relevant data by using filters and segments
- Create segments and audiences
- Share your explorations with other users of the same Google Analytics property
- Export the exploration data for use in other tools

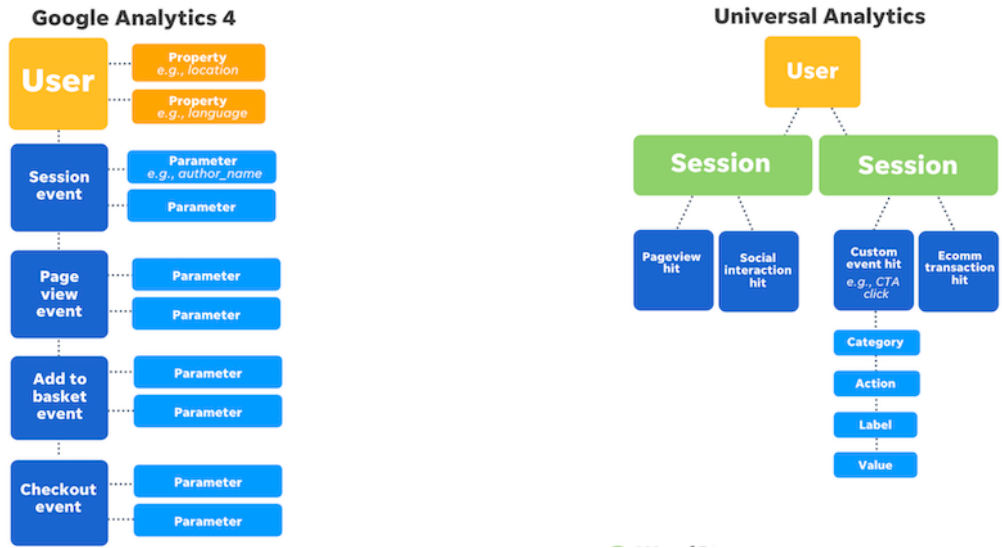


You will note the standard UI reports are a more paired down and basic to the GA3 reports, Explorer provides a good alternative here to explore data a bit deeper without having to use data studio.

GA4 vs UA

Measurement Model

GA4	UA
Event based model with the principle that any interaction can be captured as an event	Model based on hits that include page hits, event hits, ecommerce hits, and social interaction hits.
Every event is capable of providing more detailed information than hits in UA	Hits only capture details within the defined scope of the hit type

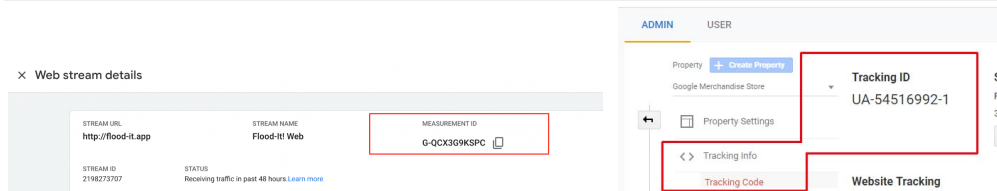


What this means for you

With change in the underlying methodology of data collection in GA4, some minor differences in metrics are to be expected when comparing GA4 vs UA.

Tracking ID

GA4	UA
Tracking in GA using measurement ID	Tracking in GA using tracking ID
Measurement ID follows format as G-XXXXXXXXXX	Tracking ID follows format as UA-XXXXXXXXXX

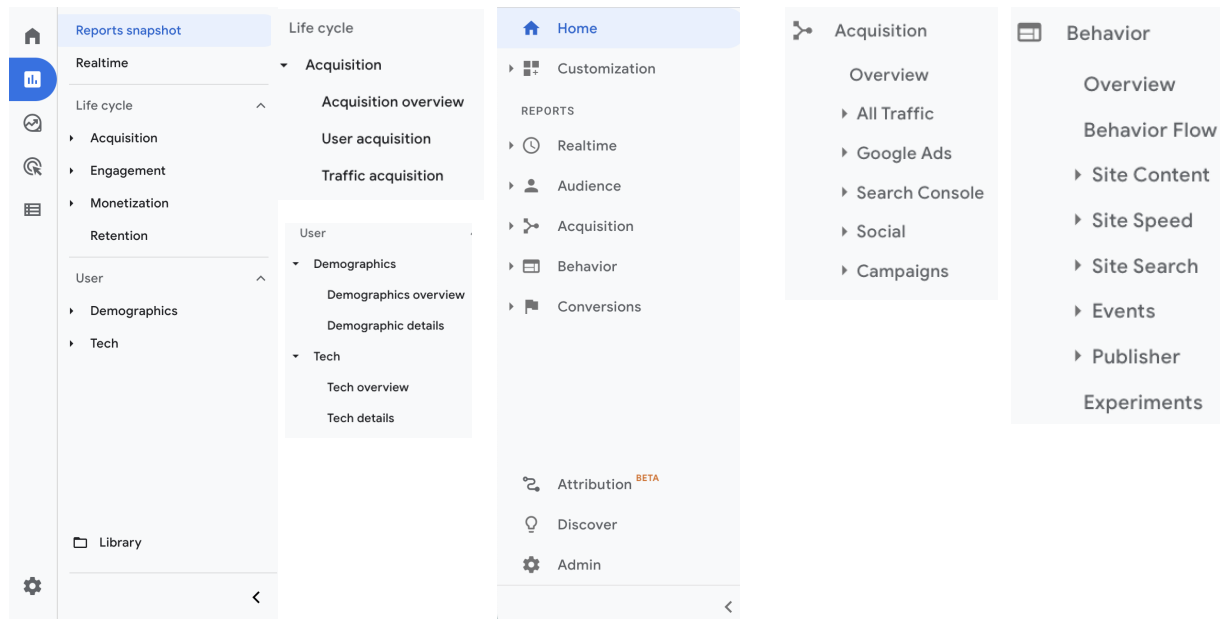


What this means for you

- GA4’s Measurement ID and UA’s Tracking ID are not interchangeable.
- While linking GA4 to external platforms, the GA4 measurement ID needs to be used and linked separately.

Reporting Interface

GA4	UA
Many of the familiar reports seen in UA are not directly available in the report	All reporting details are directly visible in the report interface



What this means for you

- Information in GA4 follows a different layout and report structure.
- Details available for each of the dimensions are categorized under new report categories and do not represent a one-to-one mapping with UA. Hence, it is important to familiarize with the new GA4 interface to use the platform efficiently and effectively.
- If you are used to deep diving in the standard UI reports in GA3 you may run into some limitations around regex searches and filtering when analyzing data using the standard reports.

Event Tracking

GA4	UA
GA4 provides flexible event setup based on parameters. An event can have up to 25 custom parameters	Events tracking is based on category-action-label-value schema
Events are processed if they arrive up to 72 hours late	Hits are processed if they arrive within 4 hours of the close of the preceding day
GA4 Events can be categorised into <ul style="list-style-type: none"> ● Automatically collected events - Events are triggered by basic interactions of GA4 ● Enhanced measurement events - Measure interactions with website by enabling options in the GA4 interface ● Recommended events - Measure additional features and behavior ● Custom events - Events with a name and set of parameters that are defined to collect information specific to the business 	Event can have following attributes <ul style="list-style-type: none"> ● Event Category ● Event Action ● Event Label ● Event Value
Custom parameters need to be registered under custom dimensions to be available in reports	No additional configuration is needed
GA4 allows creation of custom events within GA4 interface based on combination of multiple events	

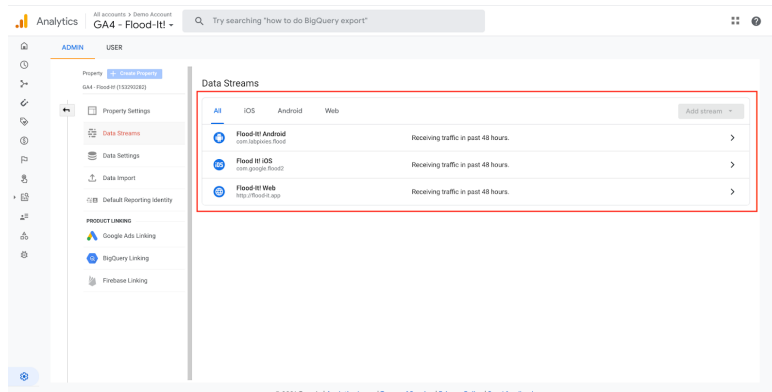
What this means for you

- GA4 events reports will contain some events that are automatically tracked (if not switched off)
- Due to difference in processing times, events reported in GA4 and UA may exhibit differences, this is particularly true for ecommerce data where GA4 delays can be significantly longer than GA3.
- When checking reports for the a particular day, you may notice some additions in GA4 reports over the following 2-3 days
- You will no longer look at events in the category/action/label format instead it you will be looking at events and parameters associated with it.

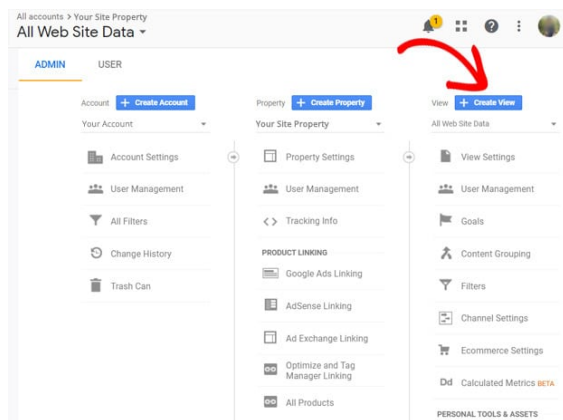
Data Streams and Views

GA4	UA
GA4 does not support the creation of views	UA allows views to be created based on filters as defined
Separate data streams can be created for web and apps	Web and apps are tracked in separate properties

GA4 Stream



UA Views



What this means for you

- GA4 property cannot be separated into views, hence separate views for any of the below aspects will not be possible (however can be achieved in post capture reporting)
 - Sub domains
 - Internal traffic
 - External traffic
 - Testing
 - Raw data
 - Website categories

- Separating data e.g. different subdomains needs to be done post data capture (using comparisons, explorer or data studio) rather than by using filters on properties.

Users

GA4	UA
User activity is detected automatically in GA4	UA relies on manual instrumentation for users
GA4 uses User ID method and considers active users on the site. Hence, GA4 has higher accuracy while measuring users	UA uses Client ID method to track users and focuses on total users
GA4 measures engagement on a page even if a user does not navigate to another page	UA does not measure engagement on a page if a user does not navigate to another page
<p>GA4 takes advantage of a “fallback” approach with multiple methods to identify or dedupe unique users</p> <ul style="list-style-type: none"> • User ID: GA4 will first check if you have passed a User ID value that represents authentication to your own back end and that you typically expose on your website data layer. • Google Signals: If User ID is available, GA uses Google Signals which is tied to a Google login • Client ID: If nothing is detected so far, GA4 will default to the Client ID (the <code>_ga</code> cookie). 	

What this means for you

- Users reported in GA4 may be fewer than UA. This is due to better accuracy (the fallback method) of GA4 by deduping users across multiple devices – and across multiple data stream.
- In GA4, User ID implementation is enabled by default, only ID needs to be assigned as part of the implementation

Views

GA4	UA
Pageviews is renamed as 'Views' in GA4	Pageviews capture the views on a web page
GA4 does not provide unique views metric	Unique pageviews is available as a metric
Pages can be identified by Page path, Page Title and Page location (full url)	Pages can be identified by Page path and Page Title
GA4 automatically tracks history changes on webpages and sends a pageview. This can be disabled through data stream settings	History changes are not captured unless manually configured

What this means for you

- Views in GA4 refers to pageviews
- Some additional pages may be reported in GA4 as it tracks history change automatically (which in GA3 needs to be implemented separately)
- Views in GA4 and pageviews in UA will be different by a small percentage (the above not being true)
- Unique pageviews will not be visible in GA4 for pages

Sessions

GA4	UA
Session is derived from the session_start event. The duration of a session is based on the time span between the first and last event in the session	Session is a combination of user interactions that would end after 30 minutes in case of inactivity or another qualifying reset event has occurred
Sessions are not restarted at midnight or when new campaign parameters are encountered	A new campaign will start a new session regardless of activity If the user is on the website when midnight arrives, a new session will be started
Along with sessions, GA4 also tracks engaged sessions and engaged sessions per user Engaged sessions is the number of	

sessions that have lasted for 10 seconds or longer	
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What this means for you

- Sessions in GA4 may differ from the sessions recorded in UA
- The below factors influence sessions
 - Geography
 - Consider the timezones of your users and how likely they are to cross the midnight threshold to restart a session. This is especially relevant if you have a global customer base.
 - Use of UTMs on owned websites
 - Using UTM tagging on your own website is not recommended since it will reset the session in Universal Analytics.
 - Filters
 - The data in UA reporting may be subject to view filters that exclude data.
 - Estimation
 - GA4 properties use a statistical estimate of the number of sessions that occurred on your website estimating the number of unique session IDs, while UA properties don't estimate the number of sessions.
 - The estimates used by GA4 properties more efficiently count sessions with high accuracy and low error rate.
 - Late hits may also be a factor
- **Note that source/medium now also has different scopes so you may see different results depending on what data you are looking at.**

Bounce rate

GA4	UA
Bounce rate is the percentage of sessions that were not engaged sessions.	Bounce rate is the percentage of single page sessions in which there are no user interactions with the page
Bounce rate is the inverse of Engagement rate	Bounce rate is the percentage of all sessions on your site in which users viewed only one page
If a user doesn't have an engaged session, then GA4 counts the session as a bounce.	A bounced session has a duration of 0 seconds

For example, if a user visits your website, reviews content on your homepage for less than 10 seconds, and then leaves without triggering any events or visiting any other pages or screens, then the session will count as a bounce.	For example, if a user visits the website and reviews content on your homepage for several minutes, but leaves without clicking on any links or triggering any events being recorded as interaction events, then the session will count as a bounce.
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What this means for you

- Bounce rate in GA4 and UA are not comparable as they are different from each other
- In GA4, bounce rate is a measure of engaged sessions
- Generally accepted that GA4 bounce rate/engaged sessions is a more accurate measure of user engagement due to its tracking of user timings.

Conversions

A conversion is any user action that's valuable to the business. Conversions in GA4 are equivalent to Goals in Universal Analytics.

The primary way to measure a conversion is to create or identify an event that measures the important user interaction and then mark the event as a conversion.

Conversion events are limited to 30 per data stream.

Conversions can be used to

- Report on conversions: See the actions that matter most to your business using the Acquisition, Engagement, and Advertising reports.
- Bid on conversions: Import your conversion data into Google Ads to fuel manual or Smart bidding decisions to help optimize your campaigns.
- Attribute credit to conversions: Combine your data with data from other advertising channels to understand the touch points along a user's path to conversion.
- Advertise to unconverted users: Use your conversion data to create audiences of users who didn't convert and import those audiences into Google Ads for remarketing.

GA4	UA
Conversions in GA4 are equivalent to Goals in UA. They are based on events	Goals can be defined based on destination, duration, pages/session, smart goals, and event goals
Conversions are limited of 30 per	Goals are limited of 20 per property

property	
<p>GA4 counts every instance of the conversion event, even if the same conversion event is recorded multiple times during the same session. So, if a user submits a form twice during the same session, two conversions will be counted.</p>	<p>UA counts only one conversion per session for each goal. For instance, if a user submits a form twice during the same session, only one conversion will be counted for the “Form Submit” goal.</p>

What this means for you

- In GA4, key business goals are to be tracked as Conversions
- Conversions can be defined using single event or combination of events
- Destination goals and funnels are not available in GA4
- **Conversions can be higher in GA4 than UA due to the fact that GA4 counts a conversion for every event rather than a unique event as is the case in GA3.**

Custom Dimension

GA4	UA
<p>Scope of dimensions can be set to</p> <ul style="list-style-type: none"> ● event ● user 	<p>Scope of dimensions can be set to</p> <ul style="list-style-type: none"> ● hit ● session ● user ● product
<p>Value of custom dimensions can be linked to event parameters and user properties</p> <p>Custom dimensions are identified by event parameter</p>	<p>Custom dimensions are identified by index</p>
<p>Custom dimensions are limited to 50 per property</p>	<p>Custom dimensions are limited to 20 per property</p>

What this means for you

- Custom dimensions in GA4 need to be set in order to see any custom parameters that you want to see alongside the events in the UI reports. **Note that big query does not require this and all parameters and events will be sent regardless of whether the custom dimension has been set in GA4 or not.**
 - **If you don't see the custom parameter in your event report there is a good chance that the above has not been setup in GA4.**

- Custom dimensions are related to events and conversions
- Custom dimensions can be used to define event and user properties

Segments

GA4	UA
<p>Segments only apply to a single report and sub-tabs of the Explore section.</p> <p>To reuse the same segment in a new Explore report, the segment must be recreated from scratch.</p>	<p>A segment is a subset of the GA data. Segments enable to isolate and analyze subsets of data to examine and respond to the component trends in the business.</p> <p>Segments can be applied to almost all reports in the UA interface.</p> <p>Segments can be session or user segments.</p>

What this means for you

- Segments cannot be reused across all reports
- Every time a segment is needed it needs to be created separately in reports and Explore section
- For using segments in reports, use the add comparison feature
- For explore section, segments need to be defined separately

Data Retention

GA4	UA
<p>Data can be retained for the one of the following times</p> <ul style="list-style-type: none"> • 2 months • 14 months <p>The retention period applies to user-level and event-level data associated with cookies, user-identifiers (e.g., User-ID), and advertising identifiers (e.g., DoubleClick cookies, Android's Advertising ID [AAID or AdID], Apple's Identifier for Advertisers [IDFA]).</p> <p>Keep in mind that the data retention setting does not affect standard aggregated reports (including primary</p>	<p>Data can be retained for the one of the following times</p> <ul style="list-style-type: none"> • 14 months • 26 months • 38 months • 50 months • Do not automatically expire

and secondary dimensions) in your Google Analytics 4 property, even if you create comparisons in the reports. The data retention setting only affects Explorations.	
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What this means for you

- GA4 report structure has changed as compared to UA
- Details visible in GA4 reports are different than UA reports
- **For long term availability of data, linking to BigQuery should be considered**

Custom Metrics

GA4	UA
Scope of metrics can only be event Set to limit of 50 per property	Scope of metrics can be set to hit or product Set to limit of 20 per property

What this means for you

- GA4 allows higher number of custom metrics to be tracked but at the event level only

Spam Prevention

GA4	UA
Addresses spam referrals by adding a key to measurement protocol	Vulnerable to spam referrals through measurement protocol

What this means for you

- Spam referrals do not need to be handled separately

User ID

GA4	UA
User ID is a built-in feature in GA4 reporting view	User ID is available in a separate view

What this means for you

- User ID report and view setup is not needed in GA4. However, the User ID value needs to be assigned to the GA4 variable tracking User ID as well as implemented into the datalayer (just like UA).

BigQuery

GA4	UA
GA4 comes with a free connection to BlgQuery	Connection to BigQuery is possible only through GA360

What this means for you

- BigQuery can be used even with the free version of GA4
- Enables more advanced analysis by utilizing raw data
- Enables you to potentially combine data with backend information.

Scope of Traffic Source Dimensions

Traffic-source dimensions provide information about where the traffic originates from, the methods by which users arrive on your website or app. Some traffic-source dimensions include the prefix "First user" (as in First user source) or "Session" (as in Session source) to provide more attribution information

GA4 organizes acquisition information into user, session, and event groups.

- **User-scoped dimensions**
User-scoped dimensions show you where your new users are coming from. These dimensions always include the prefix "First user"
- **Session-scoped dimensions**
Session-scoped dimensions show you where both new and returning users are coming from when they start new sessions. These dimensions always include the prefix "Session"
- **Event-scoped dimensions**
Event-scoped dimensions help you attribute credit for a conversion event that a user triggered. Event-scoped dimensions don't include a prefix, as in Source or Medium. The source and medium for non-conversion events are "(not set)".

UA data is organized into 4 scope-types:

- **User data**
A user is the highest level of data collected. Any dimension or metric with a user-level scope relates to an aspect of a user

- Session data
A session is defined as one or more hits within a certain time frame.
Session-level dimensions and metrics describe attributes of a single session.
- Hit data
Hit-level dimensions and metrics refer to features of a single hit such as a pageview or an event triggered by watching a video or downloading a pdf.
Hits can also have products associated with them.
- Product data (ecommerce)

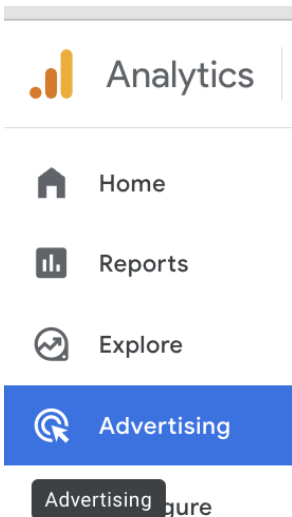
How Analytics attributes credit

Analytics uses different attribution models to assign credit to the ads, clicks, and other interactions along a user's path that leads the user to your website or app. For user-scoped and session-scoped dimensions, Analytics uses the cross-channel last click attribution model. User-scoped and session-scoped dimensions are unaffected by changes to the attribution model.

For event-scoped dimensions, Analytics uses the attribution model that you select, but by default, Analytics uses the data-driven attribution model. All reports with event-scoped traffic dimensions reflect the attribution model selected by default.

What this means for you

- Scopes are relevant when it comes to reporting. GA's built-in reports do not allow invalid dimension-metric combinations.
- However, while creating custom reports or exploration reports it is possible to combine almost any dimension or metric
- **It is very important that dimensions and metrics are not combined across scope. The outcome of this can produce irrelevant data or incomplete reports with blank records**
- Alternatively when trying to access source/medium data for campaign/acquisition purposes (for conversions) it is possible to use the advertising reports which also allows you to compare different attribution models



Attribution Lookback

GA4	UA
Default attribution lookback in GA4 is 90 days	Default attribution lookback in UA is 6 months

What this means for you

- Changes in the attribution lookback period between GA4 and UA can lead to differences if the duration selected

Tracking quirks

GA4 Conversion Modelling

- When an event is marked as a conversion, Google Analytics registers a conversion every time that event_name is sent.
- Conversion modeling refers to the use of machine learning to quantify the impact of marketing efforts when a subset of conversions can't be observed.
- Modeled conversions are only included when there is high confidence of quality. If there isn't enough traffic to inform the model, then modeled conversions aren't reported
- Conversion modeling is used when
 - Browsers that don't allow conversions to be measured

- When advertisers use consent mode, conversions are modeled for unconsented users.
- Information not collected due to platform (Apple) and country restrictions
- Conversions imported into Google Ads from linked GA4 properties
- Conversion modeling covers both click-based events and engaged views for YouTube
- Ad interaction and the conversion happen on different devices

Events

An event allows you to measure a distinct user interaction on a website or app.

- An event in UA has a Category, Action, Label and Value component.
- In GA4 every hit is an event which comprises an event name and parameters.

In UA, event details are captured within the four available attributes where each of these represent a set purpose

- Category: name used to group similar events
- Action: type of event to be tracked
- Label: element on webpage that is to be tracked
- Value: numerical value associated with the event to be tracked

GA4 event parameters allow a wide range of information that can be captured for each event in addition to the parameters that are automatically collected for each event.

GA4 offers a mix of predefined events that are automatically triggered based on set rules and events that can be customized to suit advance tracking requirements on the site or app.

GA4 allows 500 distinctly named events per app stream while **there is no limit on the number of distinctly named events for web data streams**. Event parameters per event cannot exceed 25. Custom event parameters need to be registered as custom dimensions to be available in reports.

GA4 tracks following types of events:

Automatically collected events

These events are triggered by basic interactions with your app and/or site. The following parameters are collected by default with every event, including custom events.

- language

- page_location
- page_referrer
- page_title
- screen_resolution

Event	Description	Parameters
ad_click (app)	when a user clicks an ad Publisher events coming from AdMob via the Google Mobile Ads SDK This event is not exported to BigQuery.	ad_event_id
ad_exposure (app)	when at least one ad served by the Mobile Ads SDK is on screen This event does not appear in reports and is not exported to BigQuery.	firebase_screen, firebase_screen_id, firebase_screen_class, exposure_time
ad_impression (app)	when a user sees an ad impression Publisher events coming from AdMob via the Google Mobile Ads SDK This event is not exported to BigQuery.	ad_event_id, value
ad_query (app)	when an ad request is made by the Mobile Ads SDK This event does not appear in reports and is not exported to BigQuery.	ad_event_id
ad_reward (app)	when a reward is granted by a rewarded ad served by the Mobile Ads SDK	ad_unit_code, reward_type, reward_value
adunit_exposure (app)	when an ad unit served by the Mobile Ads SDK is on screen This event does not appear in reports and is not exported to BigQuery.	firebase_screen, firebase_screen_id, firebase_screen_class, exposure_time
app_clear_data (app)	when the user resets/clears the app data, removing all settings and sign-in data Android only	
app_exception (app)	when the app crashes or throws an exception	fatal, timestamp, engagement_time_msec
app_remove (app)	when an application package is removed (uninstalled) from an Android device	

app_store_refund (app)	when an in-app purchase is refunded by Google Play Android only This event is not exported to BigQuery.	product_id, value, currency, quantity
app_store_subscription_cancel (app)	when a paid subscription is cancelled in Google Play Android only Requires an initial subscription that was made on or after July 1, 2019. This event is not exported to BigQuery.	product_id, price, value, currency, cancellation_reason
app_store_subscription_convert (app)	when a free-trial subscription is converted to a paid subscription This event is set as a default conversion. Requires an initial subscription that was made on or after July 1, 2019. An initial free-trial subscription is logged as an in_app_purchase with the subscription parameter set to true. This event is not exported to BigQuery.	product_id, price, value, currency, quantity
app_store_subscription_renew (app)	when a paid subscription is renewed This event is set as a default conversion. Requires an initial subscription that was made on or after July 1, 2019. This event is not exported to BigQuery.	product_id, price, value, currency, quantity, renewal_count
app_update (app)	when the app is updated to a new version and launched again	previous_app_version
click (web)	each time a user clicks a link that leads away from the current domain	No parameters are collected
dynamic_link_app_open (app)	when a user re-opens the app via a dynamic link	source, medium, campaign, link_id, accept_time
dynamic_link_app_update (app)	when the app is updated to a new version and is opened via a dynamic link Android only	source, medium, campaign, link_id, accept_time

dynamic_link_first_open (app)	when a user opens the app for the first time via a dynamic link	source, medium, campaign, link_id, accept_time
error (app)	logged in place of an event that can't be logged because it is invalid in some way _err (firebase_error), _ev (firebase_error_value), and _el (firebase_error_length) parameters have additional information. This event does not appear in reports and is not exported to BigQuery.	firebase_error, firebase_error_value
file_download (web)	when a user clicks a link leading to a file (with a common file extension) of the following types: document text executable presentation compressed file video audio	file_extension, file_name link_classes, link_domain, link_id, link_text, link_url
firebase_campaign (app)	when the app is launched with campaign parameters This event does not appear in reports and is not exported to BigQuery.	source, medium, campaign, term, content, gclid, aclid, cp1, anid, click_timestamp, campaign_info_source
firebase_in_app_message_action (app)	when a user takes action on a Firebase In-App Message	message_name, message_device_time, message_id
firebase_in_app_message_dismiss (app)	when a user dismisses a Firebase In-App Message	message_name, message_device_time, message_id
firebase_in_app_message_impression (app)	when a user sees a Firebase In-App Message	message_name, message_device_time, message_id

first_open (app)	the first time a user launches an app after installing or re-installing it	previous_gmp_app_id, updated_with_analytics, previous_first_open_count, system_app, system_app_update , deferred_analytics_collection, reset_analytics_cause, engagement_time_msec
first_visit (app, web)	the first time a user visits a website or launches an Android instant app with Analytics enabled	
form_start (web)	the first time a user interacts with a form in a session	form_id, form_name, form_destination
form_submit (web)	when the user submits a form	form_id, form_name, form_destination, form_submit_text
in_app_purchase (app)	when a user completes an in-app purchase, including an initial subscription, that is processed by the Apple App Store or Google Play Store. The product ID, product name, currency, and quantity are passed as parameters. nores events that are flagged as invalid or sandbox.	product_id, price, value, currency, quantity, subscription, free_trial, introductory_price
notification_dismiss (app)	when a user dismisses a notification sent by Firebase Cloud Messaging (FCM) Android only	message_name, message_time, message_device_time, message_id, topic, label, message_channel
notification_foreground	when a notification sent by FCM is received while the app is in the	message_name, message_time,

(app)	foreground	message_device_time, message_id, topic, label, message_channel, message_type
notification_open (app)	when a user opens a notification sent by FCM	message_name, message_time, message_device_time, message_id, topic, label, message_channel
notification_receive (app)	when a notification sent by FCM is received by a device when the app is in the background Android only	message_name, message_time, message_device_time, message_id, topic, label, message_channel, message_type
notification_send (app)	when a notification is sent by FCM Android only	message_name, message_time, message_device_time, message_id, topic, label, message_channel
os_update (app)	when the device operating system is updated to a new version. The previous operating system version id is passed as a parameter	previous_os_version
page_view (web)	each time the page loads or the browser history state is changed by the active site	page_location (page URL), page_referrer (previous page URL), engagement_time_msec

screen_view (app)	<p>when a screen transition occurs and any of the following criteria are met:No screen was previously set</p> <p>The new screen name differs from the previous screen name</p> <p>The new screen-class name differs from the previous screen-class name</p> <p>The new screen id differs from the previous screen id</p>	<p>firebase_screen, firebase_screen_class, firebase_screen_id, firebase_previous_screen, firebase_previous_class, firebase_previous_id, engagement_time_msec</p>
scroll (web)	the first time a user reaches the bottom of each page (i.e., when a 90% vertical depth becomes visible)	engagement_time_msec
session_start (app, web)	<p>when a user engages the app or website</p> <p>A session ID and session number are generated</p>	
user_engagement (app, web)	when the app is in the foreground or webpage is in focus for at least one second	engagement_time_msec
video_complete (web)	<p>when the video ends</p> <p>For embedded YouTube videos that have JS API support enabled.</p> <p>Collected by default via enhanced measurement.</p>	<p>video_current_time, video_duration, video_percent, video_provider, video_title, video_url, visible (boolean)</p>
video_progress (web)	<p>when the video progresses past 10%, 25%, 50%, and 75% duration time</p> <p>For embedded YouTube videos that have JS API support enabled.</p> <p>Collected by default via enhanced measurement.</p>	<p>video_current_time, video_duration, video_percent, video_provider, video_title, video_url, visible (boolean)</p>
video_start (web)	when the video starts playing	<p>video_current_time, video_duration, video_percent, video_provider,</p>

		video_title, video_url, visible (boolean)
view_search_results (web)	each time a user performs a site search, indicated by the presence of a URL query parameter	search_term, optionally 'q_<additional key="">' (where <additional key=""> matches an additional query parameter you specify to be collected under advanced settings)

Enhanced measurement events

GA4 collects these events from websites when enhanced measurement is enabled within Google Analytics.

Measurement option / event	Description	Parameters
Page views page_view	each time the page loads or the browser history state is changed by the active site	page_location (page URL), page_referrer (previous page URL)
Scrolls scroll	the first time a user reaches the bottom of each page (i.e., when a 90% vertical depth becomes visible)	No parameters are collected
Outbound clicks click	each time a user clicks a link that leads away from the current domain By default, outbound click events will occur for all links leading away from the current domain.	link_classes, link_domain, link_id, link_url, outbound (boolean)

Site search view_search_results	each time a user performs a site search, indicated by the presence of a URL query parameter By default, the event is triggered based on the presence of one of the following 5 parameters in the URL: s search query keyword	search_term, optionally 'q_<additional key="">' (where <additional key=""> matches an additional query parameter you specify to be collected under advanced settings)
Video engagement video_start video_progress video_complete	For embedded videos that have JS API support enabled, the following events are triggered: video_start: when the video starts playing video_progress: when the video progresses past 10%, 25%, 50%, and 75% duration time video_complete: when the video ends	video_current_time, video_duration, video_percent, video_provider, video_title, video_url, visible (boolean)
File downloads file_download	when a user clicks a link leading to a file (with a common file extension) of the following types: document text executable presentation compressed file video audio File extensions that match the following regex will trigger the event: pdf xlsx? docx? txt rtf csv exe key pp(s t tx) 7z pkg rar gz zip avi mov mp4 mpe?g wmv midi? mp3 wav wma	file_extension, file_name, link_classes, link_domain, link_id, link_text, link_url
Form interactions form_start form_submit	'form_start': the first time a user interacts with a form in a session 'form_submit': when the user submits a form	

Recommended events

Adding these events to your website or mobile app helps you measure additional features and behavior as well as generate more useful reports. Because these events require additional context to be meaningful, they're not sent automatically.

Event	Description
ad_impression	a user sees an ad impression, for app only
earn_virtual_currency	a user earns virtual currency (coins, gems, tokens, etc.)
join_group	a user joins a group to measure the popularity of each group
login	a user logs in
purchase	a user completes a purchase
refund	a user receives a refund
search	a user searches your content
select_content	a user selects content
share	a user shares content
sign_up	a user signs up to measure the popularity of each sign-up method
spend_virtual_currency	a user spends virtual currency (coins, gems, tokens, etc.)
tutorial_begin	a user begins a tutorial
tutorial_complete	a user completes a tutorial
add_payment_info	a user submits their payment information
add_shipping_info	a user submits their shipping information
add_to_cart	a user adds items to cart
add_to_wishlist	a user adds items to a wishlist
begin_checkout	a user begins checkout
generate_lead	a user submits a form or a request for information
purchase	a user completes a purchase
refund	a user receives a refund
remove_from_cart	a user removes items from a cart
select_item	a user selects an item from a list

select_promotion	a user selects a promotion
view_cart	a user views their cart
view_item	a user views an item
view_item_list	a user sees a list of items/offerings
view_promotion	a user sees a promotion
earn_virtual_currency	a user earns virtual currency (coins, gems, tokens, etc.)
join_group	a user joins a group to measure the popularity of each group
level_end	a user completes a level in the game
level_start	a user starts a new level in the game
level_up	a user levels-up in the game
post_score	a user posts their score
select_content	a user selects content
spend_virtual_currency	a user spends virtual currency (coins, gems, tokens, etc.)
tutorial_begin	a user begins a tutorial
tutorial_complete	a user completes a tutorial
unlock_achievement	a user unlocks an achievement

Custom events

A custom event is an event with a name and set of parameters that is defined to collect information that's specific to a business i.e. completely customized to the website or app.

The **custom parameters do not automatically display under event reports** but need to be configured as custom dimensions to be visible as reports and to be tracked as conversions.

GA4 allows events to be created or modified using the GA4 Admin interface.

Event Modification

Event modification and creation differ as follows:

- Modify event overwrites an existing event
- Create event creates a new event from an existing event. New events can be created using existing event's parameters and add new conditions and parameters.
- Essentially this enables you to change events in the GA4 interface to suit reporting needs or to create new events off the existing ones by utilizing additional conditions. E.g. when event = sign up and page = welcome create event = new_user_signup

Modified Event Limitations

- Modified and created events do not apply to historical data.
- You can modify up to 50 existing events and create up to 50 events based on existing events.
- An hour or more passes before modifications take effect.
- Modifications are executed client side before data is sent to Analytics for processing.
- Modified events execute in the order they appear in the Event modifications list.
- Modified events are processed before created events are processed.
- Created events cannot be reordered

Users

In GA4, there are three User metrics: Total Users, Active Users, and New Users.

Metric	Description
Total Users	Total number of unique users who logged an event
New Users	Number of users who interacted with your site or launched your app for the first time
Active Users	Number of distinct users who visited your website or application. An active user is any user who has an engaged session or when Analytics collects: the first_visit event or engagement_time_msec parameter from a website the first_open event or engagement_time_msec parameter from an Android app the first_open or user_engagement event from an iOS app

- **Note: Universal Analytics highlights *Total Users* (shown as *Users*) in most reports, whereas GA4 focuses on *Active Users* (also shown as *Users*). So, while the term *Users* appears the same, the calculation for this metric is different between UA and GA4 since UA is using *Total Users* and GA4 is using *Active Users*.**

Sessions

A session is a group of user interactions with your website that take place within a given time frame.

GA4 session metrics are derived from the session_start event, an automatically collected event. The duration of a session is based on the time span between the first and last event in the session. Sessions are not restarted at midnight or when new campaign parameters are encountered.

Along with sessions, GA4 also tracks engaged sessions and engaged sessions per user. GA4 tracks engaged sessions which is the number of sessions that have lasted for 10 seconds or longer.

Views

GA4 refers to pageviews as views. It is the total number of app screens and/or web pages that users interact with. Repeated views of a single screen or page are counted. GA4 does not provide a unique views metric.

Custom dimensions and metrics

GA4 automatically provides many dimensions and metrics. However, to collect non-standard event parameters, using custom dimensions and/or custom metrics is essential.

A custom dimension has either an event scope or user scope.

- Event scope: Dimension applies only to a particular event
- User scope: User Property is set to all the events but from that particular moment going forwards. Past events of the same session will not be modified

Custom dimensions need to be registered in the GA4 admin panel under the right scope. In the absence of this, event parameters will not be reported in GA4

Note that whilst with UA you could essentially pass custom information about an event in the action and label fields we now have to pass this in as a parameter and then register this parameter as a custom dimension in order to view this information in the GA4 interface (Big Query notwithstanding).

In UA, custom dimension scope can be one of the below:

- Product – value is applied to the product for which it has been set (Enhanced Ecommerce only).
- Hit – value is applied to the single hit for which it has been set.
- Session – value is applied to all hits in a single session.
- User – value is applied to all hits in current and future sessions, until value changes or custom dimension is made inactive.

A custom metric always has an event scope.

The limits associated with custom dimensions and custom metrics are as below

Dimensions/Metrics	Standard property limits	Analytics 360 property limits
Event-scoped custom dimensions	50	125
User-scoped custom dimensions	25	100
All custom metrics	50	125

Bounce rate -GA4

Engagement rate is the percentage of sessions that were engaged sessions. Bounce rate is the percentage of sessions that were not engaged sessions. Bounce rate is the inverse of Engagement rate.

Attribution Models

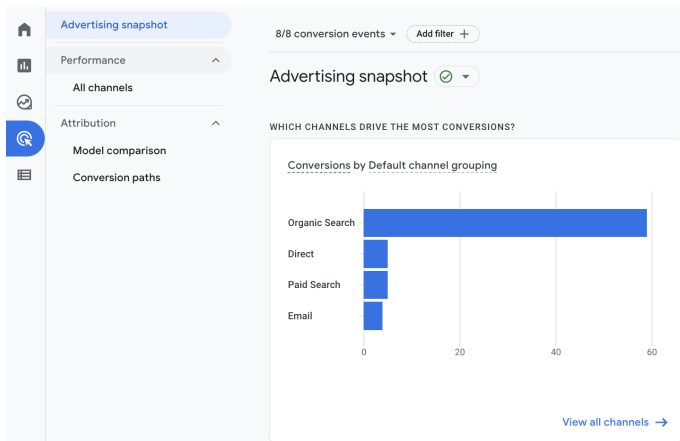
Attribution models are set of rules to determine distribution of conversion credits across various touch points of conversion.

		Cross channel model	
Propert	Data driven		Ads

ies	model	Last click	First click	Linear	Position based	Time decay	preferred model
Credit distribution	Marketing touchpoints get based on how addition of each point add to the probability of conversion	100% conversion credit to last touchpoint on a conversion path	100% conversion credit to first touchpoint on a conversion path	Equal conversion credit to all touchpoint on a conversion path	40% conversion credit to first and last touchpoints. Remaining 20% is distributed between the other touchpoints on the conversion path	More conversion credit to the touchpoints that occurred closer in time to a conversion	100% conversion credit to the last Google Ads click on a conversion path. If there are no Google Ads on the conversion path, the last touchpoint gets credit
Example	Organic search > Social > Email > Paid > Conversion						
Conversion credit	If Email and Paid has a higher conversion probability, conversion credit will be assigned to these	Paid - 100%	Organic search -100%	20% each to Organic search Social Email Paid	Organic search & Paid - 40% each Social & Email - 10% each	Paid - 75% Organic search -25%	Paid - 100%

How to locate

Attribution models can be found under Advertising tab in GA4



Mode comparison

GA4 allows comparison of models with impacting actual reports

Model comparison ✓

Rows per page: 10 1-4 of 4

Search...	Attribution model (non-direct) Cross-channel last click model		Attribution model (non-direct) Cross-channel position-based model		% Change	
	Conversions	Revenue	Conversions	Revenue	Conversions	Revenue
Default channel grouping +	73 100% of total	\$769.51 100% of total				
1 Organic Search	59	\$537.00			0%	>-0.01%
2 Direct	5	\$100.51			0%	0%
3 Paid Search	5	\$132.00			0%	0%
4 Email	4	\$0.00			0%	0%

Dropdown menu options: Data-driven, Last click, First click, Linear, Position-based

Explorations

Explorations is a collection of advanced techniques to help uncover deeper insights about customers' behavior.

It can be used to:

- quickly perform ad hoc queries
- easily configure and switch between techniques
- sort, refactor, and drill down into the data
- focus on the most relevant data by using filters and segments
- create segments and audiences
- share explorations with other users of the same Google Analytics property
- export the exploration data for use in other tools

Set of report templates for advanced data analysis

- Free form report
- Funnel exploration report
- Path exploration report
- Segment overlap report
- User explorer report
- Cohort exploration report
- User lifetime report

Limits

- Each property can have maximum of 200 individual explorations
- Each property can have maximum of 500 shared explorations
- Each exploration can apply up to 10 segments
- Each exploration can apply up to 10 filters per tab

How to use

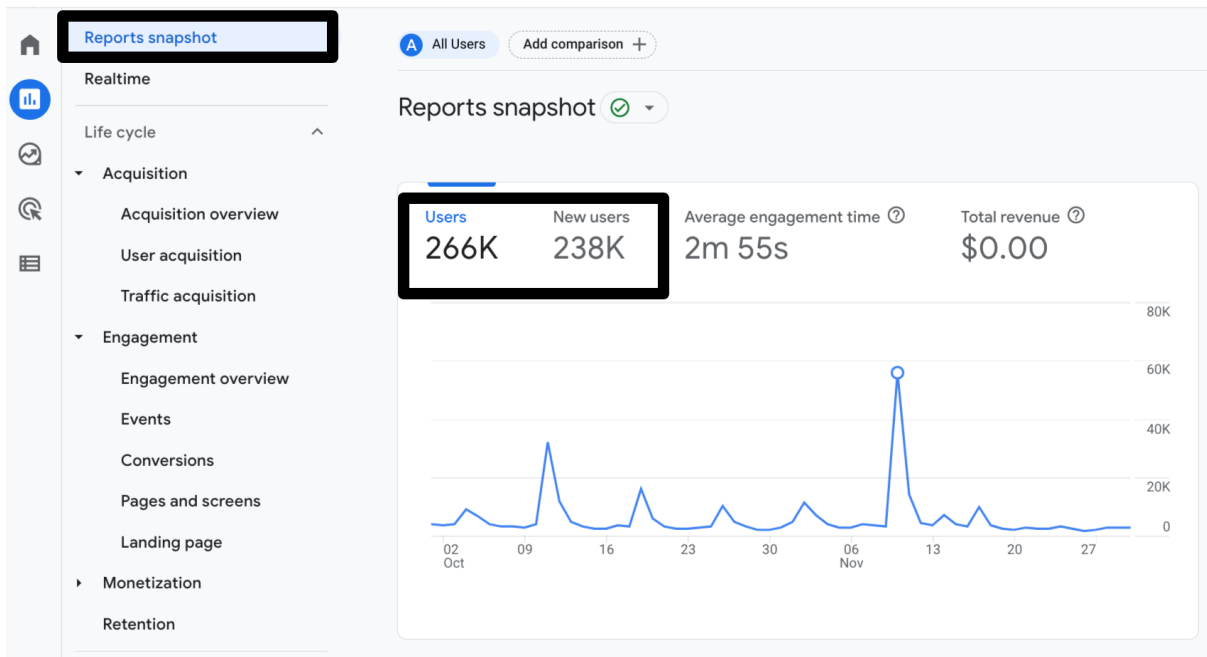
- Exploration reports are very advanced variant of custom reports that are available in UA which allows data visualization and investigation
- Exploration reports can be used to explore deeper insights using drill down and segment options
- Explore reports can be shared for use only between users who have access to GA4 property
- Funnel reports in GA4 can show user journey based on pages and events unlike GA where it can only be based on pages
- GA4 allows identifying reasons for dropout based on various dimensions

How to

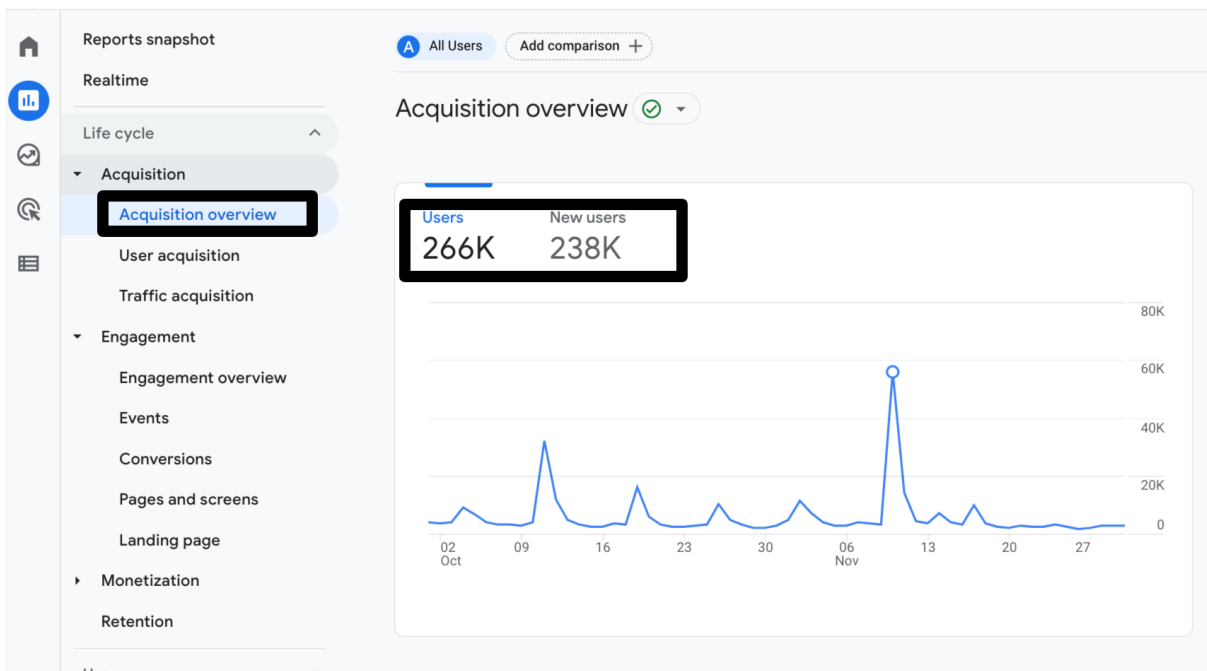
Find users

To know number of users, go to Reports Snapshot

- Total Users (Users): Total number of unique users who logged an event
- New Users: Number of users who interacted with your site or launched your app for the first time
- Active Users: The number of distinct users who visited your website or application. An active user is any user who has an engaged session

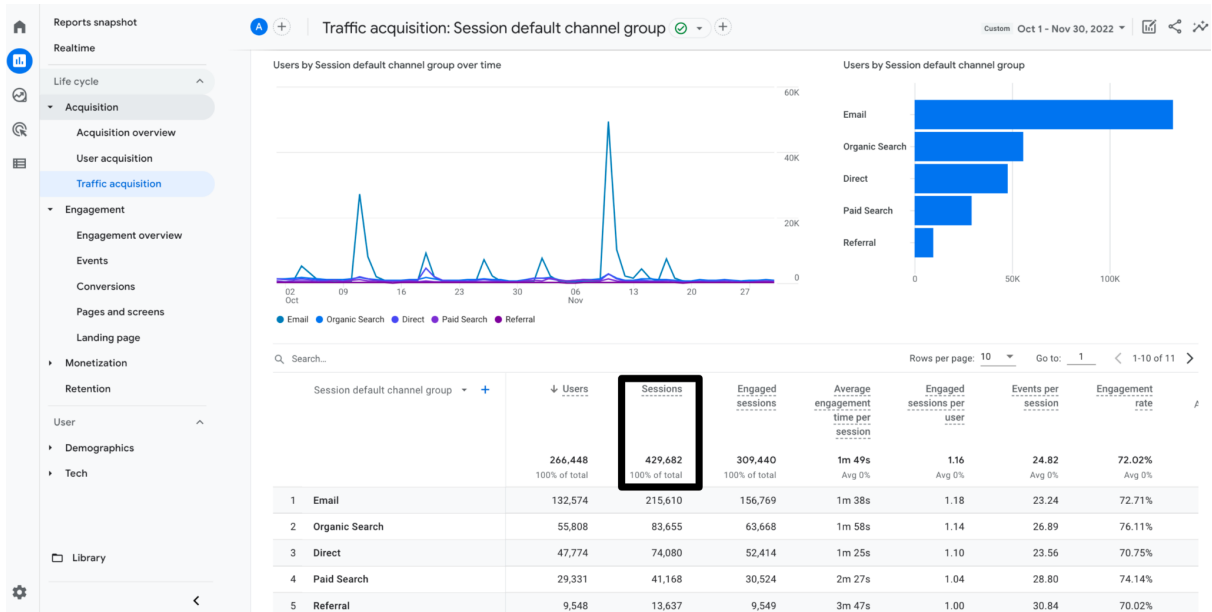


User can also be seen under Acquisition > Acquisition overview



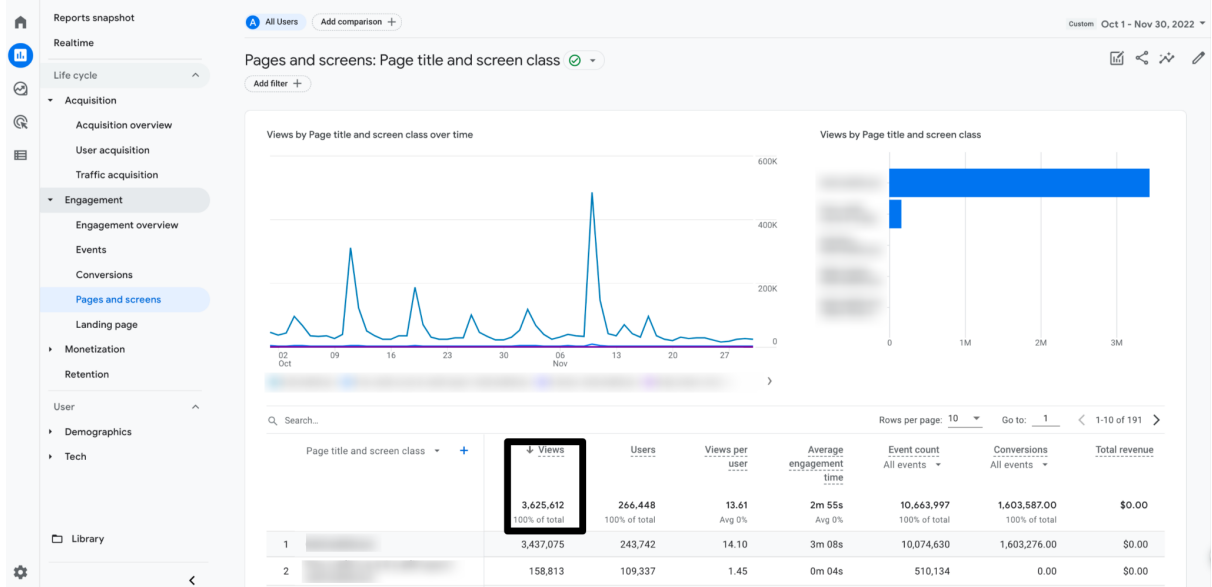
Find sessions

To know number of sessions, go to Acquisition > Traffic acquisition



Find views

To know number of sessions, go to Engagement > Pages and Screen

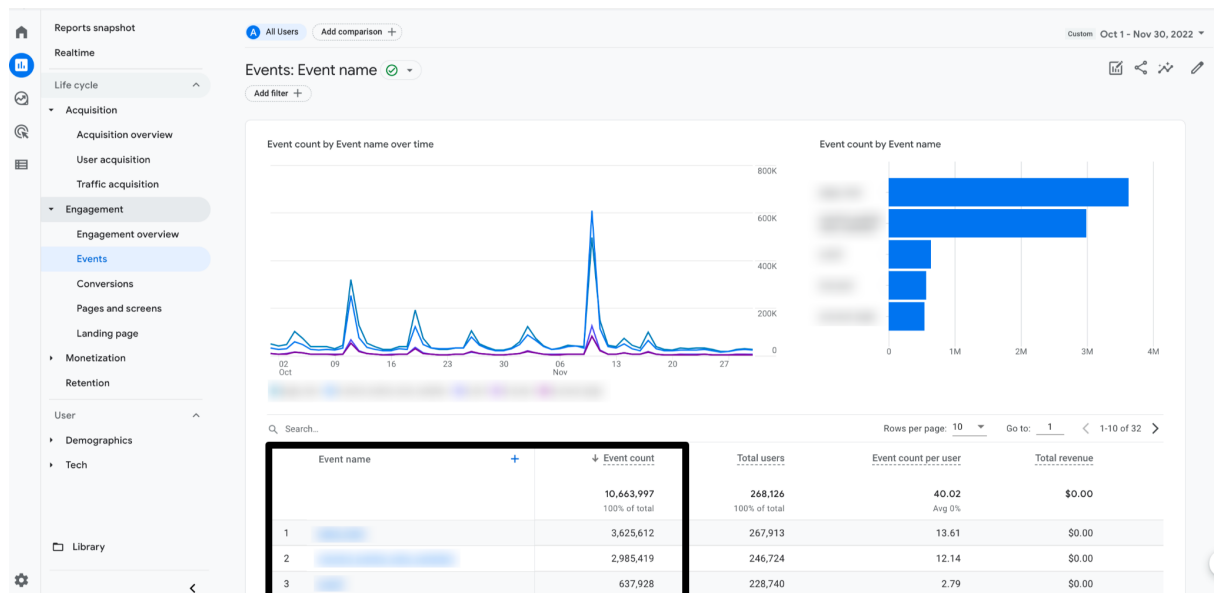


Find events

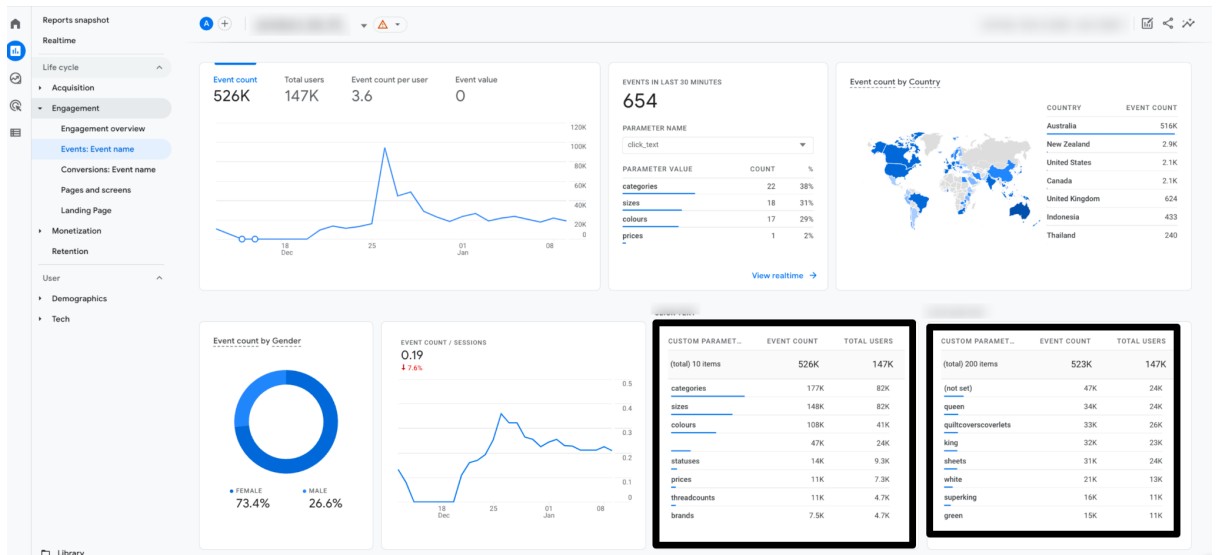
To know number of sessions, go to Engagement > Events

- Events report in UA display all three attributes associated with events: category, action and label. Report allows drilling down between attributes by clicking on each event entry
- In GA4, event report showcases event name and event count. Drilling down into each report is possible by clicking on the event name
- The detailed event report shows additional information about the events including automatically captured parameters and custom parameters associated with the event
- Custom parameters will not be seen in the detailed reports if the custom parameter is not registered in custom dimension in GA4
- Events can also be detailed in Exploration report

GA4 Event report



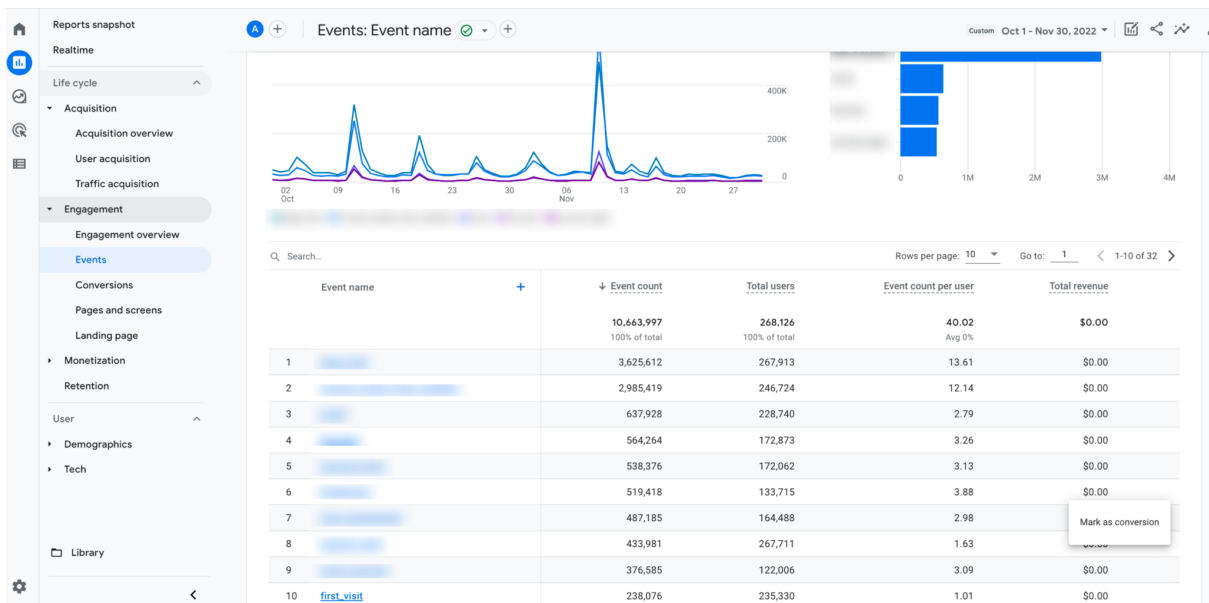
GA4 Event detail report



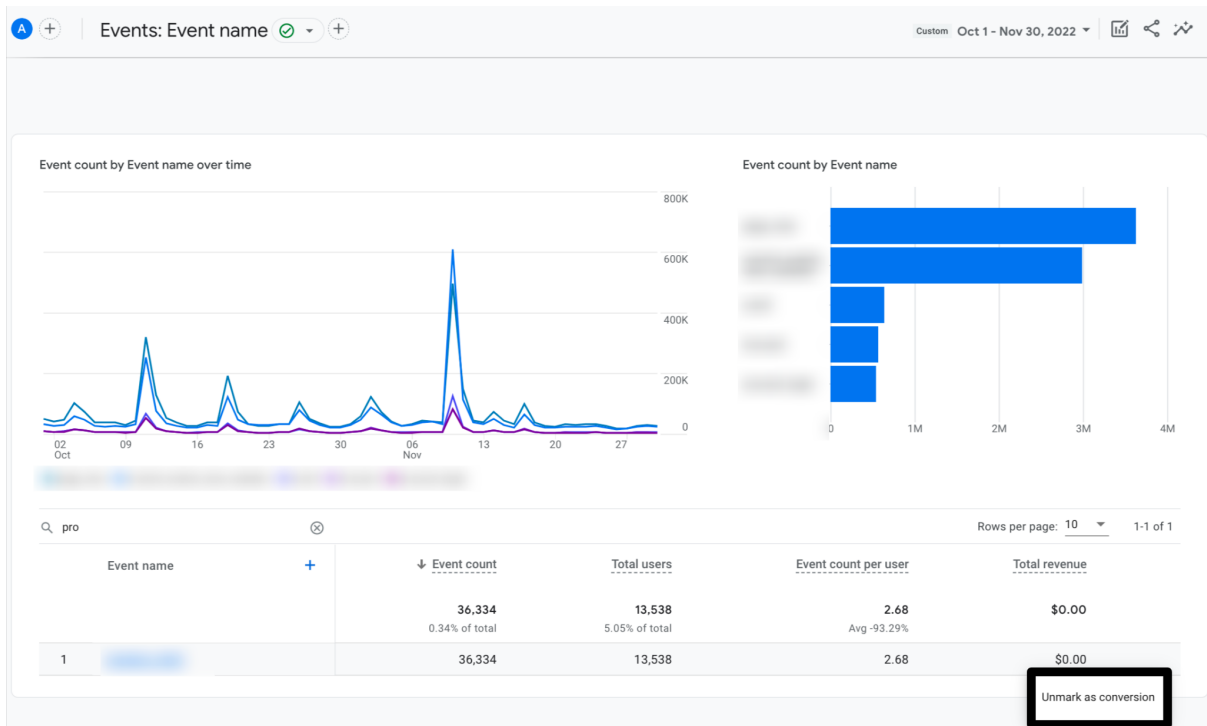
Mark/Unmark conversion

Conversions can be marked from the Events report.

To mark an event as conversion, in the events report left click and select mark as conversion



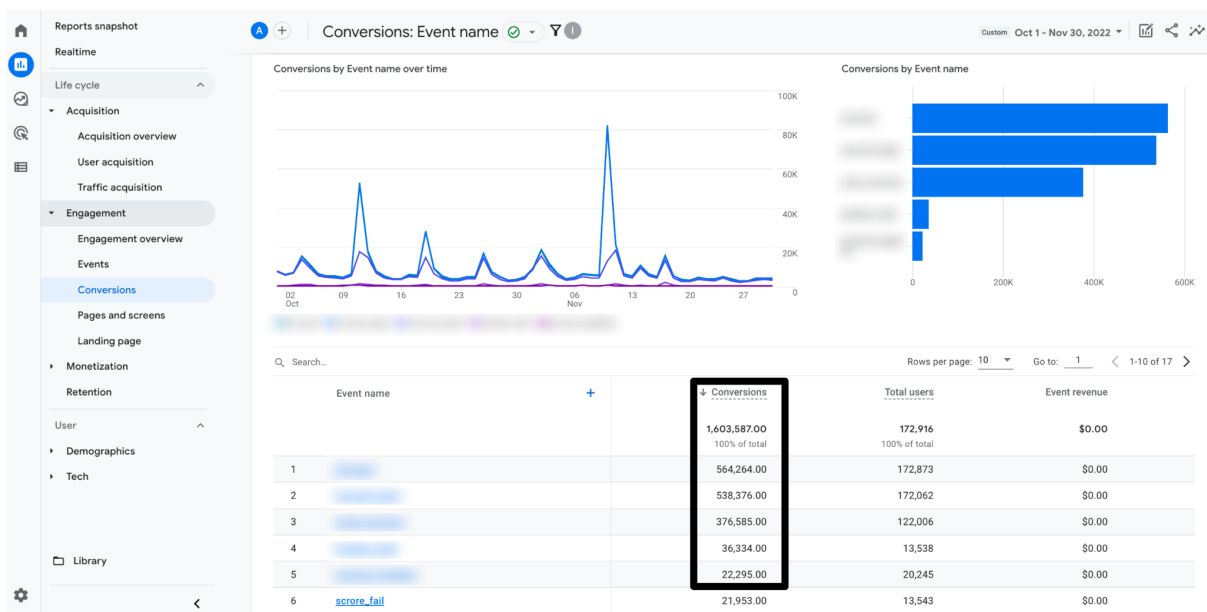
To unmark an event as conversion, in the events report left click and select unmark as conversion



Find conversions

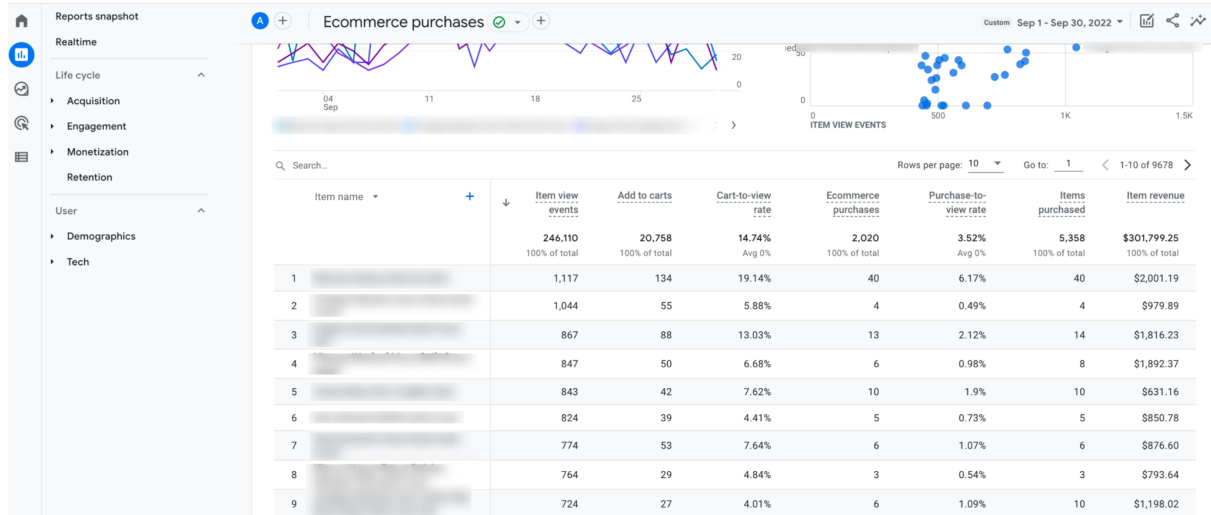
To know number of conversions, go to Engagement > Conversions

- Conversions refer to events in GA4 that have been marked as conversions
- GA4 counts every instance of the conversion event, even if the same conversion event is recorded multiple times during the same session. Hence, conversions do not refer to unique instances of the event's occurrence



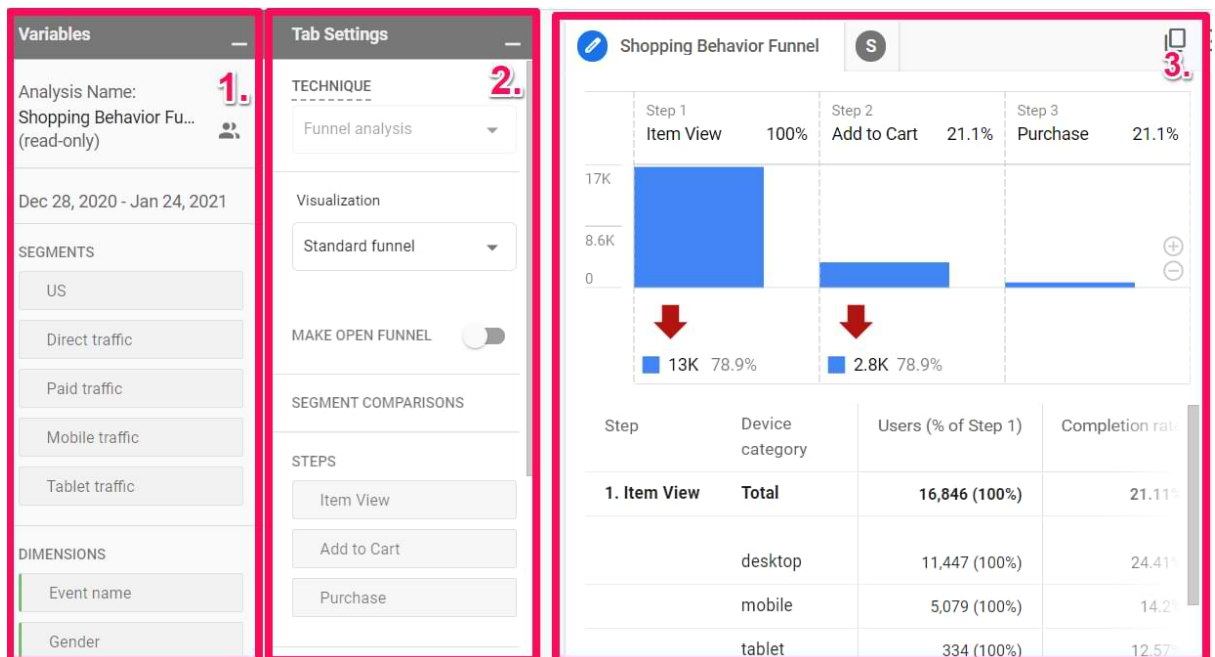
Find ecommerce

To know ecommerce details, go to Monetization > Ecommerce purchases



Create funnel

1. Go to Explore in the report menu
2. Then select Funnel Exploration
3. The interface of the Explorations is split into 3 main parts/columns:
 - a. Variables
 - b. Tab settings
 - c. The output

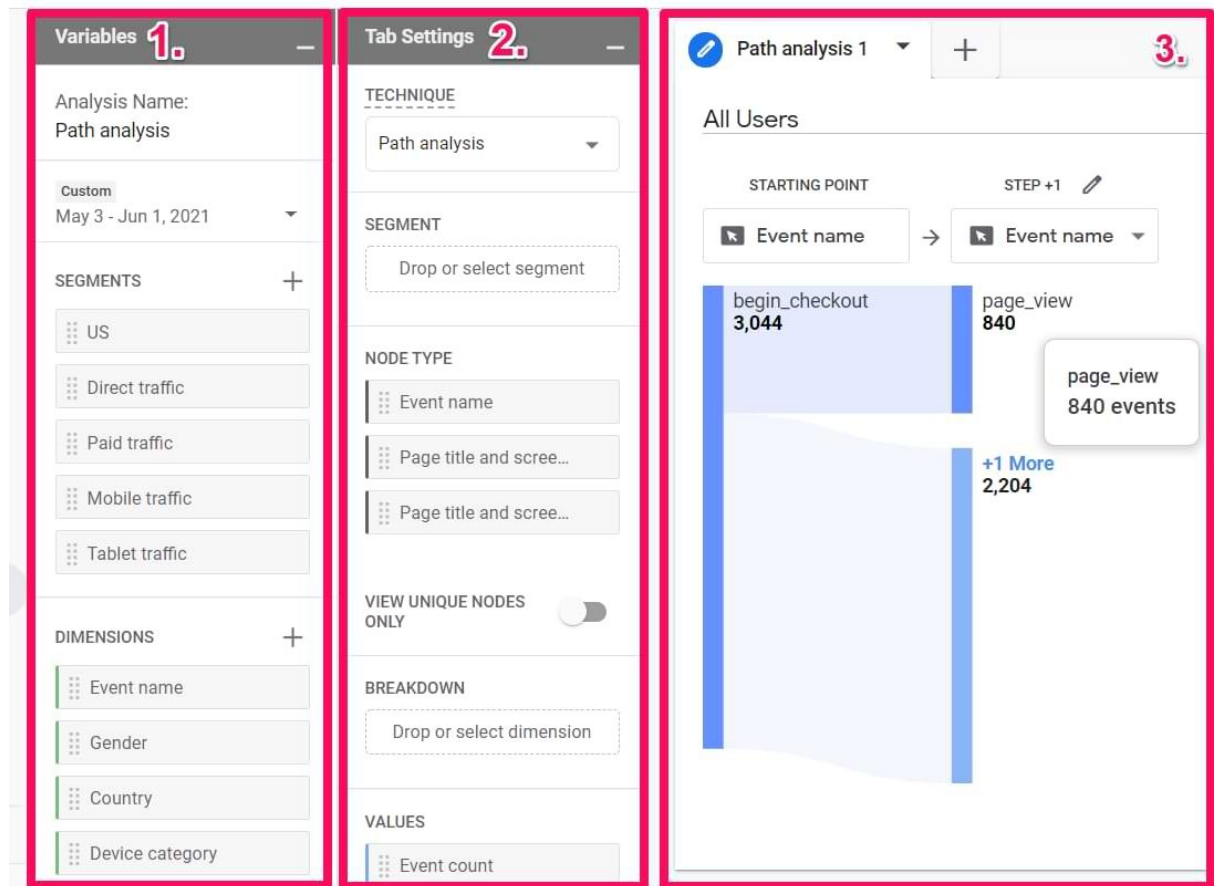


4. On details of creating funnel report follow the link

[▶ Funnel exploration in Google Analytics 4 | Funnel reports in GA4 \(2023\)](#)

Create path analysis

1. Go to Explore in the report menu
2. Then select Path Exploration
3. The interface of the Explorations is split into 3 main parts/columns:
 - a. Variables
 - b. Tab settings
 - c. The output



4. On details of creating path report follow the link

[▶ Path exploration in Google Analytics 4 | Flow reports in GA4 \(2023\)](#)

Create free form report

1. Go to Explore in the report menu
2. Then select Free Form Exploration
3. The interface of the Explorations is split into 3 main parts/columns:
 - a. Variables
 - b. Tab settings

c. The output

The screenshot displays the Google Analytics 4 Exploration interface. On the left, the 'Variables' panel (1) shows the analysis name 'Exploration', date range 'Jan 4 - Feb 2, 2021', segments (US, Direct traffic, Paid traffic, Mobile traffic, Tablet traffic), and dimensions (Event name, Gender, Country, Device category). The 'Tab Settings' panel (2) shows the technique 'Exploration', visualization options (table, bar, line, pie), segment comparisons, rows (City), start row (1), show rows (10), and nested rows (No). On the right, the output table (3) shows active users by device category and city.

Device category	desktop	mobile	tablet	Totals
City	Active users	Active users	Active users	↓ Active users
Totals	83,536 91.7% of total	7,332 8.1% of total	262 0.3% of total	91,064 100.0% of total
1 (not set)	6,865	610	27	7,483
2 London	2,050	199	5	2,253
3 New York	929	56	1	985
4 Sydney	896	58	1	955
5 Singapore	762	96	2	860
6 Paris	780	54	2	835
7 Berlin	739	51	3	793
8 Toronto	699	48	1	748
9 Bengaluru	650	71	1	721
10 Stockholm	604	75	1	680

4. On details of creating path report follow the link

[Free form exploration in Google Analytics 4 \(2023\)](#)

What is not available in GA4

- **Custom Channel Groupings**

What this means for you

Channel grouping definition cannot be altered for each property - although this could be done in post data processing through data studio.

- **Branded/unbranded keyword groupings**

What this means for you

Separating impact of branded and unbranded keywords is not possible in GA4

- **Schedule emails**

What this means for you

Reports and notifications cannot be scheduled for delivery to inbox

- **No annotations**

What this means for you

Adding markers for important events is not possible within GA4

- **Reduced retention duration**

What this means for you

GA4 reports will showcase reports only for a maximum of 14 months. BigQuery can be used to capture and retain important data for future reference

- **Query string parameter removal is not available**

What this means for you

GA4 page path reports will include pages with additional parameters that accompany url as part of search or paid campaigns. This can be handled through Google Tag Manager(GTM)

- **No support for regular expression (GA4 reports)**

What this means for you

- Separate conversions are needed in the absence of regular expressions
- Using options like 'start with' and 'end with' can be used to the best extent possible
- Regular expressions can be used with exploration reports and datastudio

GA4 Metrics

The list below describes the metrics that are available in GA4 and also appear in GA4 reports

Metrics	Definition	What it measures
Add-to-carts	The number of times users added items to their shopping carts.	Ecommerce
Cart-to-view rate	The number of users who added an item (e.g., a product you sell) to their shopping cart per user who viewed the item.	Ecommerce

Checkouts	The number of times users started the checkout process.	Ecommerce
Ecommerce purchases	The number of times users completed a purchase.	Ecommerce
Ecommerce quantity	The number of items included in an ecommerce event.	Ecommerce
Item discount amount	The monetary value of a discount from multiplying the discount and quantity parameters.	Ecommerce
Item list clicks	The number of times users clicked an item that appeared in a list.	Ecommerce
Item list views	The number of times an item list was viewed.	Ecommerce
Item promotion clicks	The number of times an item promotion was clicked.	Ecommerce
Item promotion views	The number of times an item promotion was viewed.	Ecommerce
Item quantity	The number of units for a single item included in an ecommerce event.	Ecommerce
Item refund	The total refund amount issued to the customer	Ecommerce
Item revenue	The total revenue from items only, excluding tax and shipping. Item revenue = Price x Quantity, where: Price is the price parameter for an item in the items array Quantity is the quantity parameter for an item in the items array	Ecommerce
Item views	The number of times an item's details were viewed.	Ecommerce
Purchase revenue	The sum of revenue from purchases made on your website or application.	Ecommerce

Purchase-to-view rate	The number of users who purchased an item (e.g., a product you sell) per user who viewed the item.	Ecommerce
Purchases	The total number of purchases on your website or application.	Ecommerce
Quantity	The number of units for an ecommerce event.	Ecommerce
Refunds	The total number of refunds on your website or application.	Ecommerce
Transactions	The total number of completed purchases on your site.	Ecommerce
Transactions per purchaser	The average number of purchases per buyer for the selected time frame.	Ecommerce
Conversions	The number of times users triggered a conversion event.	Event
Event count	The number of times users triggered an event.	Event
Event count per user	The average number of events triggered per user.	Event
Event value	The sum of all value parameters supplied with an event. You can use this context-sensitive metric to capture data that's important to you (e.g., revenue, time, distance).	Event
Events per session	The average number of events per session.	Event
First opens	The number of times your users opened your application for the first time.	Event
First visits	The number of times your users opened your website for the first time.	Event
Entrances	The number of times that the first event recorded for a session occurred on a page or screen.	Page
Exits	The number of times that the last event recorded for a session occurred on a page or screen.	Page

Views	The number of mobile app screens or web pages your users saw. Repeated views of a single screen or page are counted.	Page
Views per user	The average number of mobile app screens or web pages viewed per user.	Page
ARPPU	Average revenue per paying user (ARPPU) is the total purchase revenue per active user who made a purchase.	Revenue
ARPU	Average revenue per active user (ARPU) is the total revenue generated on average from each active user, whether they made a purchase or not.	Revenue
Average daily revenue	The average total revenue for a day over the selected time frame.	Revenue
Average purchase revenue	The average purchase revenue over the selected time frame.	Revenue
Average purchase revenue per user	The sum of the purchase revenue per user.	Revenue
Max daily revenue	The maximum total revenue for a day over the selected time frame.	Revenue
Min daily revenue	The minimum total revenue for a day over the selected time frame.	Revenue
Total revenue	The total revenue from purchases, in-app purchases, subscriptions, and advertising revenue.	Revenue
Average session duration	The average duration (in seconds) of users' sessions.	Session
Bounce rate	The percentage of sessions that were not engaged sessions.	Session
Engaged sessions	The number of sessions that lasted 10 seconds or longer, or had 1 or more conversion events or 2 or more page or screen views.	Session

Engaged sessions per user	The average number of engaged sessions per user.	Session
Engagement rate	The percentage of sessions that were engaged sessions.	Session
Session conversion rate	The percentage of sessions that converted. This metric is calculated as the number of sessions in which a conversion happened divided by the total number of sessions.	Session
Sessions	The number of sessions that began on your website or application.	Session
Sessions per user	The average number of sessions per user.	Session
Views per session	The number of app screens or web pages your users viewed per session. Repeated views of a single page or screen are counted. (screen_view + page_view events) / sessions.	Session
1-day repeat purchasers	The number of customers who complete 1 or more purchases in 2 consecutive days.	User
2–7-day repeat purchasers	The number of customers who purchased one day and anytime between 2 and 7 days prior.	User
30-day paid active users	The number of customers who complete 1 or more purchases in the last 30 days.	User
31–90-day repeat purchasers	The number of customers who purchased one day and anytime between 31 and 90 days prior.	User
7-day paid active users	The number of customers who complete 1 or more purchases in the last 7 days.	User
8–30-day repeat purchasers	The number of customers who purchased one day and anytime between 8 and 30 days prior.	User
90-day paid active users	The number of customers who complete 1 or more purchases in the last 90 days.	User

Active users	The number of distinct users who visited your website or application. An active user is any user who has an engaged session	User
Average daily purchasers	The average number of purchasers across all the days in the selected time frame.	User
Average engagement time	The average time that your website was in focus in a user's browser or mobile app was in the foreground of a user's device. This metric is calculated as the sum of user engagement durations per active user.	User
Average engagement time per session	The average engagement time per session.	User
DAU / MAU	Daily Active Users (DAU) / Monthly Active Users (MAU) shows the percentage of users who engaged for the calendar day out of the users who engaged in the last 30 days. A higher ratio suggests good engagement and user retention.	User
DAU / WAU	Daily Active Users (DAU) / Weekly Active Users (WAU) shows the percentage of users who engaged in the last 24 hours out of the users who engaged in the last 7 days. A higher ratio suggests good engagement and user retention.	User
First time purchasers	The number of users who made their first purchase in the selected time frame.	User
First-time purchaser conversion (FTP conversion)	The percentage of active users who made their first purchase. This metric is returned as a fraction; for example, 0.092 means 9.2% of active users were first-time purchasers.	User

First-time purchasers per new user (FTPs per new user)	The average number of first-time purchasers per new user.	User
Max daily purchasers	The maximum number of purchasers across all the days in the selected time frame.	User
Min daily purchasers	The minimum number of purchasers across all the days in the selected time frame.	User
New users	The number of new unique user IDs that logged the first_open or first_visit event. The metric allows you to measure the number of users who interacted with your site or launched your app for the first time.	User
PMAU / DAU	Paying Monthly Active Users (PMAU) / Daily Active Users (DAU) shows you the percentage of active users who have made a purchase in the prior month.	User
PWAU / DAU	Paying Weekly Active Users (PWAU) / Daily Active Users (DAU) shows you the percentage of active users who have made a purchase in the prior week.	User
Returning users	The number of users who have initiated at least one previous session, regardless of whether or not the previous sessions were engaged sessions.	User
Total purchasers	The number of unique users who made at least one purchase.	User
Total users	The number of unique user IDs that triggered any events. The metric allows you to measure the number of unique users who logged an event.	User
User conversion rate	The percentage of users who converted. This metric is calculated as the number of users who performed a conversion action divided by the total number of users.	User
User engagement	The length of time that your app screen was in the foreground or your web page was in focus.	User

WAU / MAU	Weekly Active Users (DAU) / Monthly Active Users (MAU) shows the percentage of users who engaged in the last 7 days out of the users who engaged in the last 30 days. A higher ratio suggests good engagement and user retention.	User
Lifetime engaged sessions	The number of engaged sessions a user had since they first visited your website or application.	User Lifetime
Lifetime engagement duration	The length of time since a user's first visit that the user was active on your website or application while it was in the foreground.	User Lifetime
Lifetime session duration	The total duration of user sessions, from their first session until the current session expires, including time when your website or application is in the background.	User Lifetime
Lifetime sessions	The total number of sessions that a user had since their first visit to your website or application.	User Lifetime
Lifetime transactions	The total number of completed purchases by a user since their first visit to your website or application.	User Lifetime
LTV	Lifetime value (LTV) shows the total revenue from purchases on your website or application. You can use the data to determine how valuable users are based on additional revenue you generate.	User Lifetime

GA4 Dimensions

The list below describes the dimensions that are available in GA4 and also appear in GA4 reports

Dimensions	Definition	What it measures
Campaign / Campaign ID	The name and ID of a promotion or marketing campaign that led to a conversion event.	Attribution
Default channel group	Channel groupings are rule-based definitions of your traffic sources. Default channel groups include 'Direct', 'Organic Search', 'Paid Social', 'Organic Social',	Attribution

	'Email', 'Affiliates', 'Referral', 'Paid Search', 'Video', and 'Display'.	
Medium	The method for acquiring users to your website or application. Examples include: 'affiliate': users who click a link through an affiliate program 'cpc': (short for cost-per-click) users who click a paid advertisement 'email': users who click a link in an email marketing campaign 'organic': users who click a link from a search engine 'referral': users who click a link on a website (e.g., a link in a video description) '(none)': direct traffic	Attribution
Source	A representation of the publisher or inventory source from which traffic originated. For example, users who return to your website from Google Search show as "google" in the Session source dimension. Examples include "google", "youtube", and "gmail".	Attribution
Source / medium	The source and medium that led a user to arrive on your website or application.	Attribution
Source platform	The platform where you manage buying activity (such as where budgets, targeting criteria, and so on are set). Examples include: 'DV360' (traffic from Display & Video 360 marketing activity) 'Google Ads' (traffic from Google Ads marketing activity) 'Manual' (traffic that isn't from Google media marketing activity) 'SA360' (traffic from Search Ads 360 marketing activity) 'SFMC' (traffic from Salesforce Marketing Cloud marketing activity) 'Shopping Free Listings' (traffic from Google	Attribution

	Merchant Center marketing activity)	
SA360 engine account ID / name / type	The ID, name, and type of engine account of a Search Ads 360 ad that led to a conversion event.	Google Ads
SA360 ad group name	The name of the ad group of a Search Ads 360 ad that led to a conversion event.	Google Ads
SA360 keyword text	The keyword of a Search Ads 360 ad that led to a conversion event.	Google Ads
SA360 query	The query that triggered a Search Ads 360 ad to appear and that led to a conversion event.	Google Ads
DV360 advertiser ID / name	The advertiser ID and name of the Display & Video 360 ad that led to a conversion event.	Display & Video 360
DV360 insertion order ID / name	The ID and name of the insertion order of the Display & Video 360 ad that led to a conversion event.	Display & Video 360
DV360 line item ID / name	The ID and name of the line item of the Display & Video 360 ad that led to a conversion event.	Display & Video 360
DV360 creative ID / name	The ID and name of the creative of the Display & Video 360 ad that led to a conversion event.	Display & Video 360
Age	The age of the user by bracket. Brackets include '18-24', '25-34', '35-44', '45-54', '55-64', and '65+'.	Demographics
Gender	The gender of the user (i.e., 'Male' or 'Female').	Demographics
Interests	The interests of the user (such as Arts & Entertainment, Games, Sports). Users can be counted in multiple interest categories. This is the same concept as affinity segments in Google Ads.	Demographics
Currency	The currency code of the event.	Ecommerce
Item affiliation	The name or code of the affiliate (i.e., partner or vender) associated with an item (e.g., a product you sell).	Ecommerce

Item brand	The brand of an item (e.g., a product you sell).	Ecommerce
Item category	The first hierarchical category in which you classified an item (e.g., a product you sell).	Ecommerce
Item category 2	The second hierarchical category in which you classified an item (e.g., a product you sell).	Ecommerce
Item category 3	The third hierarchical category in which you classified an item (e.g., a product you sell).	Ecommerce
Item category 4	The fourth hierarchical category in which you classified an item (e.g., a product you sell).	Ecommerce
Item category 5	The fifth hierarchical category in which you classified an item (e.g., a product you sell).	Ecommerce
Item coupon	The coupon used to purchase an item (e.g., a product you sell).	Ecommerce
Item ID	The ID that you specify for an item (e.g., a product you sell).	Ecommerce
Item list ID	An ID that you specify for a list of items (e.g., products you sell).	Ecommerce
Item list name	A name that you specify for a list of items (e.g., products you sell). A name for a list of products.	Ecommerce
Item list position	The position of an item (e.g., a product you sell) in a list.	Ecommerce
Item location ID	The ID you specify for the location of an item or promotion.	Ecommerce
Item name	The name of an item (e.g., a product you sell).	Ecommerce
Item promotion creative name	The name you specify for the creative associated with a promotion.	Ecommerce
Item promotion creative slot	The name you specify for the slot where you show the creative associated with a promotion.	Ecommerce
Item promotion ID	The ID you specify for a promotion.	Ecommerce
Item promotion name	The name you specify for a promotion.	Ecommerce

Item variant	The item variant or unique code or description (e.g., XS, S, M, L for size; Red, Blue, Green, Black for color) for additional item details or options.	Ecommerce
Local item price	The price of the item, localized by its currency code.	Ecommerce
Order coupon	The coupon name or code that you specify for discounted items.	Ecommerce
Shipping amount	The shipping amount associated with a transaction.	Ecommerce
Shipping tier	The shipping tier (e.g. Ground, Air, Next-day) selected for delivery of the purchase.	Ecommerce
Tax amount	The tax amount associated with a transaction.	Ecommerce
Transaction ID	An identifier you create for an ecommerce transaction.	Ecommerce
Event name	The name of an event.	Event
Is conversion event	The text 'true' when an event was marked as a conversion.	Event
Achievement ID	An ID for an achievement that a user can unlock in a game.	Gaming
Character	The name of a character used in a game.	Gaming
Level	The level number in a game.	Gaming
Virtual currency name	The name of a virtual currency in a game.	Gaming
File extension	The extension of a file download (for example, 'pdf' or 'txt').	General
File name	The page path of a file download (for example, '/menus/dinner-menu.pdf').	General
Group ID	The group ID when a user joins a group. This dimension allows you to measure the popularity of various clans or user groups.	General
Method	The method used to sign up, login, or share (e.g., Google, Twitter, etc.).	General

Percent scrolled	The percentage down the page that the user scrolled. If someone scrolls at least 90% of a page, the value '90' populates the dimension. Otherwise, the dimension is blank.	General
Search term	The term used to search your website or application.	General
Test data filter name	The name of a data filter in a testing state. You can use data from your data filters that are in a testing state to validate your filters before activating them.	General
Visible	The text 'true' when an embedded video is visible to the user.	General
City	The city from which user activity originates	Geography
City ID	An ID associated with the city from which user activity originated	Geography
Continent	The continent from which user activity originated	Geography
Continent ID	The UN M49 ID associated with the continent from which user activity originated	Geography
Country	The country from which user activity originated	Geography
Country ID	The ISO 3166 ID associated with the country from which user activity originated	Geography
Region	The geographic region from which user activity originated	Geography
Region ID	An ID for the geographic region from which user activity originates	Geography
Subcontinent	The subcontinent from which user activity originated	Geography
Subcontinent ID	The UN M49 ID associated with the subcontinent from which user activity originates	Geography
Link classes	The HTML class attribute for an outbound link or file download	Link
Link domain	The destination domain of an outbound link or file download	Link

Link ID	The HTML id attribute for an outbound link or file download	Link
Link text	The link text of a file download.	Link
Link URL	The full URL for an outbound link or file download.	Link
Outbound	The text 'true' when a link leads to a website that's not a part of the property's domain.	Link
Content group	The content group associated with a page or screen.	Page / screen
Content ID	The ID that you assign to a content group.	Page / screen
Content type	The type of content group.	Page / screen
Hostname	The subdomain and domain names of a URL that people visited on your website.	Page / screen
Landing page	The page path and query string associated with the first pageview in a session.	Page / screen
Page location	The complete URL of the webpage that someone visited on your website.	Page / screen
Page path + query string	The page path and query strings in a URL. These are the parts of the URL that come after the domain.	Page / screen
Page path and screen class	The page path from a website URL and screen class from a mobile application. The page path is the value after the domain.	Page / screen
Page referrer	The referring URL, which is the user's previous URL and can be your website's domain or other domains.	Page / screen
Page title	The page title that you set on your website.	Page / screen
Page title and screen class	The page title from a website and screen class from a mobile application.	Page / screen
Page title and screen name	The page title from a website and screen name from a mobile application.	Page / screen

App store	The store from which your mobile app was downloaded and installed.	Platform / device
App version	The mobile app's versionName (Android) or short bundle version (iOS).	Platform / device
Browser	The browser from which user activity originated. Typical browsers include 'Chrome', 'Edge', 'Firefox', 'Internet Explorer', 'Opera', and 'Safari'.	Platform / device
Browser version	The version of the browser from which user activity originated. For example, the browser version might be '96.0.4664.110'.	Platform / device
Device	The mobile device from which user activity originated.	Platform / device
Device brand	The brand name of the mobile device (e.g., Motorola, LG, or Samsung).	Platform / device
Device category	The type of device from which user activity originated. Device categories include 'desktop', 'mobile', and 'tablet'.	Platform / device
Device model	The device model name (e.g., iPhone 5s or SM-J500M).	Platform / device
Language	The name of the language of a user's browser or device (e.g., 'French', 'English').	Platform / device
Language code	The language setting of a user's browser or device, displayed as the ISO 639 language code (e.g., 'en-us', 'es', 'zh-cn').	Platform / device
Mobile model	The mobile device model name (e.g., 'iPhone X').	Platform / device
Operating system	The operating system used by visitors on your website or application. Typical operating systems include 'Android', 'Chrome OS', 'Macintosh', and 'Windows'.	Platform / device
Operating system with version	The operating system and version used by visitors on your website or application.	Platform / device
OS version	The operating system version used by visitors on your website or application. (e.g., '9.3.2' or '5.1.1').	Platform / device

Platform	The method by which users accessed your website or application. Platforms include 'Android', 'iOS', and 'Web'.	Platform / device
Screen resolution	The width and height (in pixels) of the screen from which user activity originates. Examples include '1920x1080', '1440x900', and '1366x768'.	Platform / device
Stream ID	The ID of the stream from which users activity originated. You can find your stream IDs by going to Admin > Data Streams.	Platform / device
Stream name	The name of the stream from which users activity originated. You can find your stream names by going to Admin > Data Streams.	Platform / device
Ad format	The format of an ad. Typical formats include 'Banner', 'Interstitial', and 'Rewarded'.	Publisher
Ad source	The source network that served an ad. Typical sources include 'AdMob Network', 'Meta Audience Network', and 'Mediated house ads'. When you integrate with Google Ad Manager, this dimension represents the Google Ad Manager Network name (e.g., 'Bloomberg L.P. (Google Ad Manager Network 5262)').	Publisher
Ad unit	The name you chose for an ad unit. When you integrate with Google Ad Manager, this dimension represents Ad unit (all levels).	Publisher
Date	The date when an event was collected, formatted as YYYYMMDD.	Time
Date + hour (YYMMDDHH)	The date and hour when an event was collected, formatted as YYMMDDHH.	Time
Day	The day of the month when an event was collected, formatted as a two-digit number from 01 to 31.	Time
Hour	The hour when an event was collected, formatted as a two-digit number from 0 to 23.	Time
Month	The month when an event was collected, formatted as a two-digit number from 01 to 12.	Time

Nth day	The number of days since the start of the specified date range.	Time
Nth hour	The number of hours since the start of the specified date range.	Time
Nth month	The number of months since the start of the specified date range.	Time
Nth week	The number of weeks since the start of the specified date range.	Time
Nth year	The number of years since the start of the specified date range.	Time
Week	The week when an event was collected, formatted as a two-digit number from 01 to 53.	Time
Year	The year when an event was collected, formatted as a four-digit number (e.g., '2020').	Time
First user campaign	The campaign by which the user was first acquired.	User-scoped dimensions
First user campaign ID	The ID of the campaign by which the user was first acquired.	User-scoped dimensions
First user default channel group	The default channel group by which the user was first acquired.	User-scoped dimensions
First user manual ad content	The ad content that was used to first acquire a user.	User-scoped dimensions
First user manual term	The term that was used to first acquire the user.	User-scoped dimensions
First user medium	The medium by which the user was first acquired.	User-scoped dimensions
First user source	The source by which the user was first acquired.	User-scoped dimensions
First user source / medium	The source and medium by which the user was first acquired.	User-scoped dimensions
First user source platform	The source platform by which the user was first acquired.	User-scoped dimensions

Session campaign	The campaign that was associated with the start of a session.	Session-scoped dimensions
Session campaign ID	The ID of the campaign that was associated with the start of a session.	Session-scoped dimensions
Session default channel group	The default channel group that was associated with the start of a session.	Session-scoped dimensions
Session manual ad content	The ad content that was associated with the start of a session.	Session-scoped dimensions
Session manual term	The term that was associated with the start of a session.	Session-scoped dimensions
Session medium	The medium that was associated with the start of a session.	Session-scoped dimensions
Session SA360 ad group name	The name of the ad group in Search Ads 360 that referred the user's session.	Session-scoped dimensions
Session SA360 campaign	The name of the campaign in Search Ads 360 that referred the user's session.	Session-scoped dimensions
Session SA360 creative format	The type of creative in Search Ads 360 that referred the user's session (for example, "Responsive search ad", "Expanded text ad").	Session-scoped dimensions
Session SA360 default channel group	The default channel group that referred the user's session (for example, "paid search", "paid social").	Session-scoped dimensions
Session SA360 engine account ID	The ID of the engine account in Search Ads 360 that referred the user's session.	Session-scoped dimensions
Session SA360 engine account name	The name of the engine account in Search Ads 360 that referred the user's session.	Session-scoped dimensions
Session SA360 engine account type	The type of the engine account in Search Ads 360 that referred the user's session (for example, "google ads", "bing", "baidu").	Session-scoped dimensions

Session SA 360 keyword text	The search engine keyword by which you acquired traffic.	Session-scoped dimensions
Session SA360 medium	A representation of the billable outcome for a given Search Ads 360 campaign (e.g. "CPC").	Session-scoped dimensions
Session SA360 query	The search term by which you acquired traffic.	Session-scoped dimensions
Session SA360 source	The origin of traffic that referred the user's session (for example, "example.com", "google", "spring_newsletter").	Session-scoped dimensions
Session source	The source that was associated with the start of a session.	Session-scoped dimensions
Session source / medium	The source and medium that was associated with the start of a session.	Session-scoped dimensions
Session source platform	The source platform that was associated with the start of a session.	Session-scoped dimensions
Audience name	The name of an audience that users belong to during the date range selected. Current user behavior does not affect historical audience membership in reports.	User
New / established	New and established users who first opened your app or visited your website within the last 7 days.	User
Signed in with user ID	The text 'yes' when you collect a user_id, which can help you connect separate sessions to an individual user.	User
First session date	The date, in the format YYYYMMDD, when a user was first acquired. First session date includes data about users who open a progressive web application (PWA) or instant app without installing the app.	User lifetime
First visit date	The date, in the format YYYYMMDD, when a user was first acquired.	User lifetime
First purchase date	The date of the user's first purchase.	User lifetime

Last active date	The date of the user's most recent engagement.	User lifetime
Last audience name	The name of an audience that users currently belong to.	User lifetime
Last platform	The method by which a user most recently accessed your website or application. Platforms include 'Android', 'iOS', and 'Web'.	User lifetime
Last purchase date	The date of the user's most recent purchase.	User lifetime
Video provider	The source of the video (e.g., 'youtube').	Video
Video title	The title of the video.	Video
Video URL	The url of the video.	Video

Thank You !