



GOOGLE ANALYTICS 4 (GA4)

USERS IN LAST 30 MINUTES

106

USERS PER MINUTE



DEVICE CATEGORY IN LAST 30 MINUTES

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Google Analytics 4 (GA4)

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About the author

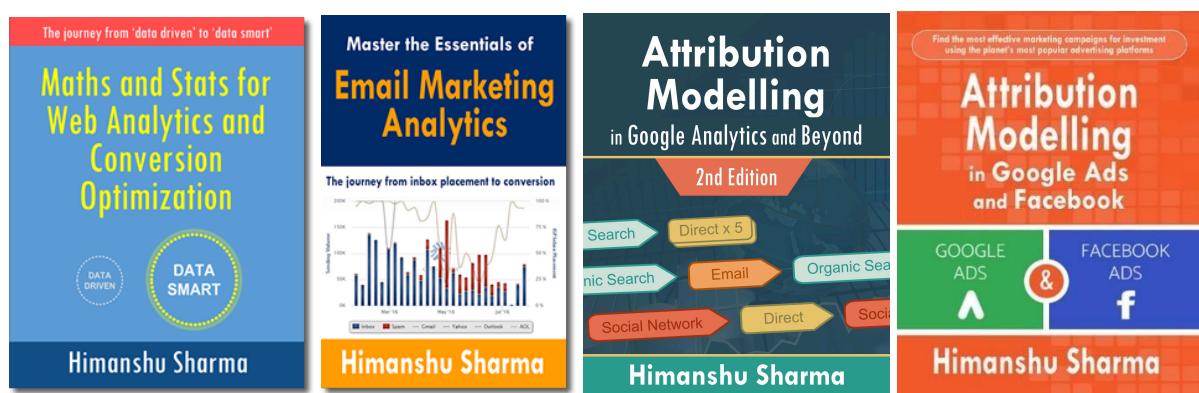


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<<One program to rule them all >>

Sales & ROI + GA4 + BigQuery + Data, Maths & Stats + Attribution Modelling + Looker Studio. 4k+ students + Enrollment from US and UK universities.

I designed this all-in-one training program so that:

a) You can understand how they all work together.

For example,

>> How you can implement digital analytics with GA4.

>> How BigQuery works with GA4 and vice versa.

>> How looker studio works with BigQuery and GA4.

>> How to use the knowledge of maths and stats to interpret analytics data.

>> How to set up KPIs and marketing funnels.

>> How to optimize and scale ads by leveraging analytics and attribution data.

b) You don't have to purchase half a dozen different courses from different course creators, all teaching the same basic stuff. "Click here...and now click there....". You can learn these 'click here and then click there' lessons for_free on my blog or YouTube.

c) I teach how to use AI tools like chatgpt to automate mundane and low value tasks like manually creating Excel/Google sheets functions and formulas, regex, SQL, JavaScript etc. So that you can spend more time doing data analysis then data extraction.

In this training program my objective is not to teach you digital analytics. That's not my end goal. My end goal is to increase sales and ROI by leveraging the knowledge of digital analytics. That's the end goal. So everything you learn is tied to driving sales and ROI.

[Learn more about the training.](#)



Get helpful tips on a daily basis

If you are the type of person who finds it helpful to receive short tips on GA4, improving conversions, fixing attribution issues and learning about analytics in general, then follow me on LinkedIn. I post a few short tips each day.

[Click here and follow me on LinkedIn](#)

What is Google Analytics 4?

Google Analytics 4 (also known as Apps + Web) is the latest version of Google Analytics.

Since it is the 4th version, it is called **GA4**.

Following are the other three versions of Google Analytics:

1. **The first version of Google Analytics (also known as GA1) is Classic Google Analytics ([ga.js JavaScript library](#)).**
2. **The second version of Google Analytics (also known as GA2) is Universal Analytics ([analytics.js JavaScript library](#))**
3. **The third version of Google Analytics (also known as GA3) is also Universal Analytics, but it uses a different JavaScript library called [gtag.js JavaScript library](#).**

Note: GA4 also uses the gtag.js library but uses a new measurement model called the '**Event+Parameter**' model.

Through GA4 you can combine mobile app and website usage data for unified reporting and analysis.



Further reading: [What is GA4 \(Google Analytics 4\) – The Apps + Web Property?](#)

How old is Google Analytics 4?

Google Analytics 4 was officially launched on October 14, 2020. So, as of today, GA4 is over three years old.

Is Google Analytics 4 free or paid?

There are two versions of GA4, free and paid. The free version is called the ‘Standard’ version. The paid version is called ‘[GA4 360](#)’.

How much will Google Analytics 4 cost?

The standard version of GA4 is free to use. The pricing for GA4 360 starts at \$150,000 per year.

Should I move to Google Analytics 4?

Yes. [Universal Analytics](#) is no longer available. So you have to use GA4.



Is Google Analytics 4 any good?

GA4 has been well-received for its advanced features, flexibility, and future-oriented design, but opinions vary among users depending on specific use cases and needs.

How do I learn Google Analytics 4 without a website?

You can learn about Google Analytics 4 without having your own website.

Use the following websites for learning GA4:

- 1) Google Merchandise Store (shop.googlemerchandise.com) – It is an ecommerce website owned by Google.

This website sells Google-branded merchandise (apparel, bags, drinkware, stationery etc.).

- 2) Google' Flood-it' mobile app – It is a mobile gaming app from Google.

For more details, check out this article: [How to learn Google Analytics without a website.](#)

Take the guided tour of Google Analytics 4

#1 Whilst logged into your Google account, navigate to this page:

<https://support.google.com/analytics/answer/6367342>



#2 Scroll down the page until you see the following section:

☰ Analytics Help 🔍 Describe your issue

• If you don't have a Google Analytics account, we will create one for you in association with your Google account, and then add the demo account to your new Analytics account.

The demo account is available from the [account selector](#) in Analytics where you select organization and account links.

The demo account counts against the maximum number of Analytics accounts you're permitted to create under a single Google account. The current maximum for Google Analytics is 100 Analytics accounts per Google account.

Access the demo account, which contains three properties, by clicking one of the following links based on the property you would like to access first. You can change to the other properties at any time by using the [account selector](#).

- [Google Analytics 4 property: Google Merchandise Store \(web data\)](#) ↗
- [Google Analytics 4 property: Flood-It! \(app and web data\)](#) ↗
- [Universal Analytics property: Google Merchandise Store \(web data\)](#) ↗

See below to [learn more](#) about what data these properties contain. You can [remove the demo account](#) at any time.

#3 Click on the button below to open the **GA4 Merchandise Store demo account**:

☰ Analytics Help 🔍 Describe your issue

• If you don't have a Google Analytics account, we will create one for you in association with your Google account, and then add the demo account to your new Analytics account.

The demo account is available from the [account selector](#) in Analytics where you select organization and account links.

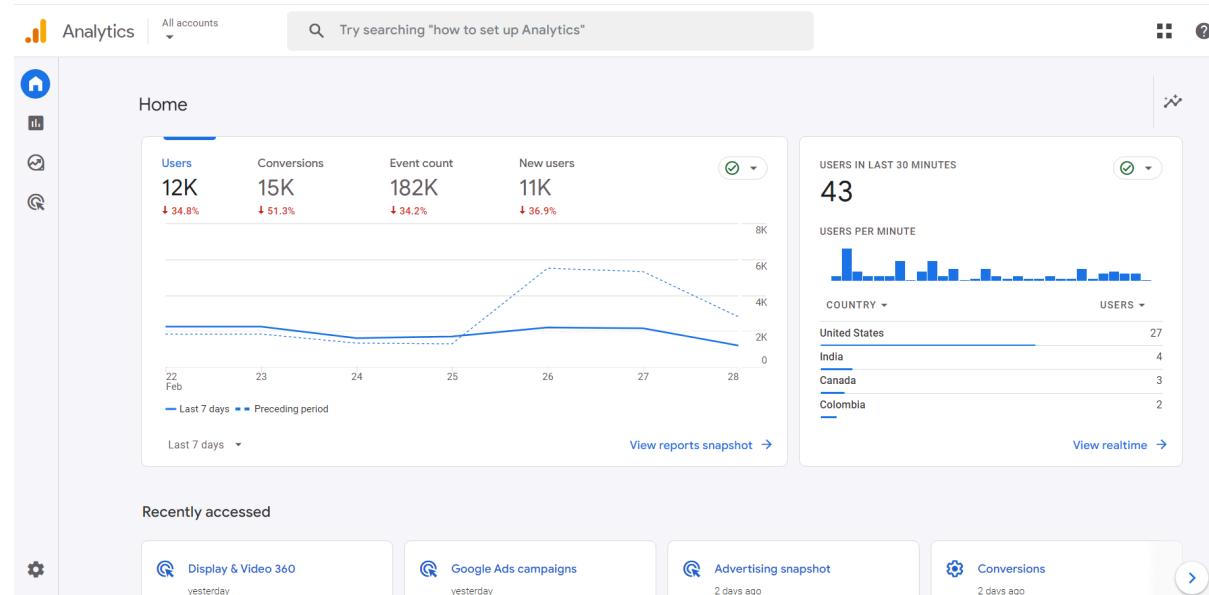
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Access the demo account, which contains three properties, by clicking one of the following links based on the property you would like to access first. You can change to the other properties at any time by using the [account selector](#).

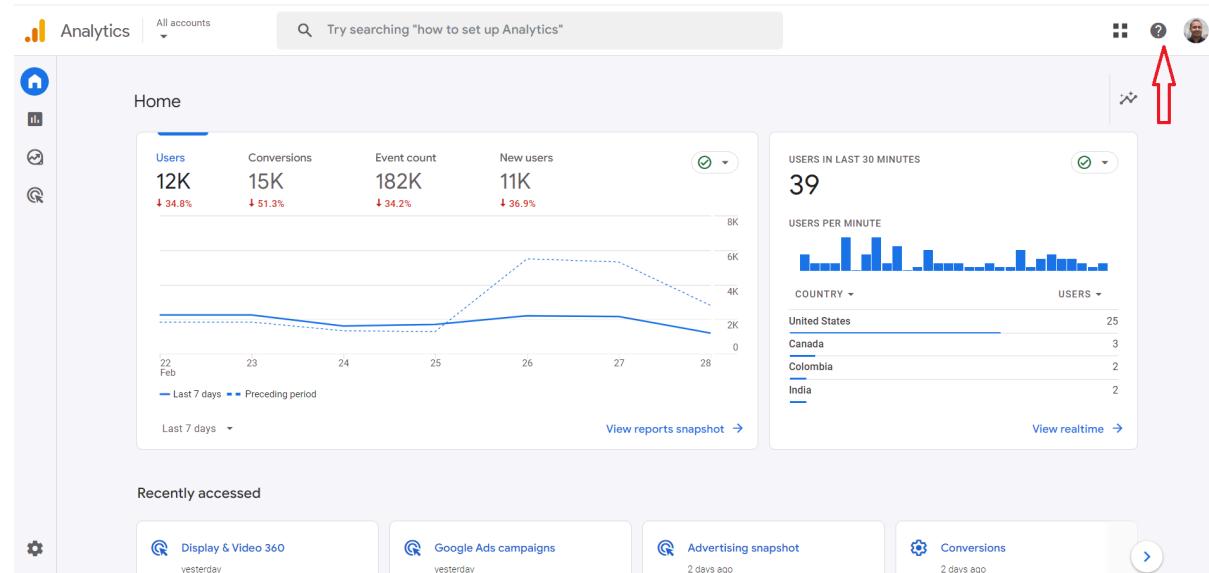
- [Google Analytics 4 property: Google Merchandise Store \(web data\)](#) ↗
- [Google Analytics 4 property: Flood-It! \(app and web data\)](#) ↗
- [Universal Analytics property: Google Merchandise Store \(web data\)](#) ↗



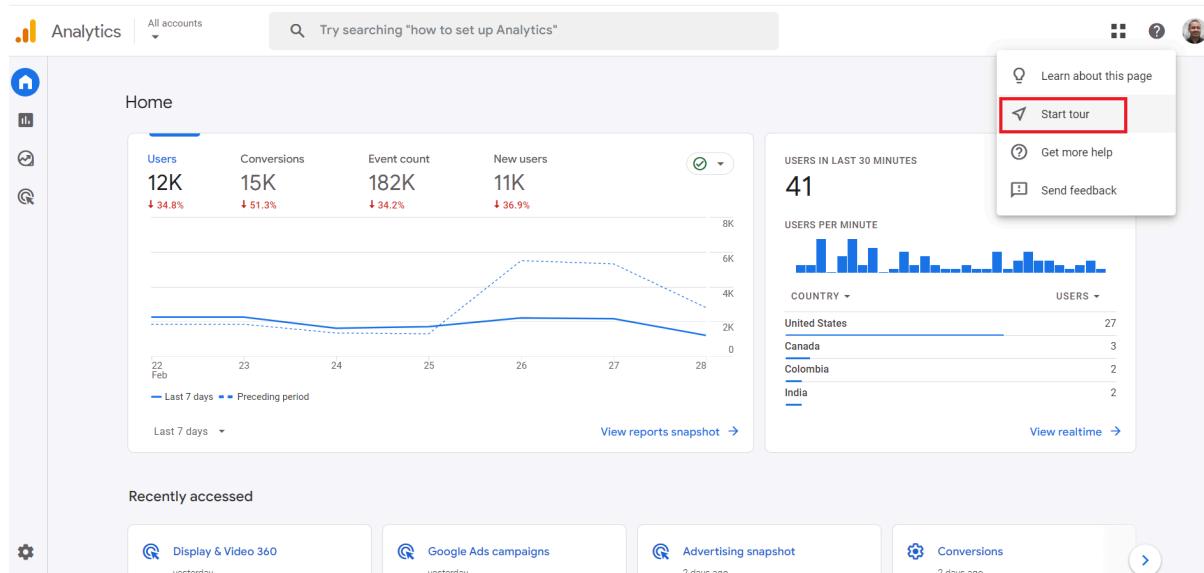
You should now be able to see the home page of your GA4 Merchandise Store demo property:



#4 Click on the? button at the top right-hand side of your screen:



#5 Click on the 'Start Tour' button:

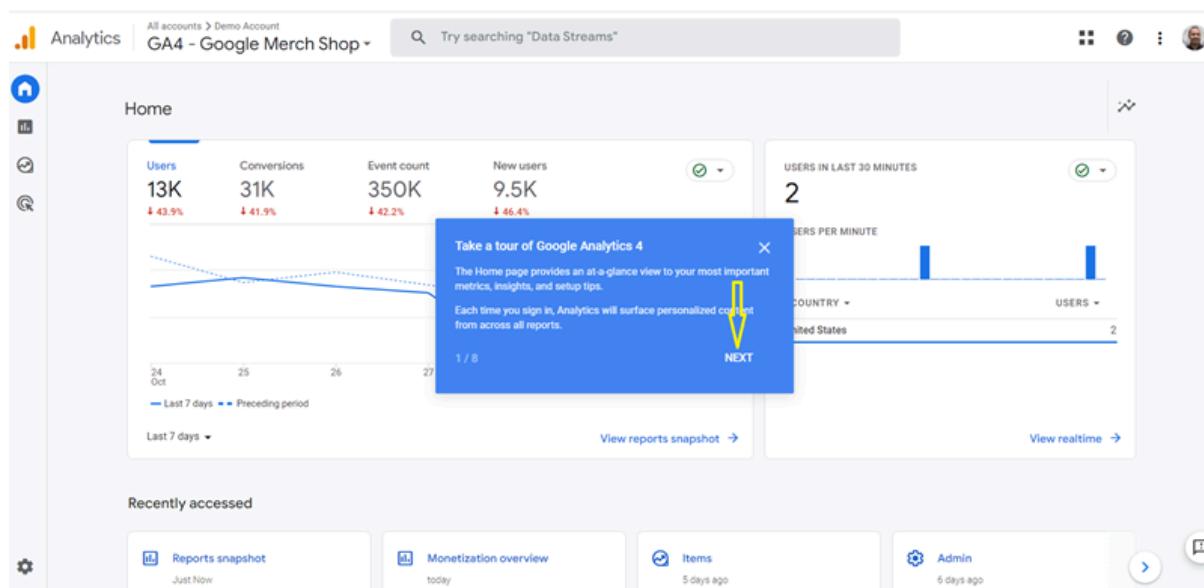


The screenshot shows the Google Analytics Home page. At the top, there's a search bar with the placeholder "Try searching 'how to set up Analytics'". On the right side, there's a help panel with options: "Learn about this page", "Start tour" (which is highlighted with a red box), "Get more help", and "Send feedback". Below the search bar is a summary card with metrics: Users (12K, -34.8%), Conversions (15K, -51.3%), Event count (182K, -34.2%), and New users (11K, -36.9%). To the right of the summary card is a chart showing User engagement over time from Feb 22 to 28. A tooltip indicates "Last 7 days" for the solid blue line and "Preceding period" for the dotted blue line. Below the chart is a "View reports snapshot" button. To the right of the chart is a "USERS IN LAST 30 MINUTES" section showing 41 users. Further down is a "USERS PER MINUTE" chart and a "COUNTRY" breakdown table:

Country	Users
United States	27
Canada	3
Colombia	2
India	2

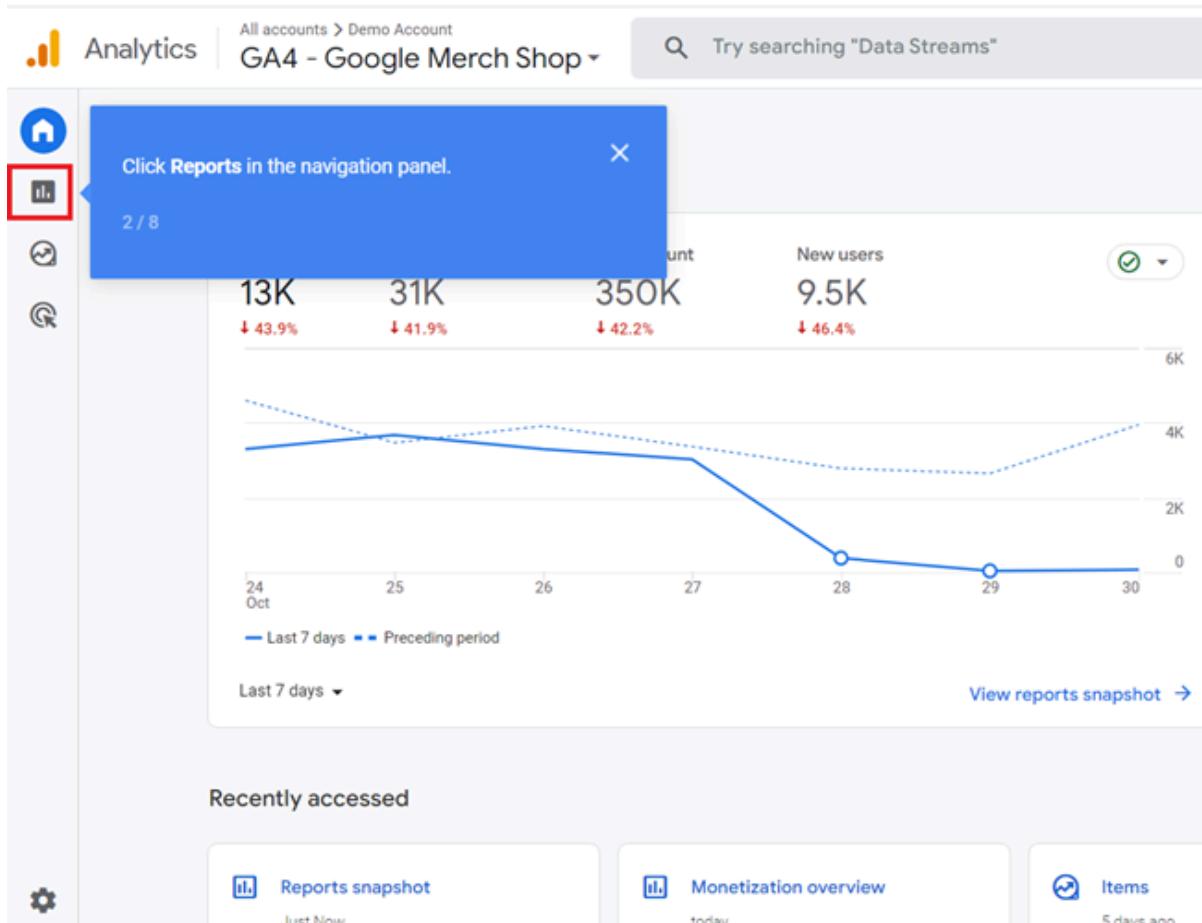
At the bottom left, there's a "Recently accessed" section with links to "Display & Video 360" (yesterday), "Google Ads campaigns" (yesterday), "Advertising snapshot" (2 days ago), "Conversions" (2 days ago), and a "More" button. The overall interface is light gray with blue highlights.

#6 You should now see a screen like the one below. Click on the 'Next' button:



This screenshot is similar to the previous one but includes a prominent blue overlay box in the center. The box contains the text "Take a tour of Google Analytics 4" and "The Home page provides an at-a-glance view to your most important metrics, insights, and setup tips. Each time you sign in, Analytics will surface personalized content from across all reports." At the bottom of the box are "1 / 8" and a "NEXT" button, with a yellow arrow pointing to the "NEXT" button. The rest of the interface is identical to the first screenshot, including the summary card, engagement chart, and recently accessed reports.

#7 Use the side panel to navigate to different reports. Click on the 'Reports' icon:



#8 Reports Snapshot

You will now see the **Reports Snapshot**, which gives you an overview of important information about your users and their engagement with your website/app:



The screenshot shows the Google Analytics Reports snapshot page for a 'Demo Account' under 'GA4 - Google Merch Shop'. The left sidebar includes sections for Realtime, Life cycle (Acquisition, Engagement, Monetization, Retention), Search Console, User (User Attributes, Tech), and Insights. The main area displays a 'Reports snapshot' card with key metrics: Users (71K), New users (58K), Average engagement time (1m 30s), and Total revenue (\$121K). Below this is a line chart showing user engagement over time from Oct 8 to Oct 29. To the right is a 'USERS IN LAST 30 MINUTES' card showing 3 users per minute with top countries being United States (2) and France (1). At the bottom, there are filters for 'WHERE DO YOUR NEW USERS COME FROM?' (New users by First user default channel group) and 'WHAT ARE YOUR TOP CAMPAIGNS?' (Sessions by Session medium).

#9 Click on the 'NEXT' button:

This screenshot is identical to the one above, showing the Google Analytics Reports snapshot page. A yellow arrow points to the 'NEXT' button located in the bottom right corner of the 'Reports snapshot' card.

#10 Reports

Check the various reports which provide important information about the users' behavior on your website/app.

All accounts > Demo Account
GA4 - Google Merch Shop

Analytics Try searching "Data Streams"

Reports snapshot All Users Add comparison

Realtime Reports snapshot

Life cycle

- Acquisition
- Engagement
- Monetization
- Retention

Search Console Total revenue ② \$121K

User

Search Console

User Attributes

Tech

Reports

The reports on the left are based on the business objectives you selected when you created your property.

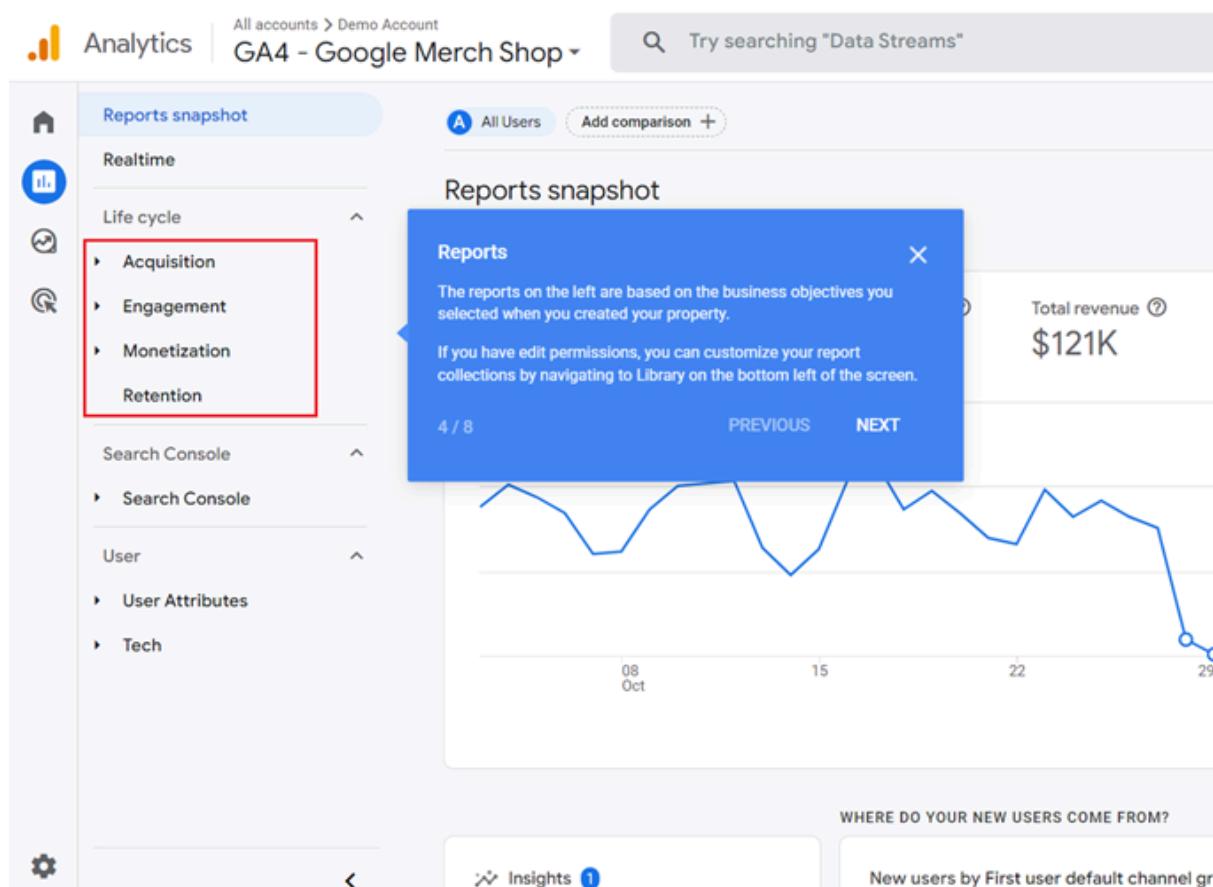
If you have edit permissions, you can customize your report collections by navigating to Library on the bottom left of the screen.

4 / 8 PREVIOUS NEXT

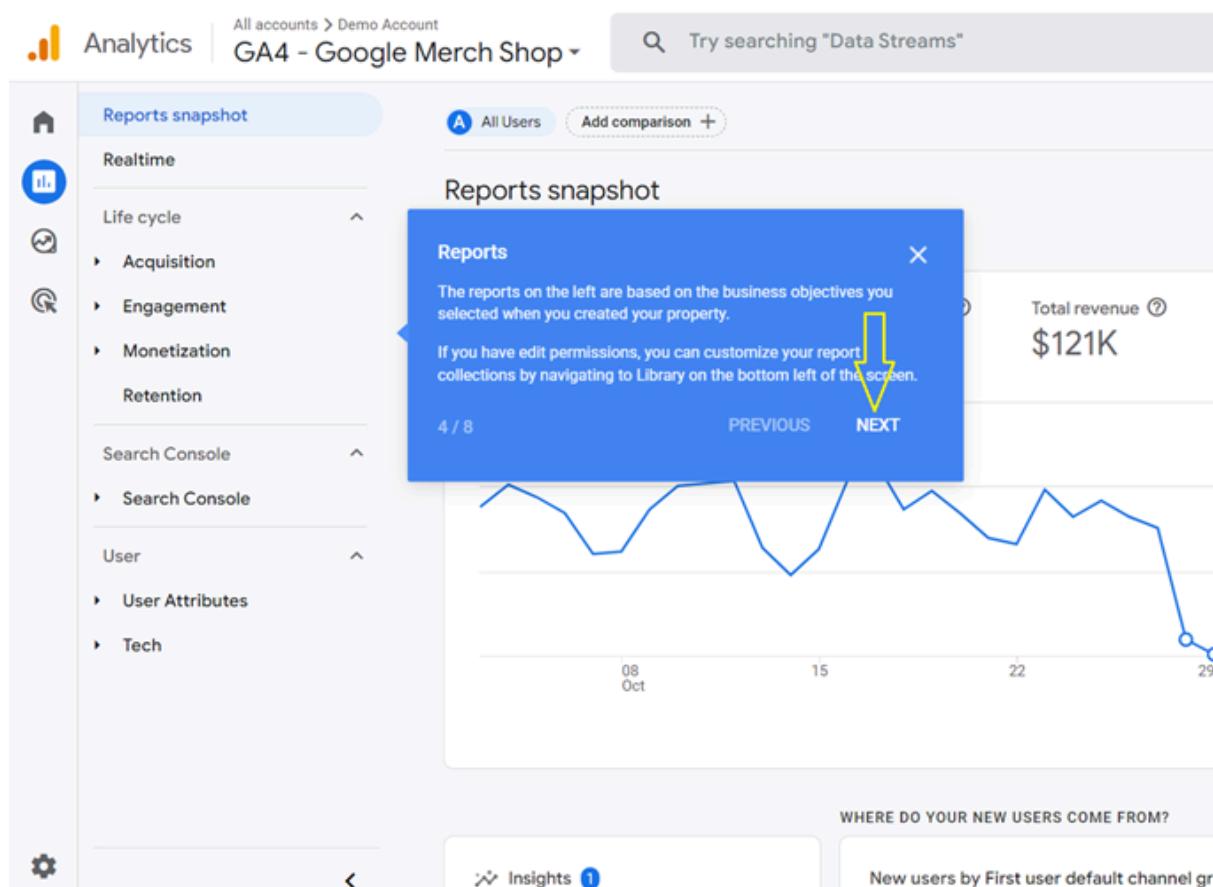
08 Oct 15 22 29

WHERE DO YOUR NEW USERS COME FROM?

Insights 1 New users by First user default channel gr



#11 Click on the 'NEXT' button:



All accounts > Demo Account
GA4 - Google Merch Shop

Analytics

Reports snapshot

A All Users Add comparison +

Realtime

Life cycle

- Acquisition
- Engagement
- Monetization
- Retention

Search Console

- Search Console

User

- User Attributes
- Tech

Reports snapshot

Reports

The reports on the left are based on the business objectives you selected when you created your property.

If you have edit permissions, you can customize your report collections by navigating to Library on the bottom left of the screen.

4 / 8 PREVIOUS NEXT

Total revenue \$121K

WHERE DO YOUR NEW USERS COME FROM?

Insights 1

New users by First user default channel gr

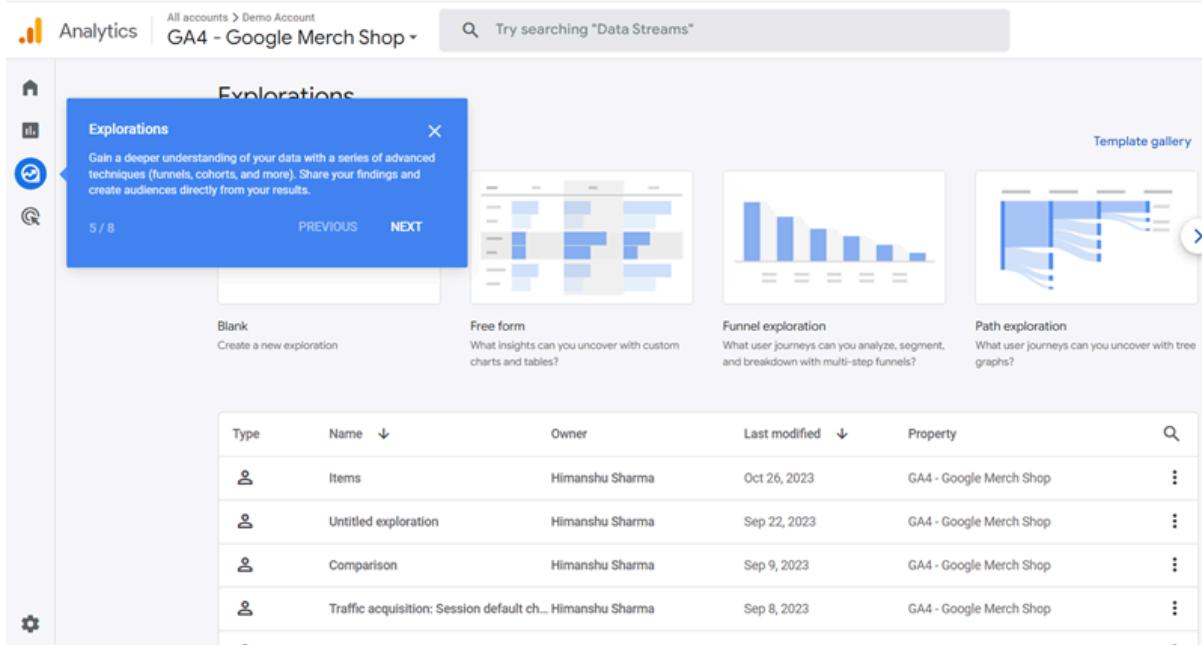
#12 Explorations

Click on the **Exploration icon** to view the various exploration report templates provided by GA4:



The screenshot shows the Google Analytics 4 interface. At the top, it displays "Analytics" and "All accounts > Demo Account GA4 - Google Merch Shop". A search bar says "Try searching 'Data Streams'". On the left, there's a sidebar with icons for Home, Reports snapshot, Explorations (which is highlighted with a red box), Search Console, User, and Tech. The main area shows a "Reports snapshot" with a blue overlay for "Explorations". It says "Gain a deeper understanding of your data with a series of advanced techniques (funnels, cohorts, and more). Share your findings and create audiences directly from your results." Below this, there are buttons for "5 / 8", "PREVIOUS", "NEXT", and "Average engagement time 1m 39s". To the right, it shows "Total re \$121". A line chart represents user retention over time, with markers for "08 Oct", "15", and "22". At the bottom, there are sections for "WHERE DO YOUR NEW USERS COME FROM" and "New users by First user defined".

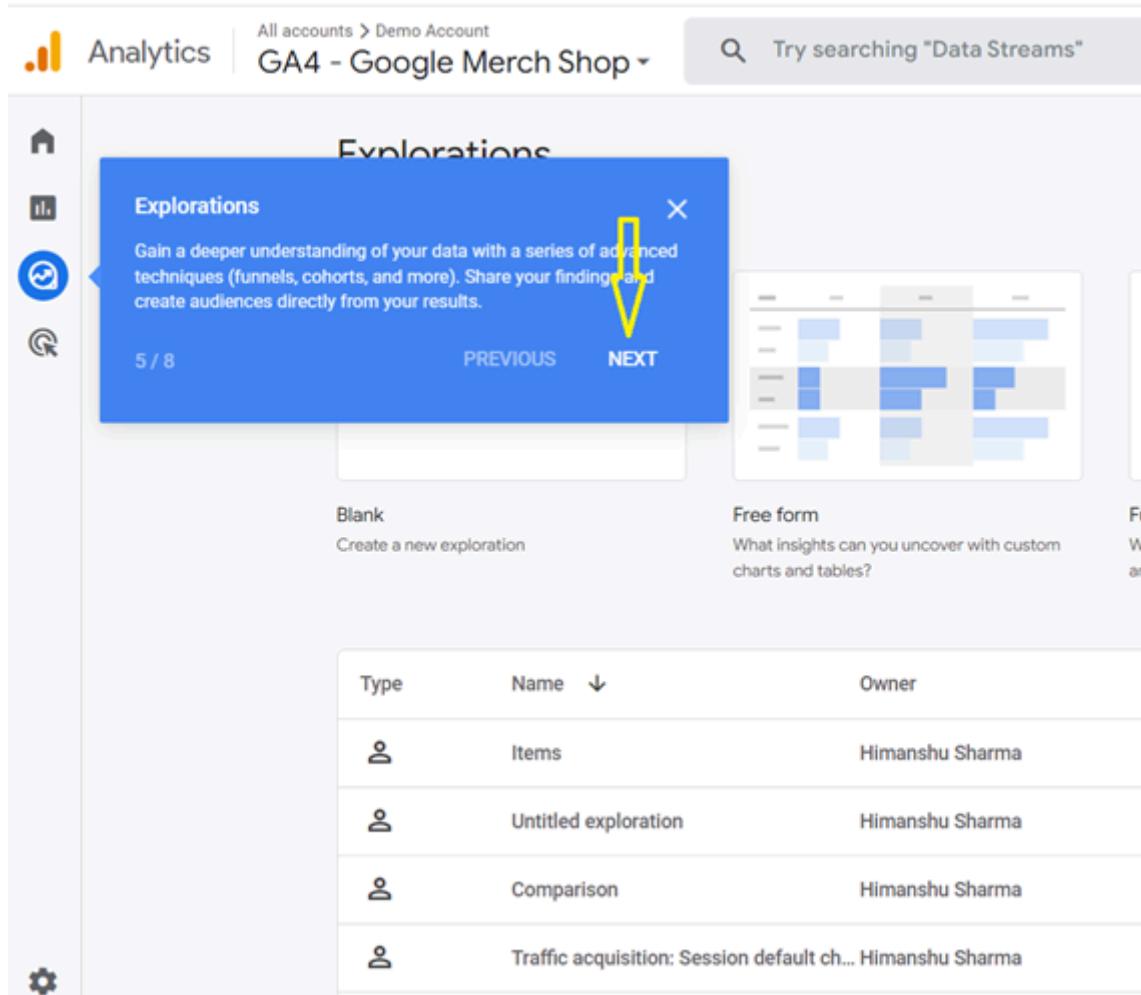
You should now see a screen like the one below, which shows the various exploration report templates provided by GA4.



The screenshot shows the Google Analytics interface for the 'GA4 - Google Merch Shop' account. The top navigation bar includes 'Analytics', 'All accounts > Demo Account', and a search bar with placeholder text 'Try searching "Data Streams"'. On the left, there's a sidebar with icons for Home, Overview, Audience, Behavior, Content, Acquisition, and Settings. The main content area is titled 'Explorations' with a sub-section 'Explorations' containing a brief description and a 'NEXT' button. Below this are four exploration templates: 'Blank' (Create a new exploration), 'Free form' (What insights can you uncover with custom charts and tables?), 'Funnel exploration' (What user journeys can you analyze, segment, and breakdown with multi-step funnels?), and 'Path exploration' (What user journeys can you uncover with tree graphs?). A 'Template gallery' link is also present. At the bottom, a table lists existing explorations:

Type	Name	Owner	Last modified	Property	More
Items	Untitled exploration	Himanshu Sharma	Oct 26, 2023	GA4 - Google Merch Shop	⋮
Comparison	Comparison	Himanshu Sharma	Sep 22, 2023	GA4 - Google Merch Shop	⋮
Traffic acquisition: Session default ch...	Traffic acquisition: Session default ch...	Himanshu Sharma	Sep 9, 2023	GA4 - Google Merch Shop	⋮
			Sep 8, 2023	GA4 - Google Merch Shop	⋮

#13 Click on the 'NEXT' button:



The screenshot shows the Google Analytics interface for the 'GA4 - Google Merch Shop' account. A blue modal window titled 'Explorations' is open, containing a brief description of what explorations are and how to use them. A yellow arrow points from the text 'Share your findings and create audiences directly from your results.' towards the 'NEXT' button at the bottom right of the modal. Below the modal, there are two main sections: 'Blank' and 'Free form'. The 'Blank' section is described as 'Create a new exploration'. The 'Free form' section is described as 'What insights can you uncover with custom charts and tables?'. At the bottom, a table lists five explorations, all owned by 'Himanshu Sharma': 'Items', 'Untitled exploration', 'Comparison', and 'Traffic acquisition: Session default ch...'. The 'Owner' column shows 'Himanshu Sharma' for all entries.

Type	Name	Owner
👤	Items	Himanshu Sharma
👤	Untitled exploration	Himanshu Sharma
👤	Comparison	Himanshu Sharma
👤	Traffic acquisition: Session default ch...	Himanshu Sharma

#14 Advertising

Click on the '**Advertising**' icon to see the various GA4 attribution reports through which you can understand your customers' purchase journey:



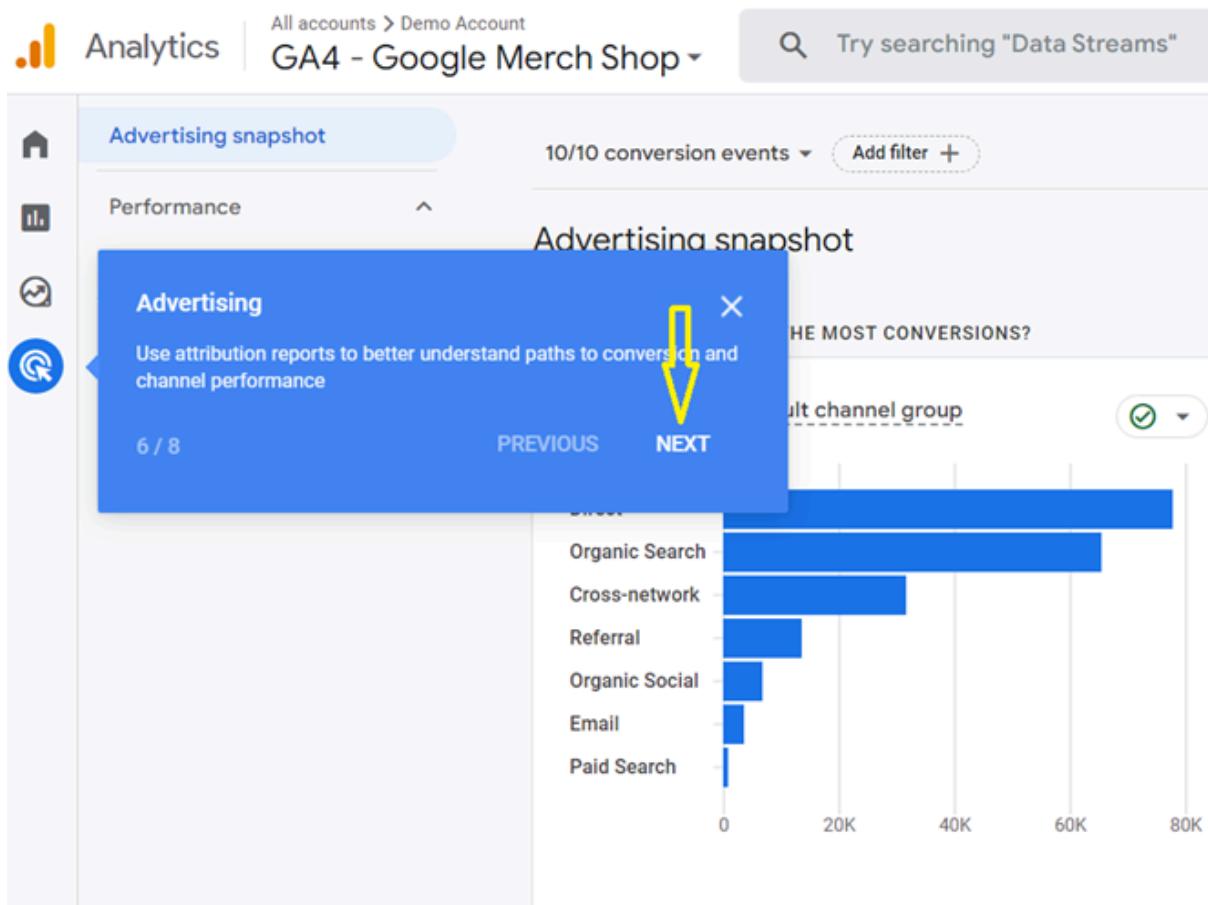
The screenshot shows the Google Analytics 4 Explorations interface. On the left, there's a sidebar with icons for Home, Reports, Data, and Settings. The main area is titled "Explorations" and has a sub-header "Start a new exploration". A blue callout box highlights the "Advertising" section, which is described as "Use attribution reports to better understand paths to conversion and channel performance". Below this, there are three exploration types: "Blank" (Create a new exploration), "Free form" (What insights can you uncover with custom charts and tables?), and "Funnel explor." (What user journeys and breakdowns). At the bottom, a table lists existing explorations:

Type	Name	Owner	Last modified
Items	Himanshu Sharma	Oct 26, 2023	
Untitled exploration	Himanshu Sharma	Sep 22, 2023	
Comparison	Himanshu Sharma	Sep 9, 2023	
Traffic acquisition: Session default ch...	Himanshu Sharma	Sep 8, 2023	

You should now see a screen like the one below, which shows the various attribution reports provided by GA4.

The screenshot shows the "Advertising snapshot" report in Google Analytics 4. The top navigation bar includes "Analytics", "All accounts > Demo Account", "GA4 - Google Merch Shop", and a search bar. The main content area features a chart titled "WHAT CHANNEL GROUP HAS THE MOST CONVERSIONS?" showing Organic Search as the top performer. To the right, there's an "Insights" card with a "CUSTOM INSIGHT" for October 15 to 21, 2023, stating "Revenue was \$23,268.42". A sidebar on the left provides a summary of the advertising section, mentioning attribution reports and conversion paths. At the bottom, there's a section for "WHAT TOUCHPOINTS DO CUSTOMERS TAKE TO CONVERT?", though the content is partially cut off.

#15 Click on the 'NEXT' button:



The screenshot shows the Google Analytics interface for a 'Demo Account' under 'GA4 - Google Merch Shop'. The main view is the 'Advertising snapshot' report. A blue callout box covers the top portion of the report card, containing the title 'Advertising', a sub-instruction 'Use attribution reports to better understand paths to conversion and channel performance', and navigation buttons 'PREVIOUS' and 'NEXT'. A yellow arrow points from the text above to the 'NEXT' button. To the right of the report card, there's a bar chart titled 'THE MOST CONVERSIONS?' showing conversion counts for different channels. The chart includes categories like 'Organic Search', 'Cross-network', 'Referral', 'Organic Social', 'Email', and 'Paid Search', with 'Organic Search' having the highest value.

Channel	Conversions
Organic Search	~70K
Cross-network	~30K
Referral	~15K
Organic Social	~5K
Email	~2K
Paid Search	~1K

#16 Admin

Click on the '**Admin**' button to review and edit your account and property settings:



The screenshot shows the Google Analytics interface with the 'Analytics' tab selected. In the top left, there's a sidebar with icons for Home, Overview, Properties, and Admin. The main content area displays an 'Advertising snapshot' with a bar chart titled 'WHICH CHANNELS DRIVE THE MOST CONVERSIONS?'. The chart shows conversions by primary channel group (Default Channel Group) for various channels: Direct, Organic Search, Referral, Email, Organic Social, Cross-network, and Paid Search. A red arrow points from the bottom left towards the Admin overlay.

Analytics | All accounts

Try searching "how to set up Analytics"

Advertising snapshot

Performance

All channels

Display & Video 360

Google Ads

Attribution

Model comparison

Conversion paths

Conversions by Primary channel group (Default Channel Group)

Channel	Conversions
Direct	~40K
Organic Search	~18K
Referral	~12K
Email	~5K
Organic Social	~3K
Cross-network	~2K
Paid Search	~1K

View all channels →

Admin

Review and edit your user, property, and account settings. Use admin to view and manage data collection, user permissions, product links (such as Google Ads and Firebase), and more.

7 / 8 PREVIOUS NEXT

You should now see a screen like the one below:

The screenshot shows the Google Analytics Admin interface for the 'GA4 - Google Merch Shop' property. The left sidebar includes 'Create', 'Admin' (selected), 'My preferences', 'Setup Assistant', 'Account settings', 'Property settings', 'Data collection and modification', 'Data display', and 'Product links'. The main content area has sections for 'ACCOUNT SETTINGS' (Account, Account details, Account access management) and 'PROPERTY SETTINGS' (Property, Property details). An 'Admin' overlay is visible at the bottom left, identical to the one in the previous screenshot. The right side shows 'Data collection and modification' settings for Data streams, Data collection, Data import, Data retention, and Data filters.

Analytics | All accounts > Demo Account

GA4 - Google Merch Shop

Try searching "Data Streams"

+ Create

Admin

My preferences

Setup Assistant

Account settings

Property settings

Data collection and modification

Data display

Product links

Admin

Review and edit your user, property, and account settings. Use admin to view and manage data collection, user permissions, product links (such as Google Ads and Firebase), and more.

7 / 8 PREVIOUS NEXT

Account

Account details

Account access management

Property

Property details

Data collection and modification

Data streams

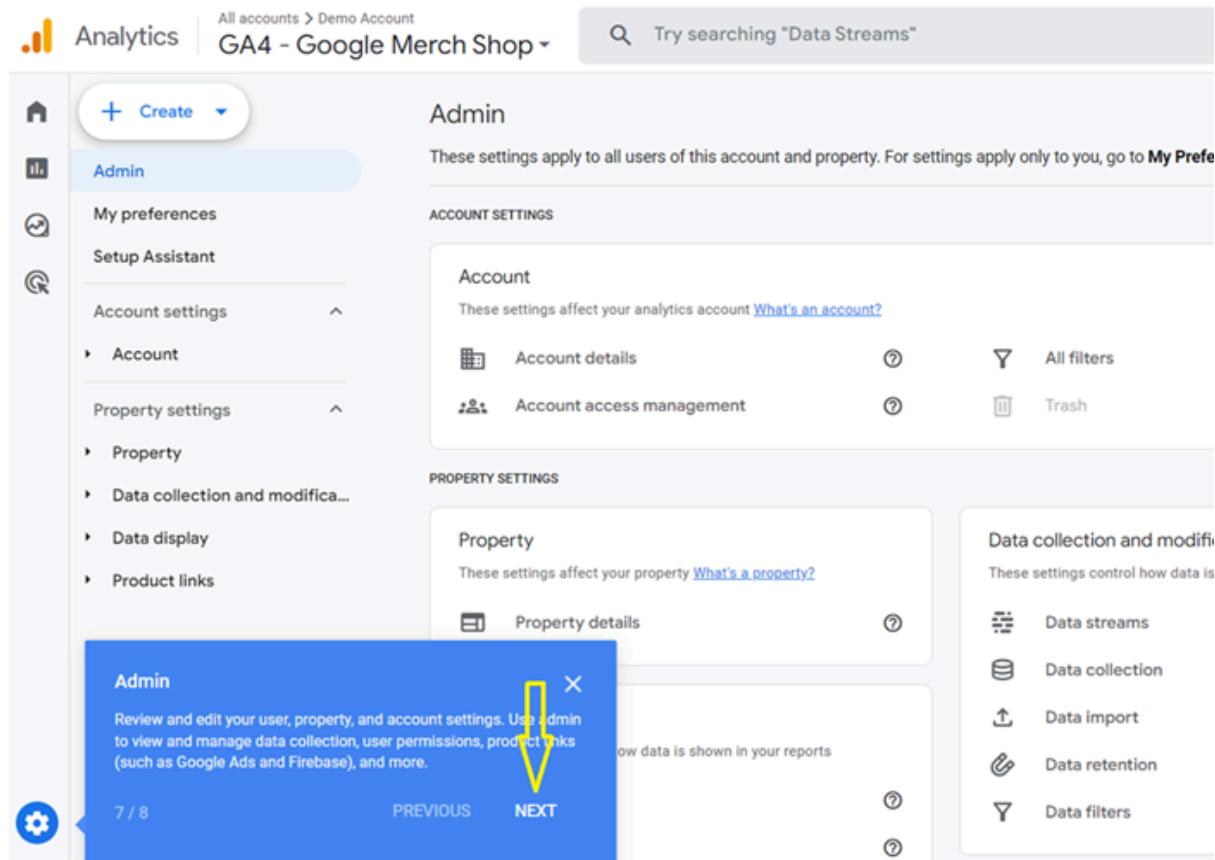
Data collection

Data import

Data retention

Data filters

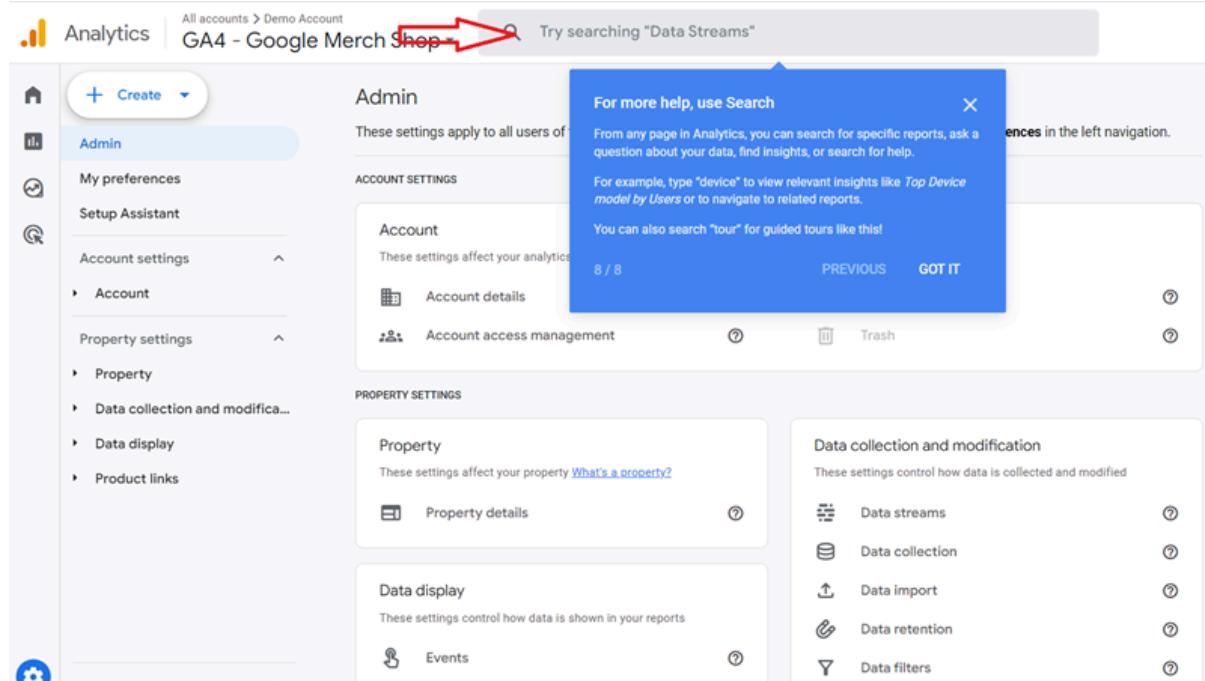
#17 Click on the 'NEXT' button:



The screenshot shows the Google Analytics Admin interface. The left sidebar is titled 'Admin' and includes sections for 'My preferences', 'Setup Assistant', 'Account settings' (expanded), 'Property settings' (expanded), and 'Product links'. The main content area is titled 'Admin' and contains 'ACCOUNT SETTINGS' and 'PROPERTY SETTINGS' sections. A central modal window is open, also titled 'Admin', with the sub-section 'Property'. This modal includes a message about reviewing user, property, and account settings, and a 'NEXT' button at the bottom. A yellow arrow points from the text above to this 'NEXT' button.

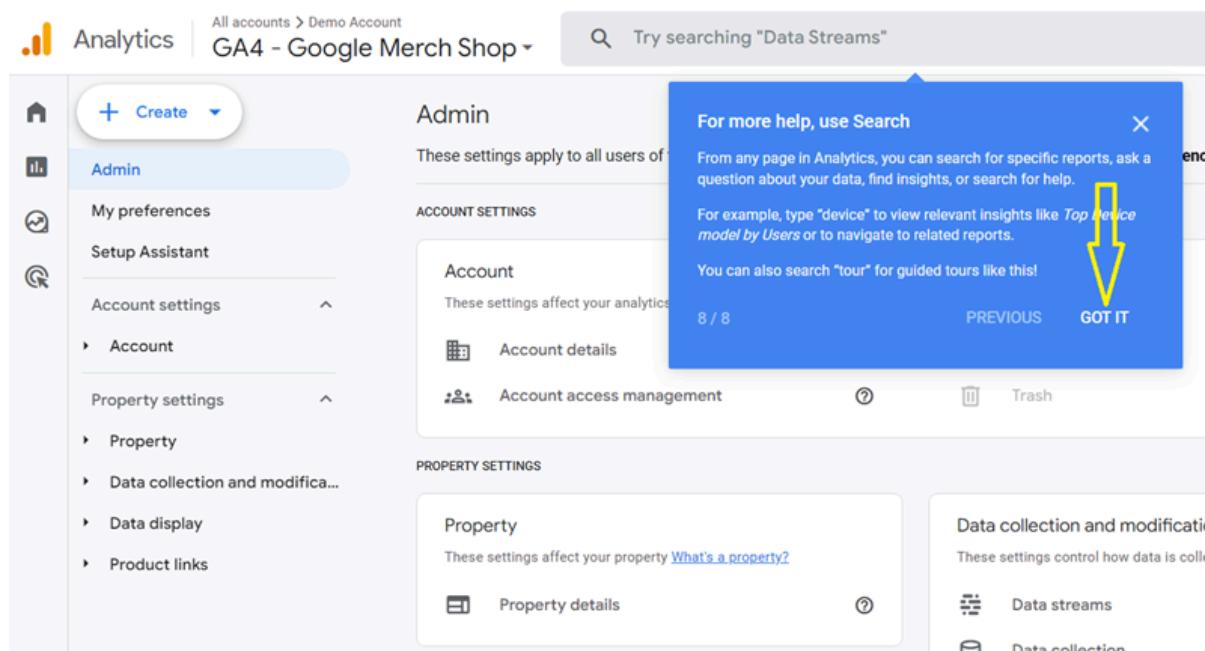
#18 Search for specific GA4 report.

Use the search box at the very top of your GA4 reporting view to search for a specific GA4 report, ask a question about your data or search for help:



The screenshot shows the Google Analytics Admin interface for the 'Demo Account' under 'GA4 - Google Merch Shop'. A blue guided tour overlay is displayed in the center-right area. The overlay has a title 'For more help, use Search' and instructions: 'From any page in Analytics, you can search for specific reports, ask a question about your data, find insights, or search for help.' It also says 'For example, type "device" to view relevant insights like Top Device model by Users or to navigate to related reports.' Below this, it says 'You can also search "tour" for guided tours like this!' At the bottom of the overlay are buttons for '8 / 8', 'PREVIOUS', and 'GOT IT'.

#19 Click on the 'GOT IT' button to end your guided tour of GA4:



This screenshot is identical to the one above, showing the Google Analytics Admin interface with the guided tour overlay. However, a yellow arrow points to the 'GOT IT' button at the bottom right of the overlay, indicating where the user should click to end the tour.

Does GA4 use machine learning?



Yes. The following features (but not limited to) of GA4 use [machine learning](#):

- [Predictive metrics](#).
- [Predictive audience](#).
- Modeled conversions.
- Behavioral modeling in path and funnel reports.
- [Custom Insights](#).
- [Automated Insights](#).
- Anomaly detection.

Does GA4 replace GTM?

No, GA4 does not replace GTM. [Google Tag Manager \(GTM\)](#) is a tag management system that allows you to add and manage tags on your website or app easily.

Whereas GA4 is an analytics platform that helps you collect and analyze data about your website or app visitors. GA4 and GTM are often used together.

Further reading: [Google Tag Manager vs Google Analytics – Key differences](#).

Can you use GA4 without Google Tag Manager?

Yes, you can use GA4 without Google Tag Manager.

How is GA4 different from Universal Analytics?

In the past, if you wanted to measure your website usage data, then you would need to use the Universal Analytics property meant for tracking website data.

If you want to measure your mobile app usage data, you need to use [Google Analytics for Firebase](#) or [Google Analytics APP view](#) (created via separate Universal Analytics property).

There was no easy way to combine mobile app and website usage data for unified reporting and analysis.

However, this has all changed with the advent of the GA4 property (**formerly known as ‘App+Web’ property**).

Google Analytics 4 allows you to integrate mobile app and website usage data into a single [GA Property](#).

This new property is called **‘Google Analytics 4 (or GA4)**.

The GA4 property is available in your GA account when you create a new property.

Even if you don't have a mobile app, Google still recommends that you create and use the GA4 property.

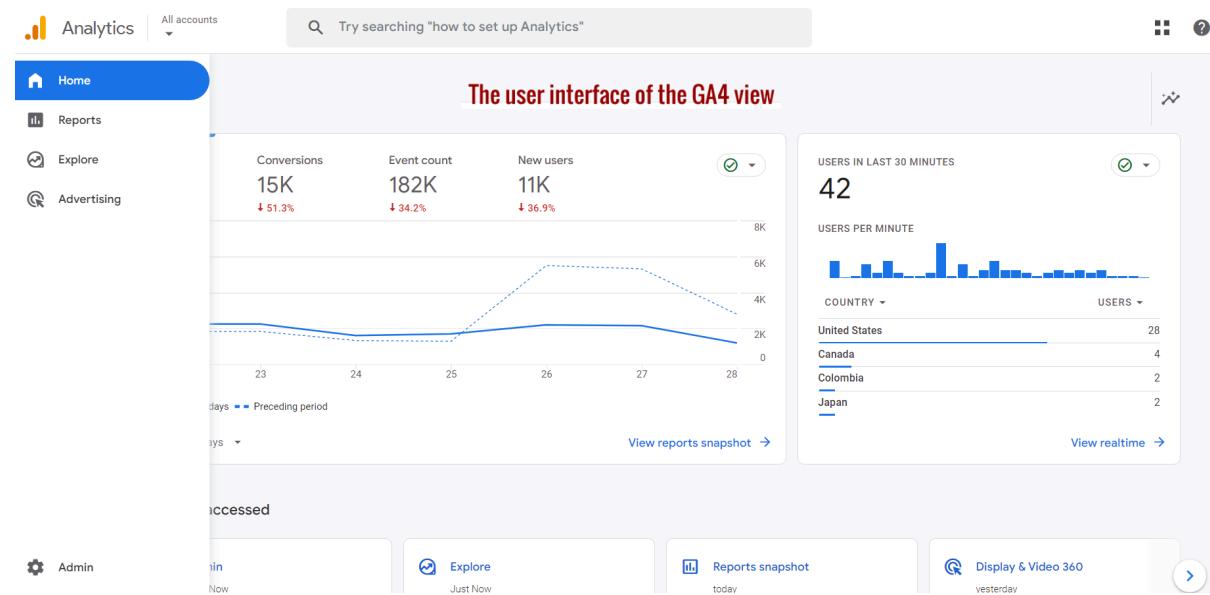
If you don't have a mobile app, your GA4 property can be used to measure your website performance.

The reporting view you create in the GA4 property is called the **GA4 reporting view**.

Note: You can create only one reporting view in a GA4 property.

The user interface of the GA4 view looks similar to that of **Google Analytics for Firebase** (because GA4 is built on Firebase analytics).

But it is quite different from any GA3 reporting view.



What is the main difference between Google Analytics and GA4?

The following are the main differences:

1. GA4 has a different reporting interface (which looks similar to that of Google Analytics for Firebase)
2. GA4 use a different measurement model (which is based on events and parameters instead of sessions and pageviews)
3. GA4 use measurement ID instead of tracking ID
4. Event tracking is set up differently in GA4.
5. GA4 allows automation of certain types of events (via enhanced measurement feature)



6. GA4 uses different '*User and event data retention*' periods (2 months, 14 months)
7. The e-commerce tracking in GA4 is set up differently.
8. GA4 provides much more robust cross-device and cross-platform tracking.
9. GA4 Attribution Modelling capabilities are based on model comparison.
10. Custom dimensions in GA4 are set up differently.
11. Custom metrics in GA4 are set up differently.
12. GA4 has debugging built-in (via the DebugView report)
13. GA4 provides a new set of engagement metrics (like 'engagement rate', 'engaged sessions', etc.).
14. GA4 has IP Anonymization built-in
15. A GA4 property comes with only one reporting view
16. GA4 comes with a free connection to [BigQuery](#).
17. GA4 comes with a new set of advanced analysis reports (like the [exploration report](#)).

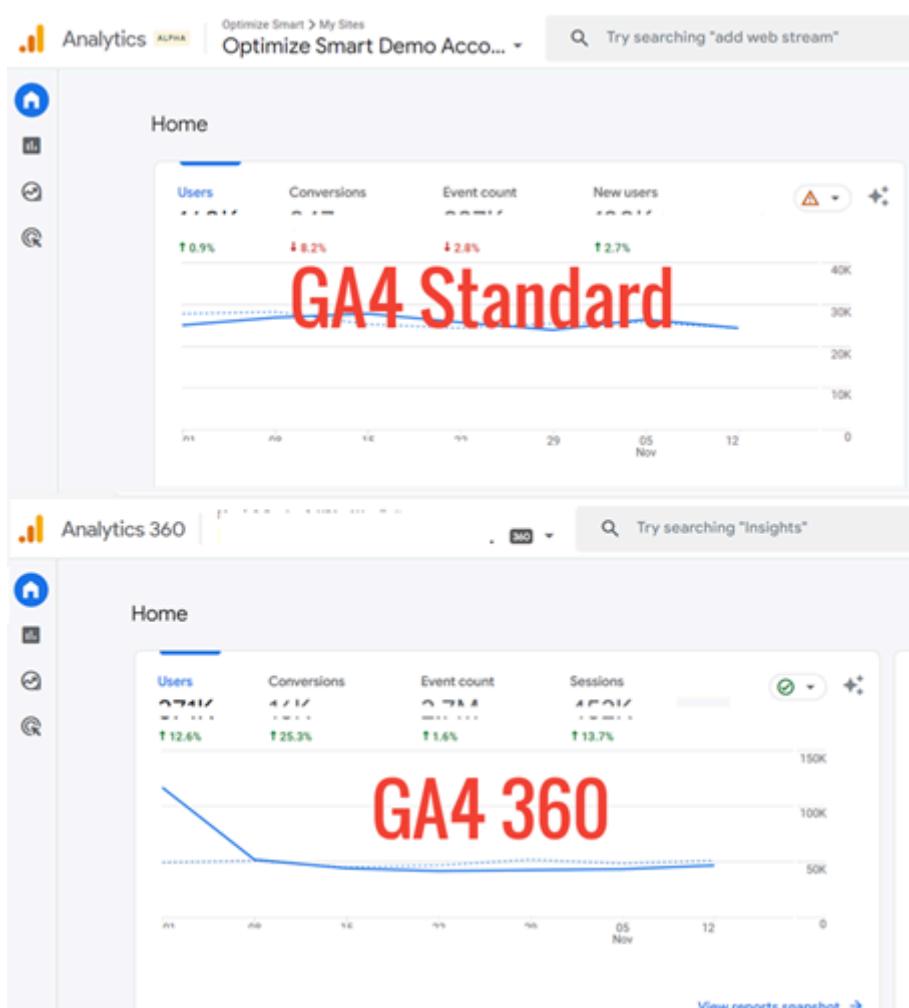
To learn more about these differences, check out this article: [Google Analytics 4 \(GA4\) vs Universal Analytics – What is the difference?](#)

What is the biggest difference between GA4 and universal analytics?

The **measurement model (data model)** is the biggest difference between GA4 and Universal Analytics. GA4 uses the events+parameters measurement model. Whereas Universal Analytics uses the sessions+pageviews based measurement model.

What is the difference between Google Analytics 4 and 360?

There are two versions of GA4 available: **GA4 Standard** and **GA4 360**:



The GA4 standard refers to the free version of the GA4 property. Whereas GA4 360 refers to the paid version of the GA4 property.

GA4 360 is one of the products of the [Google Marketing Platform](#) and is a subscription service where you pay monthly fees.

Unlike GA4 360, you can not rely on GA4 standard property for a large amount of data processing and high accuracy.



To learn more about the differences between GA4 standard and GA4 360, check out this article: [GA4 vs GA4 360 – Pricing, Limits, Billing and more](#)

Why is GA4 better than universal analytics?

The following are the key advantages of GA4 over Universal Analytics:

1. GA4 property provides more robust cross-device and cross-platform tracking.
2. GA4 provides much more accurate reporting on unique users across platforms.
3. GA4 provides advanced analysis reports (available earlier only to GA 360 users).
4. GA4 provides a free connection to BigQuery.
5. There are no limits on the volume of data you can send to a GA4 property.
6. GA4 allows automatic tracking for certain types of events (like scroll tracking, video tracking, exit tracking, site search tracking, etc.).

To learn more about the GA4 advantages, check out the article: [Key Benefits of Using Google Analytics 4 \(GA4\)](#)

Is GA4 better than Adobe Analytics?

GA4 and [Adobe Analytics](#) are powerful analytics platforms that help you understand your website or app visitors. However, they have different strengths and weaknesses.



#1 If you use Google products, it makes sense to use GA4 as GA4 natively integrates with other Google products like Google Ads and Google BigQuery.

#2 If you use Adobe products, it makes sense to use Adobe Analytics as Adobe Analytics works well with other Adobe Experience Cloud services like Adobe Target and Adobe Audience Manager.

#3 GA4 offers a free tier, making it accessible for small to medium-sized businesses. Adobe Analytics is not free to use.

#4 Adobe Analytics is more user-friendly than GA4.

#5 GA4 is a relatively new analytics platform, so some features are still in the development stage. Whereas Adobe Analytics is a more mature platform.

#6 Adobe Analytics offers a wider range of features and customization options than GA4 and is better suited for large enterprises.

#7 Both GA4 and Adobe Analytics come with a steep learning curve.

#8 Adobe Analytics usually takes longer to set up and configure than GA4 properly.

Why should I upgrade to Google Analytics 4?

Google discontinued Universal Analytics (GA3) on July 1st, 2023. So if you want to keep using Google Analytics then you have to upgrade to Google Analytics 4.

What happens if I don't migrate to GA4?



If you don't migrate to Google Analytics 4, you cannot collect new data about your website or app visitors after July 1, 2023.

How long does it take to switch to Google Analytics 4?

The time it takes to switch to Google Analytics 4 from Universal Analytics depends upon the following factors (but not limited to):

#1 The size and complexity of your website and/or app.

#2 The size and complexity of your current tracking setup, including the level of customization you have made to your Universal Analytics reports.

If you have a small website/app with a simple tracking setup, you can switch to GA4 in a matter of hours.

However, if you have a large and complex website/app with a complex tracking setup, switching may take you a few days or weeks.

Is switching to GA4 easy?

It is easy if you understand the Google Analytics development environment. Otherwise, it is hard.

Does Google Analytics 4 require coding?



Using GA4 does not require any coding knowledge. But implementing GA4 does.

How long does it take to setup Google Analytics 4?

The time it takes to set up GA4 depends upon your technical expertise, the size and complexity of your website/app and the tracking setup.

How long does it take for Google Analytics 4 to work?

It could take up to 48 hours for your GA4 property to start collecting data after you have set up the tracking code on your website/app.

How do I install Google Analytics 4?

You can either hardcode the Google Analytics 4 tracking code on your website, or you can use the Google Tag Manager to install GA4.

For step-by-step instructions on installing Google Analytics 4, check out this article: [GA4 Migration Guide – Learn to upgrade to GA4 from GA3 via checklist.](#)

What are the best practices for using Google Analytics 4?

Following are the best practices for using Google Analytics 4:

- Set up GA4 as soon as possible so that you can collect as much data as possible about your website/app.
- Track only those events you really need. Don't track unnecessary events.
- Get professional help. Setting up GA4 correctly is not easy. You would be better off getting professional help.
- GA4 constantly evolves, so keeping up with the latest changes is very important.

How do I get the most out of Google Analytics 4?

To benefit from GA4 the most, learn and master [Google Sheets](#) and/or [BigQuery](#).

Use **AI tools with Google Sheets** to automate and enhance [data analysis](#) without the need to memorise [formulas and functions](#).

Google Sheets has many formulas and functions, and using the correct formula and function is a major issue.

It's hard to memorize and use them all. Correct usage is also a challenge. One mistake can break a formula or function. AI tools can help solve this problem.

You can use the [Google Cloud AI platform](#) (to perform tasks like data pre-processing, cleaning, and transformation) with Google Sheets.



Use Google Sheets Add-on (like [supermetrics for Google Sheets Add-on](#), [formulabot](#)) and Google Apps Script (which allows you to automate tasks in Google Sheets) with Google Sheets.

Use [BigQuery BI Engine](#) to perform data analysis using a drag-and-drop interface.

The BI engine can respond to **natural language queries**.

It uses Google's natural language processing (NLP) technology to understand natural language inputs and then converts them into an SQL query that BigQuery can execute.

Another way to use natural language with BigQuery is by using an **NLP library** like [Google Cloud Natural Language API](#).

This API allows you to extract insights from an unstructured text by applying powerful [machine learning](#) models.

You can use this API to perform sentiment analysis, entity recognition, and other NLP tasks on text data stored in BigQuery.

Using natural language makes it easier for non-technical users to perform data analysis in BigQuery, but it is still not the primary way of interacting with BigQuery.

The primary way is still [SQL](#).

However, this should all change with the advancement of technology within a year or two.

If you don't use AI tools, you will be replaced by one that does.



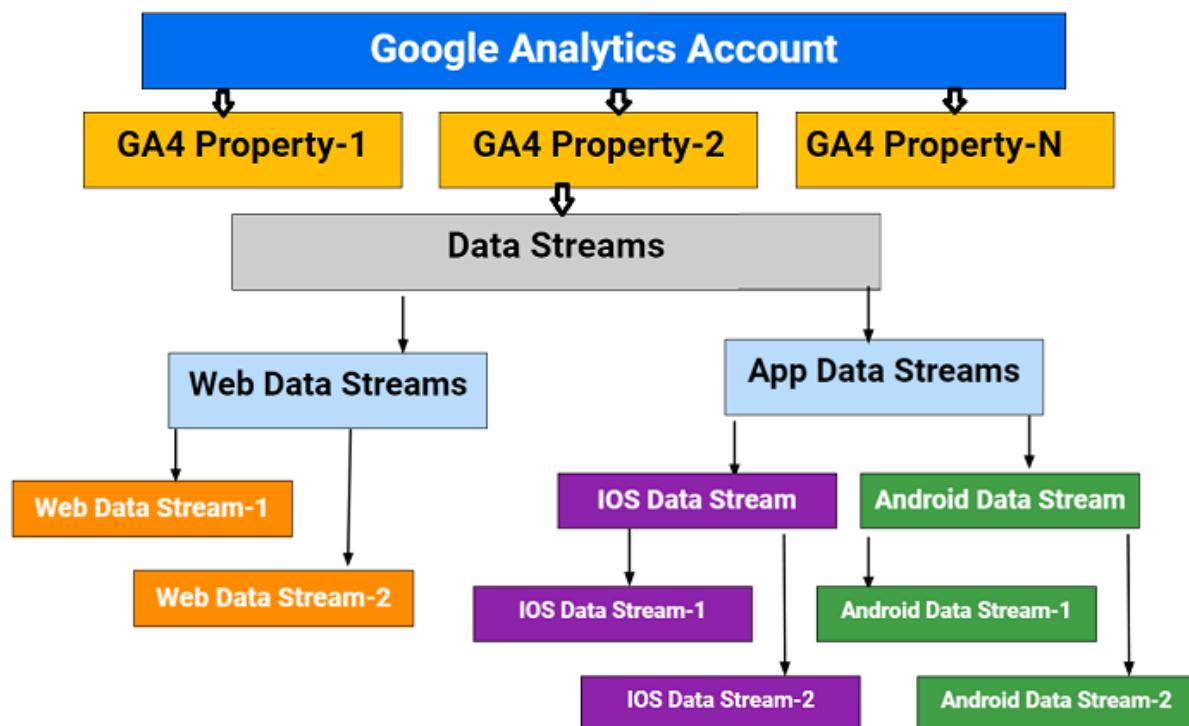
What are the top GA4 tools and resources?

Check the following article, where I have divulged the top GA4 tools, extensions, and resources we frequently employ within our organization: [Top GA4 Tools, add-ons and resources.](#)

Google Analytics 4 Account Hierarchy

A Google Analytics Account is made up of one or more [GA4 properties](#).

A GA4 property comprises one or more **data streams** (aka data sources).



The data stream can be a web data stream or app data stream. The app data stream can be further classified into IOS and Android app data streams.



The web data streams represent a website. In contrast, an app data stream represents a mobile app.

If you want to learn more about how to structure your GA account for GA4, then check out this article: [Google Analytics Account Hierarchy \(structure explained\).](#)

Google Analytics 4 property and view

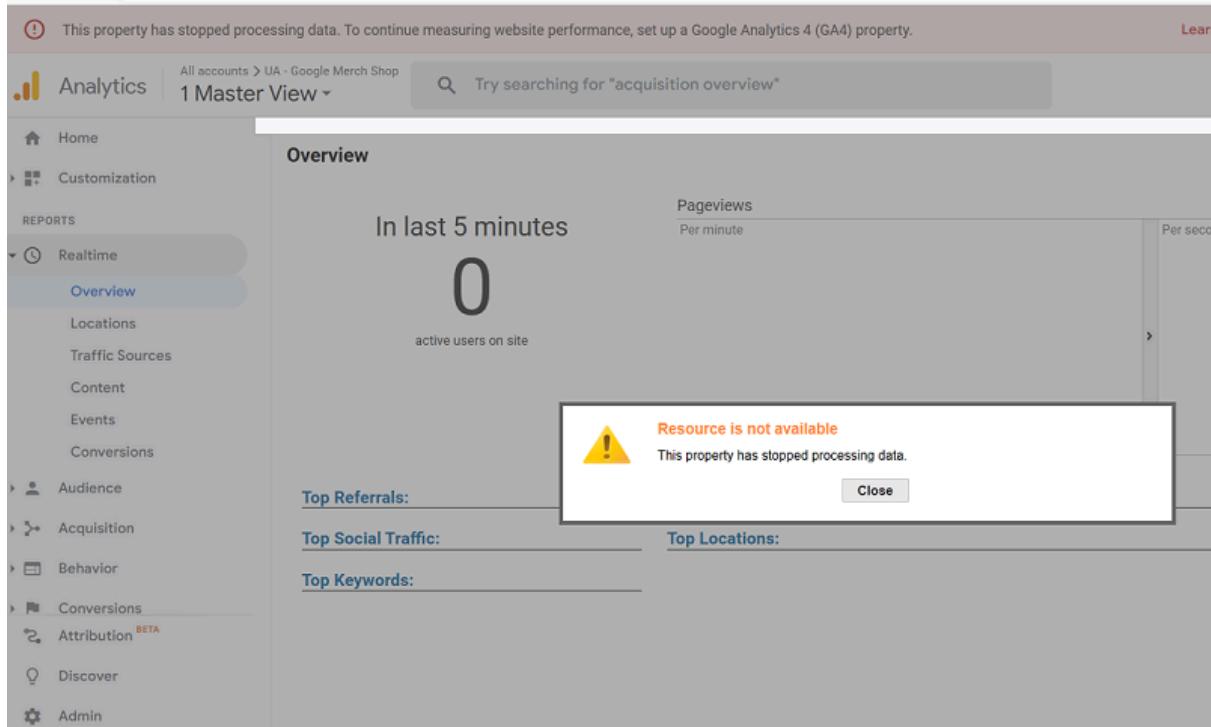
A Google Analytics 4 property is a GA property which allows you to integrate mobile app and website usage data. A GA4 property can collect data from both your mobile apps and website.

Even if you don't have a mobile app, Google still recommends that you create and use the GA4 property and run it parallel with your GA3 property, as Google will discontinue GA3 in 2023.

The reporting view that you create in a GA4 property is a GA4 view.

Why you should migrate from GA3 to GA4 right now

Google discontinued Universal Analytics (GA3) on July 1st, 2023



Contrary to popular belief, Universal Analytics is not discontinued because of GA4. It's because of GDPR and other privacy laws and regulations.

It's not like Google is running out of storage space, so they need to get rid of GA3 to make room for GA4 data. They own massive data centres.

When you look from the perspective of GDPR, Universal Analytics provides too much information about website users and many opportunities to create detailed customer profiles, which makes GDPR compliance very difficult and risky.

So Google is kinda forced to push GA4 product down our throats. And we are forced to analyze data which are often subject to data thresholds.

Google is so afraid of being penalized again that it will not only stop collecting new data in the GA3 properties, but it will also delete all of the historical GA3 data from millions of GA accounts worldwide in July 2024.

That's a lot of data deletion, even for a company size of Google.



For the same reason, Google does not want you to download GA3 data. So there is no option available to take a backup of GA3 data. You have to use third-party tools.

So if you decide not to switch to GA4, then no more analytics data for you after July 1, 2023.

And to make matters worse, Google will also delete all of your historical universal analytics data in July 2024

Check out this article to take a backup of your GA3 data: [How to backup Google Universal Analytics data](#)

How do I transfer my Universal Analytics (GA3) data into GA4?

Both GA3 and GA4 use different data schemas.

Because of that, it is not possible to transfer your GA3 data into your GA4 property. But there is a workaround.

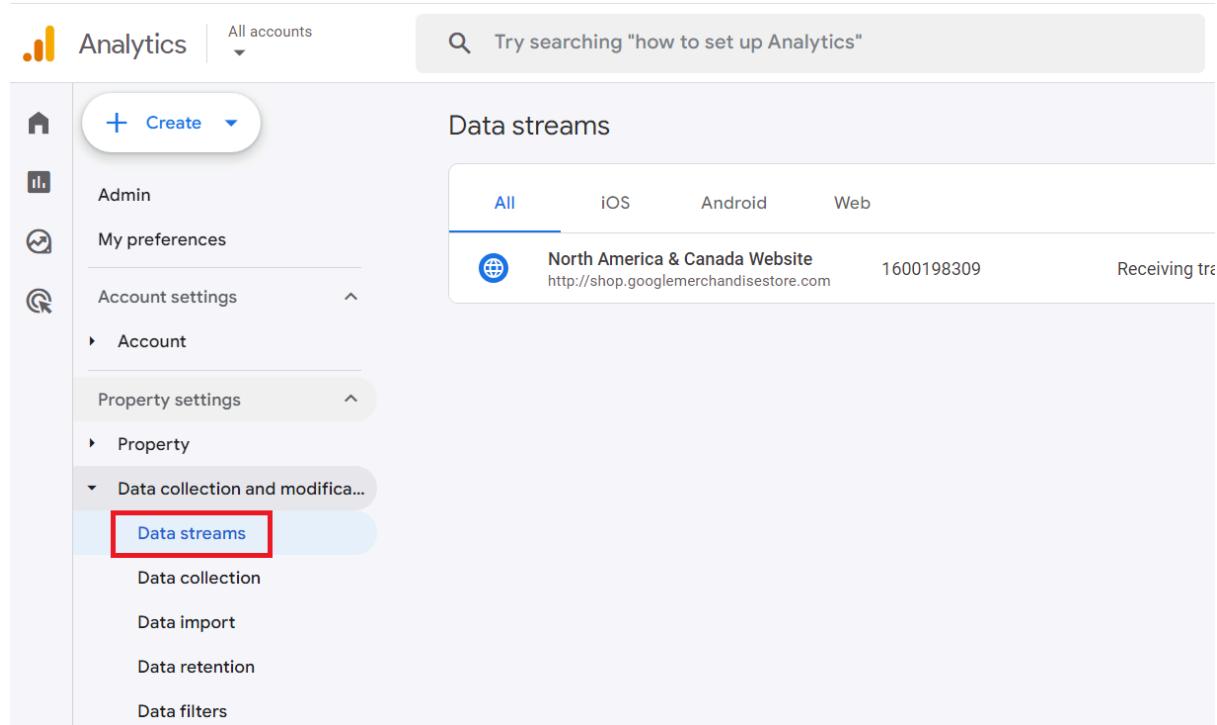
You can transfer both your GA3 and GA4 data into [BigQuery](#) and then manipulate it there.

GA4 provides a free connection to BigQuery, but GA3 does not (unless you use GA360).

With the help of a third-party solution/connector, it is possible to send data from GA3 to BigQuery without using GA 360.

Check out this article for more details: [Sending data from Google Analytics to BigQuery without 360](#)

Google Analytics 4 data streams



The screenshot shows the Google Analytics 4 interface. On the left, there's a sidebar with icons for Home, Admin, My preferences, Account settings (expanded to show Account, Property, and Data collection and modifications), Data streams (which is the current page, highlighted with a red box), Data collection, Data import, Data retention, and Data filters. The main area is titled "Data streams" and shows a table with one row. The row details a "North America & Canada Website" with the URL <http://shop.googlemerchandisestore.com>. It also shows the Measurement ID 1600198309 and the status "Receiving traffic". At the top, there's a search bar with the placeholder "Try searching 'how to set up Analytics'" and a "Create" button.

The GA4 property contains one or more data streams.

A data stream is a data source.

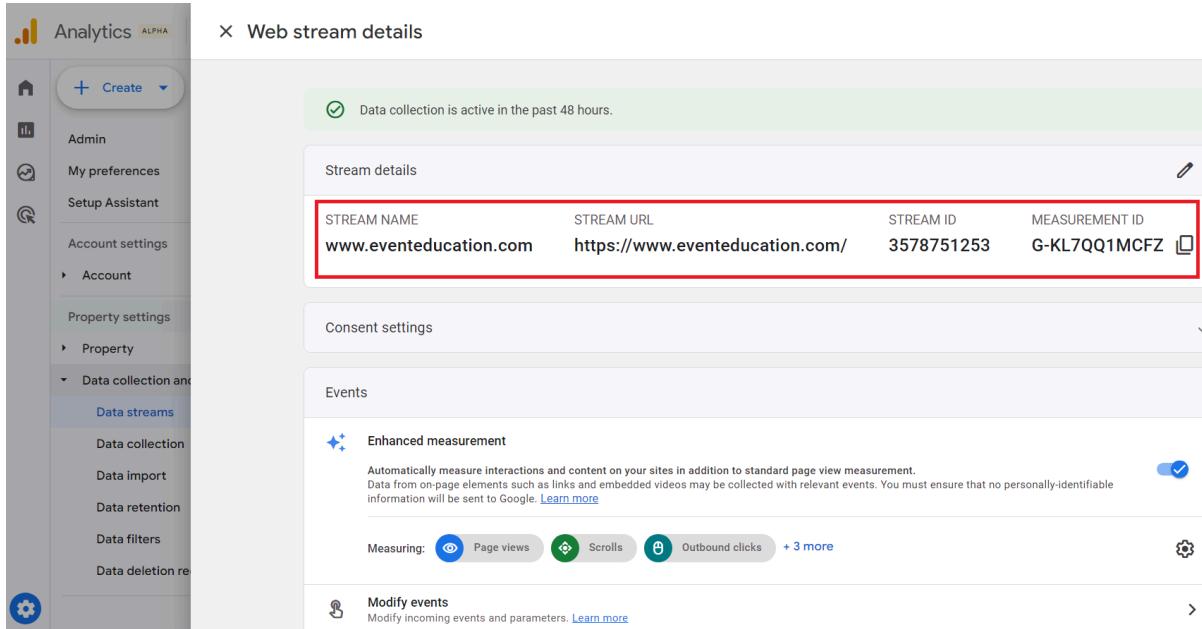
When the data source is a website, it is called a **web data stream**.

When the data source is a mobile app, it is called a mobile **app data stream**.

There are two types of mobile app data streams:

1. IOS app data stream
2. Android app data stream

A web data stream has got: **Stream URL**, **Stream name**, **Measurement ID**, and **Stream ID**:



Stream details

STREAM NAME	STREAM URL	STREAM ID	MEASUREMENT ID
www.eventedducation.com	https://www.eventedducation.com/	3578751253	G-KL7QQ1MCFZ

Measurement ID in Google Analytics 4

A measurement ID is just like a tracking ID. However, unlike a tracking ID, the measurement ID begins with the characters 'G-'. For example G-SV0HS12BXZ

ADMIN USER

Property [+ Create Property](#)

Optimizesmart.com (UA-176569499-1)

- [!\[\]\(6b93cc57fe0a0f7a1fdb9c43571b97cd_img.jpg\) GA4 Setup Assistant](#)
- [!\[\]\(3333269b15f7b52bb7877c37f51db396_img.jpg\) Property Settings](#)
- [!\[\]\(2a75051913facdd097425dd804ae9b4f_img.jpg\) Property Access Management](#)
- [!\[\]\(1917df1411c2a42fec5a859f73180f1f_img.jpg\) Tracking Info](#)
- [!\[\]\(a2cee0b2967731433c94eb494b8c63d6_img.jpg\) Property Change History](#)

Property Settings

Tracking Id
 UA-176569499-1

Basic Settings

Property Name
Optimizesmart.com

Default URL
 https:// www.optimizesmart.com

Default View

Analytics ALPHA

X Web stream details

- [+ Create](#)
- [Admin](#)
- [My preferences](#)
- [Setup Assistant](#)
- [Account settings](#)
- [Account](#)
- [Property settings](#)
- [Property](#)
- [Data collection and reporting](#)
- [Data streams](#)
- [Data collection](#)
- [Data import](#)
- [Data retention](#)
- [Data filters](#)
- [Data deletion requests](#)

 Data collection is active in the past 48 hours.

Stream details	STREAM NAME	STREAM URL	STREAM ID	MEASUREMENT ID
	www.eventeducation.com	https://www.eventeducation.com/	3578751253	G-KL7QQ1MCFZ 

Consent settings

Events

 Enhanced measurement

Automatically measure interactions and content on your sites in addition to standard page view measurement.
Data from on-page elements such as links and embedded videos may be collected with relevant events. You must ensure that no personally-identifiable information will be sent to Google. [Learn more](#)

Measuring:  Page views  Scrolls  Outbound clicks + 3 more

 **Modify events**
Modify incoming events and parameters. [Learn more](#)

To set up any type of tracking in GA4, you need to use the measurement ID.

This makes understanding the measurement ID so important.

If you want to learn more about the measurement ID then check out this article: [Understanding Google Analytics Measurement ID \(GA4\)](#)

The ‘Event and Parameter’ measurement model of Google Analytics 4

GA4 uses the ‘Event and Parameter’ measurement model to track all types of users’ activities (including ‘pageviews’).

The ‘event and parameter’ measurement model is more flexible than the traditional ‘sessions and pageviews’ model for the following reasons:

#1 It allows you to see integrated data across mobile apps and websites in a single GA4 reporting view.

#2 It allows you to use a single set of metrics and dimensions across mobile apps and websites.

#3 It allows you to automatically track certain types of user interactions (like scrolls, outbound clicks, file downloads, video engagement, site search, etc.).

Google Analytics 4 Sessions

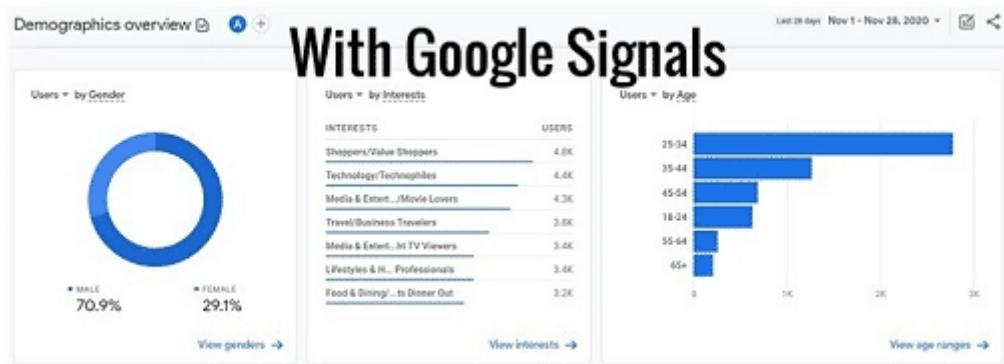
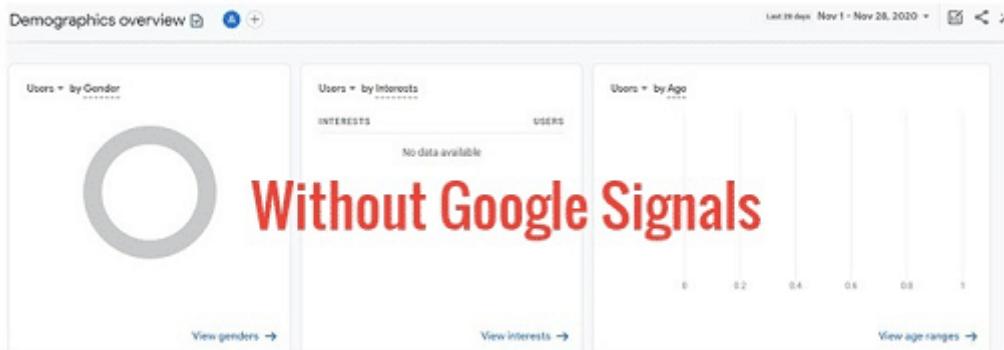
A GA4 session is a group of events recorded for a user in a given time period.

It is different from a GA3 session, which is a group of hits recorded for a user in a given time period.

The session count of GA4 and GA3 are unlikely to match as they are calculated and adjusted differently.

To learn more about GA4 sessions, check out this article: [Understanding Google Analytics 4 Sessions](#)

Google Signals for Google Analytics 4



Google Signals is an advertising reporting feature of GA4 through which you can perform the following tasks:

- Collect cross-device data from those website users who have signed in to one of their Google accounts (Gmail, YouTube, etc.) and have turned on ad personalization.
- Analyze demographic data (age, gender and interest) of your users in GA4 reports.
- Track and remarket to more users across different devices and platforms.

Google Signals is not enabled by default; you have to activate it for your GA4 property.



Follow the steps mentioned in this article on how to enable and use Google Signals in GA4: [Google Signals GA4 – See demographics \(gender, age\) in Google Analytics 4](#)

Integrating Google Analytics 4 with Google Ads

The screenshot shows the Google Analytics 4 interface. On the left, there's a sidebar with icons for Home, Overview, Data, and Properties. The main menu has a 'Create' button with a dropdown menu containing options like Data import, Data retention, Data filters, Data display, Product links, Google AdSense links, Google Ads links (which is highlighted with a red box), Ad Manager links, BigQuery links, Display & Video 360 links, Floodlight links, and Merchant Center links. To the right, there's a search bar with placeholder text 'Try searching "how to set up Analytics"' and a section titled 'Google Ads links'. This section contains a table with three rows:

Account Name	Account ID	Account type
[DaD]dagmarao	377-784-5111	Account
Google Ads sandbox account	937-409-8696	Account
analytics_googlestore_NA	471-738-4083	Account

GA4 allows integration with Google Ads.

Following are the main benefits of integrating your GA4 property with your Google Ads account:



#1 In the case of GA3, you could set up a maximum of 20 conversions per reporting view. However, there is no such limit in the case of GA4. You can set up as many conversions as you want and later use them in Google Ads.

#2 Because of the event and parameter-based measurement model of GA4, you can define your remarketing audience in a more detailed manner based on events like a scroll, file download, video play, and custom events, and then later use these audiences in Google Ads.

Follow the steps mentioned in this article in order to connect your GA4 property with your Google Ads account: [How to link GA4 \(Google Analytics 4\) with Google Ads](#)

Cross-domain tracking in Google Analytics 4

The screenshot shows the Google Tag Manager interface for a tag named "Optimize Smart Demo". The "Configuration" tab is active. A red box highlights the "Configure your domains" section, which is described as "Specify a list of domains for cross-domain measurement". Other sections shown include "Manage automatic event detection", "Allow user-provided data capabilities" (disabled), "Collect Universal Analytics events" (disabled), "Define internal traffic", "List unwanted referrals", "Adjust session timeout", and "Override cookie settings".

In the context of GA4, cross-domain tracking is the tracking of website users and their activities across two or more domains.



By default, GA4 cannot track website users and their activities across multiple domains.

That is because GA4 uses first-party cookies that can be read by only that domain that issued it.

You would need to set up cross-domain tracking manually.

With cross-domain tracking implemented, when the user navigates to a different domain, analytics cookies are passed from one domain to another using the URL parameter identified as key '_gl'.

For example, https://www.abc.com/?_gl=1*abhgfrt7*

This way, you can identify the same user across different domains and get a complete view of the user's journey.

In order to set up cross-domain tracking in your GA4 property follow the steps mentioned in this article: [Cross Domain Tracking in GA4 \(Google Analytics 4\) Setup Guide](#)

Visualizing Google Analytics 4 data in Google Data Studio

You can visualize the GA4 data in Google Data Studio by using the Google Analytics connector:



Google Connectors (22)

Connectors built and supported by Data Studio [Learn more](#)



Google Analytics

By Google

Connect to Google Analytics.



Google Ads

By Google

Connect to Google Ads performance report data.



File Upload

By Google

Connect to CSV (comma-separated values) files.



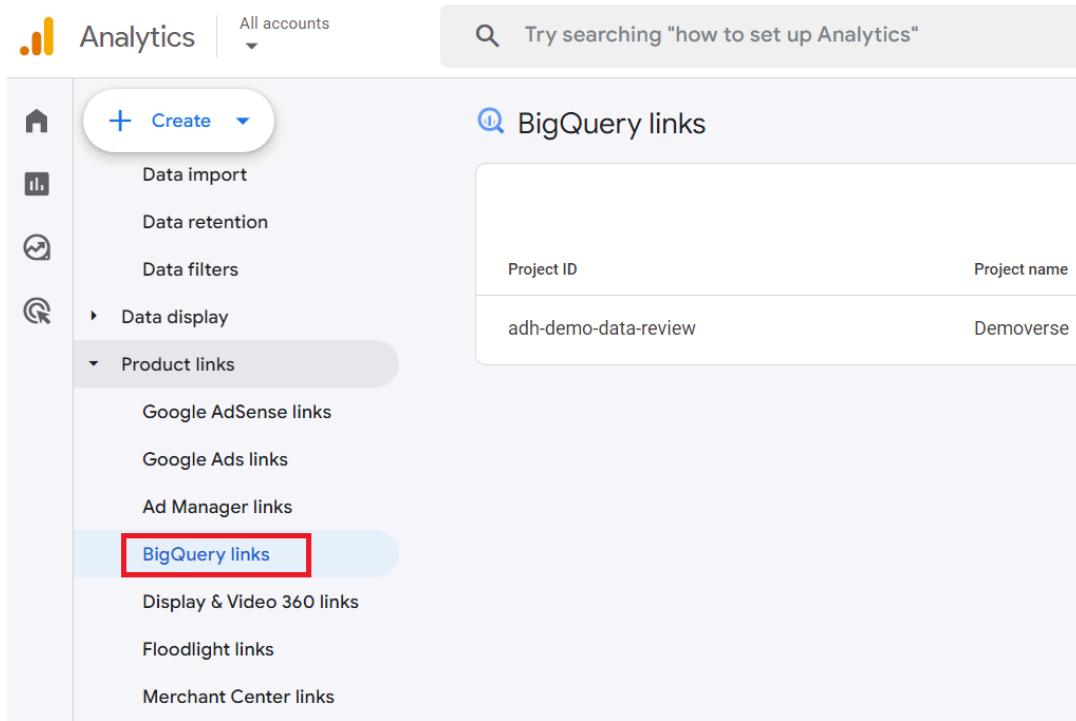
Amazon Redshift

By Google

Connect to Amazon Redshift.

For step-by-step instructions on how to visualize the GA4 data in Google Data Studio, check out this article: [How to connect GA4 \(Google Analytics 4\) with Google Data Studio](#)

Using BigQuery with Google Analytics 4



The screenshot shows the Google Analytics 4 interface. In the top left, there's a sidebar with icons for Home, Analytics, All accounts, and a search bar with placeholder text "Try searching 'how to set up Analytics'". The main content area has a header "BigQuery links". On the left, a navigation menu includes "Create", "Data import", "Data retention", "Data filters", "Data display" (which is expanded), "Product links" (which is also expanded), and several other options like "Google AdSense links", "Google Ads links", "Ad Manager links", "Display & Video 360 links", "Floodlight links", and "Merchant Center links". The "BigQuery links" option under "Product links" is highlighted with a red box. To the right, there's a table with two columns: "Project ID" and "Project name". It shows one row with "adh-demo-data-review" and "Demoverse".

One of the big advantages of using Google Analytics 4 is its free connection to BigQuery.

Earlier, this feature was available to only the [Google Marketing Platform](#) users.

Now you can access the raw GA4 data and run SQL queries on it.

Following are other benefits of using BigQuery for GA4:

- No [data sampling issues](#).
- You can connect GA4 data with third-party APIs.
- You can push data from BigQuery to a wide range of visualization tools like [Google Data Studio](#), Tableau, [Power BI](#) and Qlik.

Follow the steps mentioned in this article in order to connect your GA4 property with BigQuery: [GA4 BigQuery – Connect Google Analytics 4 with BigQuery](#)



Understanding events in Google Analytics 4

Event name	Count ↓ % change	Users	% change	Mark as conversion ?
page_view	161,621 ↑ 8.7%	103,109 ↑ 10.0%		<input type="checkbox"/>
session_start	151,041 ↑ 8.6%	103,493 ↑ 9.9%		<input type="checkbox"/>
first_visit	94,835 ↑ 10.5%	93,688 ↑ 9.9%		<input type="checkbox"/>
scroll	16,860 ↑ 3.8%	12,382 ↑ 4.7%		<input type="checkbox"/>
click	3,534 ↑ 4.5%	2,810 ↑ 6.3%		<input type="checkbox"/>
video_progress	718 ↓ 18.1%	215 ↓ 8.5%		<input type="checkbox"/>
file_download	584 ↑ 21.2%	483 ↑ 21.7%		<input checked="" type="checkbox"/>
total_webinar_registrations	871 -	313 -		<input checked="" type="checkbox"/>

In the context of GA4, an event is a tracked user's interaction with a web page element embedded on a website and/or mobile app.

In the case of GA4, all user interactions (including pageviews) are tracked as events.

There are four categories of events in GA4:

1. [Automatically collected events](#)
2. [Enhanced measurement events](#)
3. [Recommended events](#)
4. [Custom events](#)

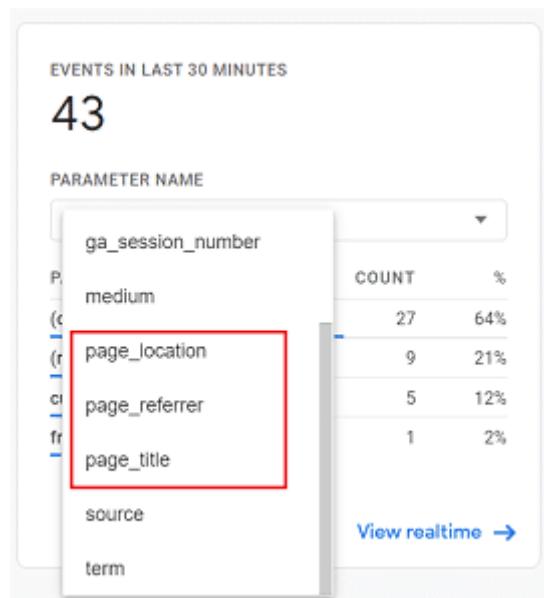
Check out the following articles to learn more about the events in Google Analytics 4:

1. [How to set up event tracking in Google Analytics 4 \(GA4\)](#)
2. [How to fix duplicate events in GA4.](#)



3. [How to set up enhanced measurement tracking in GA4 \(Google Analytics 4\)](#)
4. [All Events Report in Google Analytics 4 \(GA4\)](#)
5. [How to rename events in Google Analytics 4 \(GA4\)](#)
6. [events & events_intraday_tables in BigQuery for GA4 \(Google Analytics 4\)](#)
7. [pseudonymous_users & users_data tables in BigQuery for GA4 \(Google Analytics 4\)](#)

What are the event parameters in Google Analytics 4?



Parameters are the additional information about a GA4 event that is sent along with the event.

There are three types of event parameters:

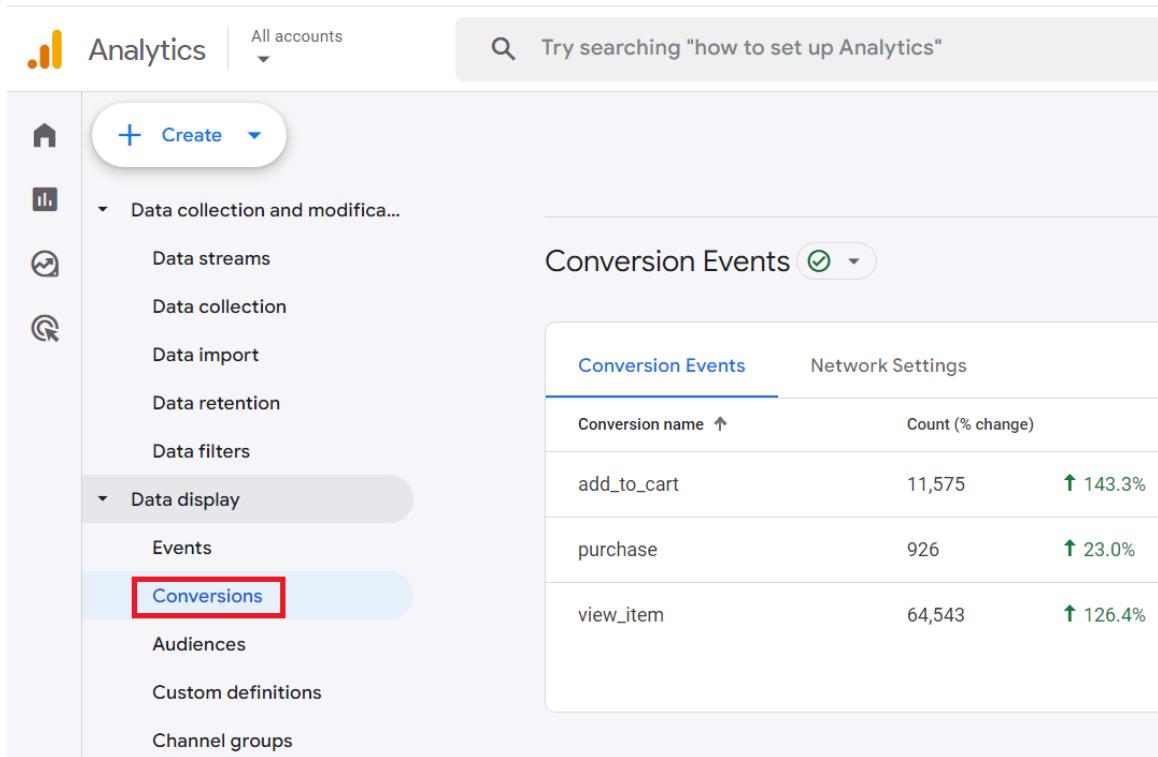
1. Automatically collected parameters



2. Custom parameters
3. User properties

To learn more about event parameters in GA4, check out this article:
[Understanding Event Parameters in Google Analytics 4 \(GA4\)](#)

Conversion tracking in Google Analytics 4



The screenshot shows the Google Analytics 4 interface. The left sidebar has a 'Create' button and sections for Data collection and modification (Data streams, Data collection, Data import, Data retention, Data filters), Data display (Events, Conversions, Audiences, Custom definitions, Channel groups). The 'Conversions' link is highlighted with a red box. The main area shows a 'Conversion Events' report with three rows of data:

Conversion name	Count (% change)
add_to_cart	11,575 ↑ 143.3%
purchase	926 ↑ 23.0%
view_item	64,543 ↑ 126.4%

A conversion is a goal or objective for which website/app has been set up.

Your website/app can have one or more objectives like:



- Getting newsletter signups
- Generating leads
- Getting video views
- Generating sales, etc.

These objectives can be tracked as conversions in a GA4 reporting view.

In Google Analytics 4, you can mark any tracked event as a conversion.

This is the simplest way to set up conversions for already available tracked events.

You can also set up conversions in GA4 by creating a new conversion event.

To learn more about conversions in GA4, check out the following articles:

1. [How to set up conversion tracking in Google Analytics 4](#)
2. [How to import conversions from GA4 property to your Google Ads account](#)

Ecommerce tracking in Google Analytics 4

The ecommerce tracking setup in GA4 is quite different from the corresponding tracking setup in GA3 and other Google Analytics versions.

For example, in GA3, if we want to track a product name, we track it by passing the 'name'.

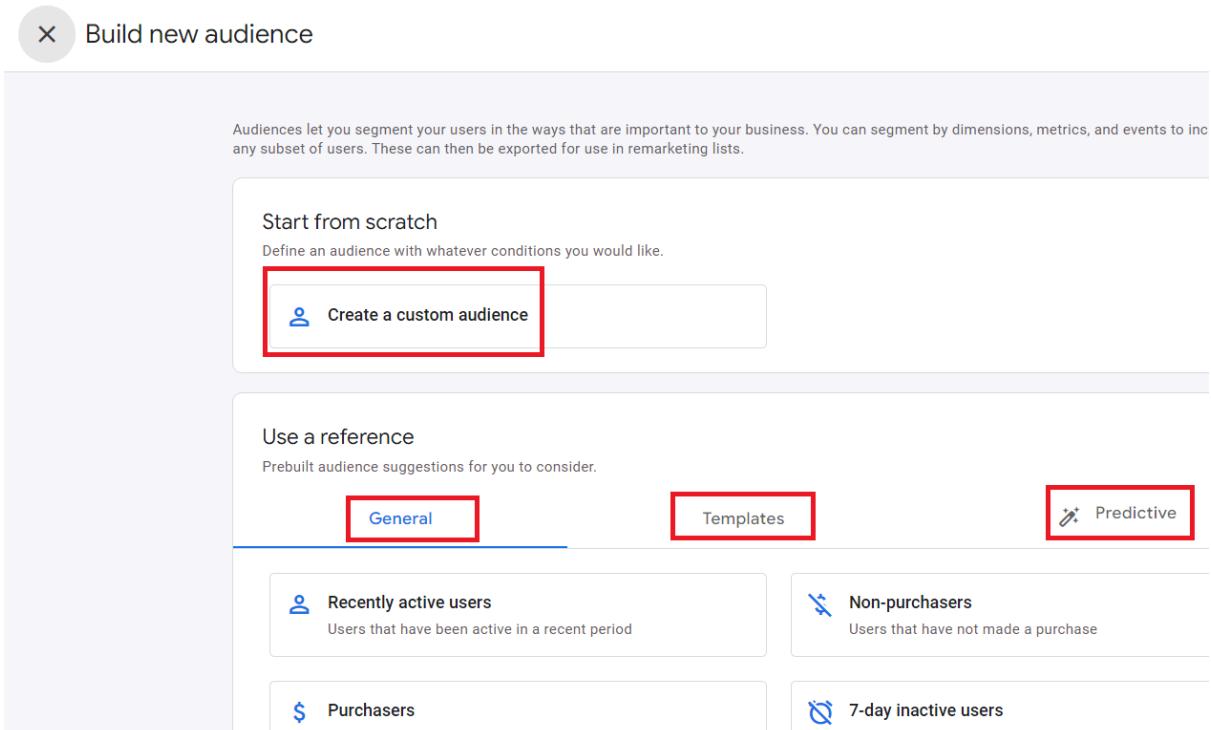
But in the case of GA4, we pass 'item_name' to track the product name.

Similarly, in GA3, if we want to track a click on a promotion, we track it by passing the 'promoClick'.

But in the case of GA4, we pass ‘select_promotion’ to track clicks on a promotion.

If you want to set up ecommerce tracking in GA4 via GTM then follow the steps mentioned in this article: [GA4 \(Google Analytics 4\) Ecommerce Tracking via GTM – Tutorial](#)

Custom audience in Google Analytics 4



The screenshot shows the 'Build new audience' interface in Google Analytics 4. It has two main sections: 'Start from scratch' and 'Use a reference'. The 'Start from scratch' section contains a 'Create a custom audience' button, which is highlighted with a red box. The 'Use a reference' section contains several prebuilt audience suggestions: 'Recently active users' (highlighted with a red box), 'Purchasers', 'Non-purchasers', and '7-day inactive users'. Other tabs like 'Templates' and 'Predictive' are also visible.

In the context of GA4, an audience is a group of users who all share some common characteristics.

Following are examples of audiences:

- Group of users whose location is ‘London’ (London audience).



- Group of users who visited the website via Facebook Ads (Facebook Ads audience).

A user can be a member of multiple audiences depending on the conditions applied in the audience.

You can use GA4 audiences as remarketing audiences for your Google Ads.

You can create up to 100 audiences per GA4 property.

In order to create and use audiences in GA4, read this article: [GA4 Audiences – Creating custom audience in Google Analytics 4](#)

Audience triggers in Google Analytics 4

Audience Trigger

Log the following event when a user becomes a member of this audience

Event Name *

Log an additional event when audience membership refreshes

Save

[Cancel](#)

In GA4, you can create audience trigger events that fire when users match the definition of an audience and become members.

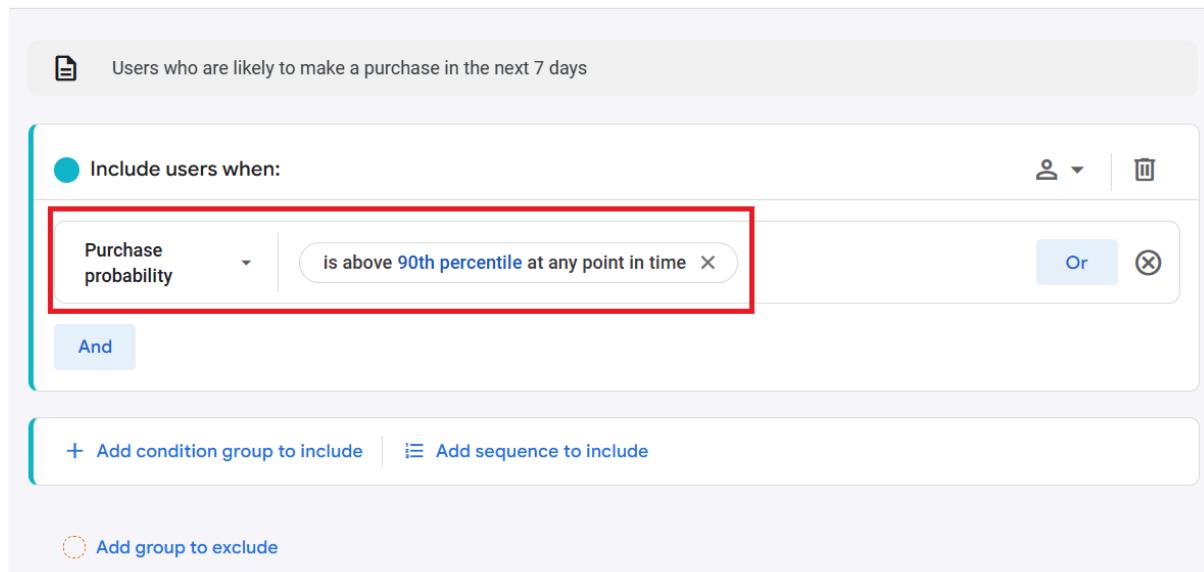
Audience triggers are used to create complex conversion events in GA4.

You can create up to 20 audience trigger events per GA4 property.

Follow the steps mentioned in this article in order to create audience trigger events in GA4: [Understanding Audience Triggers in Google Analytics 4 \(GA4\)](#)

Predictive metrics in Google Analytics 4

← Likely 7-day purchasers



The screenshot shows the Google Analytics 4 Audience Builder interface. At the top, it says "Users who are likely to make a purchase in the next 7 days". Below this, there's a section titled "Include users when:" with a dropdown menu set to "Purchase probability". A red box highlights the condition "is above 90th percentile at any point in time". To the right of this condition are buttons for "Or" and "X". Below this section, there are buttons for "Add condition group to include" and "Add sequence to include". At the bottom, there's a button for "Add group to exclude".

You can identify users and their actions on the website that will likely lead to a purchase or conversion through predictive metrics.

This can help you discover more users who can purchase a product in the next seven days.

You can use predictive metrics in 'Audience builder' while [creating a custom audience](#) or doing [advanced analysis](#).

There are three types of predictive metrics available in GA4:



1. Purchase probability
2. Churn probability
3. Revenue prediction

To learn more about predictive metrics in GA4, read this article: [What are predictive metrics in Google Analytics 4 \(GA4\)](#)

Predictive audiences in Google Analytics 4

× Build new audience

The screenshot shows the 'Build new audience' section in Google Analytics 4. The 'Predictive' tab is selected, highlighted with a red border. Below it, a message states: 'Analytics builds predictive audiences based on behaviors such as buying or churning. [Learn more about predictive audiences](#)'. Five predictive audience suggestions are listed:

- Likely 7-day purchasers**: Users who are likely to make a purchase in the next 7 days. Eligibility status: Ready to use.
- Predicted 28-day top spenders**: Users who are predicted to generate the most revenue in the next 28 days. Eligibility status: Not eligible 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.

Predictive audiences in Google Analytics 4 help you identify users who are likely to perform a certain action in the near future.



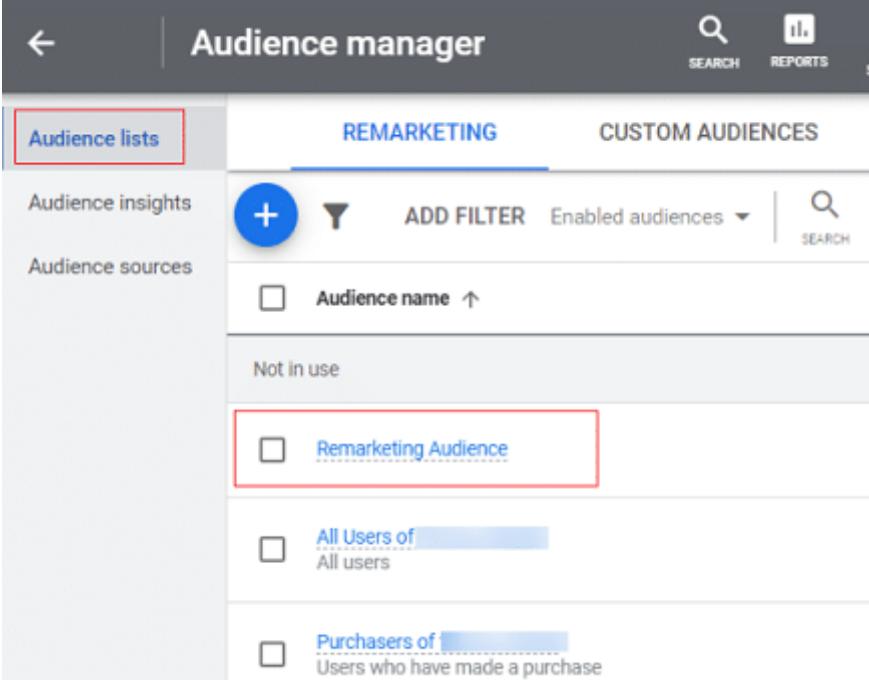
A predictive audience is based on a predictive metric's condition(s) like purchase probability, churn probability, and revenue predictions.

Following are examples of predictive audiences:

1. **Likely 7-day purchasers** – Users likely to purchase in the next seven days.
2. **Likely first-time 7-day purchasers** – Users likely to make their first purchase in the next seven days.
3. **Likely 7-day churning users** – Active users likely to not visit your website in the next seven days.
4. **Likely 7-day churning purchasers** – Purchasing users likely to not visit your website in the next seven days.

To learn more about predictive audiences in GA4, read this article: [How to create and use predictive audiences in Google Analytics 4 \(GA4\)](#)

Remarketing audiences in Google Analytics 4



The screenshot shows the Google Analytics Audience Manager interface. The top navigation bar includes a back arrow, the title "Audience manager", a search icon, a reports icon, and a settings gear icon. Below the title, there are three tabs: "AUDIENCE LISTS" (highlighted with a red box), "REMARKETING" (selected and highlighted with a blue underline), and "CUSTOM AUDIENCES". On the left sidebar, "Audience insights" and "Audience sources" are listed. The main content area features a "ADD FILTER" button, a "Enabled audiences" dropdown, and a search bar. A table lists audience segments: "Remarketing Audience" (highlighted with a red box), "All Users of [redacted] (All users)", and "Purchasers of [redacted] (Users who have made a purchase)".

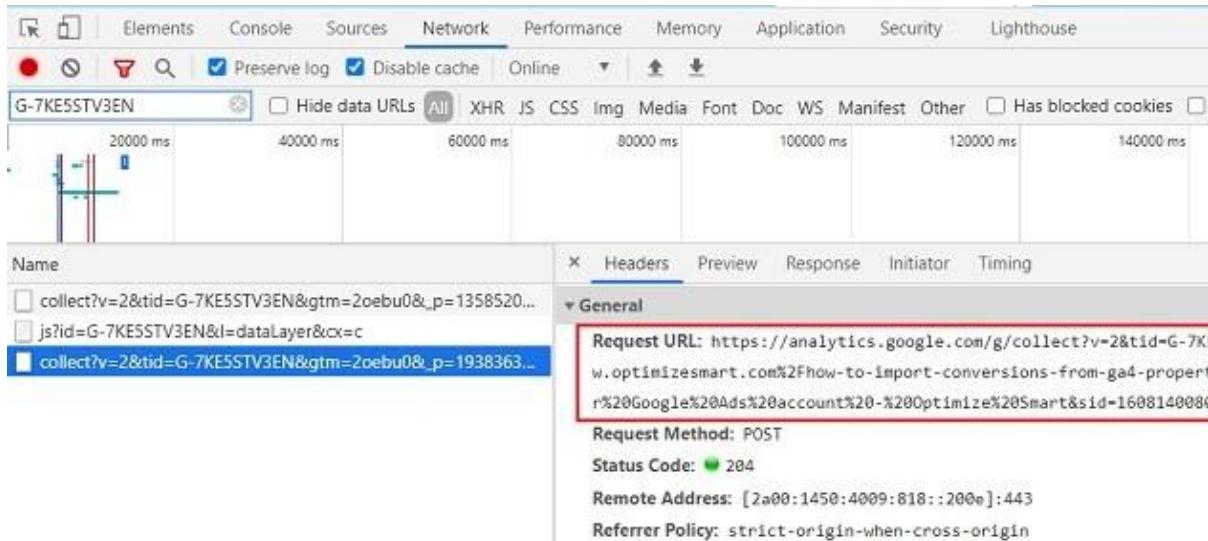
You can create a [custom audience in GA4](#) and then use it for remarketing purposes in Google Ads.

When you use a custom audience for remarketing purposes, it is called the remarketing audience.

However, before you create a remarketing audience in GA4, you need to [link your GA4 property with your Google Ads account](#).

To learn more about remarketing audience, read this article: [How to create a remarketing audience in Google Analytics 4 \(GA4\)](#)

Measurement protocol in Google Analytics 4



The measurement protocol is a set of rules that your application must follow to send event data directly to the Google Analytics servers from any device/system connected to the internet.

A basic understanding of how measurement protocol works can help you greatly build your foundation in GA4 and debugging GA4 events set up.

*To learn more about the measurement protocol, read this article:
[Understanding GA4 measurement protocol](#)*

Building comparisons (advanced segments) in Google Analytics 4



The screenshot shows the Google Analytics 4 interface. On the left, there's a sidebar with icons for Home, Realtime, Life cycle (Acquisition, Engagement, Monetization), Retention, and Search Console. The main area is titled 'Reports snapshot' and shows a summary card for 'All Users'. The card displays 'Users: 49K', 'New users: 43K', and a retention metric of '1'. At the top right of the main area, there's a button labeled 'Add comparison +' which is highlighted with a red box.

Comparisons in GA4 are just like advanced segments used in Universal Analytics. They allow you to isolate and analyze a subset of data.

You create comparisons by creating conditions based on dimensions and dimension values.

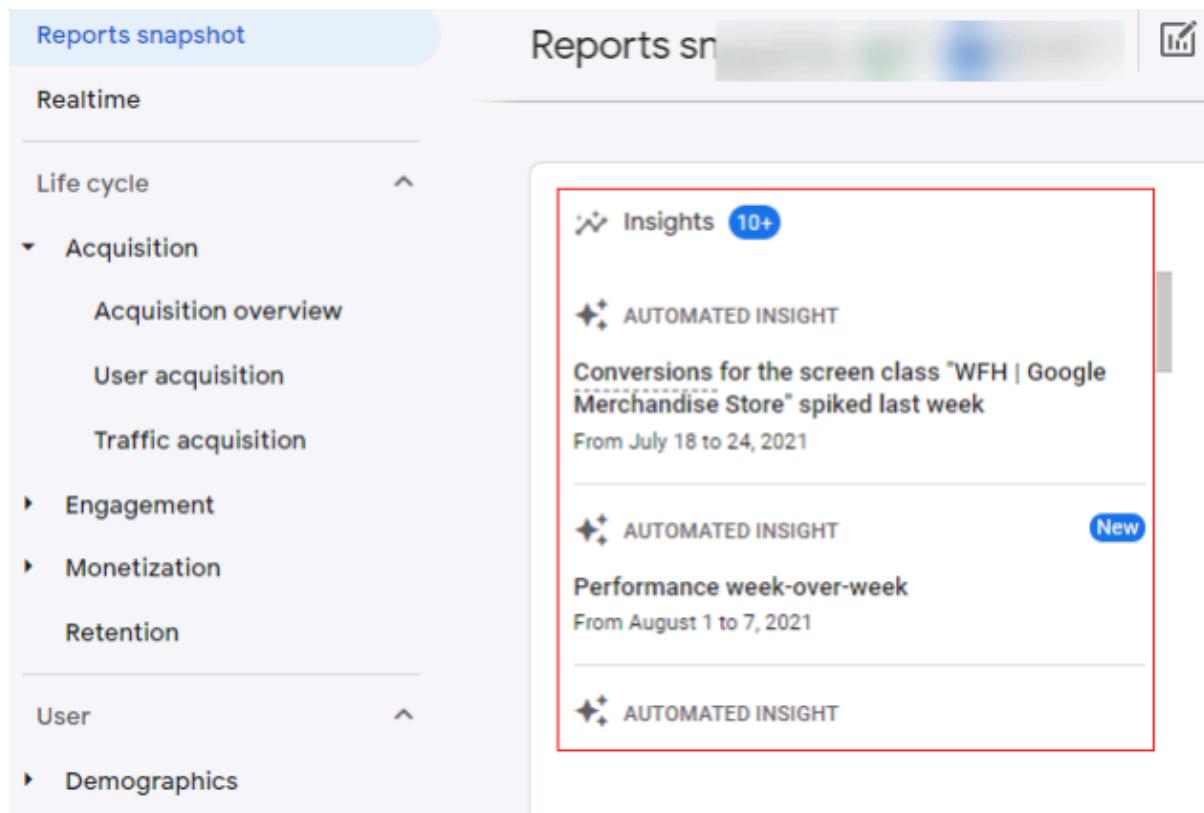
For example, all users vs users from ‘United States’.

You can apply the comparison to any GA4 report.

To create and apply comparisons to your GA4 report follow the steps mentioned in this article: [How to build comparisons \(advanced segments\) in Google Analytics 4 \(GA4\)](#)

Automated insights in Google Analytics 4 (GA4)

The automated insights feature of Google Analytics 4 is just like the [analytics intelligence feature available in Universal Analytics](#) reporting views:



The screenshot shows the 'Reports snapshot' interface in Google Analytics 4. On the left, there's a sidebar with sections like 'Realtime', 'Life cycle' (with 'Acquisition', 'Engagement', 'Monetization', 'Retention'), 'User', and 'Demographics'. The main area is titled 'Reports sn' and shows a summary card for 'Insights 10+'. Below it, three 'AUTOMATED INSIGHT' cards are listed: 'Conversions for the screen class "WFH | Google Merchandise Store" spiked last week' (from July 18 to 24, 2021), 'Performance week-over-week' (from August 1 to 7, 2021), and another unnamed one.

GA4 automatically generate insights for you (based on machine learning) whenever it detects unusual changes or emerging trends in your data.

**To learn more about automated insights, read this article:
[Understanding Automated Insights in Google Analytics 4 \(GA4\)](#)**

Creating custom insights in GA4



Suggested Custom Insights

We recommend you create the following insights for your property. [Learn more](#)

Anomaly in daily event count

You'll get an email notification if there's an anomaly in the number of daily total events

Anomaly in daily users

You'll get an email notification if there's an anomaly in the number of daily total users

Anomaly in daily views

You'll get an email notification if there's an anomaly in the number of daily total views

Anomaly in daily conversions

You'll get an email notification if there's an anomaly in the number of daily total conversions

Anomaly in daily revenue

You'll get an email notification if there's an anomaly in the number of daily total revenue

Create selected

Google Analytics 4 provides two types of insights; automated insights and custom insights.

While GA4 automatically generates automated insights, custom insights are not automatically generated.

You can create up to 50 custom insights per GA4 property.

Follow the steps mentioned in this article to create custom insights in GA4: [How to create custom insights in Google Analytics 4 \(GA4\)](#)

The DebugView report in Google Analytics 4



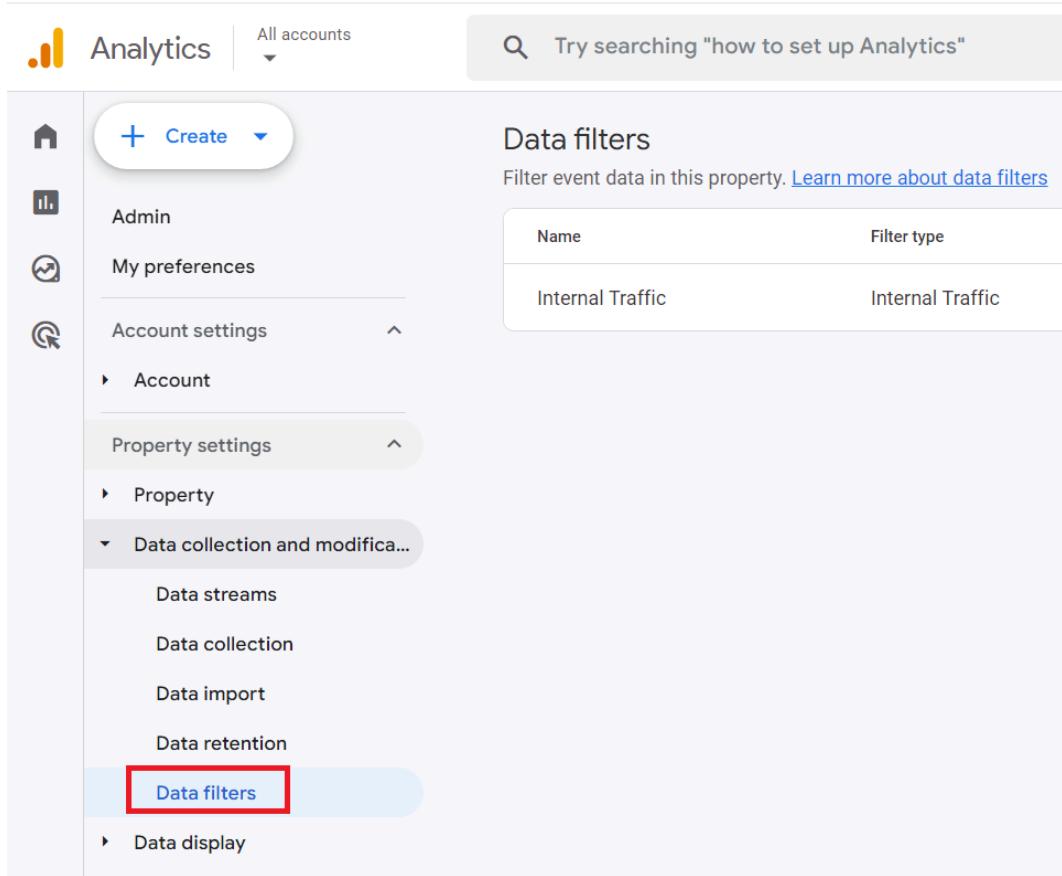
The DebugView report is a special type of real-time report provided by GA4 through which you can troubleshoot your analytics setup issues within the GA4 user interface.

DebugView allows you to monitor your website/app event data in real-time, along with all the custom parameters and user properties.

Note: The DebugView report only shows you real-time events data for the last 30 minutes.

If you want to understand the DebugView report in more detail then read this article: [How to use DebugView report in Google Analytics 4 \(GA4\)](#)

Data filters in Google Analytics 4



The screenshot shows the Google Analytics 4 interface. In the top left, there's a sidebar with icons for Home, Admin, My preferences, Account settings, and a search bar. The main area has a header "Analytics" and "All accounts". A search bar says "Try searching 'how to set up Analytics'". Below the header, there's a "Create" button with a plus sign. The main content area is titled "Data filters" with the sub-instruction "Filter event data in this property. [Learn more about data filters](#)". A table lists one filter: "Internal Traffic" under "Name" and "Internal Traffic" under "Filter type". On the left side of the main content, there's a navigation tree under "Data collection and modification": Account, Property settings (expanded), Property (expanded), Data collection and modification... (selected, expanded), Data streams, Data collection, Data import, Data retention, Data filters (highlighted with a red box), and Data display.

Data filters are one of the features of GA4, through which you can include or exclude certain event data from your GA4 reporting view.

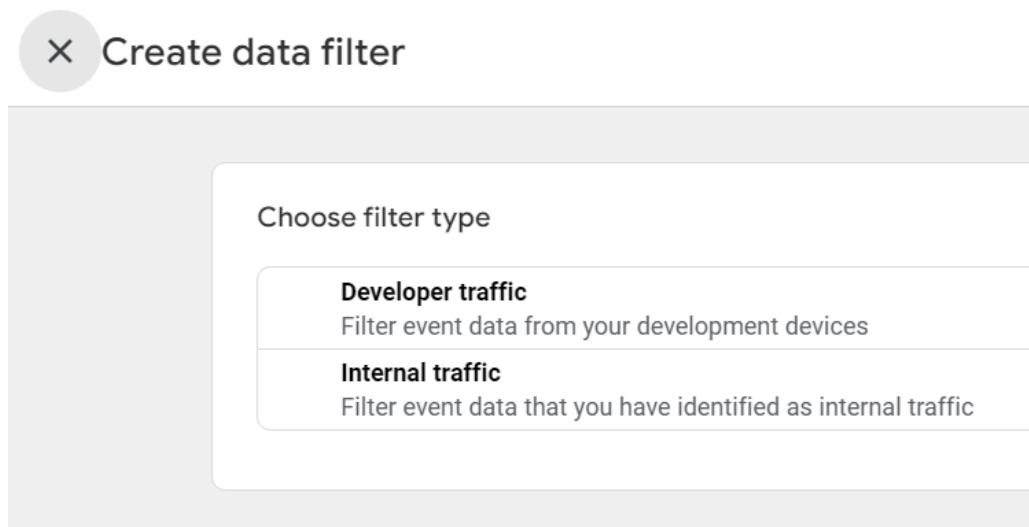
It is important to remember that data filters do not work retroactively.

And once you apply the data filter, the effect on your event data is permanent and can not be reversed.

There are two types of data filters available in GA4:

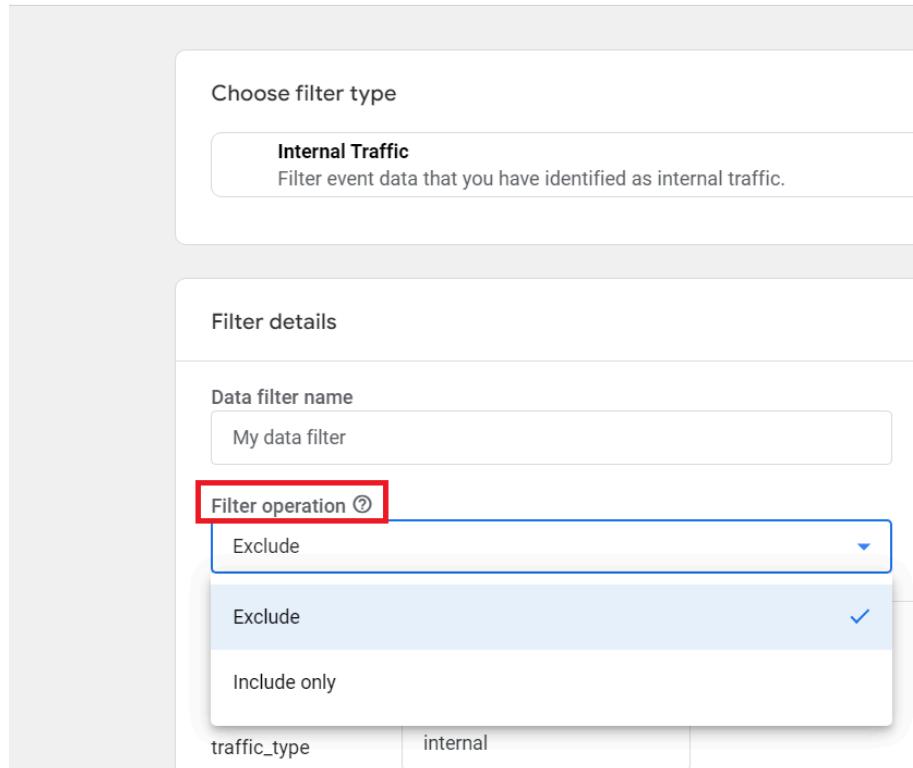
1. **Developer traffic** – Use this filter to block developer traffic (the traffic generated from your own device while debugging the analytics implementation).

2. **Internal traffic** – Use this filter to block internal traffic (the traffic generated on your website by your own employees, suppliers, and other service providers).



The data filters in GA4 can be further classified into **include and exclude filters** depending upon the filter operation being used:

X Create data filter



Choose filter type

Internal Traffic
Filter event data that you have identified as internal traffic.

Filter details

Data filter name: My data filter

Filter operation: **Exclude**

Exclude

Include only

traffic_type: internal

internal

Note: You can create up to ten data filters per GA4 property.

To learn more about data filters, check out the following article:

- [What are data filters in Google Analytics 4 \(GA4\)?](#)
- [How to block internal traffic in Google Analytics 4 \(GA4\)](#)
- [How to create and test a new data filter in Google Analytics 4 \(GA4\)](#)

Scroll tracking in Google Analytics 4



X Choose a variable 🔍

Name ↑	Type
Click Classes	Data Layer Variable
Click Text	Auto-Event Variable
Event	Custom Event
Google Analytics Settings	Google Analytics Settings
Page Hostname	URL
Page Path	URL
Page URL	URL
Random Number	Random Number
Referrer	HTTP Referrer
Scroll Depth Threshold	Data Layer Variable

Scroll tracking in GA4 allows you to measure how users engage with your website content.

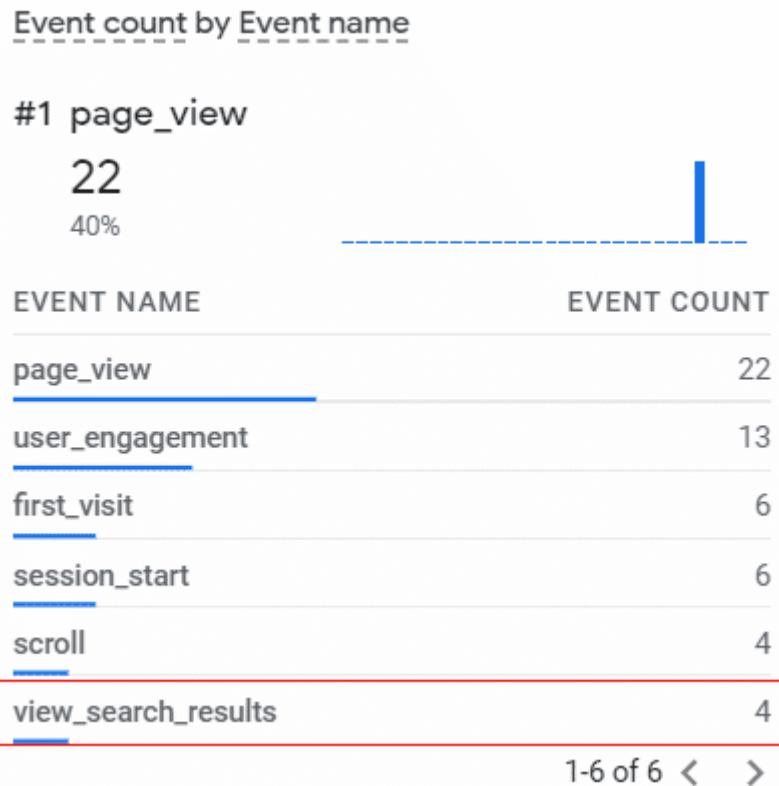
Google Analytics 4 automatically track scroll events by default through its enhanced measurement feature. But it tracks only 90% scroll events. It does not by default track other scroll depths, like 10%, 25%, 50% and 75%.

These scroll depth events can also play an important role in measuring website user behavior, especially if you have a content-rich website (like a blog).

If you want to set up scroll events for lesser thresholds (10%, 25%, 50% and 75%), you need to set up custom events using the [global site tag \(gtag.js\)](#) or [Google Tag Manager](#).

Follow the steps mentioned in this article to set up scroll tracking in GA4 via GTM: [Scroll Depth Tracking in Google Tag Manager – Tutorial.](#)

Site search tracking in Google Analytics 4



Site search (or internal site search) is a functionality provided by a website in the form of a search box:



Users can search for specific content on your website through this search box.



If your website provides site search functionality, you should set up site search tracking in your GA4 property.

Follow the steps mentioned in this article to set up site search tracking in GA4: [GA4 Site Search – Tracking Site Search in Google Analytics 4](#)

Channel groupings in Google Analytics 4

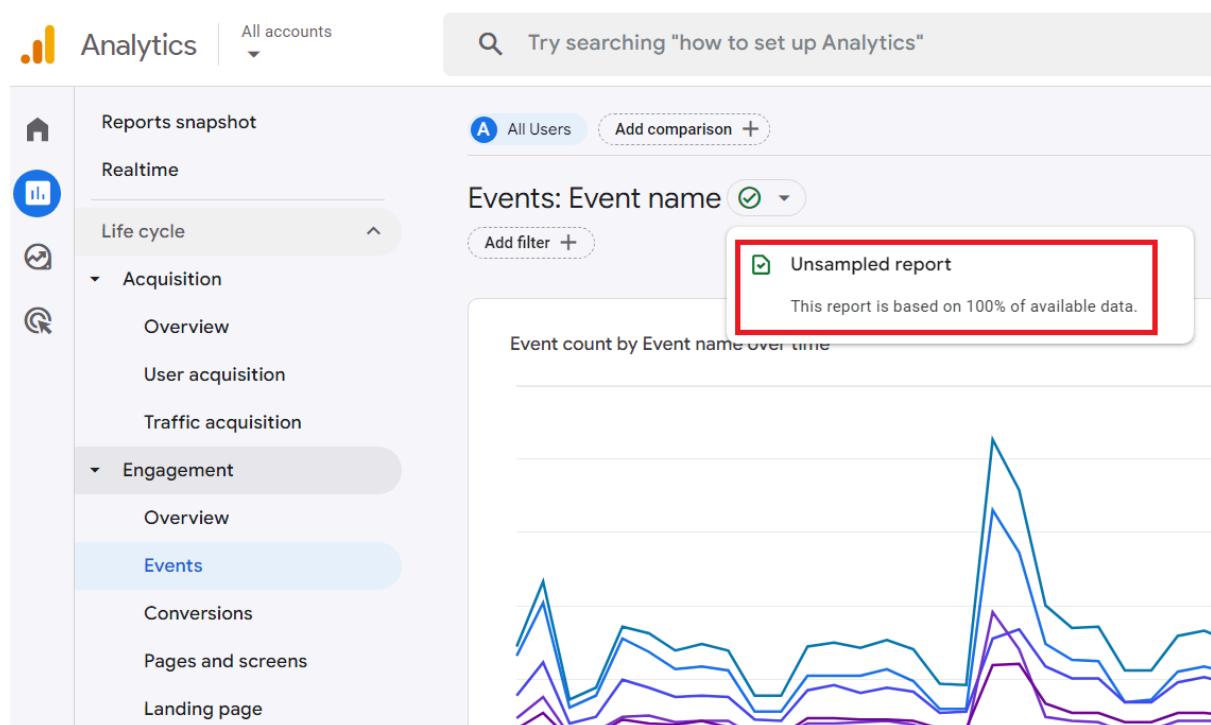
Session default channel grouping ▾ +		Users	Sessions
Totals		71,969 100% of total	103,138 100% of total
1	Organic Search	29,914	40,994
2	Direct	22,365	29,889
3	Referral	17,484	28,716
4	Unassigned	3,101	85
5	Organic Social	1,659	1,847
6	Paid Search	896	918
7	Affiliates	235	342
8	Email	152	347

Channel groupings are a rule-based grouping of marketing channels.

In GA4, channel groupings are used to quickly check the performance of a set of marketing channels or a set of traffic sources.

To learn more about channel groupings in GA4, check out this article:
[Understanding Channel Groupings in Google Analytics 4 \(GA4\)](#)

Data sampling in Google Analytics 4 (GA4)



Data sampling is the process of selecting only a subset of traffic data for analysis and reporting.

It is widely used in statistical analysis to analyse large data sets in a cost-efficient manner.

When GA4 analyses the complete traffic data set to produce a report, the produced report is considered unsampled.

The metrics reported by an unsampled report are considered to be highly accurate as they are based on complete traffic data set.



When GA4 analyses only a subset of traffic data to produce a report, the produced report is considered to be sampled.

The metrics reported by a sampled report may not be very accurate as they are based on incomplete traffic data set.

To learn more about data sampling in GA4, check out this article:
[Understanding Data Sampling in Google Analytics 4 \(GA4\)](#)

Google Analytics 4 Event Builder

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Campaign URL Builder

Event Builder

Dimensions & Metrics Explorer

Query Explorer

Enhanced Ecommerce

Resources

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Event Builder

Overview

The GA4 Event Builder allows you to create, validate, and send events using the [GA4 Measurement Protocol](#)

Usage

First, choose the client you are using with the toggle below. Mobile implementation implementations should use gtag.js

client

gtag.js firebase

After choosing a client, fill out the inputs below.

api_secret *

If you want to send offline events data to a GA4 property, you can do that via the **Google Analytics 4 Event Builder**.



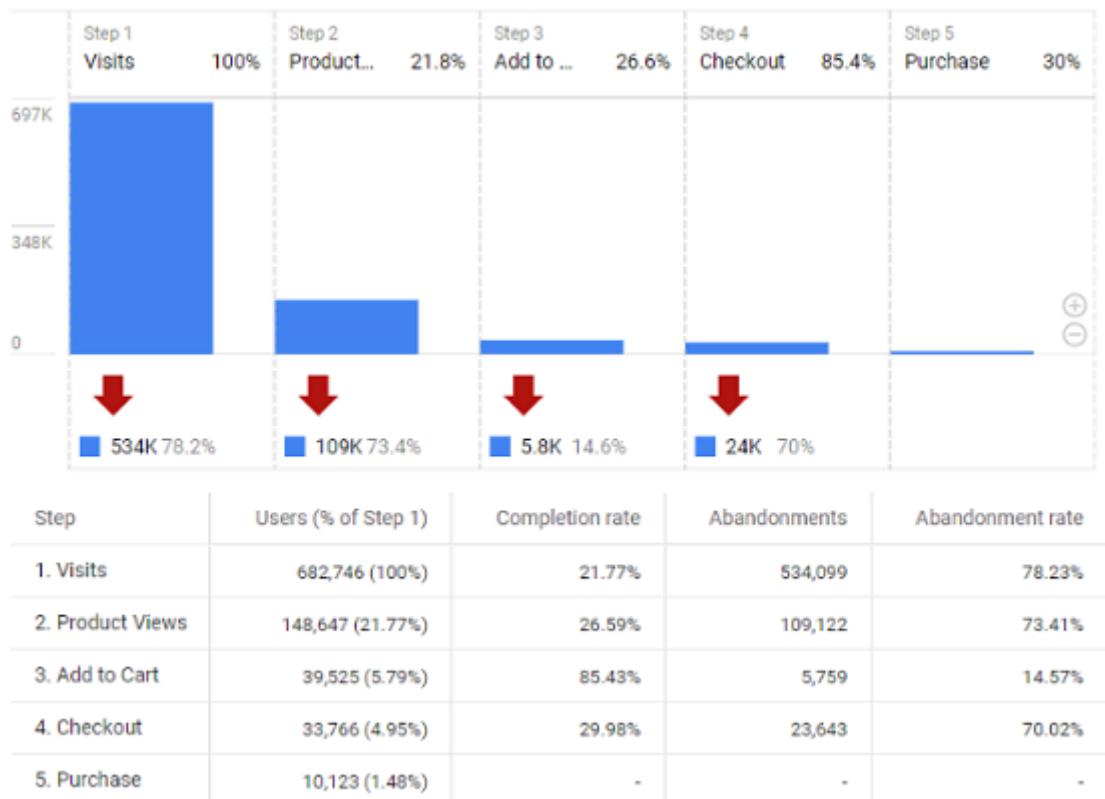
You can create and validate [measurement protocol events](#) using the measurement protocol validation server through this tool.

This tool is made up of the following two sections:

1. Hit summary
2. Event details

To learn more about using the GA4 event builder, read the article: [How to use Google Analytics 4 Event Builder](#)

Funnel Exploration report in Google Analytics 4

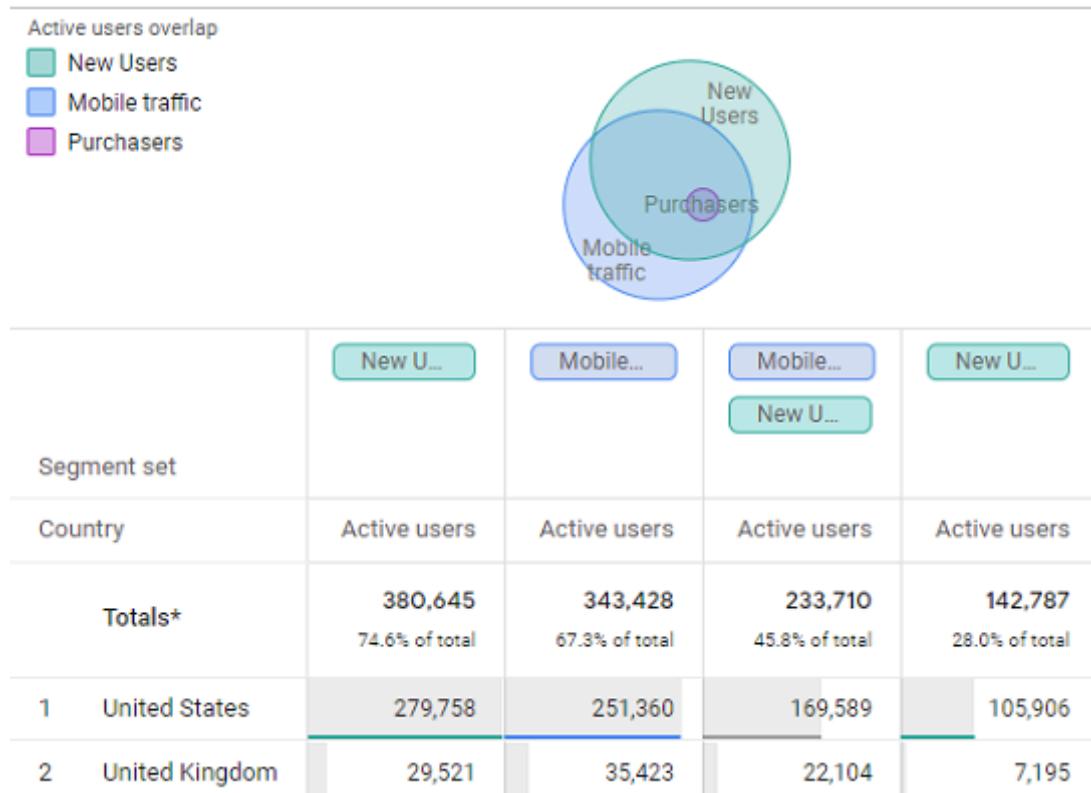


Use the Funnel Analysis report in GA4 to visualize the various steps your users take to complete a task (usually a conversion) and where they drop off in your conversion funnel.

You can find the Funnel Exploration report under [Explore](#).

Learn more about this report from this article: [How to use the Funnel Exploration Report in Google Analytics 4 \(GA4\)](#)

Segment Overlap report in Google Analytics 4

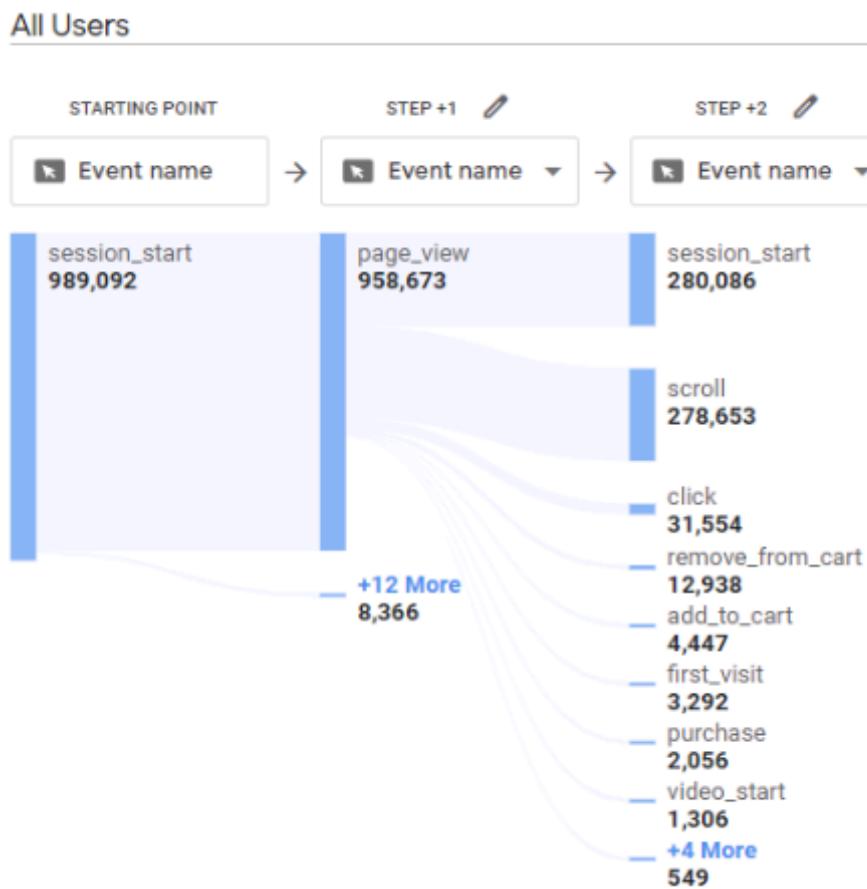


Use the Segment Overlap report to visualize the various user segments and understand how they relate to each other.

You can find this report under Analysis Hub in your GA4 reporting view.

Learn more about the Segment Overlap report from this article: [How to use Segment Overlap Report in Google Analytics 4 \(GA4\)](#)

Path Analysis report in Google Analytics 4



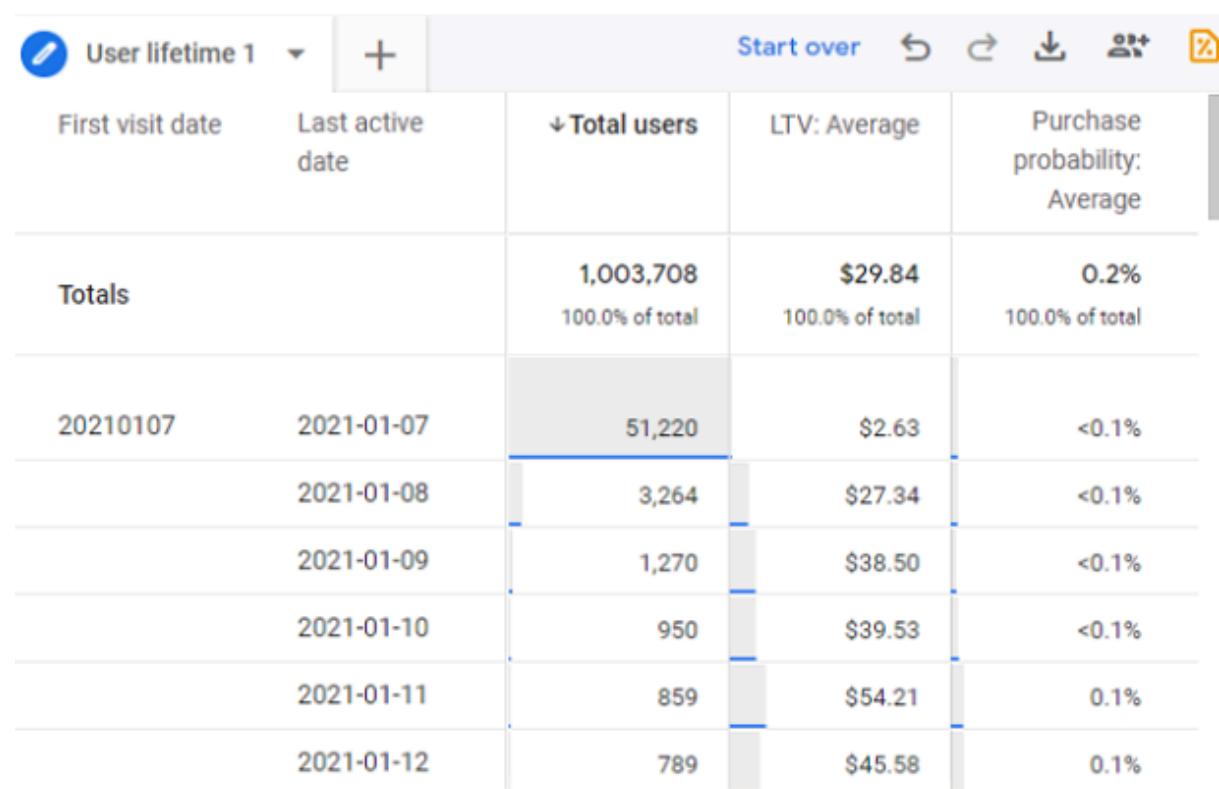
The Path Analysis report is one of the report templates available in the [Explore tab of GA4](#).

Through this analysis technique, you can explore your users' journey (the steps they took through your website/app) in the form of a tree graph.

You can discover the previous and next actions your users took. You can measure the effects of an event on users' actions.

You can learn more about Path Analysis in GA4 from this article: [How to use path analysis report in Google Analytics 4 \(GA4\)](#)

User Lifetime Report in Google Analytics 4



The User Lifetime report is one of the report templates available in the Analysis Hub of GA4.

Through this analysis technique, you can analyze the entire lifetime of your users' behavior as customers, as long as they have been active on your website or app since or after August 15th 2020.

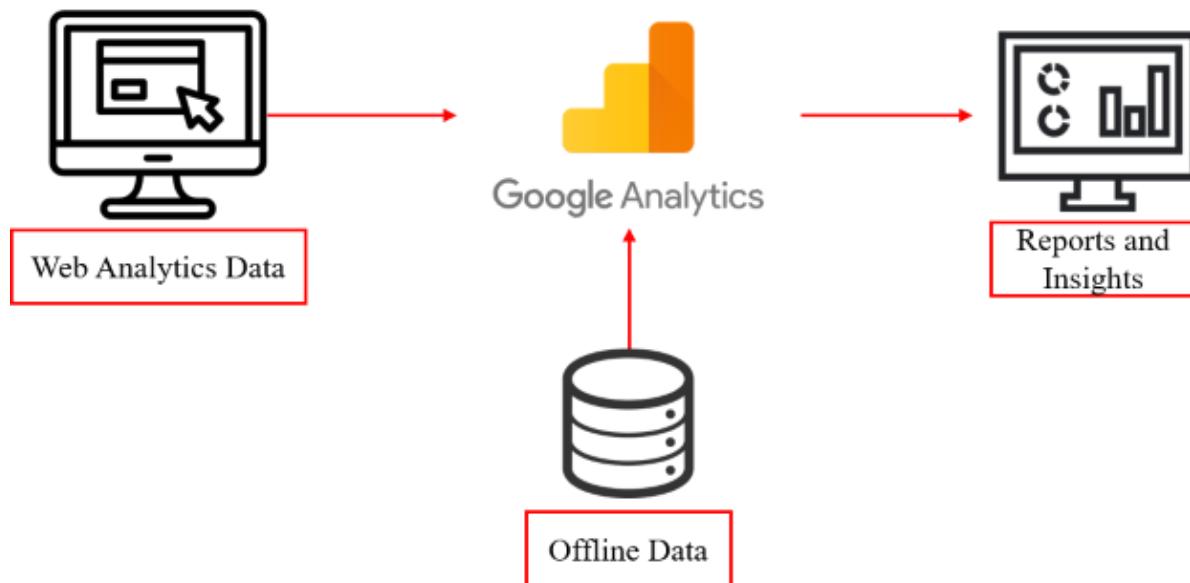


Through the User Lifetime report, you can get the following information about each user:

1. Initial interactions
2. Most recent interactions
3. Lifetime interactions
4. Predictive metrics

You can learn more about user lifetime in GA via the article: [How to use the user lifetime report in Google Analytics 4 \(GA4\)](#)

Importing data to Google Analytics 4

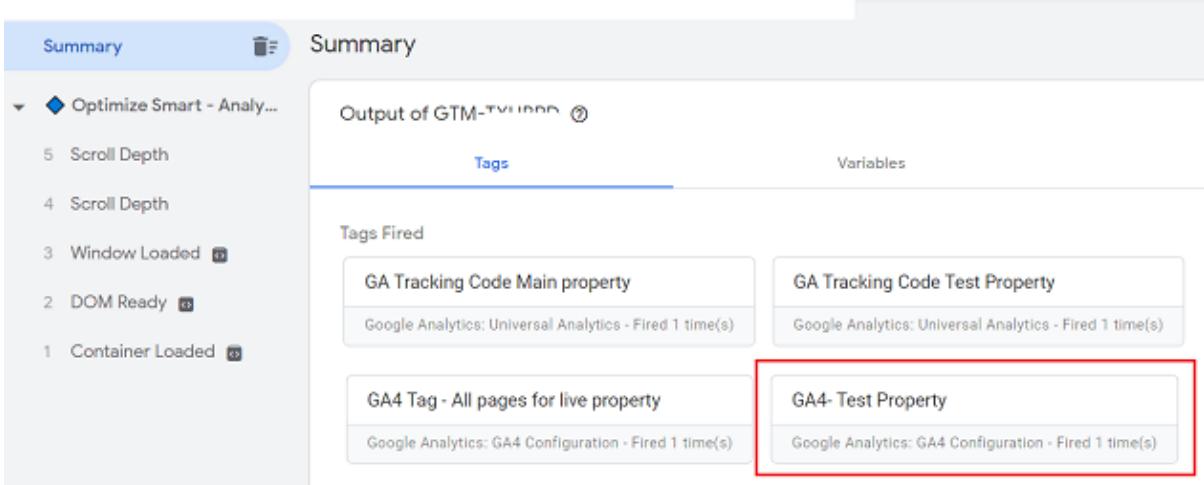


Through the data import feature, you can upload data from external data sources (like CRM, CMS, shopping cart, etc.) and then combine it with the Google Analytics 4 data.

You can upload the data by uploading one or more CSV files to your GA4 property.

To learn more about the GA4 data import feature, check out the article:
[GA4 Data Import Tutorial](#)

Google Analytics 4 test property



The screenshot shows the 'Tags Fired' section of a Google Tag Manager report for a GTM container. On the left, a sidebar lists triggers: 'Optimize Smart - Analy...', 'Scroll Depth' (5 times), 'Scroll Depth' (4 times), 'Window Loaded' (3 times), 'DOM Ready' (2 times), and 'Container Loaded' (1 time). The main area is titled 'Output of GTM-TWV1000'. It has tabs for 'Tags' (selected) and 'Variables'. Under 'Tags Fired', there are four items: 'GA Tracking Code Main property' (fired 1 time(s)), 'Google Analytics: Universal Analytics - Fired 1 time(s)', 'GA4 Tag - All pages for live property' (fired 1 time(s)), and 'Google Analytics: GA4 Configuration - Fired 1 time(s)'. The last two items are grouped together and highlighted with a red border.

The Google Analytics 4 property comes with only one reporting view.

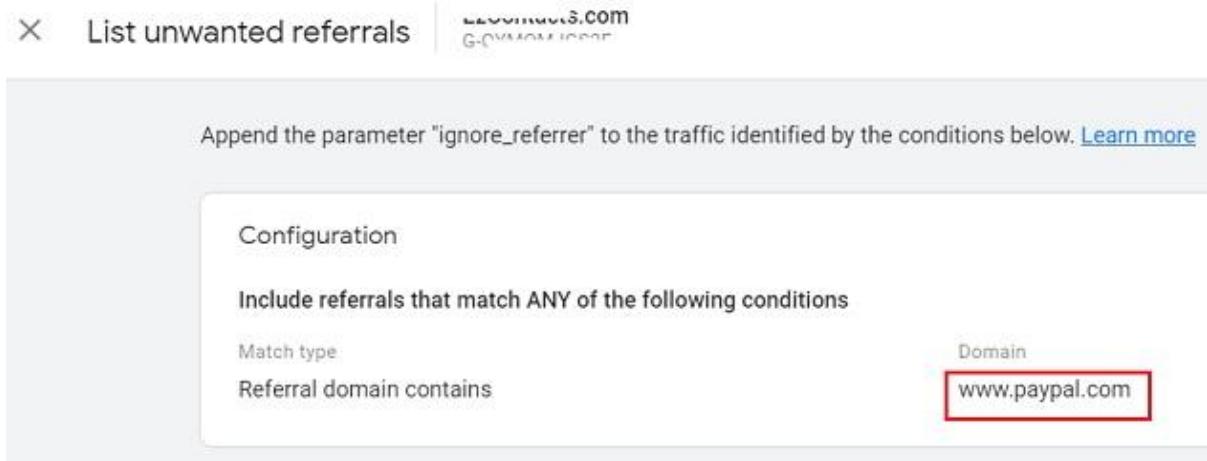
So whenever you change one of the settings of your GA4 property, you permanently change the way the data is collected, processed and reported in your GA4 reporting view.

If your changes skew your analytics data, then your data is skewed for good.

That's why you need to create a separate GA4 property just for testing purposes. We call this property a GA4 test property.

To learn more about the GA4 test property, check out this article: [Using the GA4 test property](#)

Excluding unwanted referrals in Google Analytics 4



The screenshot shows the 'List unwanted referrals' configuration screen in Google Analytics 4. At the top, there is a message: 'Append the parameter "ignore_referrer" to the traffic identified by the conditions below. [Learn more](#)'. Below this, under 'Configuration', it says 'Include referrals that match ANY of the following conditions'. A 'Match type' dropdown is set to 'Referral domain contains', and the 'Domain' field contains 'www.paypal.com', which is highlighted with a red border.

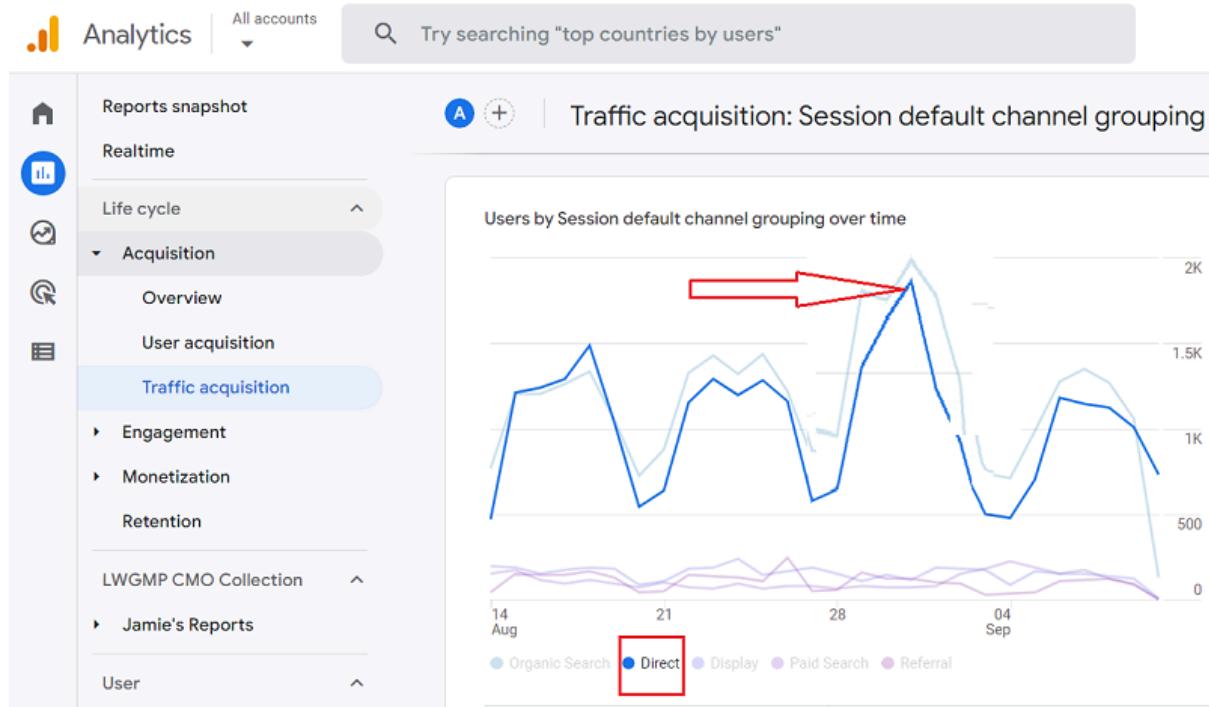
In the [Universal Analytics property](#), we have [the referrals exclusion list](#) to exclude the referral traffic from certain domains. In Google Analytics 4, the referrals exclusion list has been replaced by the '**unwanted referrals**' list.

Unlike in Universal Analytics, the GA4 can automatically detect and fix self-referral issues via the feature called '**Automatic self-referral detection**'.

To learn more about excluding the unwanted referrals in GA4, check out this article: [Self-referral Google Analytics 4 – Referral exclusion GA4](#)

Causes of Sudden Spike in Direct Traffic in GA4

Do you sometimes see sudden and massive spikes in direct traffic in your GA4 reports?



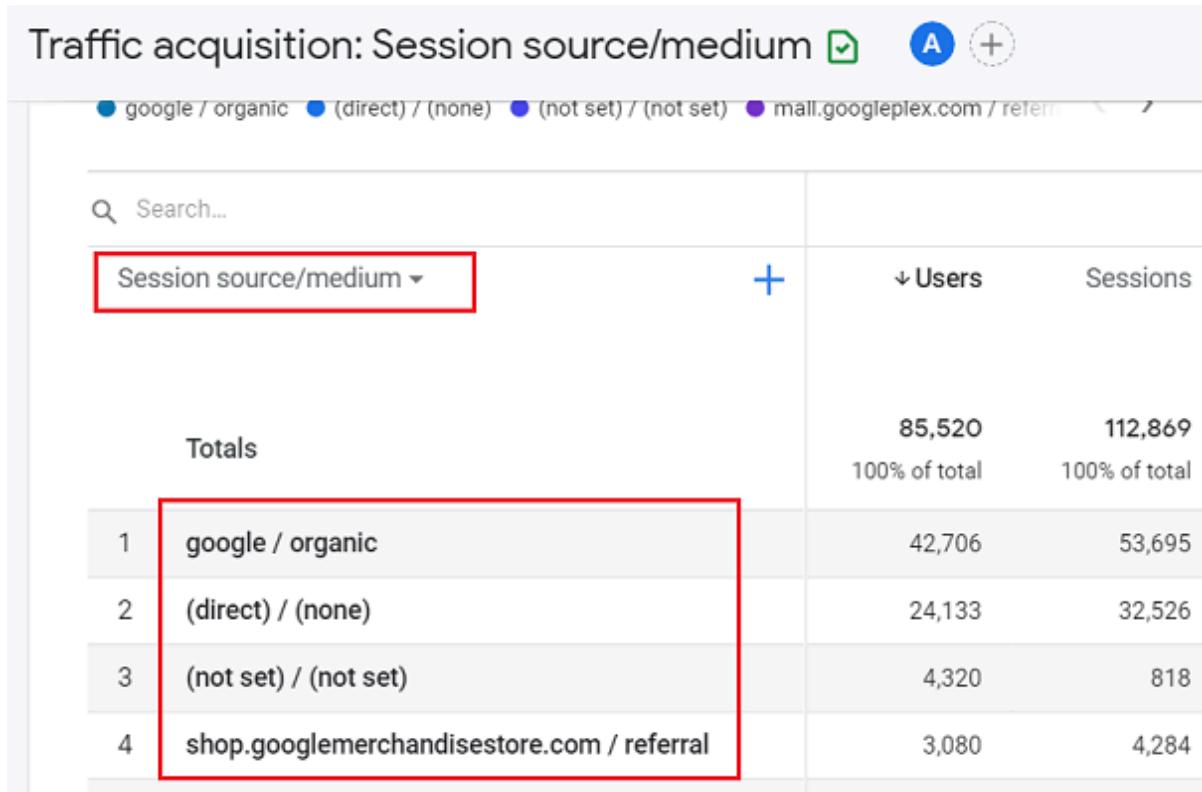
If yes, did it last for a couple of days, or do you see a continued increase in direct traffic, day after day, week after week?

Remember, people will not automatically find your website and visit it directly. They find and visit your website in response to some marketing activity.

So you need to be aware of this marketing activity if you want to determine the cause of the sudden spike in direct traffic.

Check out this article for more details: [Causes of Sudden Spike in Direct Traffic in Google Analytics](#)

Dimensions in Google Analytics 4



A dimension is one of the attributes of your website/app users.

Each dimension is made up of a name and a value.

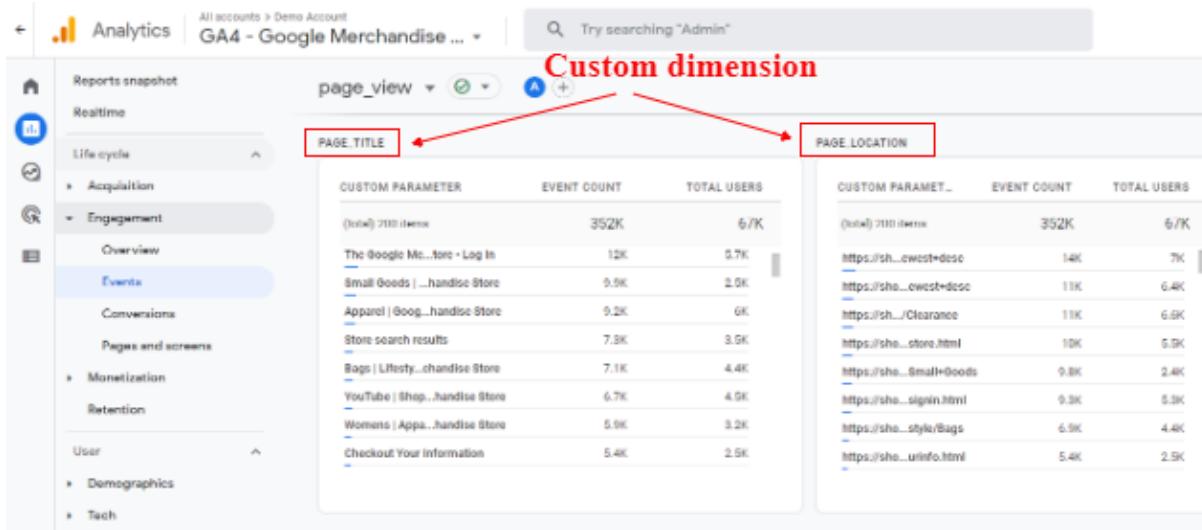
For example, ‘Sessions source/medium’ is the dimension name and ‘(direct)/(none)’ is one of the values of this dimension.

There are two broad categories of dimensions in GA4: Default dimensions and custom dimensions.

Both default dimensions and custom dimensions can be used as either a primary dimension or a secondary dimension.

To learn more about GA4 dimensions, check out this article: [GA4 Dimensions Tutorial](#)

Custom dimensions in GA4



The screenshot shows the Google Analytics 4 interface with the 'page_view' report selected. A red box highlights the 'Custom dimension' section at the top. Two specific dimensions are highlighted with red boxes: 'PAGE_TITLE' and 'PAGE_LOCATION'. Red arrows point from these labels to their respective columns in the data table.

CUSTOM PARAMETER	EVENT COUNT	TOTAL USERS
(Total) 2100 items	352K	6/K
The Google Merchandise Store - Log In	12K	5.7K
Small Goods ...handise Store	9.9K	2.9K
Apparel Google Merchandise Store	9.2K	6K
Store search results	7.8K	3.9K
Bags Lifesyle Merchandise Store	7.1K	4.4K
YouTube Shop...handise Store	6.7K	4.9K
Womens Appare...handise Store	5.9K	3.2K
Checkout Your Information	5.4K	2.9K

CUSTOM PARAMET...	EVENT COUNT	TOTAL USERS
(Total) 2100 items	352K	6/K
https://she...ewest+desc	14K	7K
https://she...ewest+desc	11K	6.4K
https://she.../Clearance	11K	6.6K
https://she...store.html	10K	5.9K
https://she...small+goods	9.8K	2.4K
https://she...signin.html	9.3K	5.3K
https://she...style/Bags	6.9K	4.4K
https://she...urlinfo.html	5.4K	2.5K

Google Analytics 4 allows you to create your own dimensions to measure the data that cannot be measured by default dimensions.

Such dimension is known as the custom dimension. Technically speaking, a custom dimension is an event parameter.

*To learn more about custom dimensions in GA4, check out this article:
[GA4 Custom Dimensions Tutorial](#)*

Event-scoped custom dimensions in Google Analytics 4

Custom definitions

Dimension name	Description	Scope ↑	User Property/Parameter	Last changed
page_location		Event	page_location	Jan 29, 2021
page_referrer		Event	page_referrer	Jan 29, 2021
page_title		Event	page_title	Jan 29, 2021
page_url		Event	page_url	Jan 29, 2021
payment_type		Event	payment_type	Jan 29, 2021

In addition to creating a user scoped custom dimension in GA4, you can also create an event scoped custom dimension.

The dimension which has an event scope is called the event scope dimension.

This dimension gets its value from the event scoped parameter you send along with an event.

To learn more about GA4 event scoped custom dimensions, check out this article: [Event Scoped Custom Dimensions in GA4 – Tutorial](#)

User-scoped custom dimensions (user properties) in Google Analytics 4

Custom definitions

Dimension name ↑	Description	Scope	User Property/Parameter
favorite_drink	favorite drink test user property	User	favorite_drink
favorite_food	favorite food test user property	User	favorite_food
member	If member logs in and views site	User	member
member_level	Gold, Silver or Bronze level is assigned to members.	User	member_level

User properties are similar to the user-scoped [custom dimensions of Universal Analytics](#).

They are used to describe the attributes of your website/app users.

There are two types of user properties:

1. Predefined user properties
2. Custom user properties

You can create up to 25 unique user properties per GA4 property.

To learn more about user properties, check out this article: [GA4 User Properties \(User Scoped Custom Dimensions\) – Tutorial](#)

Metrics in Google Analytics 4 (GA4)

No Account

Google Merchandise ... ▾ Try searching "how to do BigQuery export"

Ecommerce purchases: Item name   

Last 28 days Mar 10 - Apr 6, 2021

Item name	+ Item views	Add-to-carts	Cart-to-view rate	Ecommerce purchases	Purchase-to-view rate
Totals	798,283 100% of total	242,678 100% of total	28.67% Avg 0%	7,311 100% of total	1.4% Avg 0%
1 Google Charcoal Unisex Badge Tee	20,179	6,474	31%	101	1.03%
2 Google Cloud Unisex Tee	16,675	5,414	31.46%	0	0%
3 Google Small Standard Journal Navy	16,357	4,577	30.13%	80	0.97%
4 Google Campus Bike Eco Tee Navy	16,189	5,028	31.37%	107	1.24%
5 Google F/C Long Sleeve Tee Charcoal	15,686	4,995	31.14%	0	0%
6 Google Women's Striped L/S	15,374	3,998	29.81%	0	0%

A GA4 metric is (and should be) a number used to measure one of the characteristics of a GA4 dimension.

A dimension can have one or more characteristics.

For example, the following are the characteristics of the dimension called 'User medium':

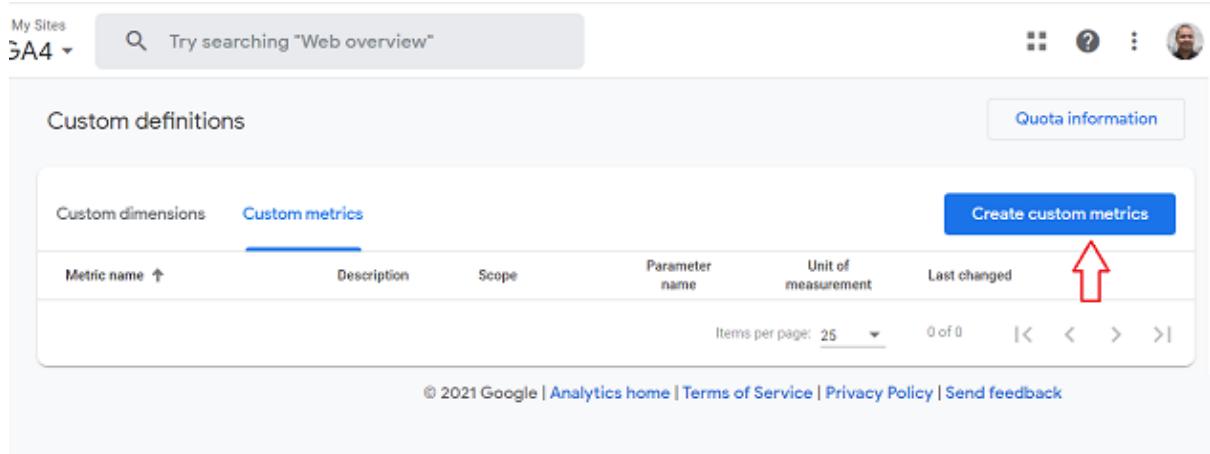
- New users
- Engaged sessions
- Engagement rate
- Engaged sessions per user

Without a dimension, a standalone metric is meaningless to analyze and report.

That is because a dimension provides context to a metric.

To learn more about metrics in GA4 check out this article: [GA4 Metrics Tutorial](#)

Custom metrics in Google Analytics 4



The screenshot shows the 'Custom definitions' section in Google Analytics 4. The 'Custom metrics' tab is active. At the top right of the table area, there is a blue button labeled 'Create custom metrics'. A red arrow points to this button. The table has columns for Metric name, Description, Scope, Parameter name, Unit of measurement, and Last changed. Below the table, there are pagination controls and a note indicating 0 of 0 items per page.

The custom metrics are user-defined metrics in GA4.

You should create and use custom metrics to measure the characteristics of a dimension (whether default or custom dimension) that cannot be measured by any default metric.

To learn more about custom metrics in GA4, check out this article: [GA4 Custom Metrics Tutorial](#)

Installing Google Analytics 4 on the Shopify Store



theme.liquid •

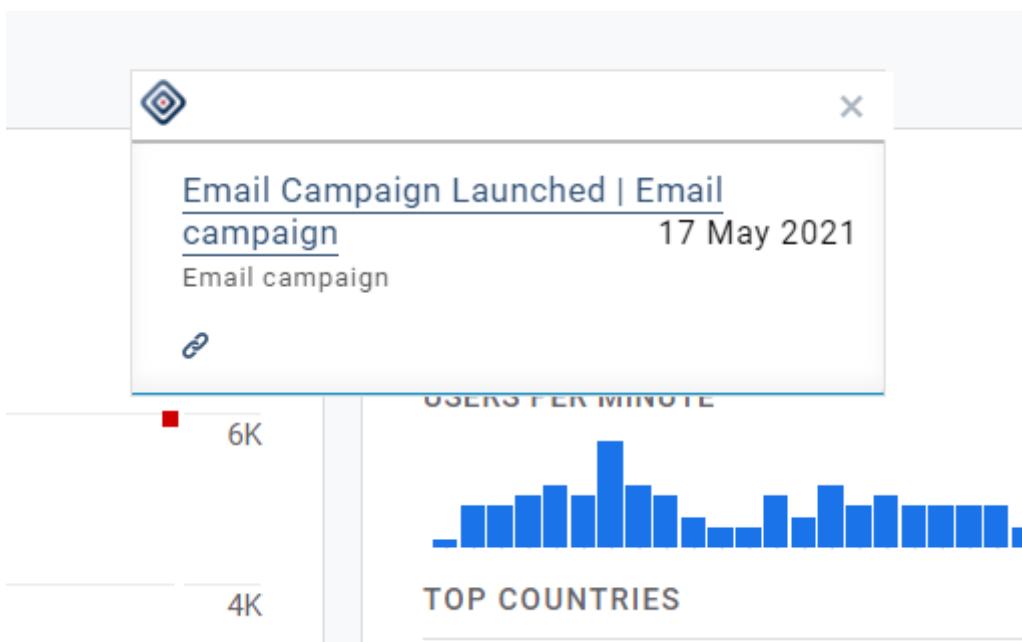
theme.liquid [Older versions](#)

```
1 <!doctype html>
2 <html class="no-js" lang="{{ request.locale.iso_code }}>
3 <head>
4
5   <meta charset="utf-8">
6   <meta http-equiv="X-UA-Compatible" content="IE=edge,chrome=1">
7   <meta name="viewport" content="width=device-width,initial-scale=1">
8   <meta name="theme-color" content="{{ settings.color_button }}>
9
10  <link rel="preconnect" href="https://cdn.shopify.com" crossorigin>
11  <link rel="preconnect" href="https://fonts.shopifycdn.com" crossorigin>
12  <link rel="preconnect" href="https://monorail-edge.shopifysvc.com">
13
```

You can install Google Analytics 4 on your Shopify store by making code changes to the ‘theme.liquid’ file.

To learn more, check out this article: [How to Install Google Analytics 4 on Shopify.](#)

Google Analytics 4 Annotations



Google Analytics annotations are short notes that you can directly add to your GA reports.

With the help of these notes, you can remember the reason for certain peaks and valleys in your [data trends](#) even months from today.

In the case of [Universal Analytics](#), the annotation features are built-in.

But in the case of GA4, you would need to use a third-party tool.

To learn more about adding annotations to your GA4 report, check out this article: [Google Analytics 4 Annotations Tutorial](#).

Setting up GA4 via GTM Server Side Tagging

Trigger Configuration

Trigger Type



Custom

This trigger fires on

All Events Some Events

Fire this trigger when an Event occurs and all of these conditions are true

Client Name	▼	equals	▼	GA4	-
-------------	---	--------	---	-----	---

You can deploy Google Analytics 4 via the GTM server-side container.

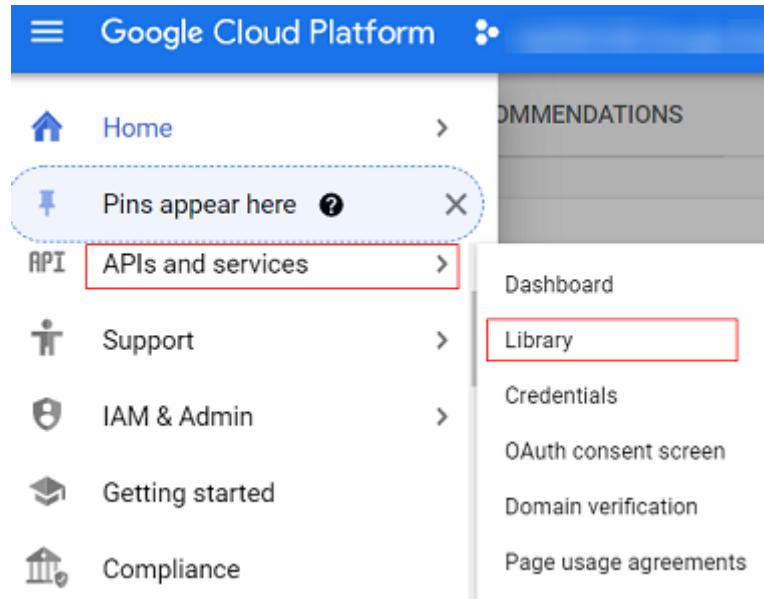
To learn more, check out this article: [How to set up GA4 via GTM Server Side Tagging](#)

Tracking single-page apps in Google Analytics 4 (GA4)



Learn to track single-page apps in Google Analytics 4 (GA4) through this step-by-step guide: [How to track single page apps in Google Analytics 4 \(GA4\)](#)

Connecting and exporting data from Google Analytics 4 to BigQuery



GA4 allows you to link to a BigQuery project where you can run custom queries on the GA4 data sets.

You can export all events from GA4 to BigQuery and then use SQL-like syntax to query the data.

Learn to connect and export data from GA4 to BigQuery through this step by step guide: [**How to connect and export data from GA4 to BigQuery**](#)

Cohort Exploration Report in Google Analytics 4 (GA4)



	WEEK 0	WEEK 1	WEEK 2	WEEK 3	WEEK 4
All Users Active users	855,688	56,553	15,710	6,195	1,388
Jun 13 - Jun 19, 2021 215,953 users	215,953	17,011	6,525	4,132	1,388
Jun 20 - Jun 26, 2021 206,031 users	206,031	16,063	5,960	2,063	
Jun 27 - Jul 3, 2021 200,256 users	200,256	15,182	3,225		
Jul 4 - Jul 10, 2021 174,950 users	174,950	8,180			
Jul 11 - Jul 12, 2021 57,710 users	57,710				

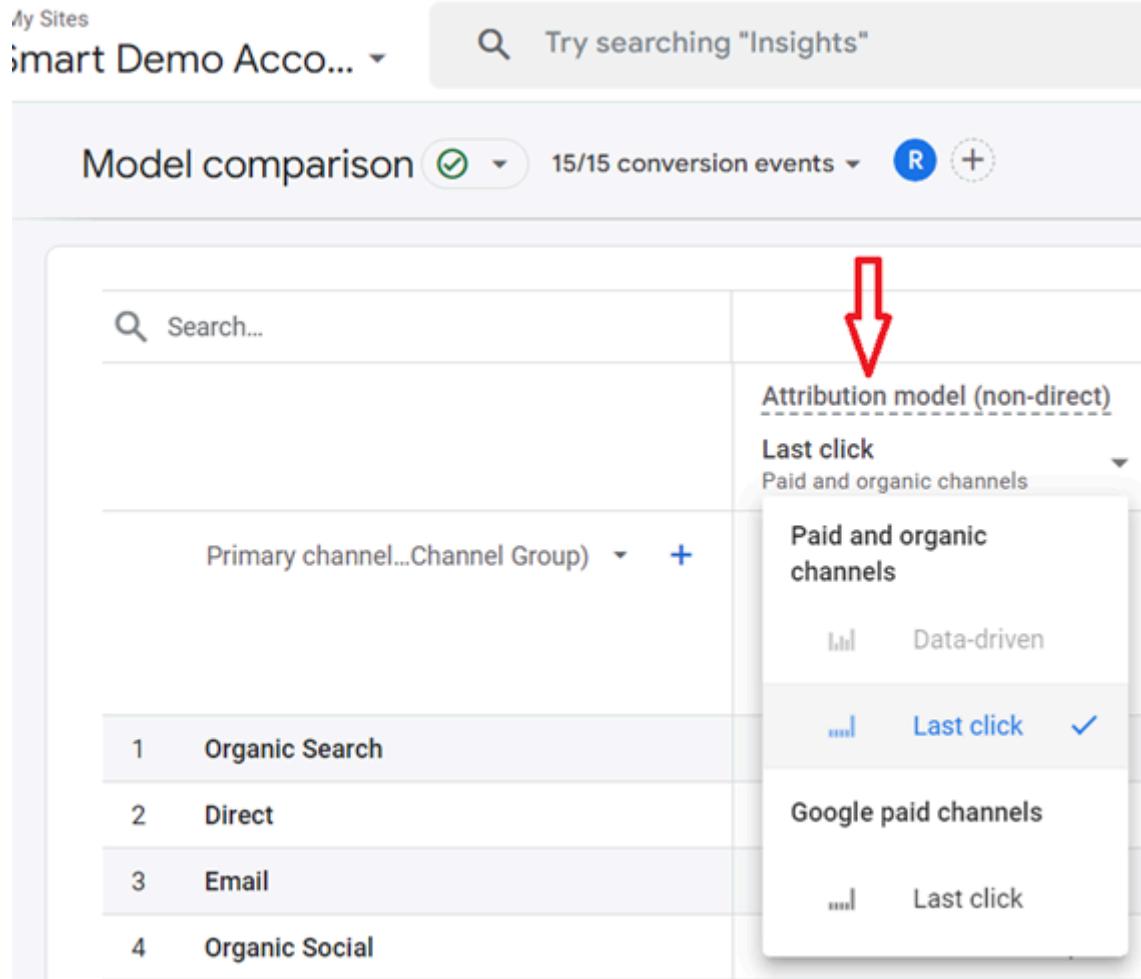
Through the cohort exploration report in GA4, you can do cohort analysis.

The cohort analysis is the analysis of the website users who showed common characteristics, attributes, or experiences in a particular time frame.

This report is available under the 'Explore' menu in a GA4 reporting view.

To learn more about cohort exploration in GA4, check out this article: [Cohort Exploration Report in Google Analytics 4 \(GA4\)](#)

Attribution Models in Google Analytics 4



A screenshot of the Google Analytics 4 Model comparison interface. At the top, it shows "My Sites" and "Smart Demo Acco...". A search bar says "Try searching 'Insights'". Below that, it says "Model comparison" with a green checkmark icon, "15/15 conversion events", and a refresh button. A red arrow points down to the "Attribution model (non-direct)" dropdown menu. The menu is open, showing "Last click" (which is selected) and "Paid and organic channels". It also lists "Data-driven", "Google paid channels", and another "Last click" option. On the left, there's a search bar and a list of primary channels: 1. Organic Search, 2. Direct, 3. Email, 4. Organic Social.

A GA4 attribution model is a rule or set of rules or a data-driven algorithm used to determine how conversion credit should be distributed to various marketing touchpoints on a conversion path.

The following attribution models are available in Google Analytics 4:

1. Cross-channel last-click attribution model
2. Cross-channel first click attribution model
3. Cross-channel linear attribution model
4. Cross-channel position-based attribution model
5. Time decay attribution model

Note: Currently, the Data-Driven Attribution Model is not available in GA4.



To learn more about GA4 attribution models, check out the following articles:

- [Guide to Attribution Models in GA4 \(Google Analytics 4\)](#).
- [How to Change Attribution Models in GA4 \(Google Analytics 4\)?](#)

Integrating Google Analytics 4 with Google Search Console

The screenshot shows the Google Analytics Admin interface. On the left, there's a sidebar with icons for Home, Properties, Data collection, Data display, Product links, Google AdSense links, Google Ads links, Ad Manager links, BigQuery links, Display & Video 360 links, Floodlight links, Merchant Center links, Google Play links, and Search Ads 360 links. A red box highlights the 'Search Console links' button at the bottom of this list. To the right, there's a search bar with the placeholder 'Try searching "how to set up Analytics"' and a table titled 'Search Console links'. The table has columns for 'Search Console property name', 'Search Console property type', and 'Web stream'. It shows one entry: 'https://shop.googlem erchandise.com/' (Search Console property name), 'URL-prefix' (Search Console property type), and 'North America & Canada Website' (Web stream). The number '1' is also visible.

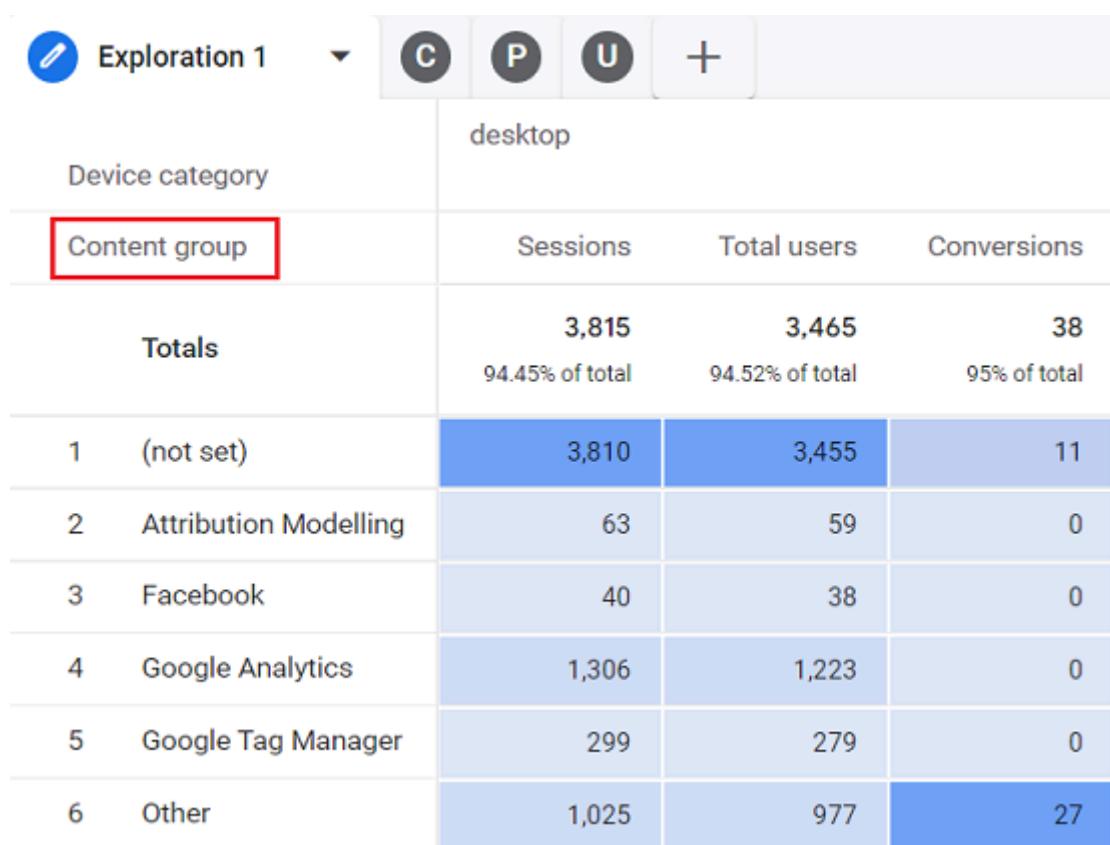
Search Console property name	Search Console property type	Web stream
https://shop.googlem erchandise.com/	URL-prefix	North America & Canada Website

You can connect your GA4 property with your Google Search Console account via the 'search console linking' feature in your GA4 admin area.

Such integration allows you to see the search console data in GA4.

To learn more about integrating GA4 with search console, check out this article:
[How to link Google Search Console to Google Analytics 4 \(GA4\)](#)

Google Analytics 4 Content Grouping



Device category		desktop		
Content group		Sessions	Total users	Conversions
Totals		3,815 94.45% of total	3,465 94.52% of total	38 95% of total
1 (not set)		3,810	3,455	11
2 Attribution Modelling		63	59	0
3 Facebook		40	38	0
4 Google Analytics		1,306	1,223	0
5 Google Tag Manager		299	279	0
6 Other		1,025	977	27

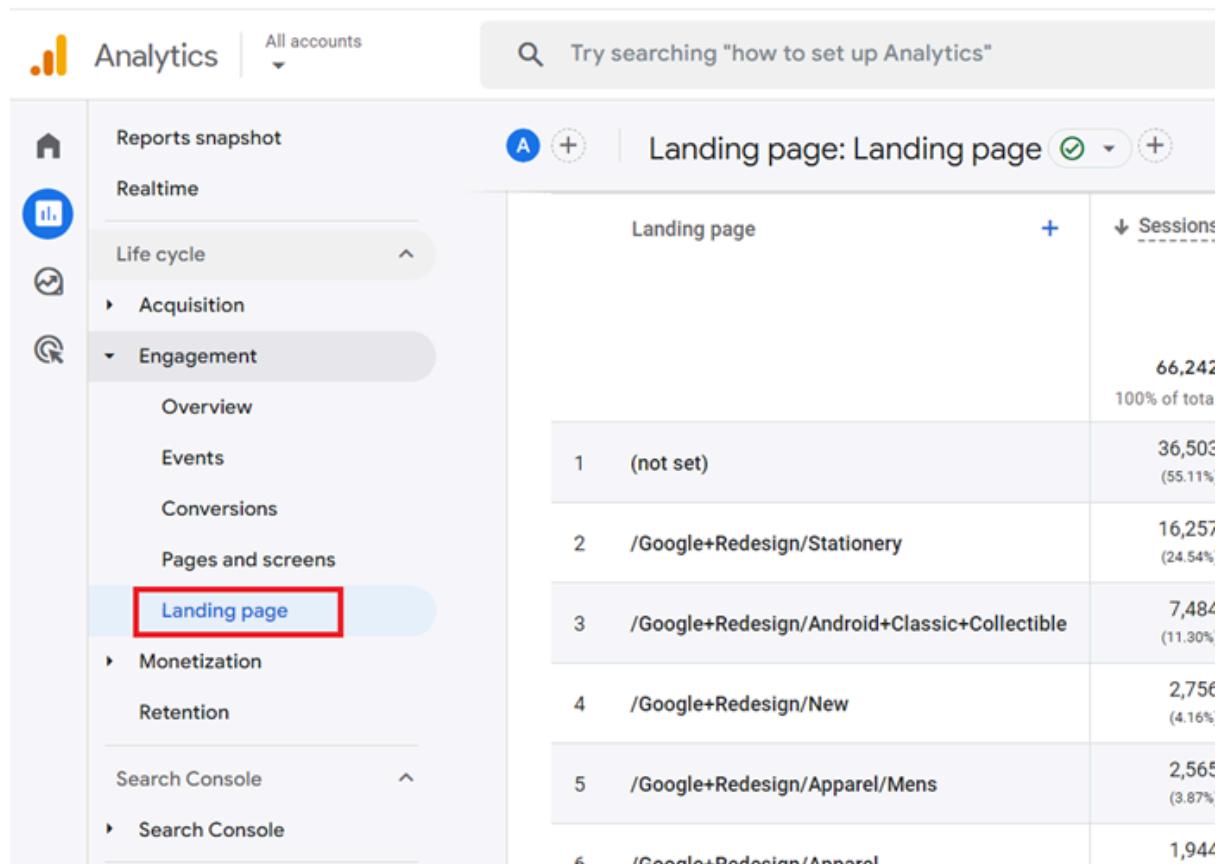
Just like Universal Analytics, GA4 also allows you to create content groups.

The content groups are a set of web pages based on the same topic like [Attribution Modelling](#).

Through content groups, you can check the performance of a set of web pages at the group level.

To learn more about creating content groups in GA4, check out this article:
[Google Analytics 4 Content Grouping – Create Content Groups in GA4](#)

GA4 Landing Page report



There are two methods you can use to create a landing pages report in GA4:

1. Use the [exploration report template](#).
2. Customize the Pages and Screens report.



For step by step instructions on creating a landing pages report in GA4, check out this article: [How to Create Landing Pages Report in GA4 \(Google Analytics 4\)](#)

Google Analytics 4 Sub Properties

What type of property do you want to create? [?](#)

Property
Collects and reports data for your website, app or both

Subproperty
Receives filtered data from a property

Roll-up property
Includes data from multiple properties

[Cancel](#)

A sub property is a GA4 property which gets its data from another property. This other property is called the source property.

If you want to create a filtered reporting view in GA4, create and use the GA4 sub property.

For step by step instructions on creating and using the GA4 sub-properties, check out this article: [Google Analytics 4 Sub Properties Tutorial](#)

Google Analytics 4 Roll-up Properties



What type of property do you want to create? [?](#)

Property

Collects and reports data for your website, app or both

Subproperty

Receives filtered data from a property

Roll-up property

Includes data from multiple properties

[Cancel](#)

A roll-up property is a GA4 360 property that allows roll-up reporting in GA4.

Roll-up reporting is the reporting of data in an aggregated form from multiple digital properties (websites, mobile apps).

Through roll-up reporting you can aggregate all of your website data into one reporting view and see aggregated global performance metrics.

To learn more about roll-up reporting and properties in GA4, check out this article: [**Roll up Property in Google Analytics 4 \(GA4\) – Tutorial**](#)

Linking Firebase project to Google Analytics 4 property



The screenshot shows the 'Project settings' page in the Firebase console. The left sidebar is titled 'Build' and lists various services: Authentication, App Check, Firestore Database, Realtime Database, Extensions, Storage, Hosting, and Functions. The main content area is titled 'Project settings' and has tabs for General, Cloud Messaging, Integrations (which is selected), and Service accounts. Under the 'Integrations' tab, there is a section for Google Analytics. It includes a description: 'Free, unlimited reporting on up to 500 distinct events', a 'Google Analytics' icon, and a large red arrow pointing down to a blue 'Enable →' button. To the right of this is a section for AdMob, which says 'Show ads from millions of Google advertisers' and has a 'Learn more' link.

By linking your Firebase project to your GA4 property you can automatically create mobile app data streams in your GA4 property and you can enable data flow between Firebase and GA4.

To get step by step instructions on connecting your Firebase project to GA4, check out this article: [GA4 Firebase Integration – Correctly add App data streams to GA4 property](#)

GA4 Google Ads Report



Google Ads campaign	Google Ads ad group name	Google Ads impressions	Google Ads clicks	Google Ads cost per click	Google Ads cost
Totals		1,030,037 100.0% of total	17,916 100.0% of total	\$0.79 Avg 0%	\$14,145.94 100.0% of total
1009693 Google Analytics Demo DR joelf NA US en Hybrid DISP MT Banner ~ Test	Affinity	597,252	4,958	\$0.25	\$1,217.04
1009693 Google Analytics Demo DR joelf NA US en Hybrid SHOP SMART Product ~ Test	Test	245,429	3,428	\$0.16	\$559.95
3 Demo YouTube Action US 2022-04-28	YouTube Video Action	108,621	2,078	\$0.61	\$1,270.57
4 1009693 Google Analytics Demo DR joelf NA US en Hybrid DISP MT Banner ~ Test	Custom Intent	49,307	1,630	\$0.20	\$326.43

A [GA4 property](#) does not provide any pre-built report to [measure the performance of Google Ads](#).

You would need to create this report from scratch by using the [exploration report templates](#).

For step by step instructions on creating this report from scratch, check out this article: [How to create Google Ads report in GA4 \(Google Analytics 4\)](#)

Segmenting GA4 data by data streams



The screenshot shows a Google Data Studio report titled "Free form 1". The main content is a table with the following data:

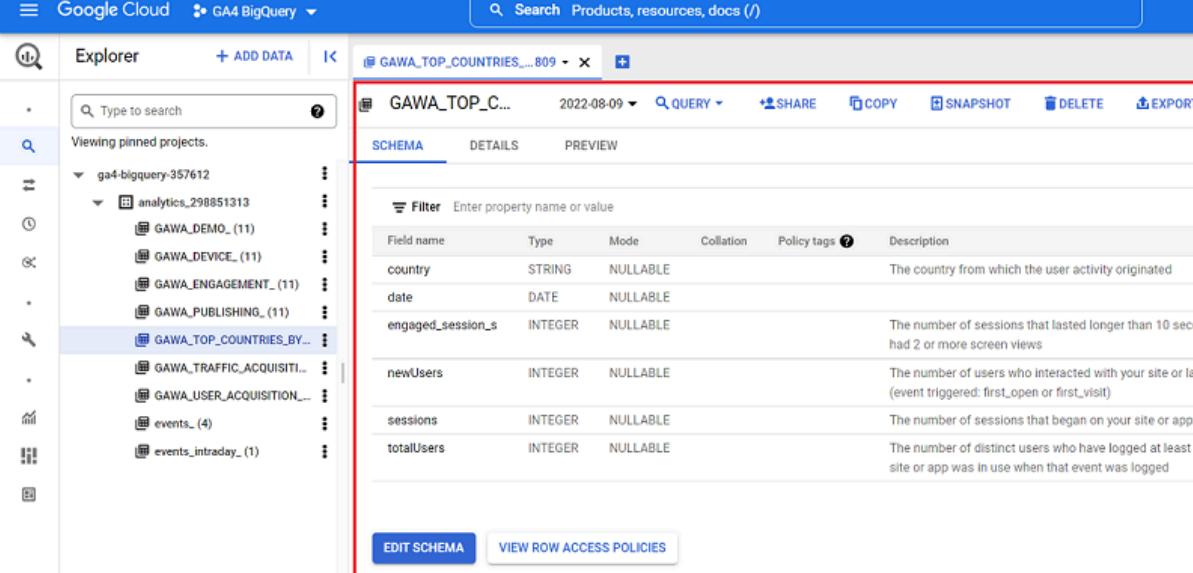
Stream name	↓ Total users	New users	Returning users
Totals	87,170 100% of total	44,932 100% of total	28,302 100% of total
1 Flood-It! Android	81,986	42,463	25,063
2 Flood It! iOS	3,584	836	3,193
3 Flood-It! Web	1,632	1,611	30

If you have added more than one data stream to your GA4 property, then you can segment the GA4 data by data stream.

This would help you in measuring and comparing the performance of different data streams in one GA4 report.

For step by step instructions on segmenting the GA4 data by data streams, check out this article: [How to segment GA4 data by data stream](#)

GA4 BigQuery Export schema



The screenshot shows the Google Cloud BigQuery interface. On the left, the 'Explorer' sidebar lists projects and datasets, including 'ga4-bigquery-357612' and 'analytics_298851313'. In the center, a table titled 'GAWA_TOP_C...' is displayed under the 'SCHEMA' tab. The table has six columns: 'Field name', 'Type', 'Mode', 'Collation', 'Policy tags', and 'Description'. The fields are:

Field name	Type	Mode	Collation	Policy tags	Description
country	STRING	NULLABLE			The country from which the user activity originated
date	DATE	NULLABLE			
engaged_session_s	INTEGER	NULLABLE			The number of sessions that lasted longer than 10 seconds and had 2 or more screen views
newUsers	INTEGER	NULLABLE			The number of users who interacted with your site or app at least once (event triggered: first_open or first_visit)
sessions	INTEGER	NULLABLE			The number of sessions that began on your site or app
totalUsers	INTEGER	NULLABLE			The number of distinct users who have logged at least one session on your site or app when that event was logged

At the bottom of the schema view, there are two buttons: 'EDIT SCHEMA' and 'VIEW ROW ACCESS POLICIES'.

GA4 BigQuery Export schema refers to the format and structure of the GA4 data and the Firebase data that is exported to BigQuery from a GA4 property.

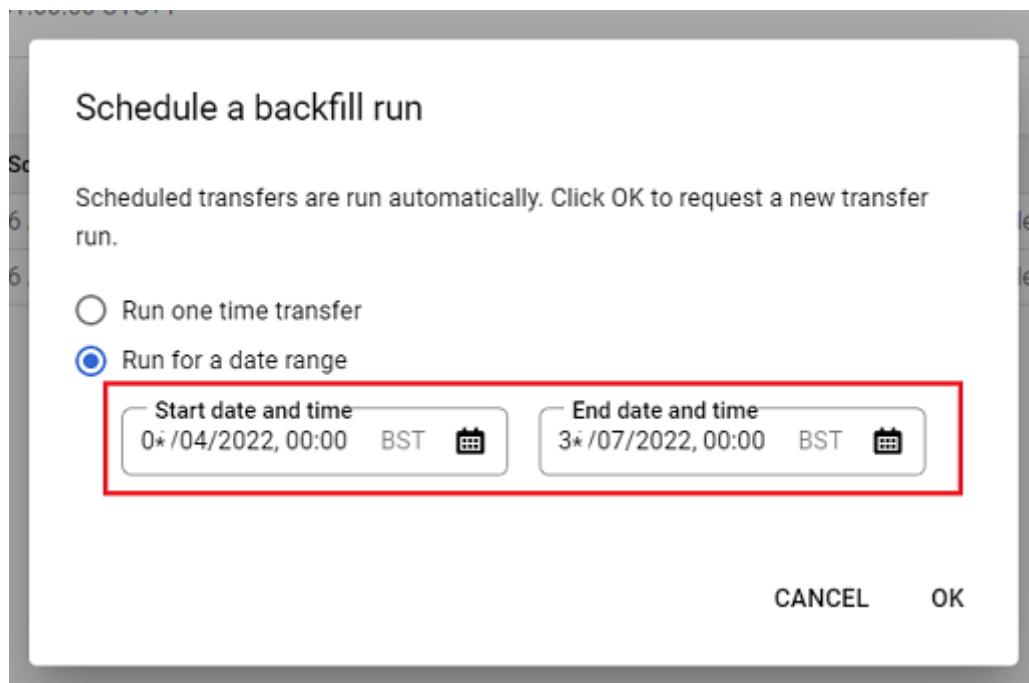
When you send data from a GA4 property to BigQuery, you use the default schema provided by Google.

You do not get the option of creating the data tables you want or setting the fields you want to see in the data table(s).

If you want to see your data tables with only the fields you want then you need to create your own schema (also called Custom Schema).

For step by step instructions on creating your GA4 custom schema, check out this article: [BigQuery GA4 schema – Send Custom GA4 data to BigQuery](#)

Backfilling GA4 data in BigQuery



Backfilling GA4 data means importing historical GA4 data into BigQuery.

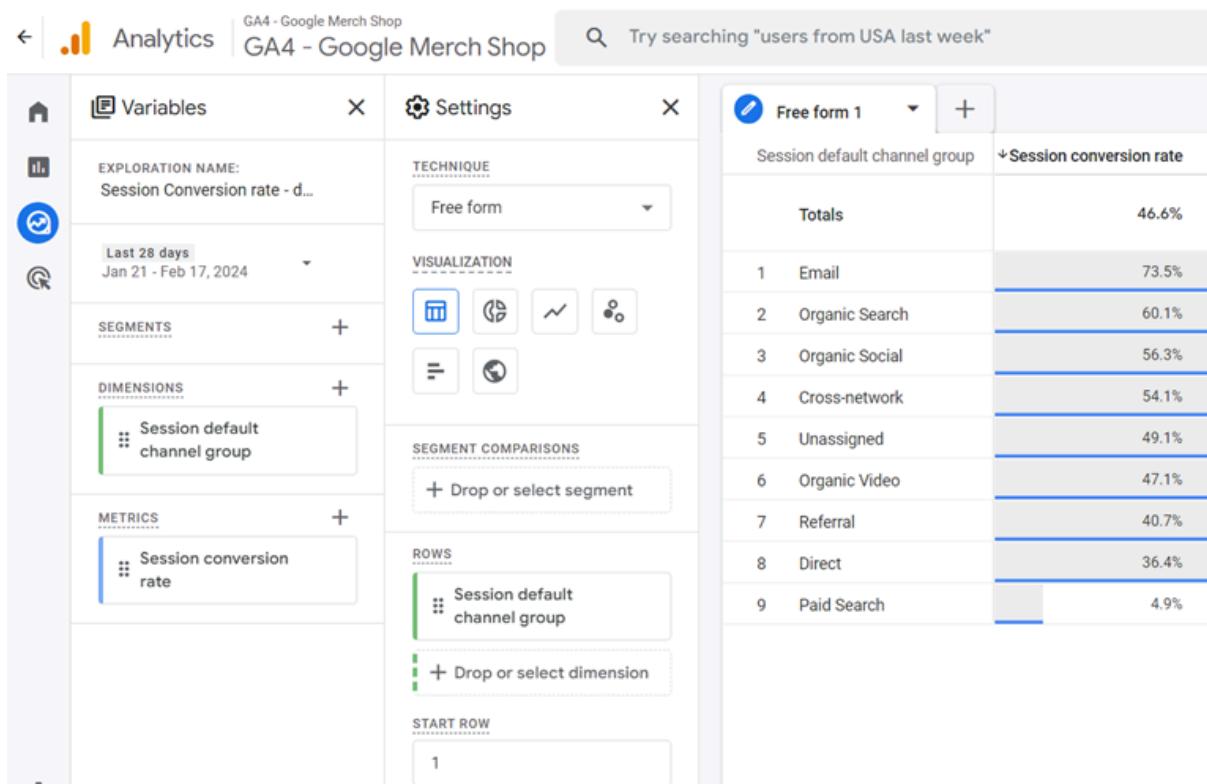
By default, the GA4 data is imported to BigQuery only from the date you first connected your GA4 property to your BigQuery project.

If you want historical GA4 data in your BigQuery project, then you would need to backfill GA4 data in BigQuery. You can do that by using a third-party solution.

To learn more about backfilling GA4 data in BigQuery, check out this article:

[How to backfill GA4 data in BigQuery](#)

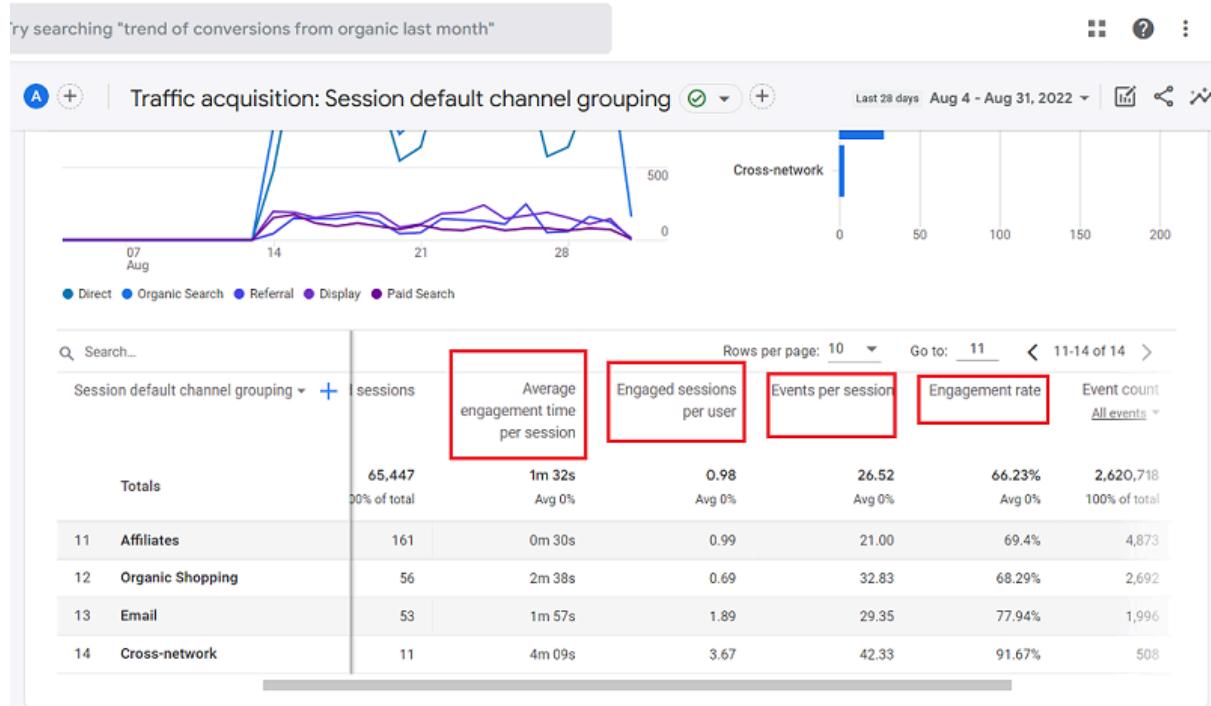
Conversion Rate in Google Analytics 4



Just like GA3, GA4 also provides conversion rate metrics. However, unlike GA3, GA4 provides a conversion rate based on users (user conversion rate) and sessions (session conversion rate).

To learn more about the conversion rate metrics in Google Analytics 4, check out this article: [GA4 Conversion Rate – How to find it and use it](#)

Understanding the average metrics in Google Analytics 4



GA4 reports are full of average metrics like ‘average engagement time’, ‘average engagement time per sessions’, ‘engaged sessions per user’ etc.

But average metrics can provide muddy analytics insight if they are not calculated and interpreted correctly.

If you want to learn and calculate the average metrics correctly in your GA4 reports and get above average insight, then read this article: [Google Analytics 4 Averages – Learn to Analyze & Report Above Average](#)

Analyzing the organic search traffic in Google Analytics 4



The screenshot shows a Google Analytics 4 interface with a search bar at the top containing the query "trend of conversions from organic last month". Below the search bar, there is a navigation bar with icons for home, explore, segments, reports, and user profile. A dropdown menu is open, showing "0" items and a selected item "Landing Pages" with a red box around it. To the right of the dropdown are icons for refresh, export, and settings.

The main area displays a table titled "Organic Search" under the segment "Landing Pages". The table has columns for Views, Total users, Sessions, Engaged sessions, and Engagement rate. The data shows the following information:

Segment	Organic Search				
Landing page	Views	Total users	Sessions	Engaged sessions	Engagement rate
Totals	51,792 100.0% of total	16,080 100.0% of total	20,197 100.0% of total	14,016 100.0% of total	
1 /	31,633	10,117	10,981	8,940	
2 /Google+Redesign/Apparel/Mens/Mens+T-Shirts	2,244	843	877	591	
3 /Google+Redesign/Shop+by+Brand/YouTube	2,067	907	951	677	
4 /Google+Redesign/Apparel	1,400	439	469	376	
5 /basket.html	964	80	98	57	
6 /Google+Redesign/Accessories/Google+Chrome+Din..	827	288	352	201	
7 /Google+Redesign/Lifestyle/Bags	804	309	322	246	
8 /signin.html	432	82	119	78	
9 /Google+Redesign/Apparel/Mens	403	129	137	94	
10 /Google+Redesign/Stationery/Stickers	393	180	184	119	

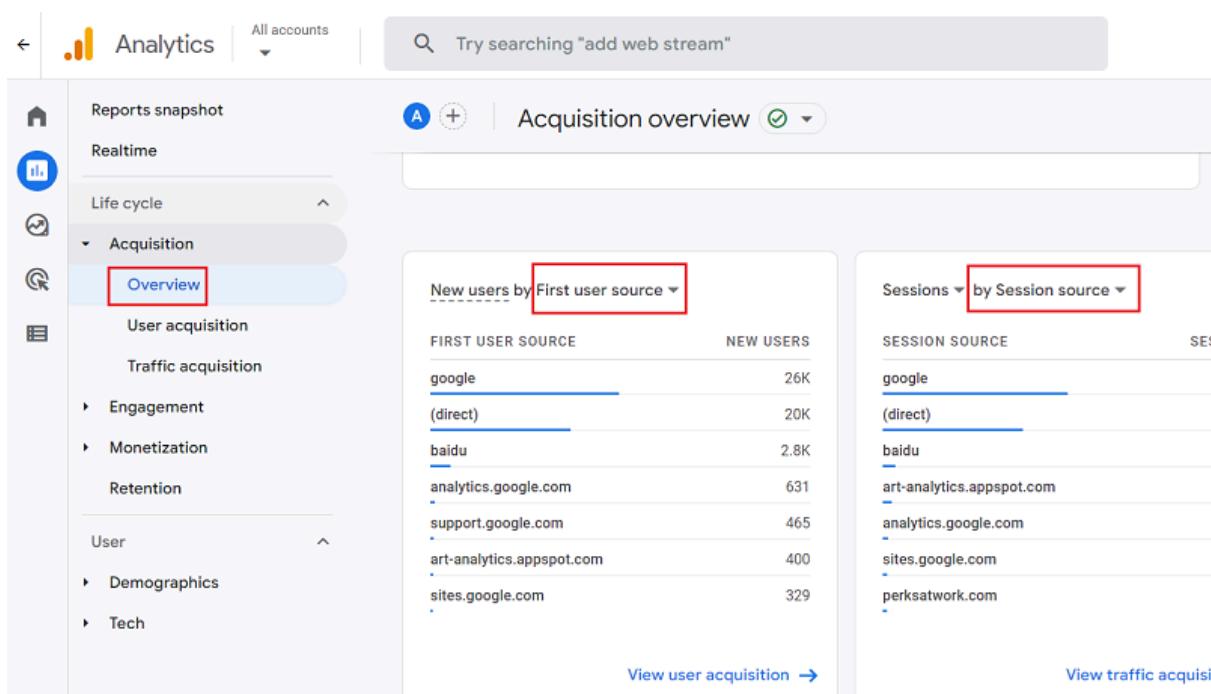
Analysing the organic search traffic in GA4 is not straightforward. You would need to create custom reports.

I have come up with the following nine exploration reports that could help you with analyzing the organic search traffic in GA4:

1. Overview report
2. Landing pages report
3. Devices report
4. Browsers report
5. Countries report
6. Conversions report
7. E-commerce report
8. User flow report
9. Funnel report

For step by step instructions on creating and using these reports, check out this article: [Organic Search Traffic Analysis in GA4 – Complete Guide](#)

UTM Tracking in Google Analytics 4



Just like Universal Analytics, GA4 also provides custom campaign tracking via UTM parameters.

Through UTM parameters, you can send detailed information about a marketing campaign to GA4.

For example, through UTM parameters, you can send the following information about an email newsletter campaign to GA4:

#1 The name of the particular newsletter campaign which generated traffic and/or sales on your website.

#2 The name of the particular link within the newsletter campaign that generated traffic and/or sales on your website.

Without UTM parameters, GA4 will only tell you that you generated traffic and/or sales from email.

For step by step guide on learning and using the UTM parameters tracking in GA4, check out this article: [Track and see UTM parameters in GA4 \(Google Analytics 4\) – Campaign Tracking](#)

GA4 GAIQ Exam Preparation



This acknowledges that

Himanshu Sharma

Has successfully completed and is certified in
Google Analytics Certification

Issue Date: September 14, 2022
Expiry Date: September 14, 2023
Certificate ID: 123013807

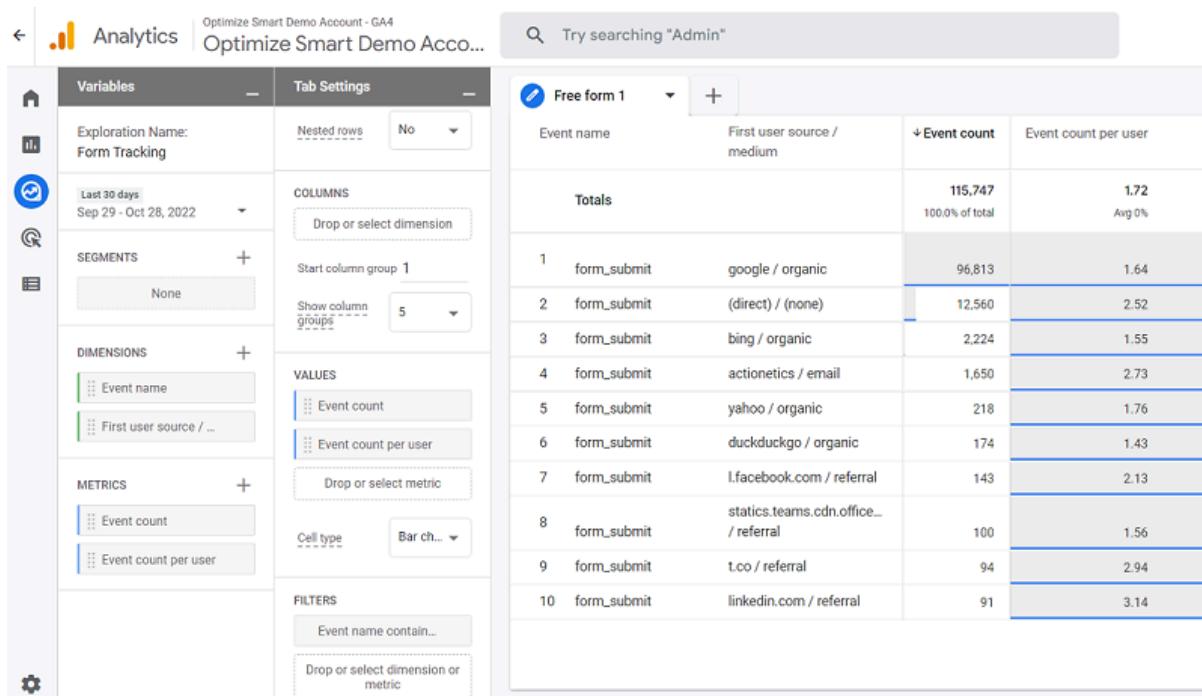


Just like GA3, Google also provides the GAIQ exam for GA4. However, unlike GA3, passing the GA4 GAIQ exam is relatively easy.

As long as you are familiar with the GA4 user interface, you should not have much problem passing this exam.

If you want to pass the GA4 GAIQ exam, then check out this article: [GAIQ \(Google Analytics Individual Qualification\) Exam Preparation 2022 \(includes GA4\)](#)

Form Tracking in Google Analytics 4



The screenshot shows the Google Analytics 4 interface with the following details:

- Variables:** Exploration Name: Form Tracking, Last 30 days: Sep 29 - Oct 28, 2022.
- Segments:** None.
- Dimensions:** Event name, First user source / medium.
- Metrics:** Event count, Event count per user.
- Table:** A report titled "Free form 1" showing event data. The table has columns: Event name, First user source / medium, Event count, and Event count per user.
- Report Data:**

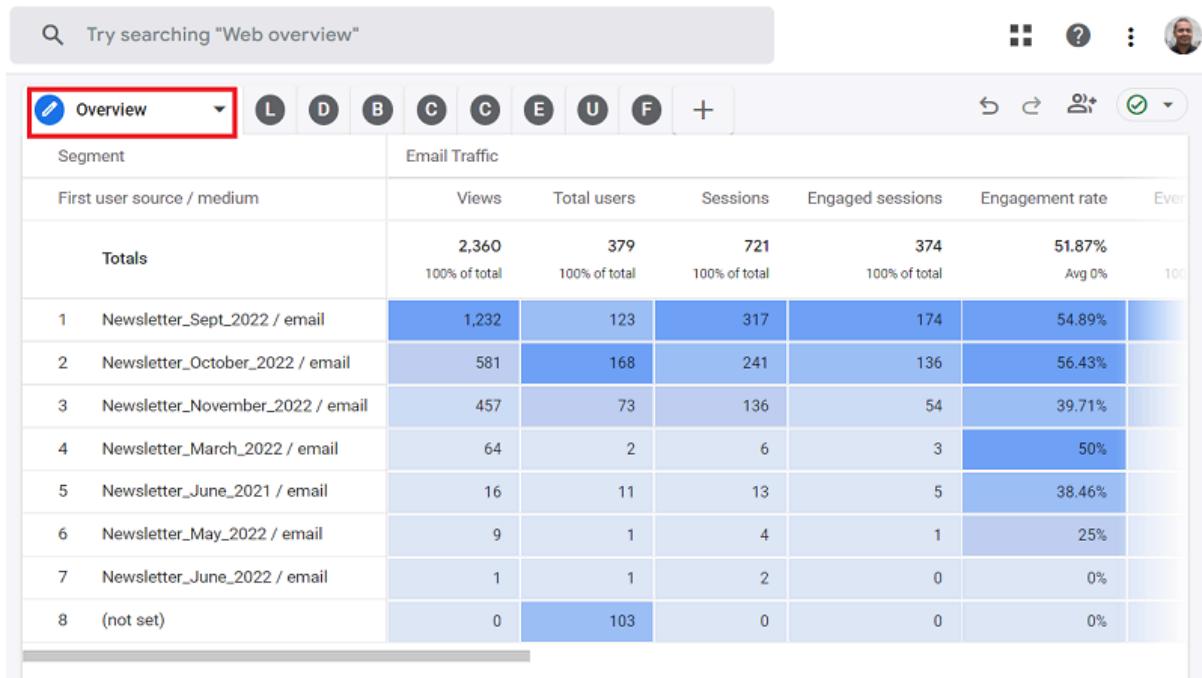
	Event name	First user source / medium	Event count	Event count per user
Totals			115,747	1.72
1	form_submit	google / organic	96,813	1.64
2	form_submit	(direct) / (none)	12,560	2.52
3	form_submit	bing / organic	2,224	1.55
4	form_submit	actionetics / email	1,650	2.73
5	form_submit	yahoo / organic	218	1.76
6	form_submit	duckduckgo / organic	174	1.43
7	form_submit	l.facebook.com / referral	143	2.13
8	form_submit	statics.teams.cdn.office... / referral	100	1.56
9	form_submit	t.co / referral	94	2.94
10	form_submit	linkedin.com / referral	91	3.14

If you have enabled enhanced measurement tracking in your GA4 property, you should see a new setting for form tracking.

This feature allows you to track form submissions in your GA4 property without any additional code or tagging.

For step by step instructions on enabling form tracking in GA4, check out this article: [GA4 Form Interactions Tracking – Enhanced measurement](#)

Google Analytics 4 Email Tracking



The screenshot shows the Google Analytics 4 interface with the 'Overview' report selected. The report displays data for 'Email Traffic' across various segments. The main table shows a total of 2,360 views, 379 total users, 721 sessions, 374 engaged sessions, and a 51.87% engagement rate. Below this, a detailed list of newsletters from September 2022 to June 2022 is shown, along with a row for '(not set)'.

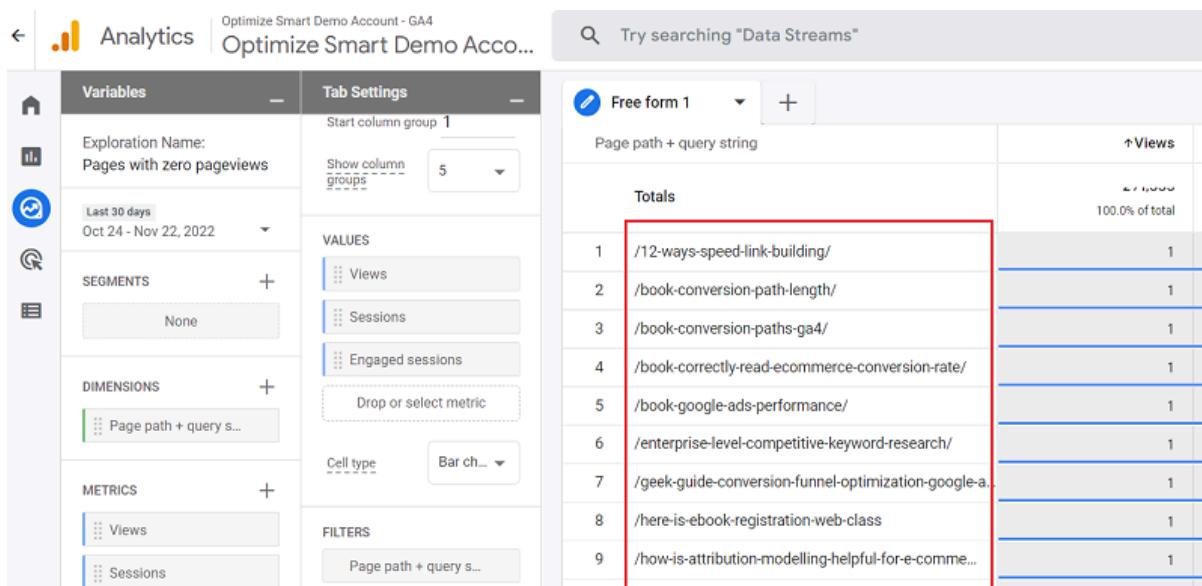
Segment	Email Traffic					
First user source / medium	Views	Total users	Sessions	Engaged sessions	Engagement rate	Ever unique visitors
Totals	2,360 100% of total	379 100% of total	721 100% of total	374 100% of total	51.87% Avg 0%	100
1 Newsletter_Sept_2022 / email	1,232	123	317	174	54.89%	
2 Newsletter_October_2022 / email	581	168	241	136	56.43%	
3 Newsletter_November_2022 / email	457	73	136	54	39.71%	
4 Newsletter_March_2022 / email	64	2	6	3	50%	
5 Newsletter_June_2021 / email	16	11	13	5	38.46%	
6 Newsletter_May_2022 / email	9	1	4	1	25%	
7 Newsletter_June_2022 / email	1	1	2	0	0%	
8 (not set)	0	103	0	0	0%	

GA4 does not provide any report to track the performance of your email marketing campaigns.

You would need to create this report from scratch using the exploration report templates.

For step by step instructions, check out this article: [How to track email campaigns and traffic in GA4](#)

Tracking web pages with zero traffic in Google Analytics 4



Web pages with zero traffic are those pages which did not get any pageviews in a particular time period.

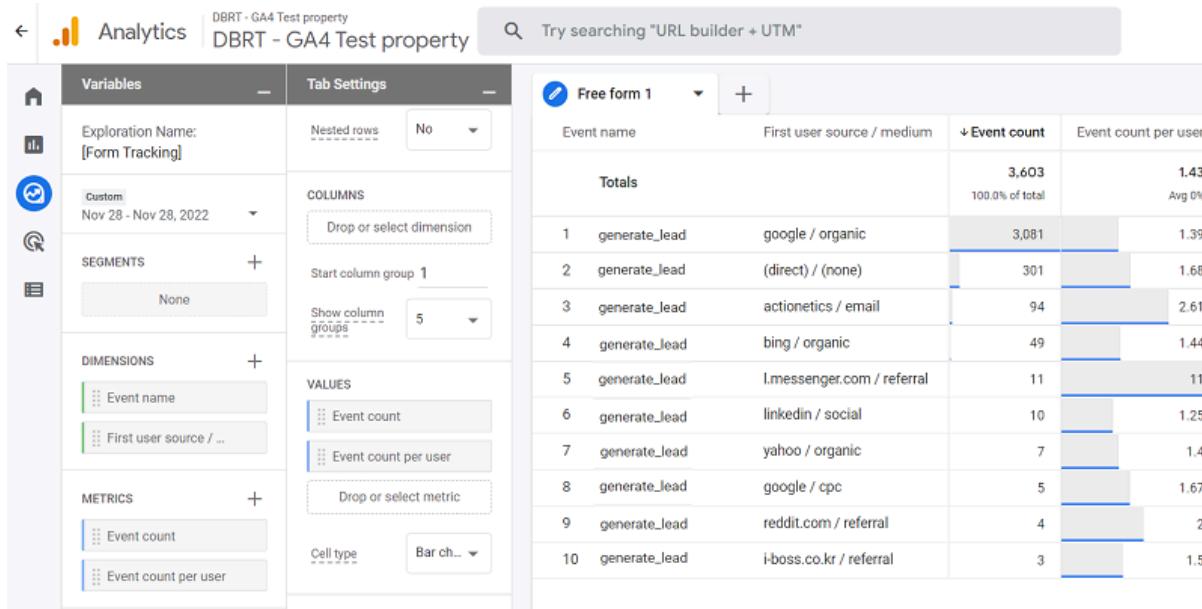
GA4 does not report on web pages with zero views. However, it reports on pages with zero views on certain days and one or more views on other days.

The web pages which are not viewed by your website visitors do not add any value to your business, traffic or conversions.

By identifying such web pages, you can either update them to increase their search engine ranking position or repurpose their content.

For step-by-step instructions on finding pages with zero traffic in GA4, check out this article: [How to track web pages with zero traffic in Google Analytics](#)

Google Analytics 4 Form Tracking with Google Tag Manager



You can track the forms embedded on your website in your GA4 property via GTM.

When a user successfully submits a form, you can fire the 'generate_lead' event on the 'thank you' page via GTM.

For step-by-step instructions, check out this article: [GA4 Form Tracking via Google Tag Manager](#).

Google Analytics 4 Regex (Regular Expressions)

Regular expressions (aka regex) are used to check for a pattern in a string.

By default, the GA4 property uses fully matches regex.

Fully matches regex means the regex fully matches a pattern in a string.



If you want to use partially matches regex in GA4, you would need to use metacharacters or use the ‘partially matches regex’ option (if available).

The screenshot shows the 'Subproperty event filter' interface in Google Analytics 360. A dropdown menu is open under 'Conditions*', listing several options: 'matches exactly (=)', 'begins with', 'ends with', 'contains', 'matches regex', and 'partially matches regex'. The 'matches regex' and 'partially matches regex' options are highlighted with red boxes.

You will find regular expressions very useful in GA4 while setting up:

- Subproperties.
- Site search tracking without query parameters.
- Referral Exclusion.
- Data filters in the exploration report.
- Custom Events via GTM.
- Content groups.
- Audiences.

To learn more about the use of regex in GA4, check out this article: [Google Analytics 4 Regex \(Regular Expressions\) Tutorial](#)



GA4 GDPR Compliance Checklist

GDPR	
Chapter 1 (Art. 1 – 4)	▼
General provisions	▼
Chapter 2 (Art. 5 – 11)	▼
Principles	▼
Chapter 3 (Art. 12 – 23)	▼
Rights of the data subject	▼
Chapter 4 (Art. 24 – 43)	▼
Controller and processor	▼
Chapter 5 (Art. 44 – 50)	▼
Transfers of personal data to third countries or international organisations	▼
Chapter 6 (Art. 51 – 59)	▼
Independent supervisory authorities	▼
Chapter 7 (Art. 60 – 76)	▼
Cooperation and consistency	▼
Chapter 8 (Art. 77 – 84)	▼
Remedies, liability and penalties	▼
Chapter 9 (Art. 85 – 91)	▼
Provisions relating to specific processing	▼

General Data Protection Regulation GDPR

Welcome to gdpr-info.eu. Here you can find the official PDF of the Regulation (EU) 2016/679 (General Data Protection Regulation) in the current version of the OJ L 119, 04.05.2016; cor. OJ L 127, 23.5.2018 as a neatly arranged website. All Articles of the GDPR are linked with suitable recitals. The European Data Protection Regulation is applicable as of May 25th, 2018 in all member states to harmonize data privacy laws across Europe. If you find the page useful, feel free to support us by sharing the project.

Quick Access

Chapter 1 – 1 2 3 4

Chapter 2 – 5 6 7 8 9 10 11

Chapter 3 – 12 13 14 15 16 17 18 19 20 21 22 23

Is your website really GDPR Compliant?

I asked this question because many businesses believe their website is GDPR compliant just because they display a cookie consent pop-up.

But GDPR compliance goes way beyond pop-ups.

Recently a business contacted us. They were fined (\$25k) for violating the GDPR guidelines.

All this time, they thought they were compliant. Guess what. Their cookie consent pop-up didn't help much.

If you are processing the personal data of EU Citizens (and you may not even know about it), then you must comply with GDPR regardless of where you live on this planet.

GDPR Compliance is not easy as displaying a pop-up on the website.

Many companies hire full-time employees (Data Protection Officers) just to maintain GDPR compliance.

That's why I developed this checklist to become GDPR compliant, esp. with Google Analytics 4.

Learn more – [Google Analytics 4 GDPR compliance checklist](#)

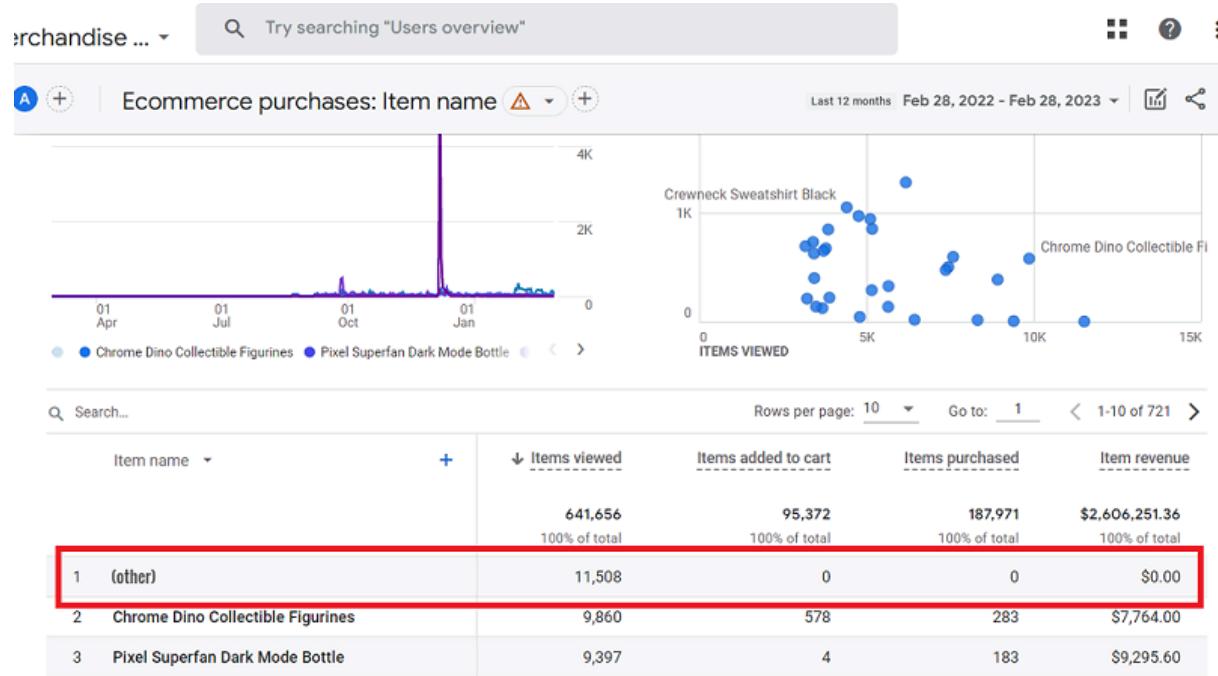
Excluding URL Query Parameters in GA4



You can reduce the impact of '(Other)' in GA4 Reporting by removing all the unwanted query parameters from your page path before you send the page tracking data to GA4.

Check out this article for more details >> [How to Exclude URL Query Parameters in Google Analytics 4](#)

Removing the (other) row in GA4



If you want to remove the (other) row from appearing in your GA4 reports, then should work on avoiding cardinality wherever possible.

Use the following methods to remove the (other) row in your GA4 reports:

- 1) Exclude all unwanted URL query parameters in GA4
- 2) Avoid high cardinality dimensions.
- 3) Use pre-defined dimensions wherever possible.
- 4) Avoid creating complex reports.
- 5) Use GA4 360.
- 6) Export GA4 data to BigQuery.
- 7) Create an exploration report.
- 8) Use expanded data sets.
- 9) Avoid data sampling.



To learn more, check out this article: [How to remove \(other\) in GA4 reports and avoid Cardinality.](#)

Fixing unassigned traffic in GA4

The screenshot shows the Google Analytics interface with the sidebar expanded. Under the 'Acquisition' section, 'Traffic acquisition' is selected. The main report title is 'Traffic acquisition: Session default channel group'. The report table lists 10 rows, all of which are labeled 'Unassigned' in the first column. A red box highlights the first row. The second column contains numerical values from 1 to 10, and the third column contains various channel names like '(not set)', 'ebook / pdf', 'ebooks / pdf-ebook', etc.

1	Unassigned	(not set)
2	Unassigned	ebook / pdf
3	Unassigned	ebooks / pdf-ebook
4	Unassigned	pocket_saves / (not set)
5	Unassigned	pocket_mylist / (not set)
6	Unassigned	pocket_reader / (not set)
7	Unassigned	rss / rss
8	Unassigned	GrowthHackers.com / Community
9	Unassigned	Miroslav-Varga-recommendation-of-blogs-to-follow / linkclick-on-anchor-text
10	Unassigned	The-Digital-Marketing-Hub / website

Unassigned traffic in GA4 refers to the website traffic that is not attributed to any specific channel group.

Technically speaking, 'Unassigned' is a default channel group dimension in GA4 which can have event scope, user scope or session scope.

Use the following methods to fix the unassigned traffic in GA4

1. Use UTM parameters to tag URLs



2. Use auto-tagging to tag URLs
3. Always supply source, medium and campaign information when tagging URLs with UTM parameters.
4. Create UTM parameters that follow GA4 default channel rules wherever possible.
5. Memorize channel rules and definitions for accurate tagging.
6. Make sure that the source and medium information is not dropped because of technical issues.
7. Missing or unrecorded “session_start” event could cause unassigned traffic.
8. In GA4, if you send data through the Measurement Protocol without the ga_session_id parameter, all such traffic would be labelled as unassigned website traffic.

For more details, check out this article: [What is unassigned traffic in GA4 and how to fix it.](#)

How to query GA4 data in BigQuery without understanding SQL



[Convert the following text into SQL for BigQuery]

from the data table `dbrt-ga4.analytics_207472454.events_*`

Show data between the dates 20230317 and 20230319

Show only the 'event_name' column

Show the value of 'page_location' event parameter as page_location column

The page_location value is obtained by selecting the string_value field of the value record where the key field of the event_params record equals 'page_location'.

A screenshot of a code editor window titled "sql". The code is a SELECT statement:

```
SELECT
  event_name,
  (SELECT value.string_value FROM UNNEST(event_params) WHERE key = 'page_location')
FROM
  `dbrt-ga4.analytics_207472454.events_*`
WHERE
  _TABLE_SUFFIX BETWEEN '20230317' AND '20230319'
```

The code editor has a dark theme. On the right side, there are icons for "Copy code", "Upvote", and "Downvote".

SQL has a complex syntax and structure. You will need to learn and memorize many keywords, operators, and functions.

SQL queries can become progressively harder to understand and debug as they become more complex.

Even small syntax errors or logical mistakes can result in incorrect results.

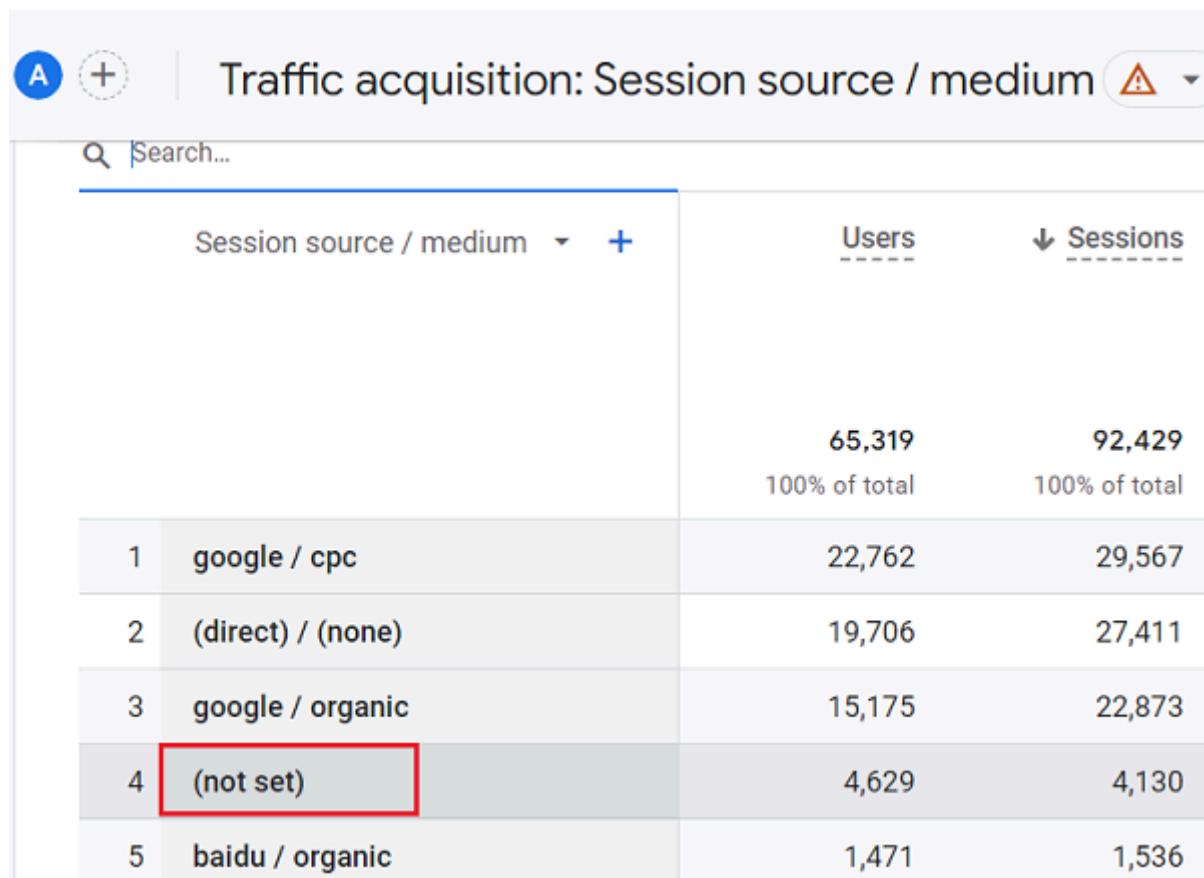
Complex queries often involve nested subqueries, multiple joins, and complex logic, which can be difficult to follow.

All of this can make SQL hard to learn and use, especially for absolute beginners.

With the advent of AI tools like ChatGPT, it is now possible to convert natural language into SQL queries.

You can learn more about it here: [Query GA4 data in BigQuery without understanding SQL](#)

Removing (not set) in Google Analytics 4



Whenever GA4 does not receive any information for a particular dimension, it uses a placeholder called (not set).

There are many reasons why (not set) may appear in your GA4 reports. But the following are the top reasons:

#1 The number 1 reason for (not set) appearing in your GA4 reports is because you are either not tagging ad URLs or your tagging is incorrect or incomplete.

#2 The second most common reason for (not set) appearing in your GA4 reports is using measurement protocol to send data.

#3 The Server side tracking can also result in (not set) data in GA4 reports if not implemented correctly.

#4 If the session_start event is not correctly tracked or is missing, GA4 might not be able to determine the source or medium for a session. Whenever GA4 is unable to determine the source or medium for a session, it reports (not set) as the value of the source or medium dimension.

#5 Some Adblockers and privacy extensions can cause missing values for a GA4 dimension (like source or medium), thus resulting in (not set) as the value of a dimension.

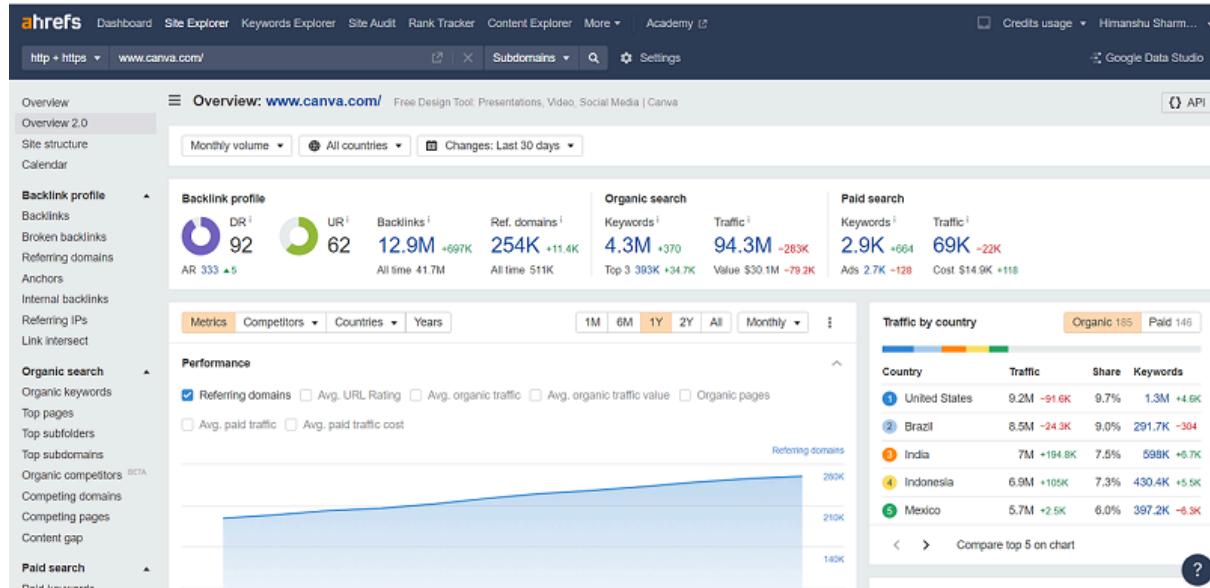
#6 Traffic from unlike Google Ads account(s) often appears as (not set) in GA4.

To learn more, check out this article: [**How to remove not set in GA4 \(Google Analytics 4\)**](#)

How to find keywords data in GA4?

GA4 is NOT the tool meant for keywords analysis. It provides even fewer keywords data than Universal Analytics because of GDPR and other privacy regulations.

And if you are into organic and/or paid search marketing, you need access to tons of keyword data.



You want to know:

- Which keywords send you the most traffic?
- Which keywords are worth targeting and bidding on?
- Which keywords are your competitors targeting?
- Which keywords send the most traffic to a particular landing page?

You want to:

- Track the ranking of your keywords.
- Check the backlinks, referring domains and overall website health.
- Do keyword research.
- Do website audits to find and fix SEO issues.

GA4 and its alternatives can not provide you with such insight.

GDPR, ever-increasing privacy regulations, and browser restrictions have crippled web analytics tools like GA4 in terms of providing keywords data.

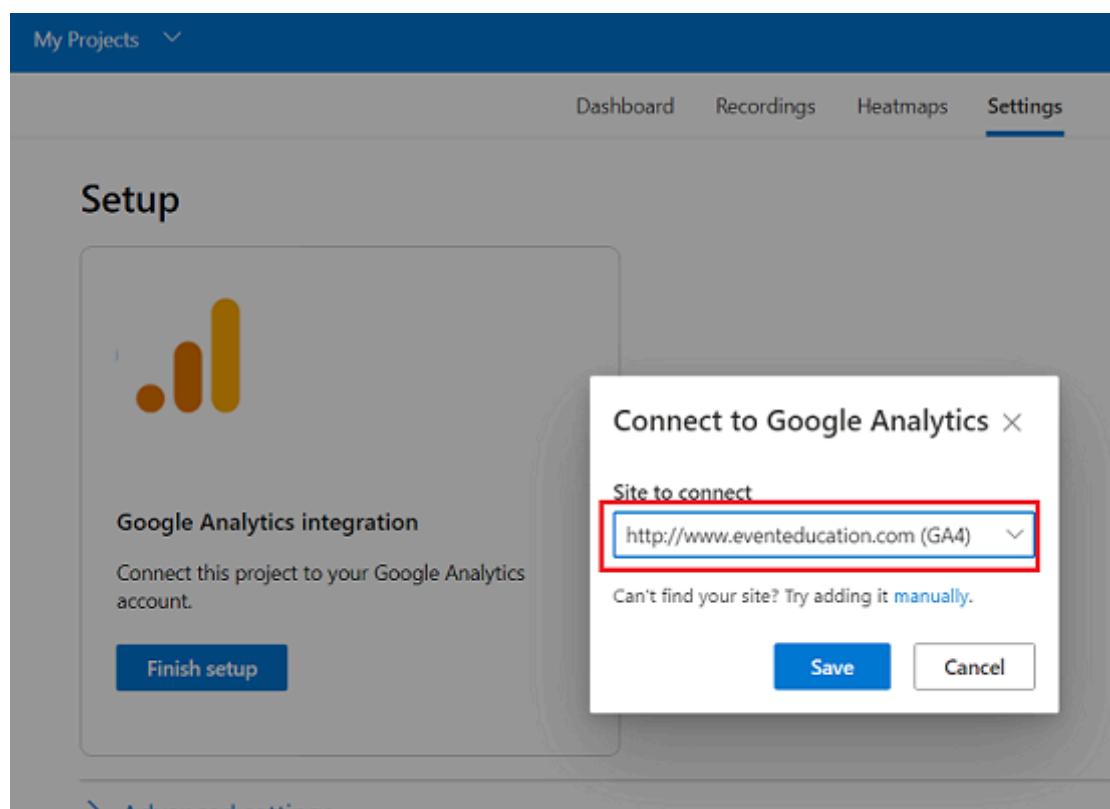
So you can no longer rely just on traditional web analytics tools to optimise your search marketing campaigns.

Tools for Keyword Analysis

I use the following tools for keyword analysis:

1. [Google Search Console](#).
2. [SEMRush](#)
3. [Ahrefs](#)
4. [seotesting.com](#)

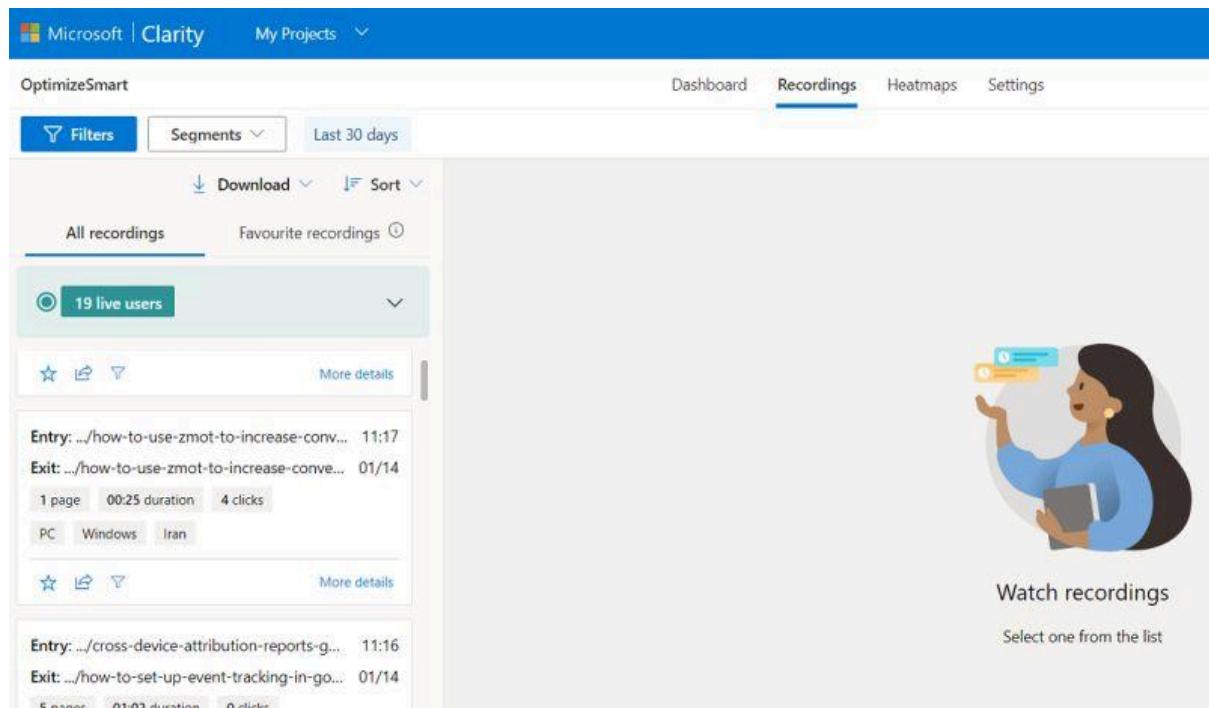
Microsoft Clarity and GA4 Integration



One thing that bugs me greatly is that GA4 does not provide session recordings and heatmaps.

Other tools charge dearly for these features. I am on a mission to reduce my reliance on paid tools. I use too many paid tools. So I found a good alternative.

I now use '**Microsoft Clarity**' just for the purpose of getting session recordings and heatmaps.

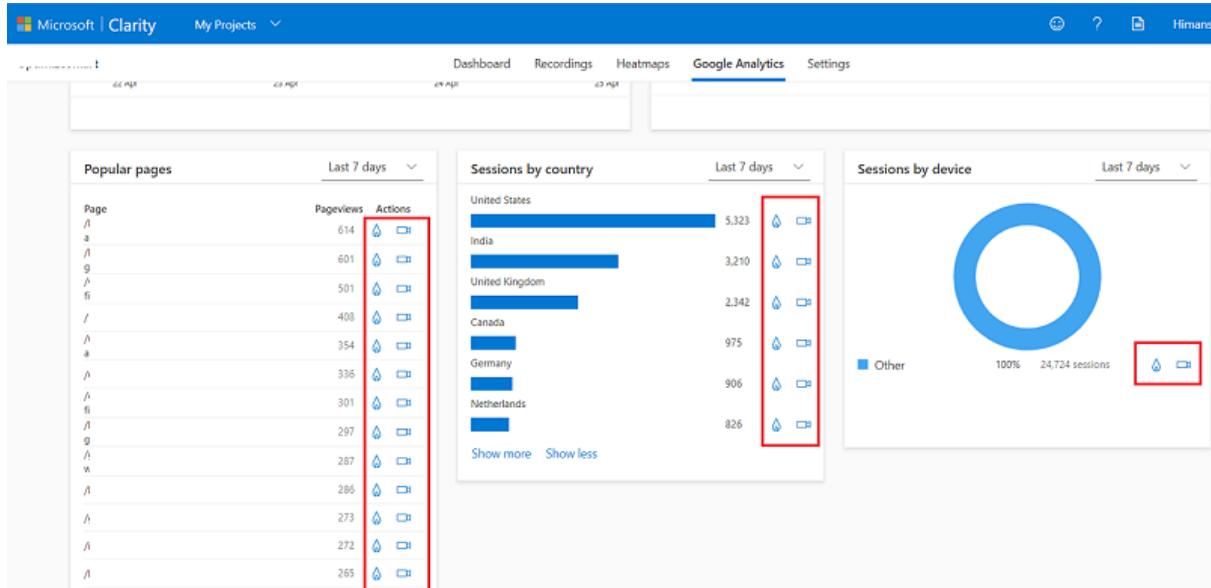


The screenshot shows the Microsoft Clarity interface. At the top, there's a navigation bar with 'Microsoft | Clarity' and 'My Projects'. Below it, the main header says 'OptimizeSmart'. The top navigation bar includes 'Dashboard', 'Recordings' (which is underlined), 'Heatmaps', and 'Settings'. Underneath, there are filters ('Filters', 'Segments', 'Last 30 days'), download options ('Download', 'Sort'), and tabs for 'All recordings' and 'Favourite recordings'. A sidebar on the left shows '19 live users'. The main content area displays two session recordings. Each recording entry includes 'Entry' and 'Exit' URLs, duration (e.g., 11:17, 01:14), page count (1 page), duration (00:25 duration), and click count (4 clicks). Device information (PC, Windows, Iran) is also shown. On the right side, there's an illustration of a person holding a tablet and a 'Watch recordings' button with a dropdown placeholder 'Select one from the list'.

'Microsoft Clarity' is a free behavioural analysis tool from Microsoft. It can provide unlimited session recordings and heatmaps.

Many people don't know, but you can also integrate Microsoft Clarity with GA4. When you integrate Microsoft Clarity with GA4, you can see the GA4 data in clarity.

You can view heatmaps and recordings for popular pages on your website.



For step-by-step instructions on integration clarity with GA4, check out this article: [How to use Microsoft Clarity with GA4 \(Google Analytics 4\)](#)

Are you looking for GA4 alternative?

Client: We have abandoned **GA4** for this _____ tool.

Me: Great.

(A few months later)

Client: We are missing a lot of data that was available in GA4, and that too for free. We want to switch back.

This scenario is more common than you think.

The client gets on a product demo call (aka sales call), and an analytics tool vendor highlights all the current shortcomings of GA4 and then sells their tool as a better replacement.

In the meantime, GA4 continues to improve, and it remains free. The shortcomings that it once had are now gone.

The client sees that GA4 is improving over time and giving more opportunities to collect different types of data, while their ‘paid’ tool continues to report the same set of dimensions and metrics and provide the same set of reports month after month.

Most analytics tool vendors can not compete with Google on innovation.

And people who complain that Google is not innovating GA4 fast enough go check out other companies and their rate of innovation.

Google release more product updates in a month than many companies release in a year.

Just the sheer volume of dimensions and metrics available in GA4 should give you an idea that using any other web analytics tool is likely downgrading, and that too for a fee.

I have used many web analytics tools over the years.

Most of these tools don’t hold a candle to GA in terms of features and usability, and the ones that do, are just too difficult/expensive to use.

All web analytics tools face the same browser and privacy restrictions as the free tools.

People who criticize GA4 do not really understand it. It’s the fear of the unknown, and the vendors are exploiting this fear to sell their own tools.

I used to recommend tools like ‘[Matomo](#)’ or ‘[Oribi](#)’ as GA4 alternatives.

Over time I concluded that you don’t need these tools. In fact, you don’t need any GA4 alternative.



Don't let the user interface fool you into thinking that GA4 is worse than Universal Analytics or that other analytics tools are now superior.

This is what the vendors of paid web analytics tool wants you to believe so that you ditch GA4 and pay for their tool indefinitely.

Unless GA is banned in your country or is prohibited by your company, there is no point in paying for a web analytics tool.

All web analytics tools face the same browser and privacy restrictions as the free tools and do not provide keyword data.

Companies buy paid web analytics tools hoping to get some magical and hidden insight.

But they forget that it is not the tool but the person using that tool that brings the real difference.

For 99% of businesses, the free version of GA is all you need.

Full page URLs in Google Analytics 4

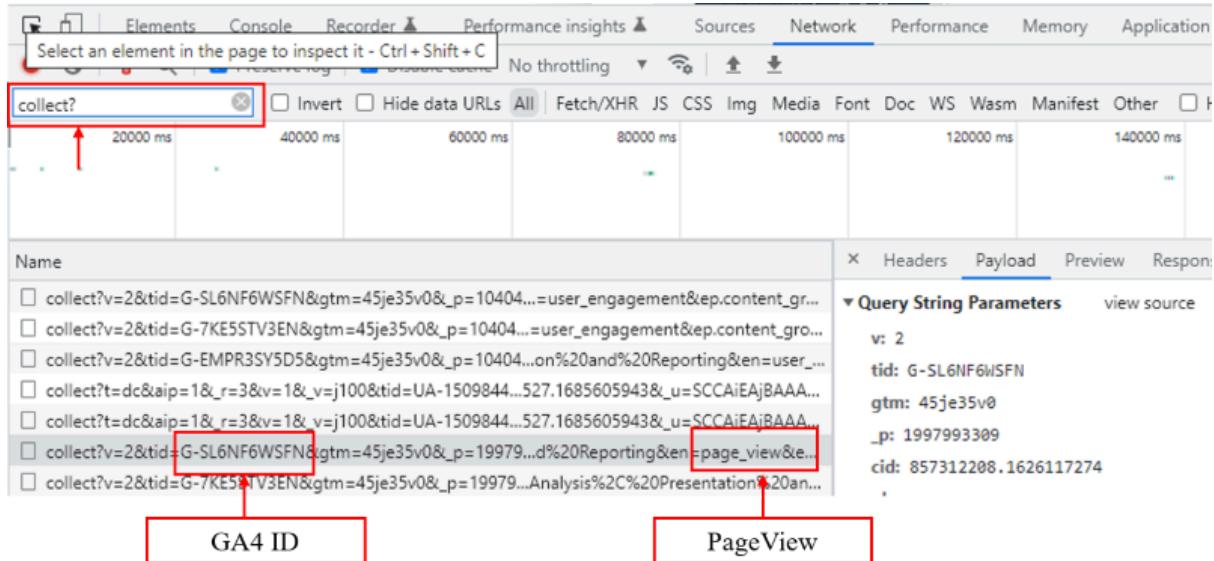


	Page location	↓Views	Sessions	Engaged sessions
Totals	.855 100.0% of total	100,874 100.0% of total	100,874 100.0% of total	100,874 100.0% of total
1	https://www.optimizeSMART.com/home	4,540	3,891	2,180
2	https://www.optimizeSMART.com/home-examples	4,273	4,006	2,237
3	https://www.optimizeSMART.com/e-commerce	4,108	3,782	2,251
4	https://learn.optimizeSMART.com/getting-started	3,793	3,098	321
5	https://www.optimizeSMART.com/privacy-policy	3,775	3,166	922
6	https://www.optimizeSMART.com/about-us	3,419	3,093	1,660
7	https://www.optimizeSMART.com/united-states	3,335	3,157	1,782
8	https://www.optimizeSMART.com/google-analytics	3,149	2,813	1,543
9	https://www.optimizeSMART.com/industry	2,600	2,419	1,639
10	https://www.optimizeSMART.com/united-kingdom	2,583	2,335	1,402

To track subdomain traffic in GA4, you need to view full-page URLs in reports. But by default, only the request URI shows in GA4 reports.

To view the full page URLs follow the steps mentioned in this article >> [How to view full page URLs in GA4?](#)

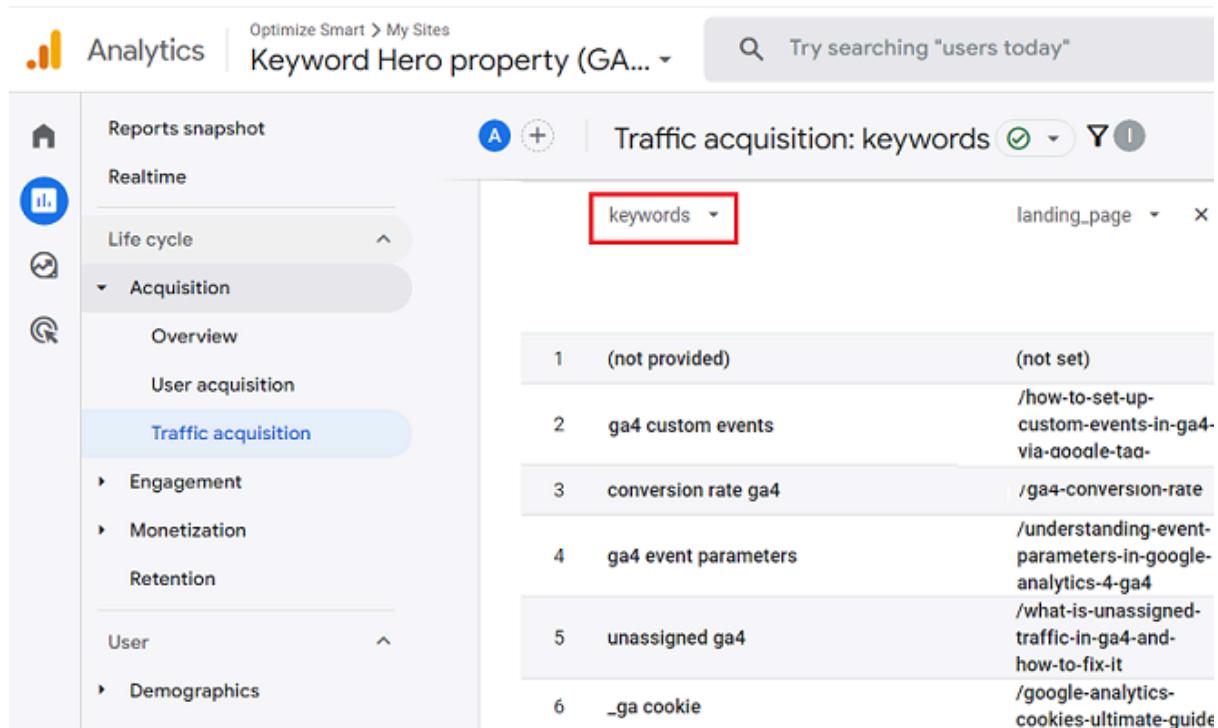
Is your GA4 not working correctly?



1. Delete and disable the cache.
2. Use Google Tag Assistant and check ‘where to optimize.’
3. Use the developer console and look for the ‘abort’ and ‘command ignored’ error messages.
4. Read the GIF Request (Tracking Beacon).
5. Check the collect call in the network tab.
6. Avoid non-standard implementation of Google.
7. Avoid customizing the standard Google Analytics tracking code.
8. Look for a broken GTM container tag.
9. Avoid non-standard implementation of Google Tag Manager.
10. Avoid customizing the GTM container tag.
11. Dealing with 307 redirects on Google Analytics Calls.
12. Filters Set Up.
13. Blocking extensions: Ad blockers and script blockers.
14. Iframe tracking.
15. Dealing with website environments and publishing.
16. Locally hosted gtag.js.
17. Google Tag Manager errors.
18. No data in the newly created GA4 property.
19. Other scripts on the page conflict with the GA script.
20. Incorrect placements of code.
21. Avoid using plug-ins for Google Analytics implementation.

For step by step instructions check out this article: [Google Analytics 4 not working? Here is how to fix it.](#)

Viewing Organic Search Keywords in GA4



The screenshot shows the Google Analytics 4 interface. On the left, the navigation menu is open, showing 'Reports snapshot', 'Realtime', 'Life cycle', 'Acquisition' (which is expanded), 'Overview', 'User acquisition', 'Traffic acquisition' (which is selected and highlighted in blue), 'Engagement', 'Monetization', 'Retention', 'User', and 'Demographics'. In the center, the 'Traffic acquisition: keywords' report is displayed. A search bar at the top right contains the text 'keywords' with a dropdown arrow. Below the search bar, there are two columns: 'Keywords' and 'Landing page'. A list of six keywords is shown:

Rank	Keyword	Landing Page
1	(not provided)	(not set)
2	ga4 custom events	/how-to-set-up-custom-events-in-ga4-via-google-taa-
3	conversion rate ga4	/ga4-conversion-rate
4	ga4 event parameters	/understanding-event-parameters-in-google-analytics-4-ga4
5	unassigned ga4	/what-is-unassigned-traffic-in-ga4-and-how-to-fix-it
6	_ga cookie	/google-analytics-cookies-ultimate-guide

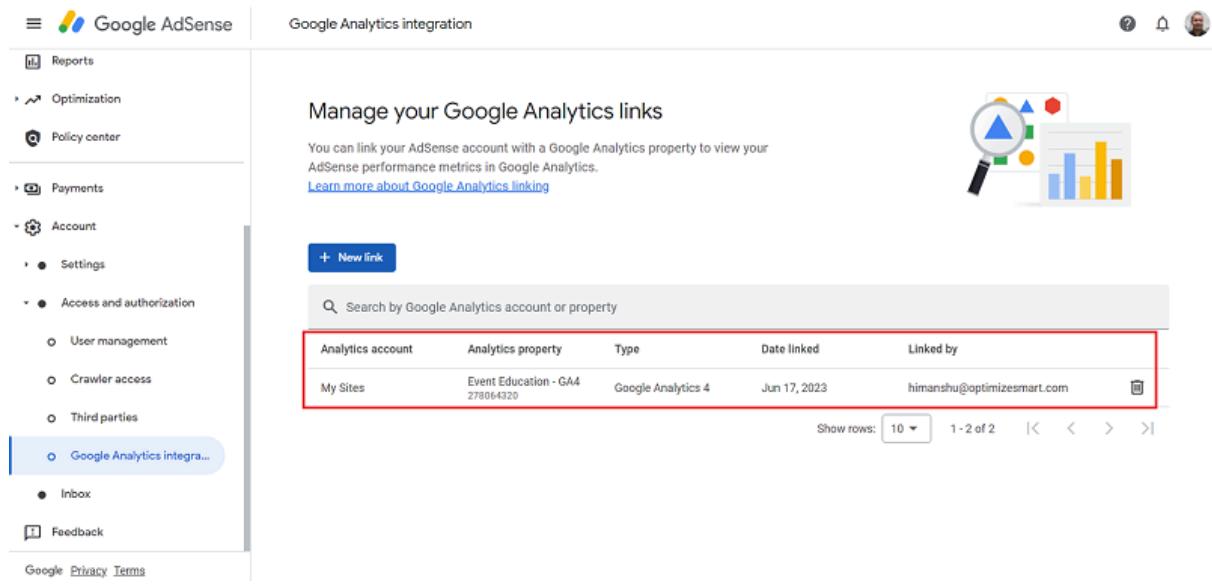
There are two methods to see Organic Search Keywords in GA4:

Method-1: [Link your Google Search Console account to your GA4 property](#) and then publish the search console reports.

Method-2: Use a tool like 'Keyword Hero' to collect more keyword data in your GA4 property.

For more details, check out this article: [How to see Organic Search Keywords in GA4 \(Google Analytics 4\)](#)

Google Analytics 4 Adsense Integration



The screenshot shows the Google AdSense interface. On the left, there's a sidebar with various navigation options like Reports, Optimization, Policy center, Payments, Account, Settings, Access and authorization, User management, Crawler access, Third parties, and Google Analytics integration (which is currently selected). The main content area is titled 'Google Analytics integration' and features a heading 'Manage your Google Analytics links'. It includes a sub-instruction: 'You can link your AdSense account with a Google Analytics property to view your AdSense performance metrics in Google Analytics.' Below this is a link 'Learn more about Google Analytics linking'. There's also a search bar 'Search by Google Analytics account or property'. A table lists one linked property: 'My Sites' under 'Analytics account', 'Event Education - GA4 278064320' under 'Analytics property', 'Google Analytics 4' under 'Type', 'Jun 17, 2023' under 'Date linked', and 'himanshu@optimizesmart.com' under 'Linked by'. The entire table row is highlighted with a red border. At the bottom right of the table, there are pagination controls: 'Show rows: 10', '1 - 2 of 2', and arrows for navigating through the results.

Following are the benefits you can enjoy by connecting your Google Adsense account with your GA4 property:

#1 By establishing this link, you gain the ability to view your AdSense data directly in GA4 by:

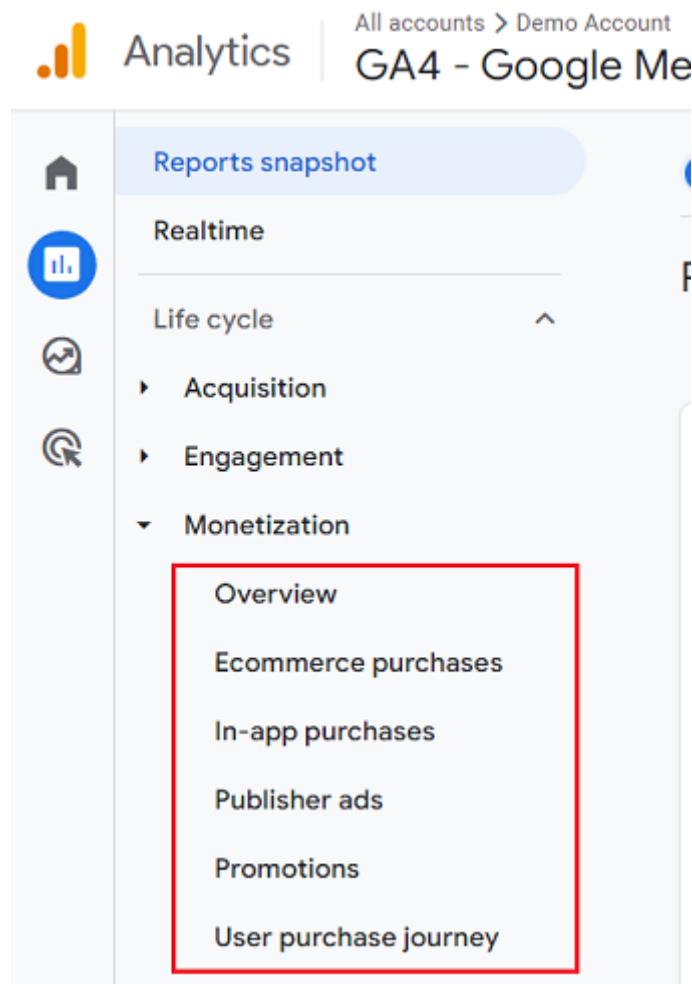
- Leveraging Publisher dimensions and metrics.
- Examining the 'Publisher Ads' report.
- Using the Exploration reports.

#2 Additionally, you can align your AdSense data with website usage metrics, such as 'First User Source Medium.' This connection allows for more profound insights and the ability to identify trends, ultimately assisting you in optimizing your advertising revenue.

For more details on GA4 and Adsense integration, check out this article: [How to link Google Analytics 4 with Adsense.](#)

Google Analytics 4 Monetization Reports

Once you have set up ecommerce tracking in GA4, you can access the various ecommerce reports in your GA4 property under '**Monetization**'. These reports are called the 'Monetization' reports:



Following are the various Monetization Reports:

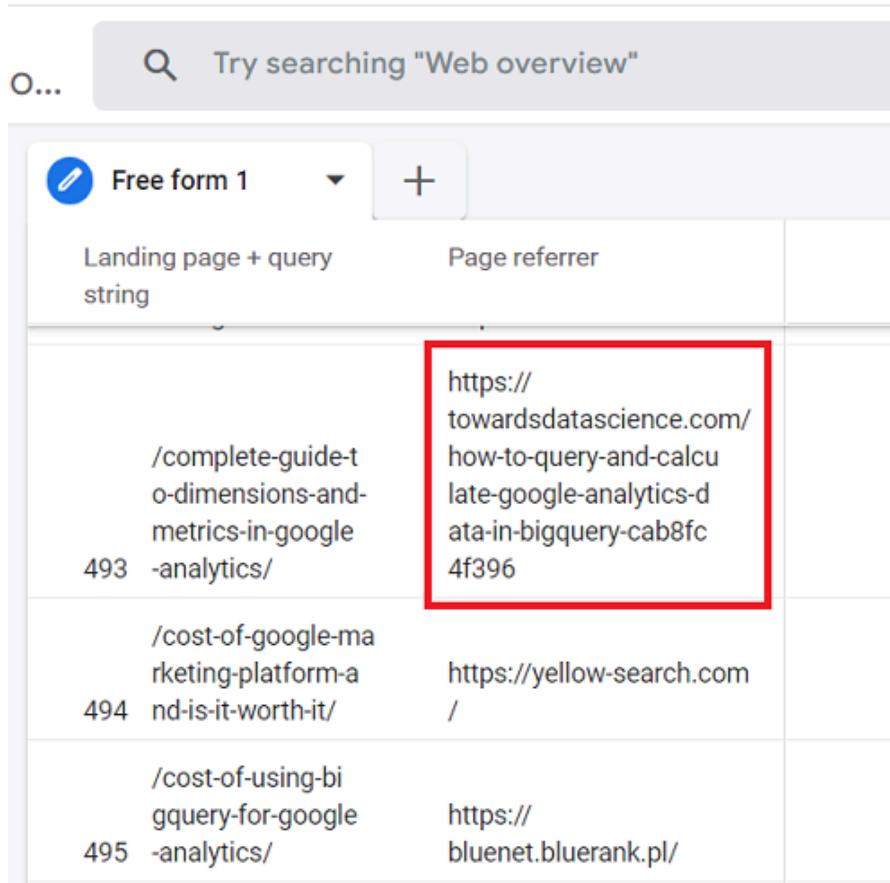
1. [Monetization Overview Report.](#)
2. [Ecommerce Purchases Report.](#)
3. [In-app purchases Report.](#)
4. [Publisher ads Report.](#)
5. [Promotions Report.](#)

6. [User Purchase Journey Report.](#)
7. [Order Coupon Report.](#)
8. Item list Report.

To learn more about the GA4 Monetization reports, check out this article:

[Understanding Google Analytics 4 Monetization Reports](#)

Display full referral URL in Google Analytics 4



O...	Try searching "Web overview"	
Free form 1	+	
Landing page + query string	Page referrer	
/complete-guide-to-dimensions-and-metrics-in-google-analytics/493	https://towardsdatascience.com/how-to-query-and-calculate-google-analytics-data-in-bigquery-cab8fc4f396	
/cost-of-google-marketing-platform-and-is-it-worth-it/494	https://yellow-search.com/	
/cost-of-using-bi-query-for-google-analytics/495	https://bluenet.bluerank.pl/	

Unlike Universal Analytics, GA4 does not have the 'Full referrer' dimension.



So there is no straightforward way to see full referrer URLs in GA4 reports. You would need to create an exploration report.

For step by step instructions, check out this article: [How to view full referral URL in GA4 \(Google Analytics 4\).](#)

Accessing GA4 Sample Data in BigQuery.

If you lack your own GA4 data in BigQuery, you can access and query the GA4 sample data provided in BigQuery Public datasets.

The screenshot shows the Google Cloud BigQuery interface. On the left, the Explorer sidebar lists various datasets and tables, with 'events_(92)' highlighted. In the center, the details for the 'events_20210131' dataset are displayed. A red box highlights the 'SCHEMA' tab. The schema table lists the following columns:

Field name	Type	Mode
event_date	STRING	NULLABLE
event_timestamp	INTEGER	NULLABLE
event_name	STRING	NULLABLE
event_params	RECORD	REPEATED
event_previous_timestamp	INTEGER	NULLABLE
event_value_in_usd	FLOAT	NULLABLE
event_bundle_sequence_id	INTEGER	NULLABLE
event_server_timestamp_offset	INTEGER	NULLABLE
user_id	STRING	NULLABLE
user_pseudo_id	STRING	NULLABLE
privacy_info	RECORD	NULLABLE
user_properties	RECORD	REPEATED
user_first_touch_timestamp	INTEGER	NULLABLE

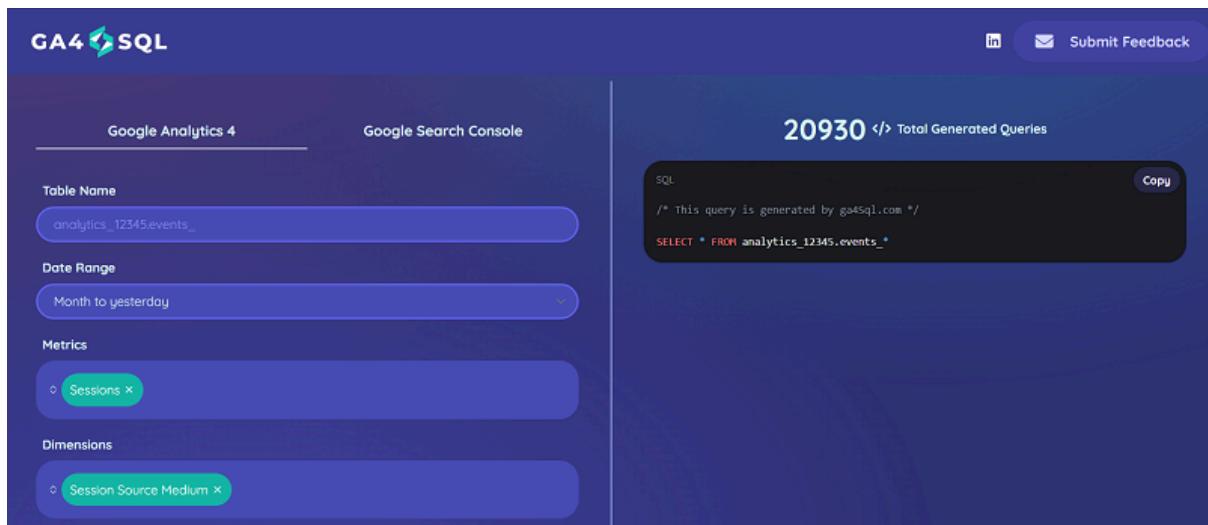
At the bottom of the schema table, there are 'EDIT SCHEMA' and 'VIEW ROW ACCESS POLICIES' buttons.

This sample data originates from the Google Merchandise Store, a Google-owned ecommerce site, and Google's 'Flood-it' mobile game app.

Follow the steps mentioned in this article to access GA4 sample data in BigQuery: [How to access GA4 Sample Data in BigQuery.](#)

Creating SQL queries for GA4 data in BigQuery via GA4 SQL

GA4 SQL is a free tool through which you can quickly create SQL queries for your GA4 data.

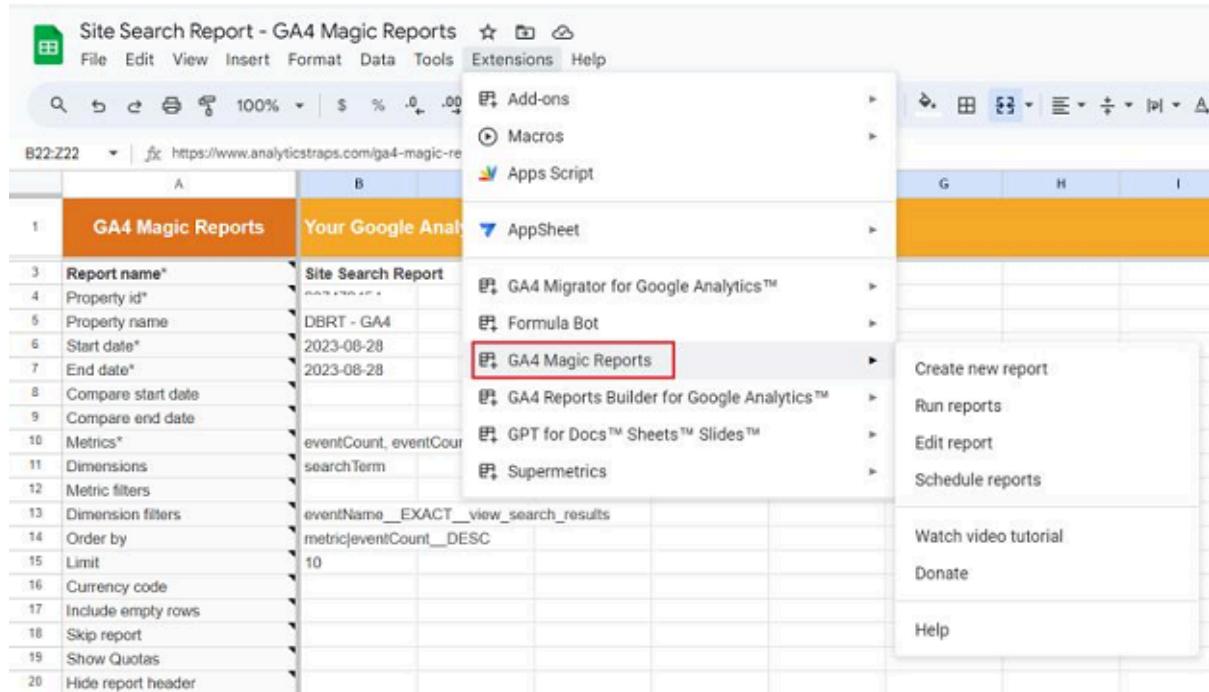


The screenshot shows the GA4 SQL interface. On the left, there are input fields for 'Table Name' (set to 'analytics_12345.events'), 'Date Range' (set to 'Month to yesterday'), 'Metrics' (with 'Sessions' selected), and 'Dimensions' (with 'Session Source Medium' selected). On the right, the interface displays '20930' total generated queries. Below this, a code block shows the generated SQL query:

```
/* This query is generated by ga4sql.com */
SELECT * FROM analytics_12345.events_
```

To learn more about how to use this tool, check out this article: [Using GA4 BigQuery SQL generator to create SQL queries.](#)

Exporting GA4 data to Google Sheets for free



Two free approaches exist for transferring GA4 data to Google Sheets:

Method 1: Directly download the data to Google Sheets via the GA4 reporting interface.

Method 2: Utilize a free Google Sheets add-on to move GA4 data into Google Sheets.

To learn more about these methods, check out this article: [How to export GA4 data to Google Sheets for free.](#)

Other articles related to GA4 (Google Analytics 4)



#1 GA4 Introduction

1. [What is GA4 – An In-Depth Guide to Google Analytics 4](#)
2. [Key Benefits of Using Google Analytics 4 \(GA4\)](#).
3. [GA4 Migration Checklist – Upgrade to Google Analytics 4.](#)
4. [Google Analytics Implementation Guide.](#)
5. [GA4 vs Universal Analytics: The Key Differences](#)
6. [GA4 vs GA4 360 – Pricing, Limits, Billing and More](#)
7. [Free GA4 training and tutorial with PDF ebook on Google Analytics 4](#)
8. [Google Analytics 4 \(GA4\) Channels, Source and Medium explained.](#)
9. [Understanding Google Analytics 4 cookies – ga cookie.](#)
10. [How to learn Google Analytics without a website.](#)
11. [GA4 Admin Settings Tutorial.](#)

#2 GA4 Property

1. [Google Analytics Account Hierarchy \(Structure Explained\)](#)
2. [Understanding Google Analytics Measurement ID \(GA4\)](#)
3. [Google Signals GA4 – See demographics \(gender, age\) in Google Analytics 4.](#)
4. [Using the GA4 Test Property – Testing Google Analytics 4](#)
5. [Google Analytics 4 Sub Properties Tutorial](#)
6. [Roll up Property in Google Analytics 4 \(GA4\) – Tutorial](#)

#3 GA4 Integrations

1. [How to connect GA4 with Google Data Studio \(Looker Studio\).](#)
2. [How to link GA4 to Google Ads.](#)
3. [GA4 Search Console Integration Guide.](#)
4. [How to Install Google Analytics 4 on Shopify](#)
5. [GA4 Firebase Integration – Mobile App Tracking.](#)
6. [How to link Google Analytics 4 with Adsense.](#)
7. [How to export GA4 data to Google Sheets for free.](#)



#4 GA4 Events

1. [GA4 \(Google Analytics 4\) Event Tracking Setup Tutorial](#)
2. [Understanding Event Parameters in Google Analytics 4 \(GA4\)](#)
3. [Recommended Events in Google Analytics 4 \(GA4\)](#)
4. [Enhanced Measurement Events in Google Analytics 4 \(GA4\)](#)
5. [Automatically Collected Events in Google Analytics 4 \(GA4\)](#)
6. [How to Set Up GA4 Custom Events via Google Tag Manager](#)
7. [Events Report in Google Analytics 4 \(GA4\)](#)
8. [How to Rename Events in Google Analytics 4 \(GA4\)](#)
9. [How to Use Google Analytics 4 Event Builder](#)
10. [GA4 Form Interactions Tracking – Enhanced Measurement](#)
11. [How to fix duplicate events in GA4.](#)

#5 GA4 Conversions

1. [Google Analytics 4 Conversion Tracking Guide – GA4 Goals](#)
2. [How to import GA4 Conversions into Google Ads.](#)
3. [GA4 Conversion Rate – How to find it and use it](#)
4. [Difference between Google Ads and Google Analytics Conversion Tracking.](#)

#6 GA4 Dimensions

1. [GA4 \(Google Analytics 4\) Dimensions Tutorial](#)
2. [GA4 \(Google Analytics 4\) Custom Dimensions Tutorial](#)
3. [GA4 User Properties \(User Scoped Custom Dimensions\) – Tutorial](#)
4. [Event Scoped Custom Dimensions in GA4 – Tutorial](#)

#7 GA4 Metrics

1. [GA4 \(Google Analytics 4\) Metrics Tutorial with Free Google Analytics 4 Ebook](#)



2. [GA4 \(Google Analytics 4\) Custom Metrics Tutorial](#)
3. [What are Predictive Metrics in Google Analytics 4 \(GA4\)](#)
4. [GA4 Ecommerce Conversion Rate – How to find and use it.](#)
5. [Google Analytics 4 Calculated Metrics with Examples.](#)

#8 GA4 Ecommerce

1. [GA4 \(Google Analytics 4\) Ecommerce Tracking via GTM – Tutorial](#)
2. [Understanding Google Analytics 4 Monetization Reports](#)
3. [Understanding Google Analytics 4 Ecommerce Purchases Report](#)
4. [Understanding Google Analytics 4 In-app purchases Report](#)
5. [Understanding Google Analytics 4 Publisher Ads Report](#)
6. [Understanding Google Analytics 4 Promotions Report](#)
7. [Understanding Google Analytics 4 User Purchase Journey Report](#)
8. [Understanding Google Analytics 4 Order Coupon Report](#)
9. [Checkout Behavior Analysis in Google Analytics 4 \(GA4 Checkout Journey\).](#)

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1. [GA4 \(Google Analytics 4\) Enhanced Measurement Tracking Tutorial](#)
2. [Cross Domain Tracking in GA4 \(Google Analytics 4\) Setup Guide](#)
3. [GA4 Site Search – Tracking Site Search in Google Analytics 4](#)
4. [GA4 \(Google Analytics 4\) Scroll Tracking Tutorial](#)
5. [Self-referral Google Analytics 4 – Referral exclusion GA4](#)
6. [GA4 \(Google Analytics 4\) Data Import Tutorial](#)
7. [Google Analytics 4 Content Grouping – Create Content Groups in GA4](#)
8. [How to Track Single Page Apps in Google Analytics 4 \(GA4\)](#)
9. [Track UTM parameters in GA4 \(Google Analytics 4\) – Campaign Tracking.](#)
10. [How to see UTM parameters in GA4 \(Google Analytics 4\).](#)
11. [GA4 UTM parameters not working? Here is how to fix it.](#)
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17. [How to setup User ID in Google Analytics 4 and Universal Analytics.](#)
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2. [How to Create and Test Filters in Google Analytics 4 \(GA4\)?](#)
3. [Exclude Internal Traffic in GA4 \(Google Analytics 4\) via IP Filter](#)

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1. [Free Form Report in GA4 \(Google Analytics 4\) – Exploration Report](#)
2. [How to Use the User Lifetime Report in Google Analytics 4 \(GA4\)](#)
3. [How to Use Path Exploration Report in GA4 \(Google Analytics 4\) – Path Analysis](#)
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6. [Cohort Exploration Report in Google Analytics 4 \(GA4\)](#)
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2. [GA4 \(Google Analytics 4\) Measurement Protocol Tutorial](#)
3. [How to Build Comparisons \(Advanced Segments\) in Google Analytics 4 \(GA4\)](#)



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10. [GA4 Behavioral, Conversion Modeling and Consent Mode Guide.](#)

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2. [How to fix the data threshold issue in GA4.](#)
3. [What is unassigned traffic in GA4 and how to fix it.](#)
4. [How to Exclude URL Query Parameters in Google Analytics 4.](#)
5. [Top GA4 Tools, add-ons and resources.](#)
6. [How to remove not set in GA4 \(Google Analytics 4\).](#)
7. [How to remove \(other\) in GA4 reports and avoid Cardinality.](#)
8. [GA4 Real-time report not working? Here is how to fix it.](#)
9. [GA4 Debug View not working? Here is how to fix it.](#)

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2. [How to Use Debug View Report in Google Analytics 4 \(GA4\)](#)
3. [How to see Organic Search Keywords in GA4 \(Google Analytics 4\).](#)
4. [How to view full referral URL in GA4 \(Google Analytics 4\).](#)
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10. [How to Create Landing Pages Report in GA4 \(Google Analytics 4\).](#)
11. [How to see Search Console data in GA4.](#)



12. [GA4 Search Console Reports.](#)

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2. [How to Change Attribution Models in GA4 \(Google Analytics 4\)?](#)
3. [GA4 \(Google Analytics 4\) Conversion Paths Report in Attribution](#)
4. [GA4 \(Google Analytics 4\) Model Comparison Report in Attribution](#)
5. [Advertising Snapshot in GA4 \(Google Analytics 4\) Attribution](#)
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2. [How to Create a Remarketing Audience in Google Analytics 4 \(GA4\)](#)
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2. [GA4 BigQuery – Connect Google Analytics 4 with BigQuery](#)
3. [BigQuery GA4 Schema – Send Custom GA4 Data to BigQuery](#)
4. [How to Backfill GA4 Data in BigQuery](#)
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