GOOGLE ANALYTICS
BIGQUERY SETUP

BY HIMANSHU SHARMA
FOUNDER OF OPTIMIZESMART.COM

Google Analytics BigQuery Setup

Written by Himanshu Sharma, Founder of Optimize Smart

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About the author

- Founder, OptimizeSmart.com

- Over 15 years of experience in digital analytics and marketing

- Author of four best-selling books on digital analytics and conversion optimization

- Nominated for Digital Analytics Association Awards for Excellence

- Runs one of the most popular blogs in the world on digital analytics

- Consultant to countless small and big businesses over the decade

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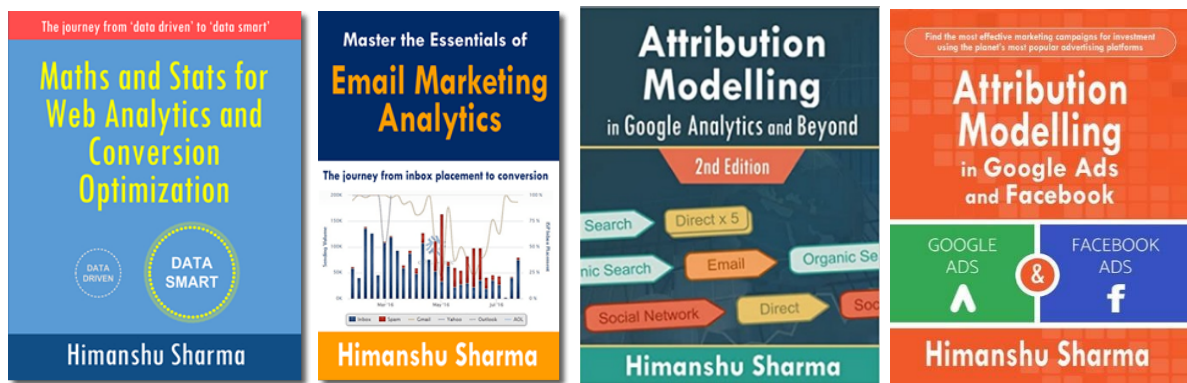
Following are our most downloaded ebooks for career advancement:

#1 Sales and ROI Accelerator (150+ pages)

WHAT'S INSIDE: My step-by-step blueprint for generating record sales and ROI by leveraging analytics data.

#2 Set Up Your Google Analytics 4 (GA4) Account Correctly And Fast (70 pages)

WHAT'S INSIDE: Learn to set up your GA4 account correctly and fast using this 62 points checklist.

FAQ: Do you show "How" to do each item on the checklist? If so, with screenshots?
Yes. There are links to the articles with detailed step by step instructions.

FAQ: Does this ebook cover GTM too?
Yes.

#3 Google Tag Manager Data Layers (100+ pages)

WHAT'S INSIDE: My step-by-step blueprint for getting started with data layers. Get the only ebook on GTM data layers ever published. Learn the JavaScript behind it.

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#4 [Learn to Read E-Commerce Reports in Google Analytics (100+ pages)](#)

WHAT'S INSIDE: My step-by-step guide to reading both standard and enhanced e-commerce reports in Google Analytics. E-commerce reports are the most valuable reports in Google Analytics.

#5 Do you want better skills in digital analytics and marketing? If yes, then [register for the free training](#):

Here's what we're going to cover…

1. Why digital analytics is the key to online business success.
2. The number 1 reason why most marketers are not able to scale their advertising and maximize sales.
3. Why Google and Facebook ads don't work for most businesses & how to make them work.
4. Why you won't get any competitive advantage in the marketplace just by knowing Google Analytics.
5. The number 1 reason why conversion optimization is not working for your business.
6. How to advertise on any marketing platform for FREE with an unlimited budget.
7. How to learn and master digital analytics and conversion optimization in record time.

Get helpful tips on a daily basis

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Click here and follow me on LinkedIn

Introduction to BigQuery

Google BigQuery is one of the products of the Google Cloud Platform.

The big query is an enterprise-level data warehouse from Google which is used to provide business intelligence in the form of reports and dashboards.

It is a data storage and management system which is used to bring data from several data sources (like Google Analytics, Google Ads, Facebook etc) for the purpose of reporting and analysis.

When you use BigQuery, you can manipulate Google Analytics data in a way that is many times simply not possible by using the Google Analytics user interface.

For example, certain dimensions and metrics combinations can not be queried together whether you use the Google Analytics user interface or Google Analytics API. But BigQuery has no such limitations.

This is one of the biggest advantages of using BigQuery. It makes advanced data segmentation and analysis possible.

It removes most of the limitations which come when you use the GA user interface or API for querying analytics data.

Prerequisites for using BigQuery

Following are the prerequisites for using Google BigQuery:

#1 You need a good working knowledge of SQL so that you can query data in BigQuery. This is the primary requirement.

#2 You need a Google Cloud Platform account with billing enabled. In order to enable the billing, you would need a valid credit card.

How to send Google Analytics data to BigQuery without using Google Analytics 360

Normally you would require access to GA360 in order to send Google Analytics (aka Universal Analytics) data to BigQuery.

But with the help of a third-party solution/connector, it is possible to send data from Google Analytics to BigQuery without 360.

Note: Here I am assuming that you are using the Google Cloud Platform for the first time.

You should now see a screen like the one below:
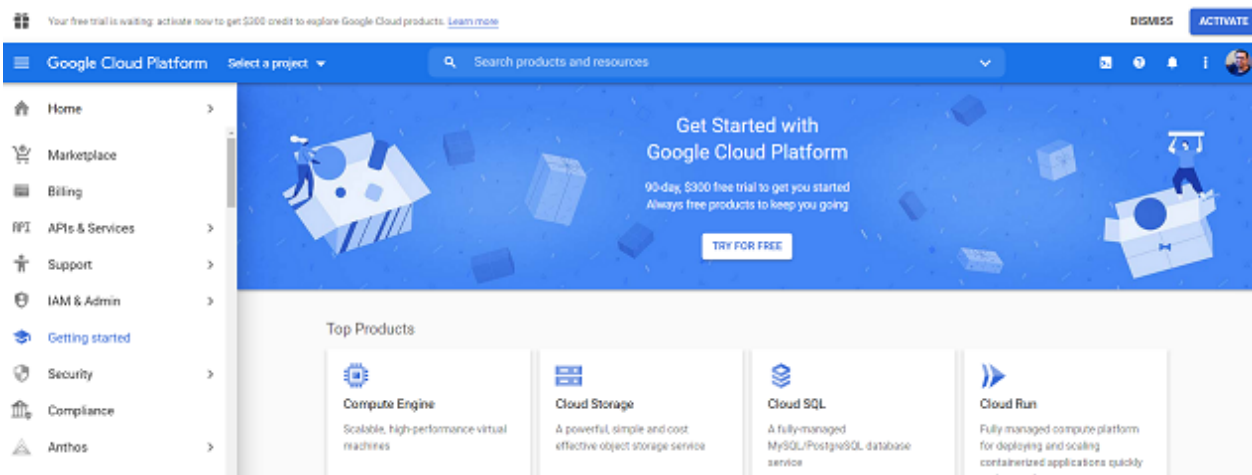
Step-3: Type 'bigquery' in the search box:
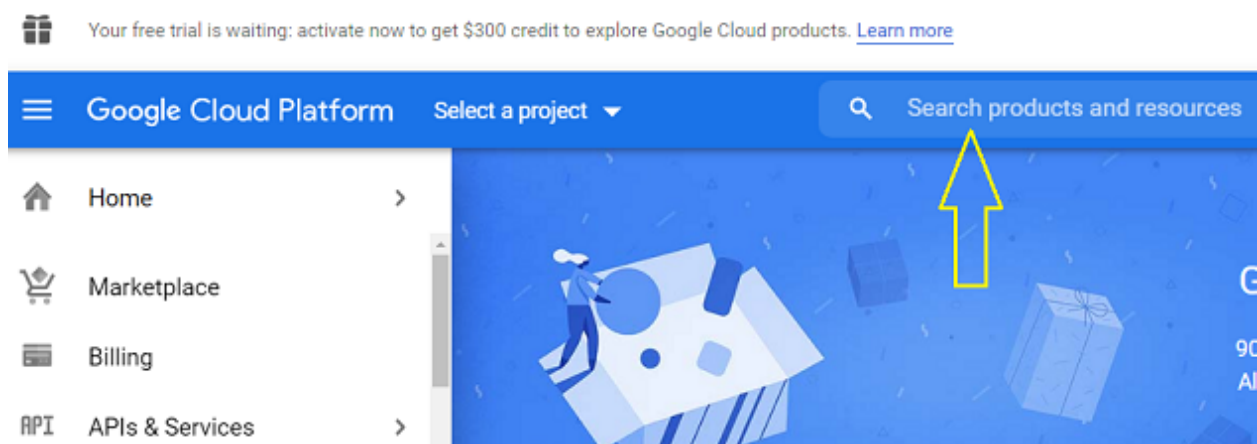
Step-4: Click on the first search result:

![OptimizeSmart.com logo]
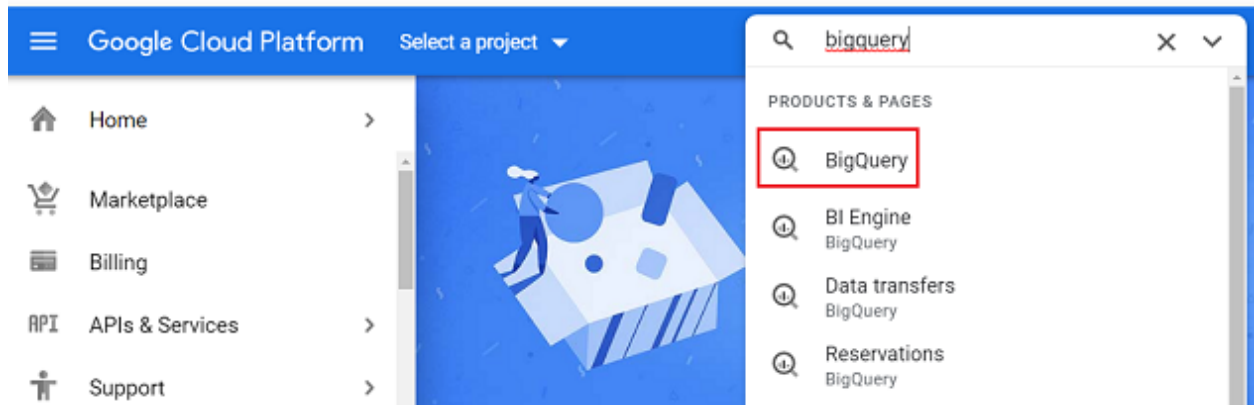
You should now see a screen like the one below:
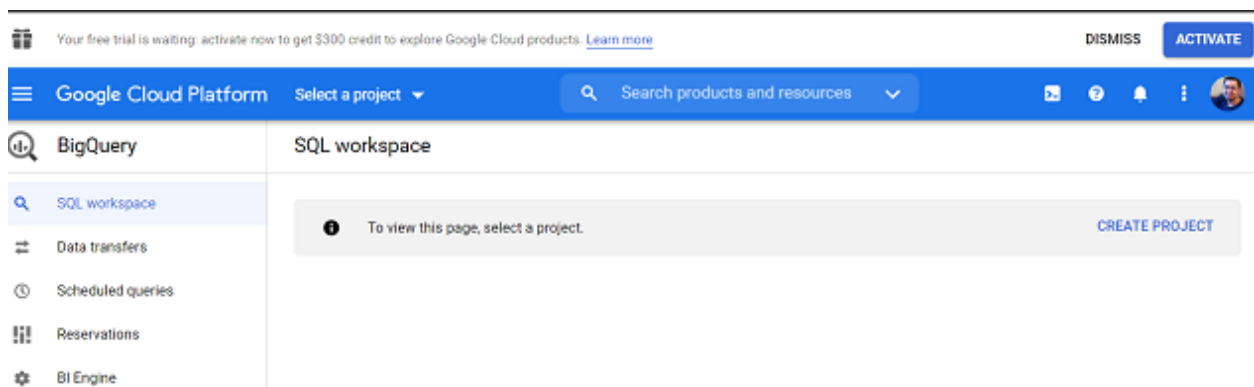
Step-5: Click on the 'CREATE PROJECT' button:

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Step-6: Name your project (say '**Google Analytics**'):
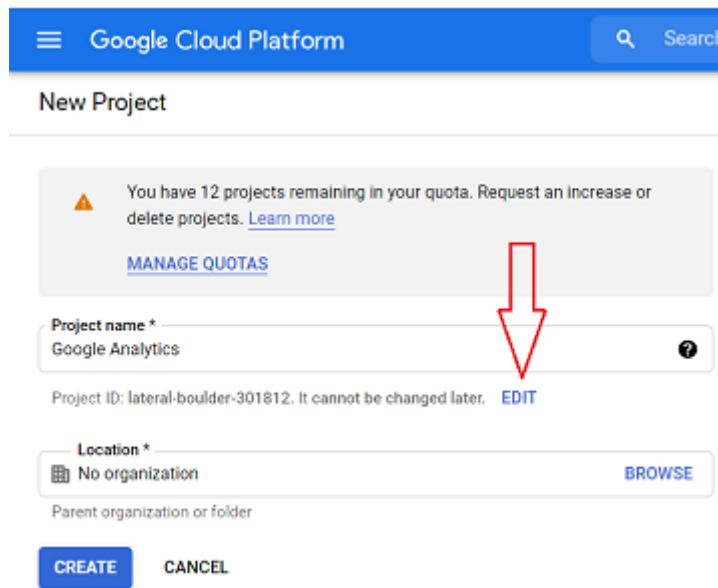
Step-7: Click on the 'EDIT' button to change the project ID:

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You should now see a screen like the one below:

Step-8: Change the project ID to something which is easier to recognize:

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Note: Finding a meaningful project ID is not going to be easy as many IDs have already been taken. Once you change the ID, you cannot change it later.

Step-9: Click on the 'Create' button.

You should now see a screen like the one below:
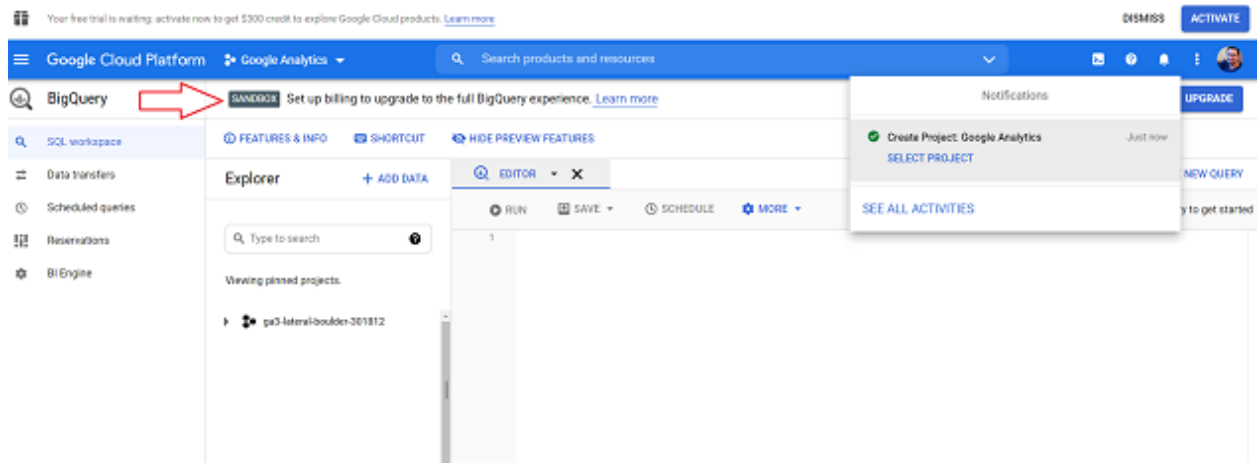
You now have access to the **BigQuery sandbox.**

Step-10: Click on the 'Upgrade' button at the top right-hand side:
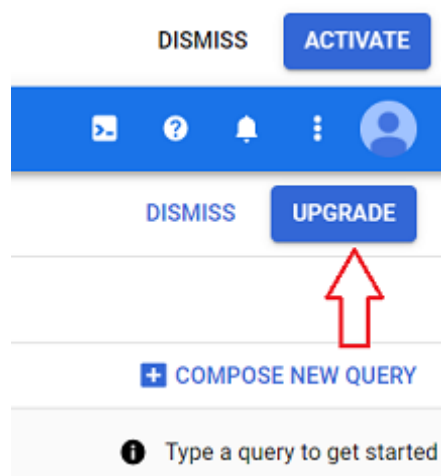
Step-11: Click on the 'CREATE BILLING ACCOUNT' button:
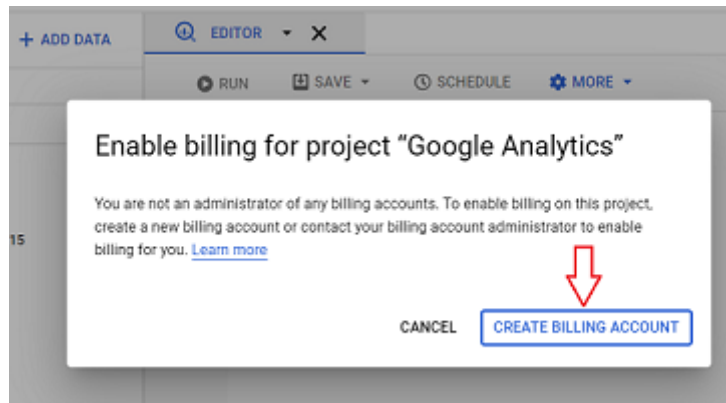
Step-12: Select your billing country from the 'Country' drop-down menu and then read and accept the terms of service by clicking on the checkbox:
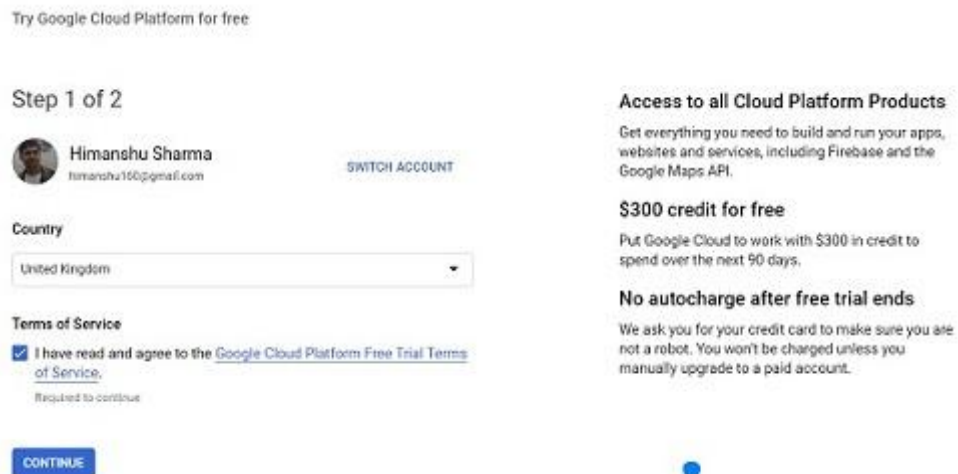
Step-13: Click on the 'Continue' button.

Step-14: Set your account type, enter tax information, name, address and credit card details and then click on the 'START MY FREE TRIAL' button:

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Try Google Cloud Platform for free

Step 2 of 2

Your payment information helps us reduce fraud and abuse. **You won't be charged unless you turn on automatic billing.**

Customer info

👤 Account type ⓘ ✏️

Business ▾

📇 Tax information ⓘ ✏️

Tax status : Business

🏢 Name and address ⓘ

Business name
_____

Name
_____

Name is required

Address line 1

How you pay

📅 Automatic payments

You pay for this service only after you accrue costs, via an automatic charge when you reach your billing threshold or 30 days after your last automatic payment, whichever comes first.

This service can only be used for business or commercial reasons. You are responsible for assessing and reporting VAT.

Payment method ⓘ

💳 Add credit or debit card ⌄

Card details

☑ Credit or debit card address is same as above

The personal information you provide here will be added to your payments profile. It will be stored securely and treated in accordance with the Google Privacy Policy.

START MY FREE TRIAL

Access to all Cloud Platform Products

Get everything you need to build and run your apps, websites and services, including Firebase and the Google Maps API.

$300 credit for free

Put Google Cloud to work with $300 in credit to spend over the next 90 days.

No autocharge after free trial ends

We ask you for your credit card to make sure you are not a robot. You won't be charged unless you manually upgrade to a paid account.

Step-15: Navigate to https://console.cloud.google.com/bigquery and make sure that 'Google Analytics' project is selected.
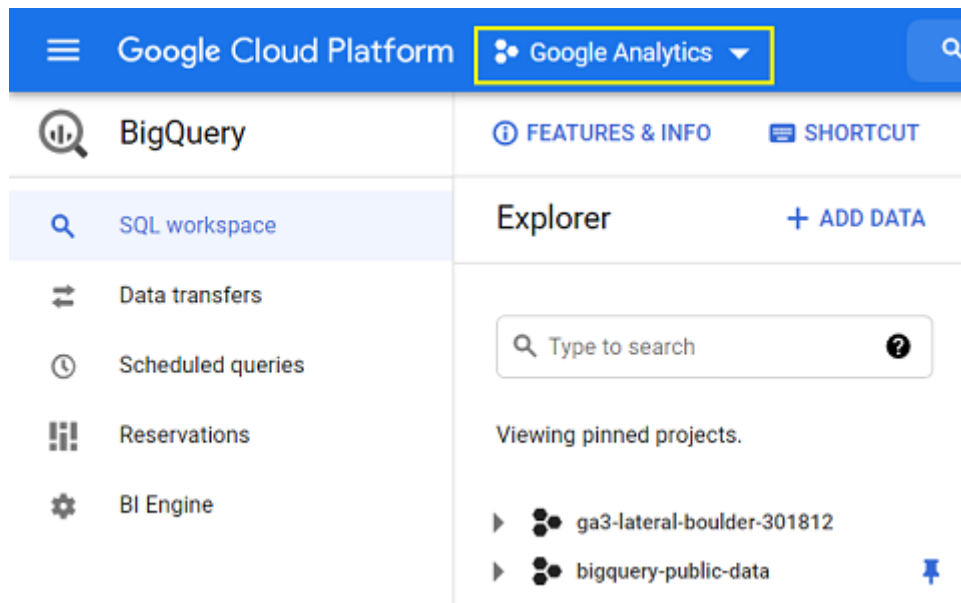
Step-16: Click on your project ID (this ID could be different in your case):
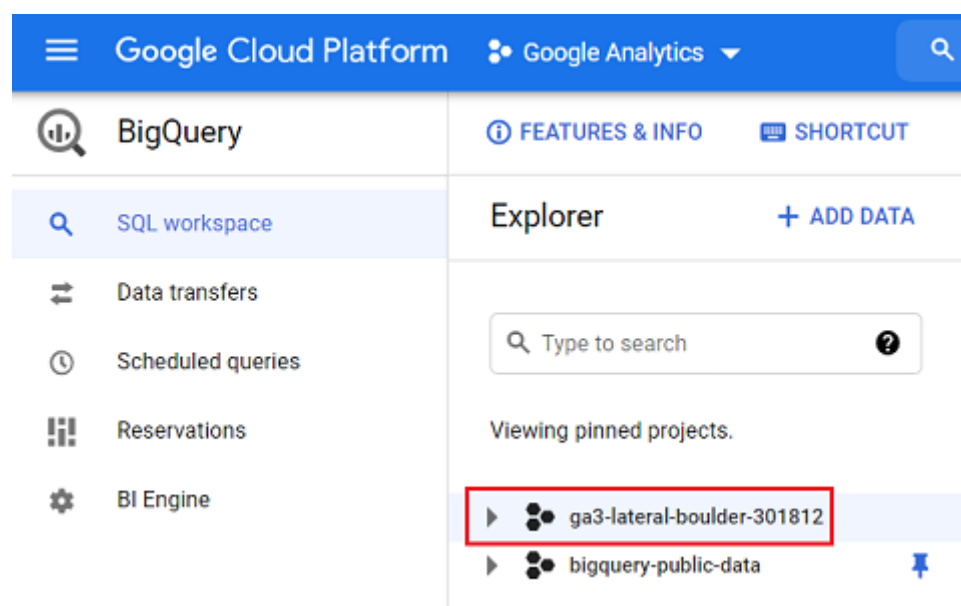
Step-17: On the right-hand side of your screen, find and click on the button 'Create Dataset':
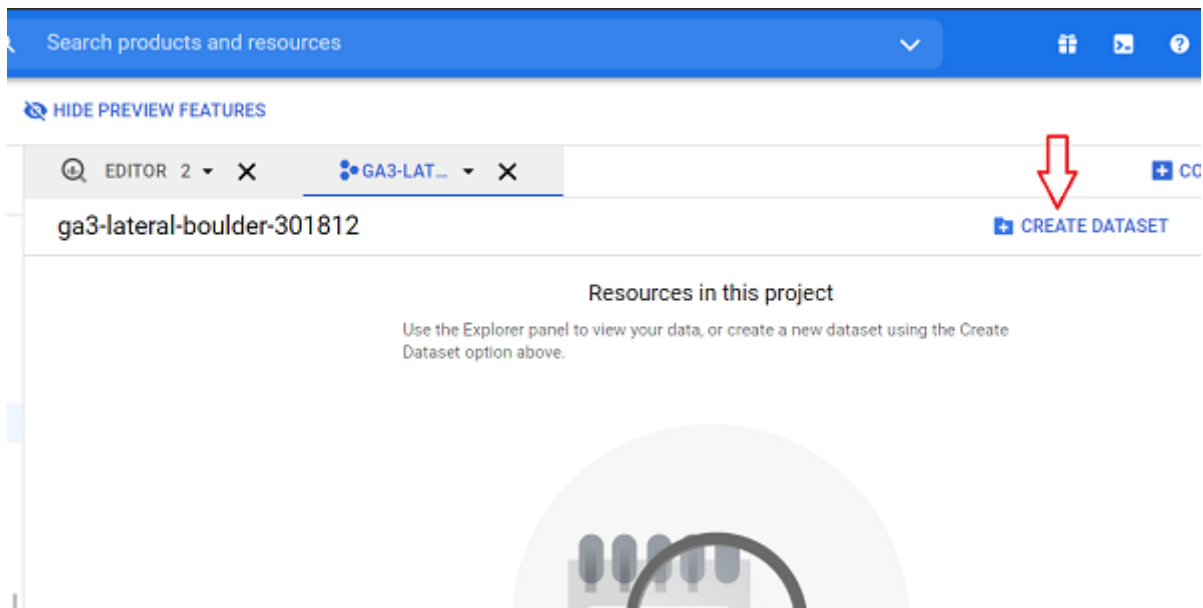
Step-18: Name your dataset (say *GA_data_set*) and then click on the '**Create dataset**' button at the bottom:

We are going to use this new data set for storing data from Google Analytics.

You would now need to use a third-party solution for sending Google Analytics data to BigQuery. This is going to cost you based on your account usage.

Regardless of how much it costs you, it would most likely still be cheaper than paying $150k per year to Google for using the GA360 (which comes with the free connection to BigQuery).

You can either search for such third-party solutions online or use the one that I use which is 'Supermetrics for BigQuery'. They provide a free 14 days trial of their solution. No credit card is required.

Step-19: Navigate to 'Supermetrics for BigQuery' page.

Step-20: Click on the 'Start a free trial' button:

Move your marketing data into BigQuery without writing a single line of code

Supermetrics is the easiest way for marketing and data teams to consolidate data in a marketing data warehouse. No code needed.

Book a demo   Start free trial →
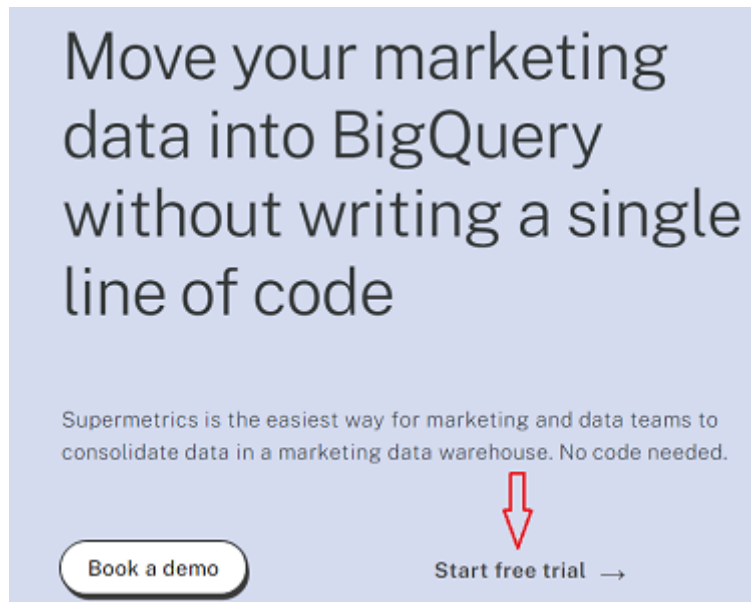
Step-21: Fill out the form and then click on the 'Send' button:

Industry ⌄   Business email *

Phone number   United Kingdom ⌄

Which Supermetrics product are you interested in? * ⌄

Optional message (product requirements or questions)

* required field

Send

You should now be redirected to the page like the one below in your Google Cloud platform account:
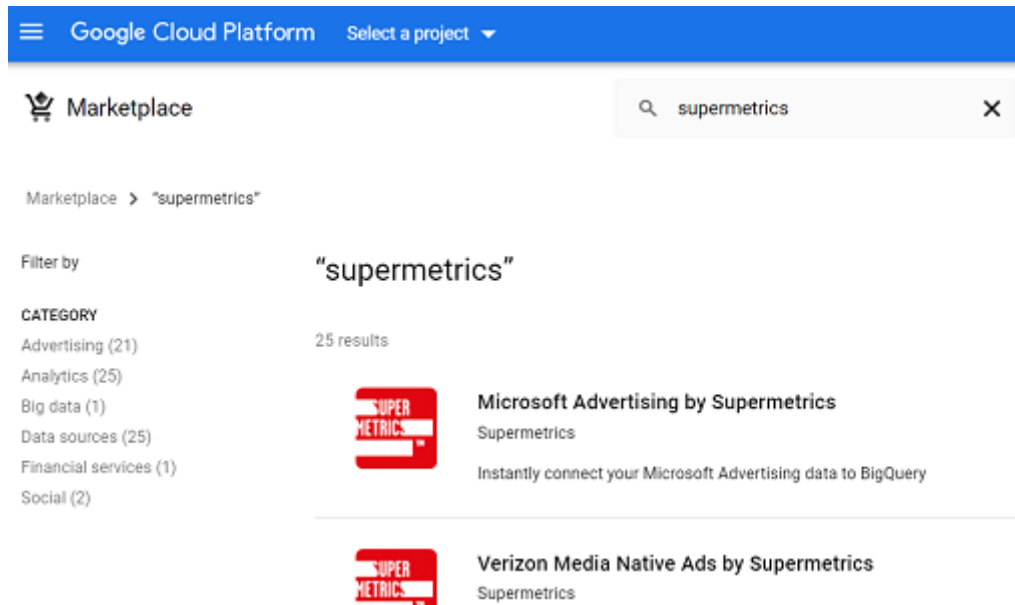
Step-22: Click on the 'Select a project' drop-down menu:
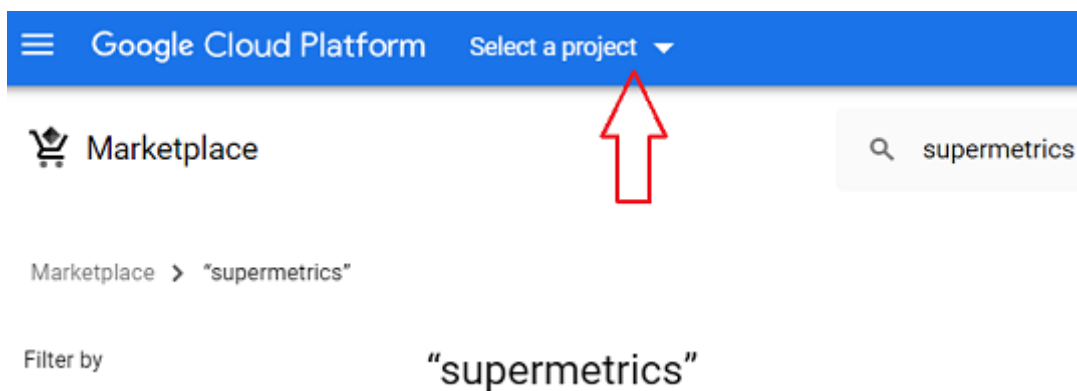
Step-23: Click on 'Google Analytics' project:

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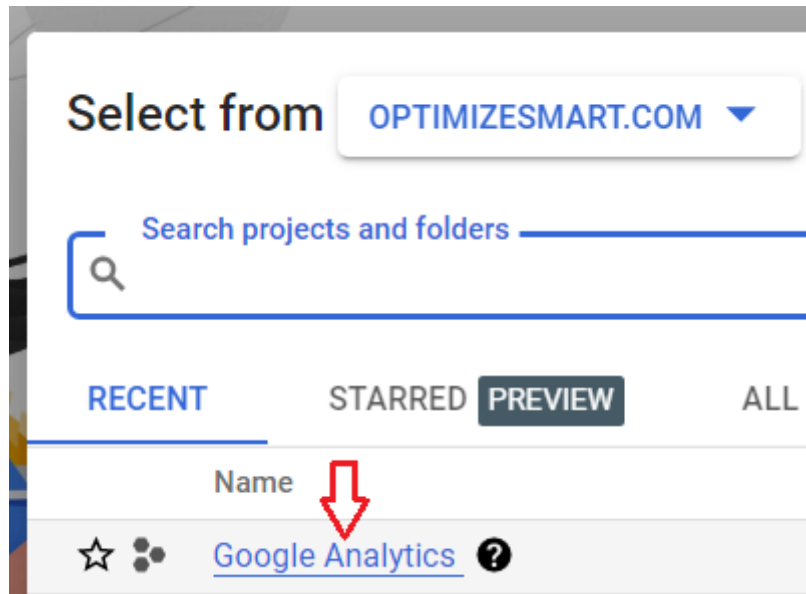
Step-24: Type 'supermetrics google analytics' in the search box:
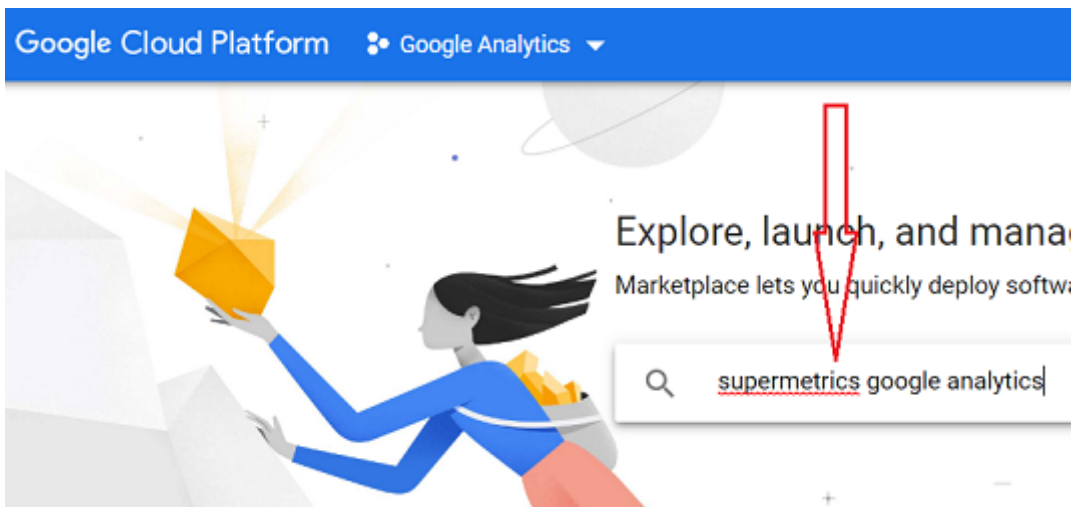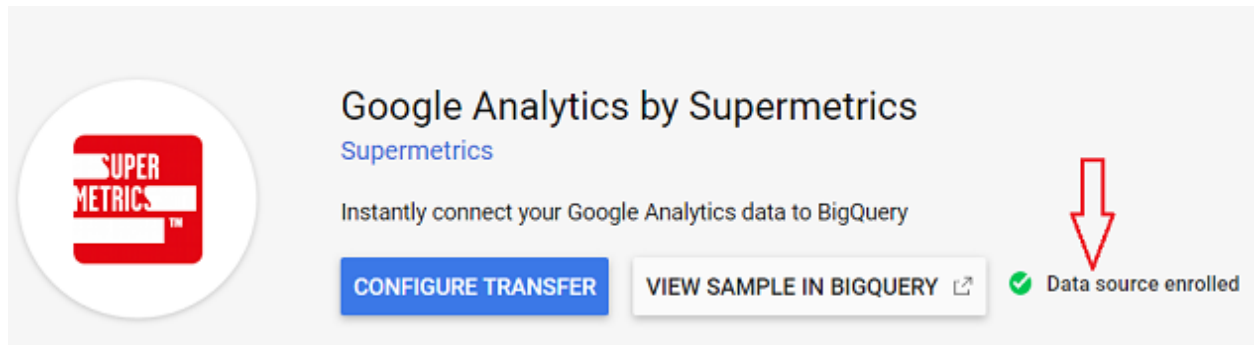
Step-25: Press the enter key and then click on 'Google Analytics by Supermetrics':

![OptimizeSmart.com logo]
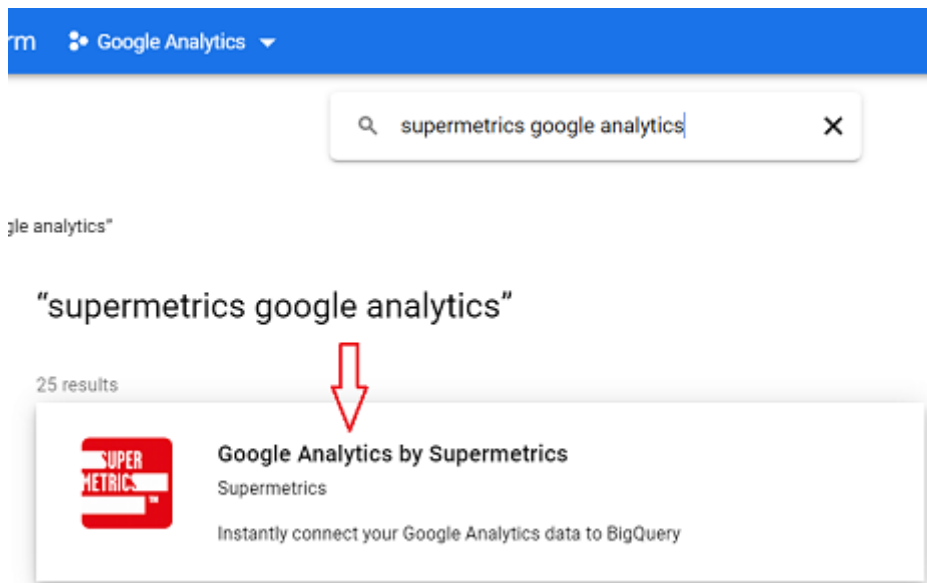
Step-26: Click on the 'Enroll' button:
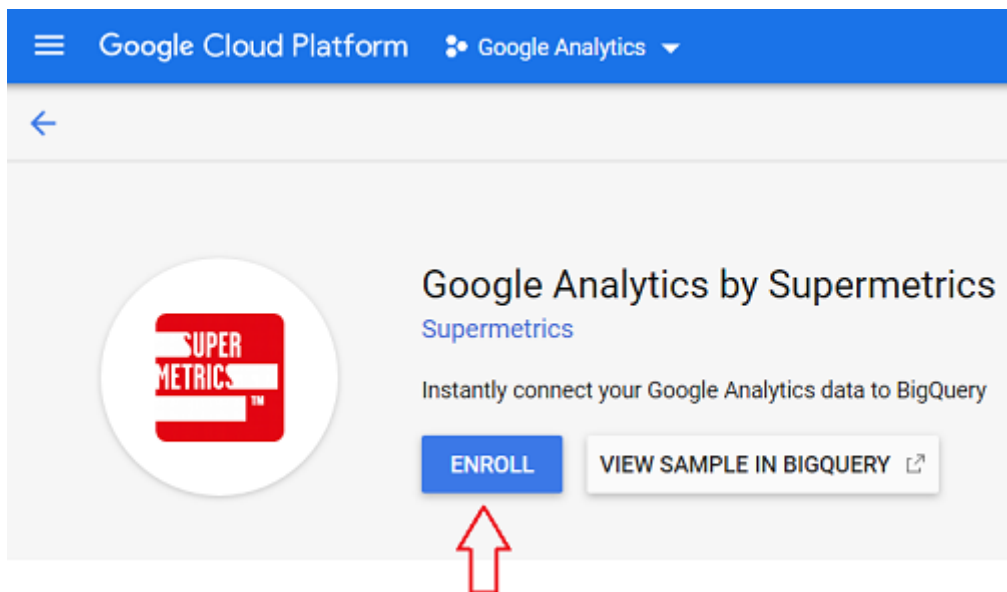
You should now see the '**Data Source enrolled**' status:

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Note: If you are using the BigQuery Sandbox then you will not able to enrol as this Supermetrics connector requires active billing. So when you click on the 'Enroll' button, you should see a message box like the one below:
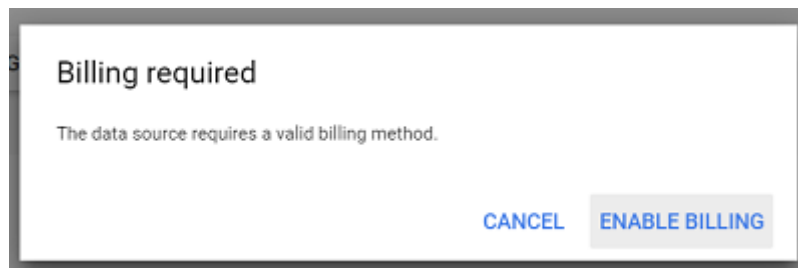
Step-27: Click on the 'CONFIGURE TRANSFER' button:
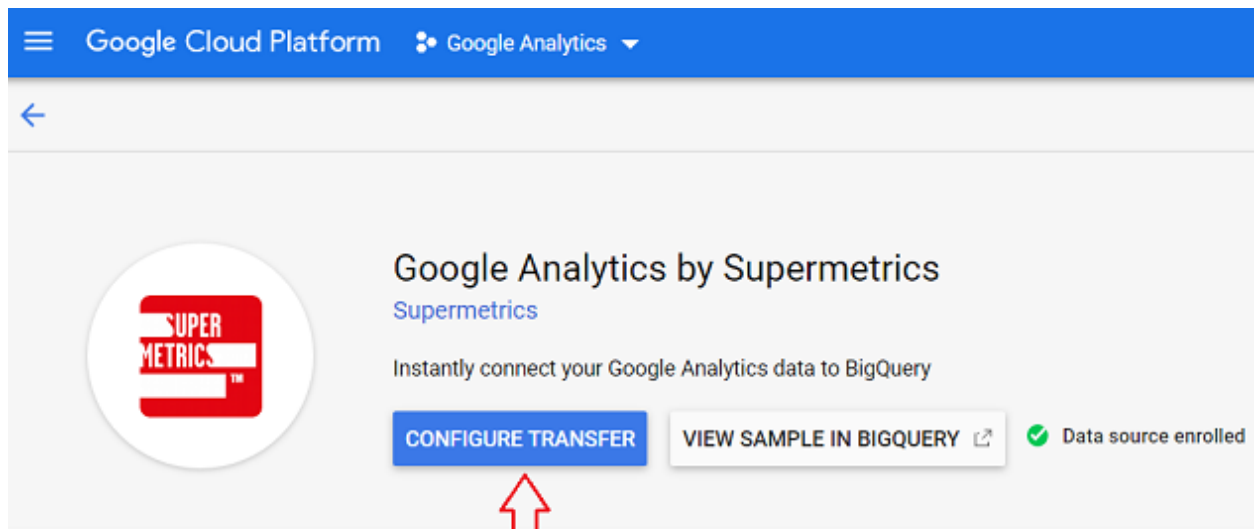
You should now see a screen like the one below which is about **creating a data transfer**:
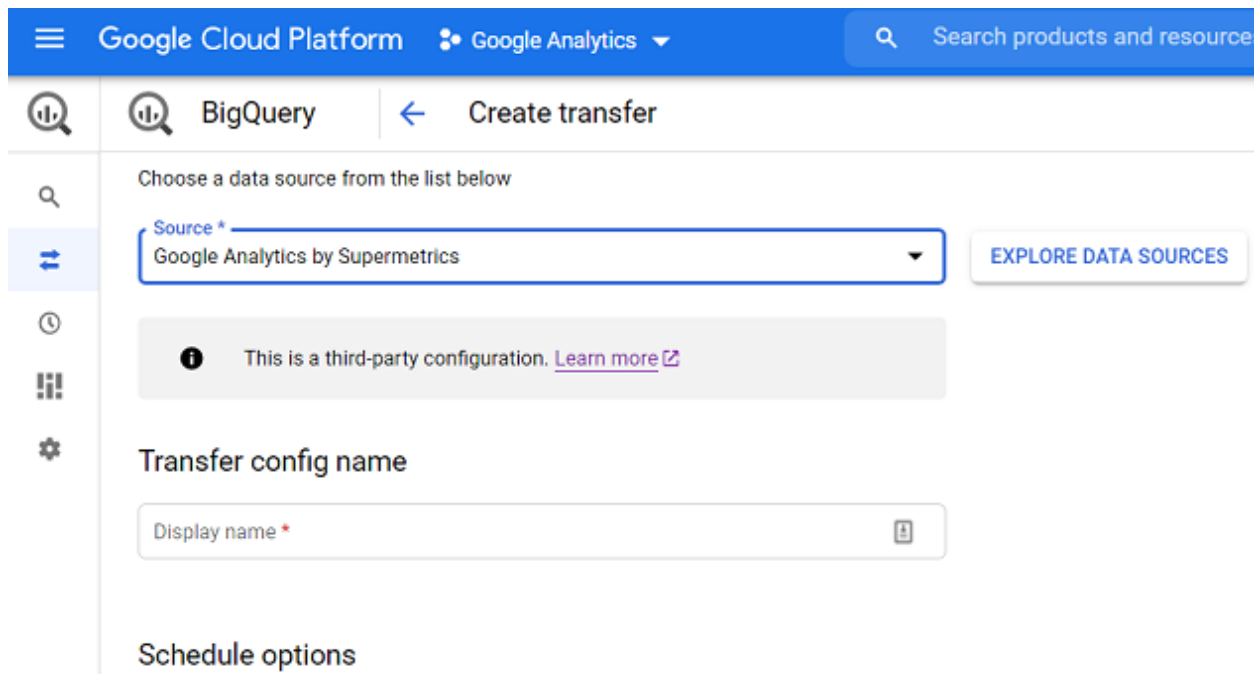
Step-28: Keep the data source ('Google Analytics by Supermetrics') intact and move on to the next step:
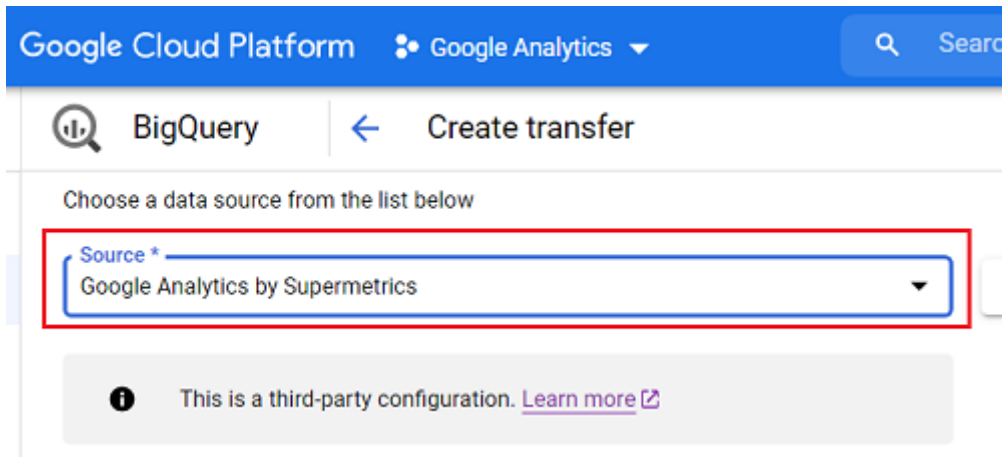
Step-29: Type a meaningful name for the 'Transfer config name' field:
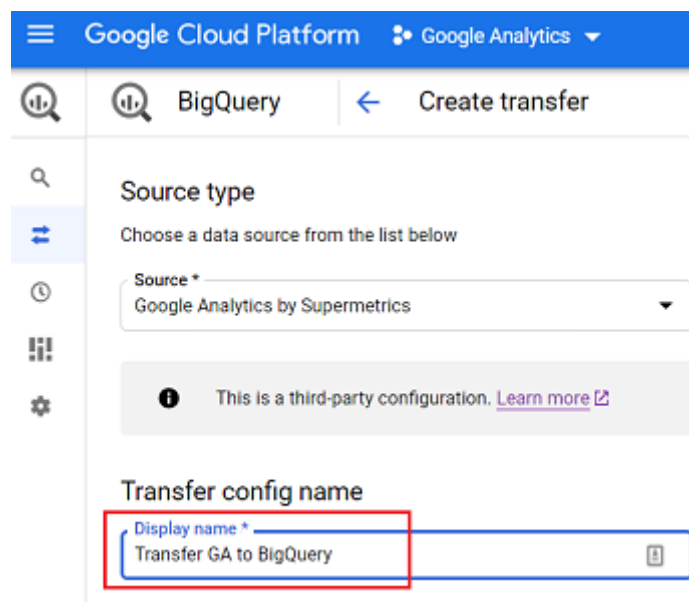
Step-30: Keep the scheduling options (which specify when the transfer will run) to 'Start now' (unless you want to change it) and move on to the next step:

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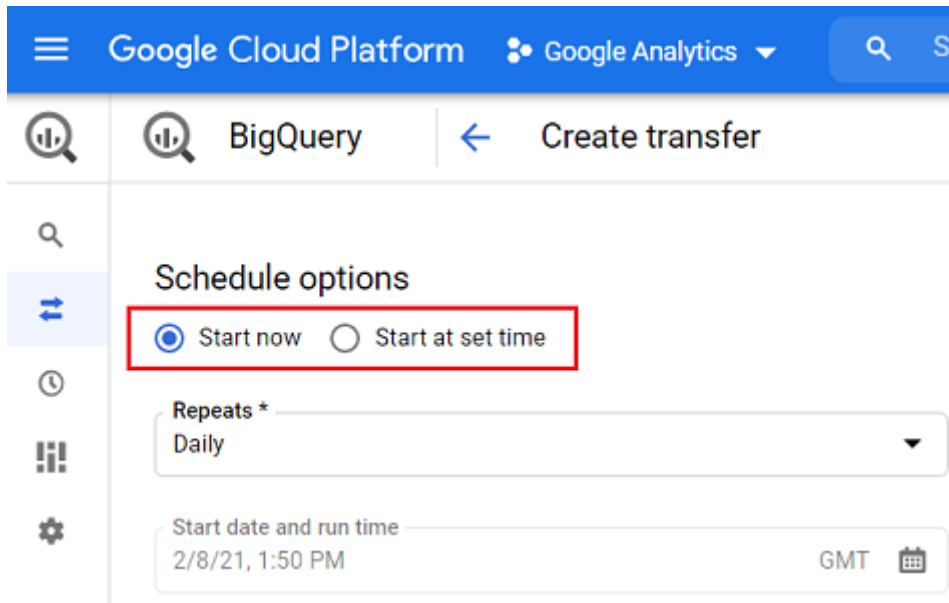
Step-31: Keep the 'Repeats' setting to 'Daily' to have new data added once a day and move on to the next step:
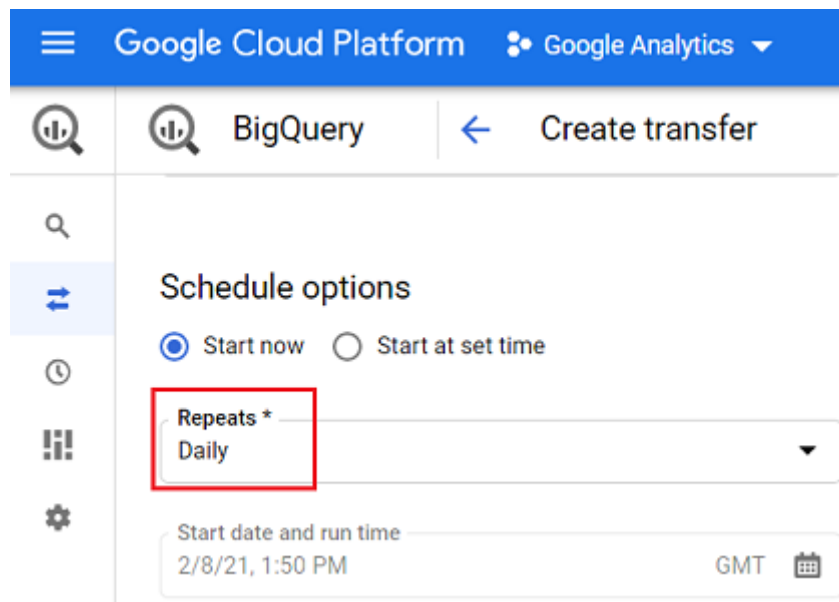
Note: The 'Start date and run time' setting is locked for editing when the 'Start now' setting is selected.

Step-32: Select the data set you created earlier from the drop-down menu:
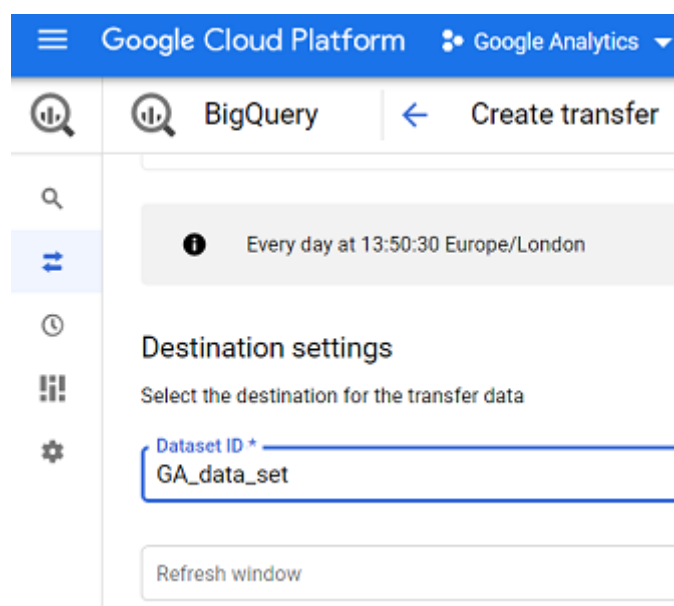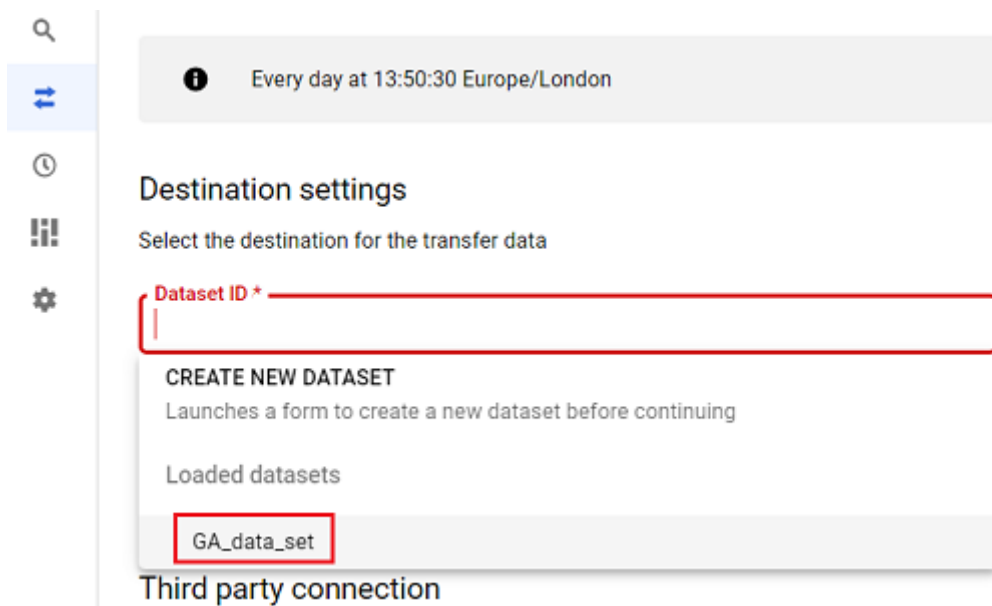
We are going to use this data set for storing Google Analytics data in BigQuery.

Step-33: Click on the 'CONNECT SOURCE' button:
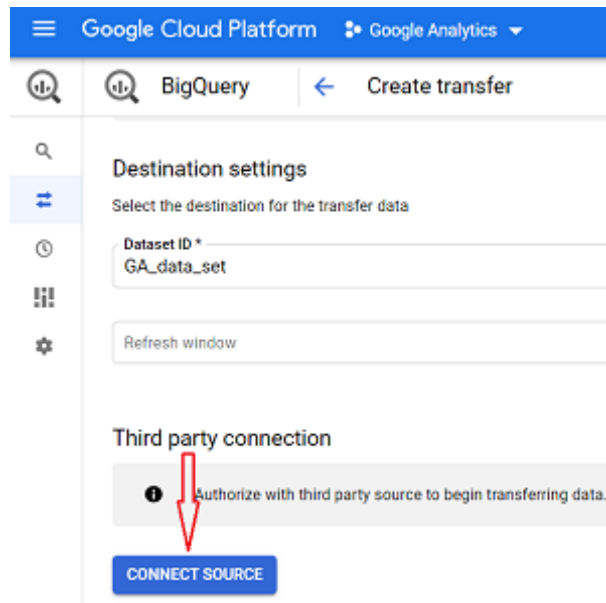
Step-34: Click on the 'Accept Agreement' button:
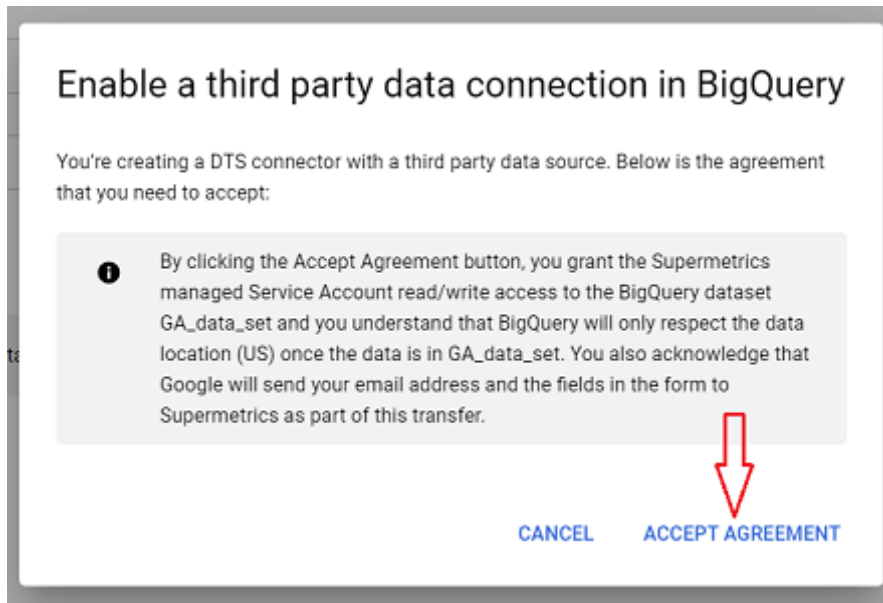
Step-35: Click on 'Sign in with Google' button:
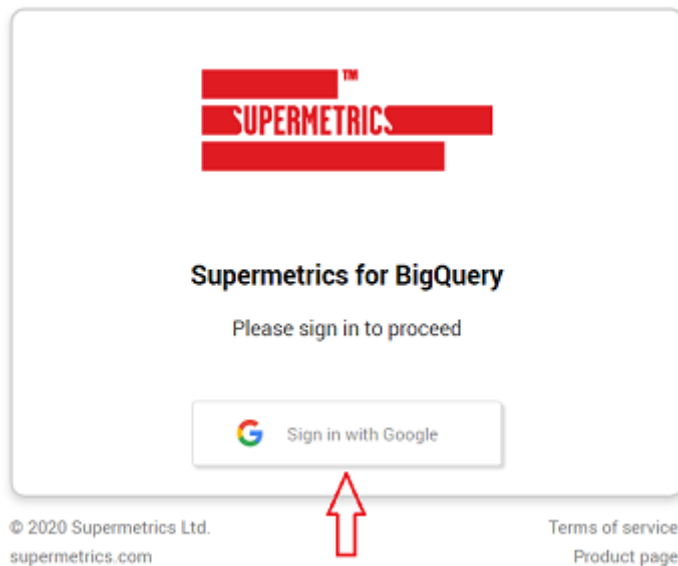
Step-36: Click on the name of the Google account which is associated with both your Google Analytics account and BigQuery project:
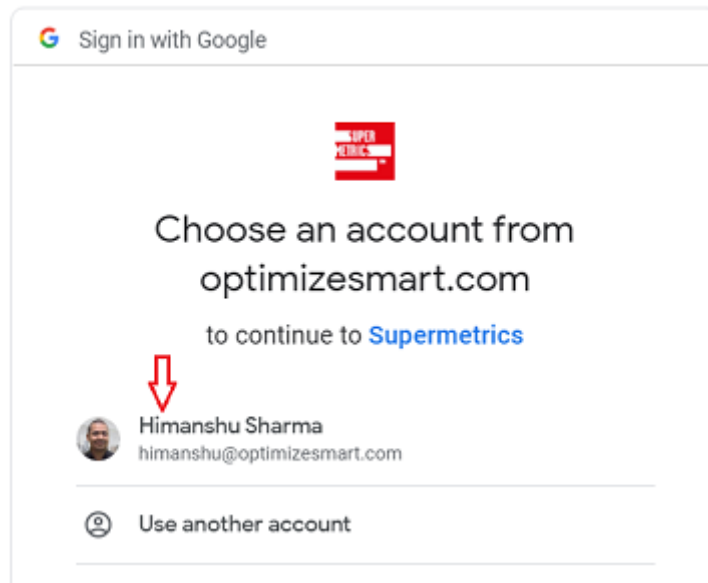
Step-37: Click on the button 'Authorize with Google Analytics':
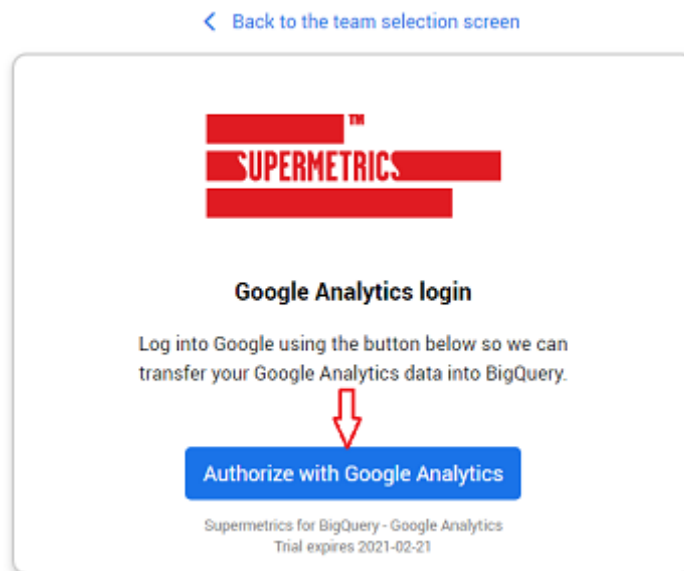
Step-38: Click on the name of the Google account which is associated with your

Google Analytics account:
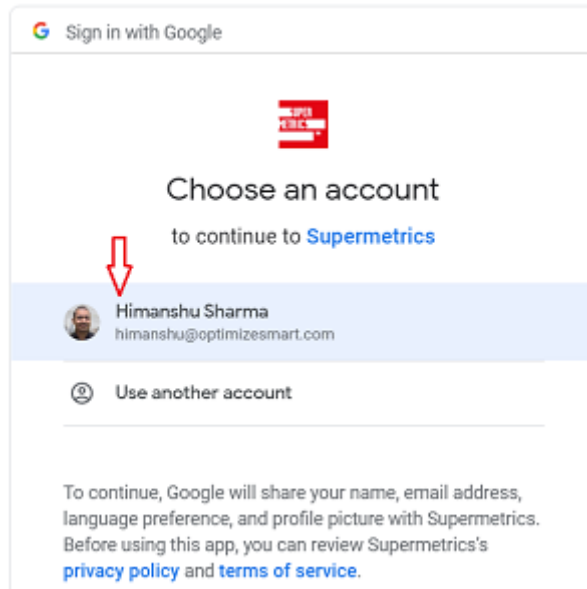
Step-39: Click on the 'Allow' button:
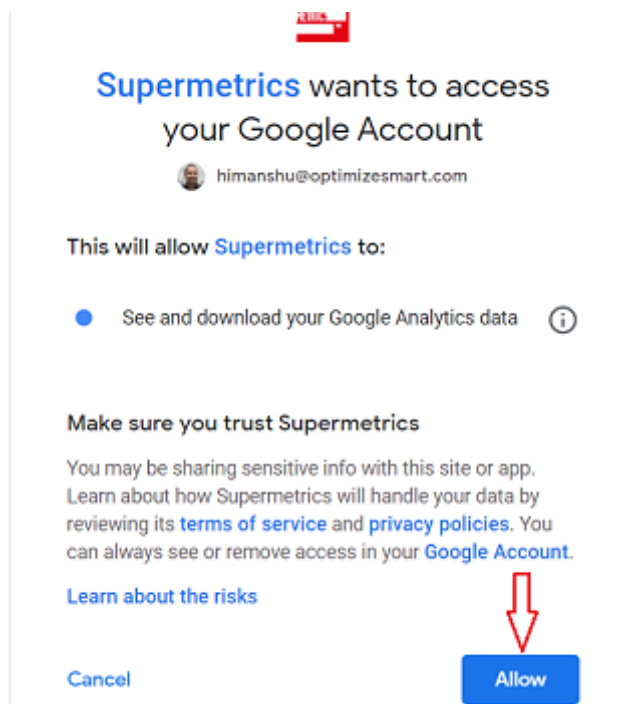
Step-40: Click on the 'Continue' button:
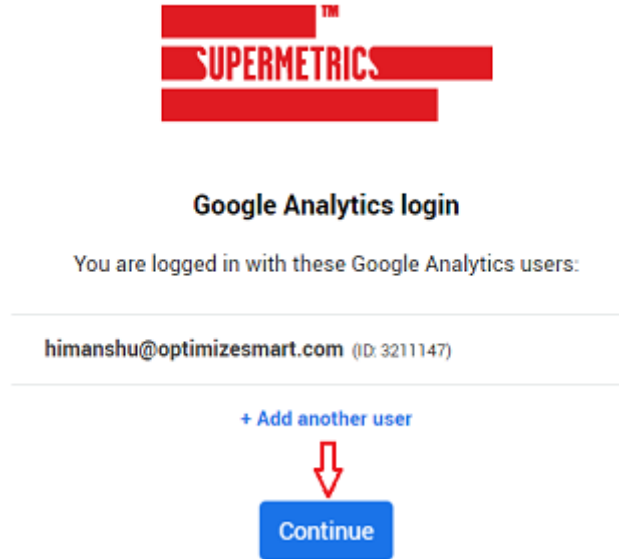
You should now see a screen like the one below:
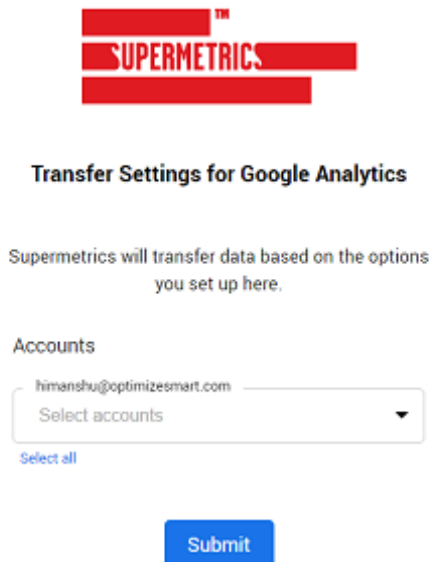
Step-41: Select the Google Analytics view (from which you send data to BigQuery) from the 'Accounts' drop-down menu:
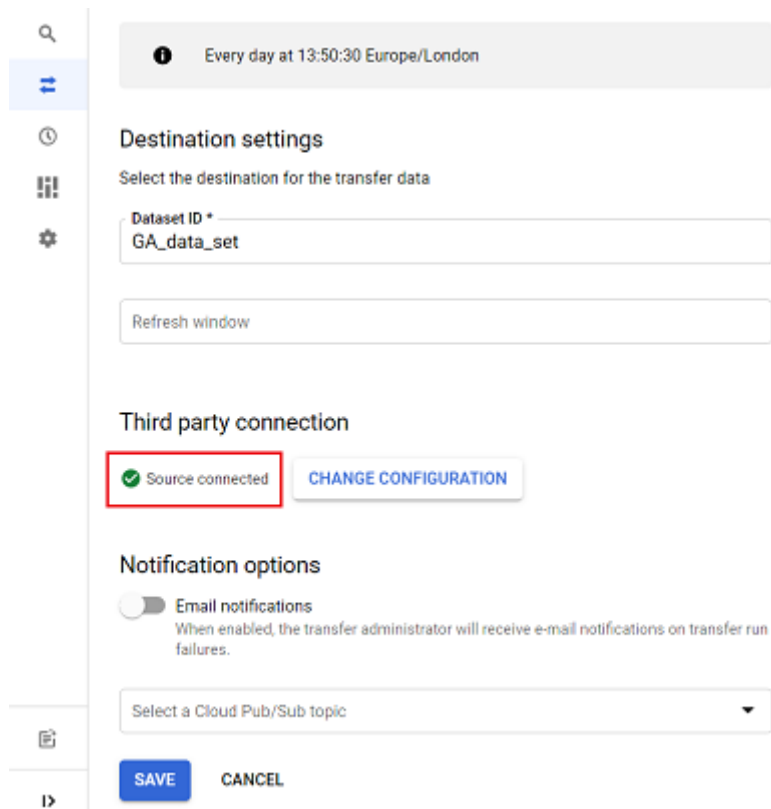
Step-42: Click on the 'Submit' button.

You should now see the '**Source Connected**' message below '**Third party connection**':
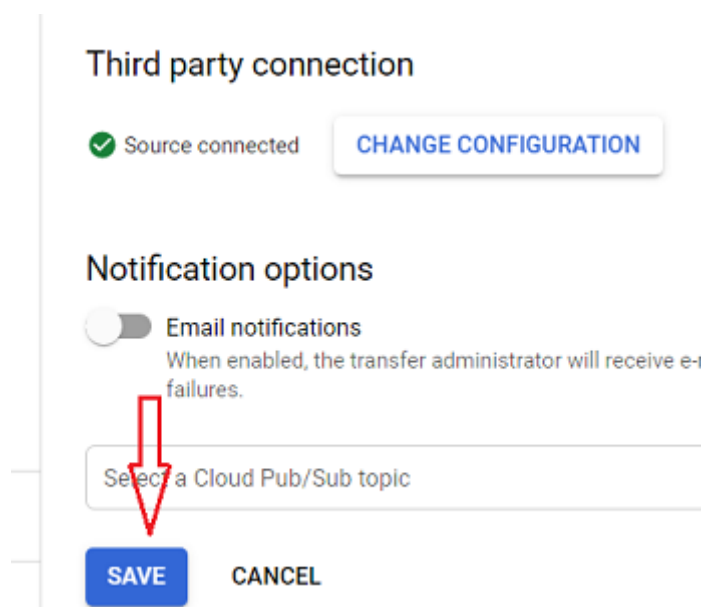
Step-43: Click on the 'SAVE' button to save the transfer and also start the initial data transfer:

You should now see a screen like the one below:

Through the 'Run History' section, you can monitor the current progress of all of your data transfers.
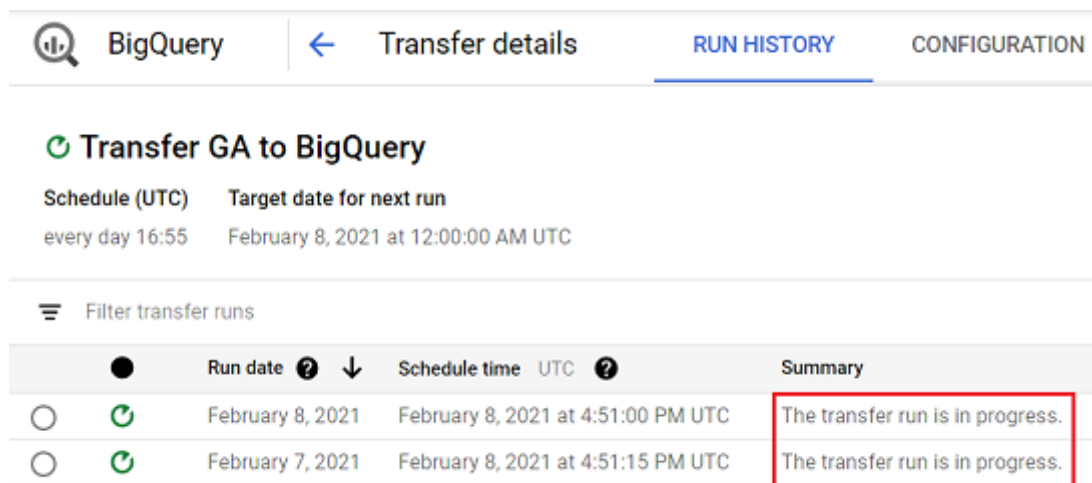
When the data transfer is in progress you see the message 'The transfer run is in progress:

When the data transfer is complete you see the message 'The transfer run has completed successfully:

Step-44: Click on the 'SQL WORKSPACE' link from the left-hand side navigation:
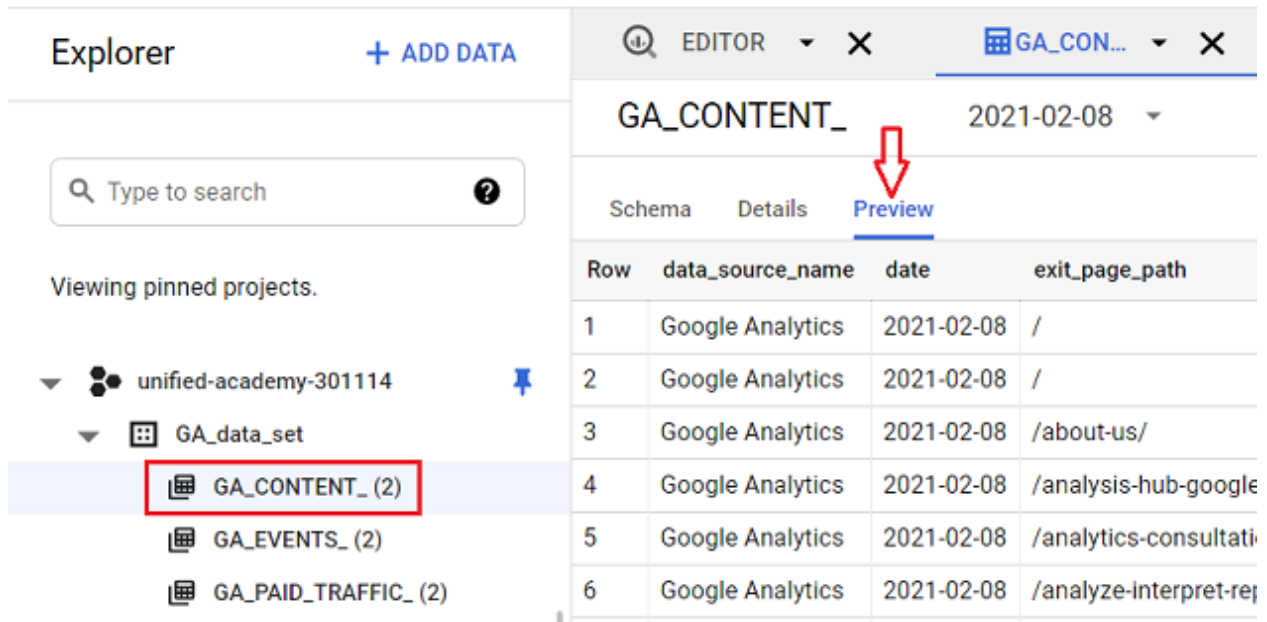
Step-45: Navigate to the data set named '*GA_data_set'* (which we created earlier).

This data set lists all the data tables automatically created by supermetrics:
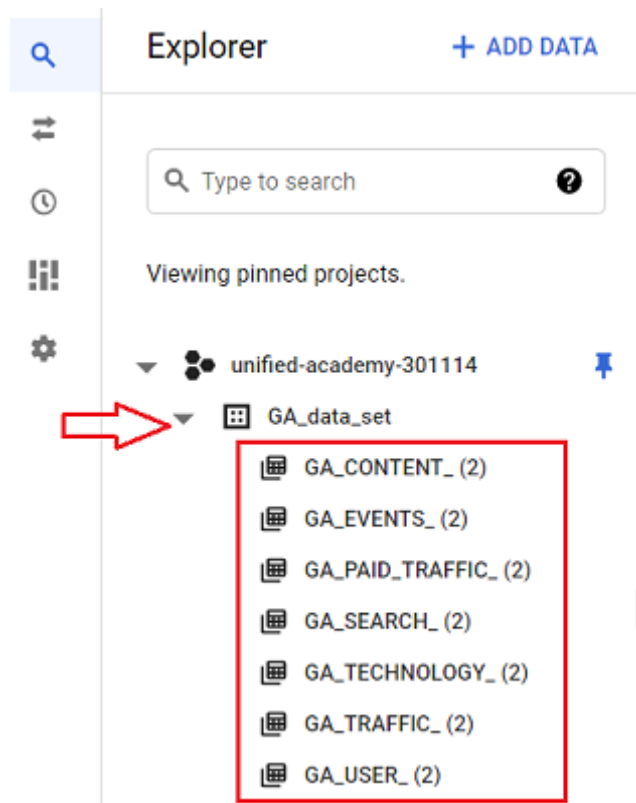
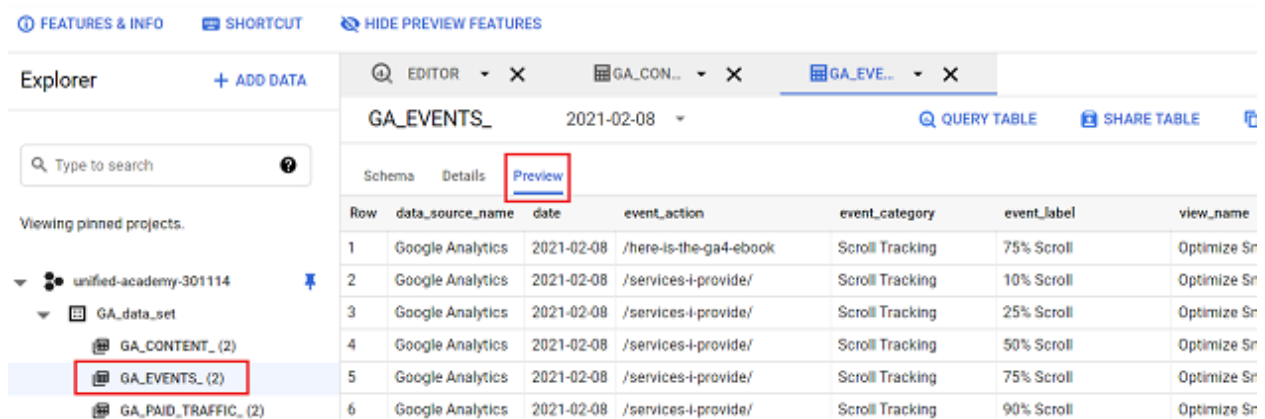**Step-46:** Click on the data tables one by one to see what data it contains.

For example, **GA_CONTENT_** data table contains the GA content data:

The **GA_EVENTS_** data table contains the GA event data:

At this point, you can query a particular set of data by clicking on the 'Query Table' button:

That's how you can send Google Analytics data to BigQuery without using Google

Analytics 360.

How to connect Google Analytics 4 with BigQuery?

Now let's dive into this step-by-step guide to connecting your Google Analytics 4 property to BigQuery.

Follow the steps below to connect Google Analytics 4 with BigQuery and then send the GA data to it:

Step-1: Navigate to your BigQuery account:

https://console.cloud.google.com/bigquery

Step-2: At the top of your screen click on the drop-down menu:
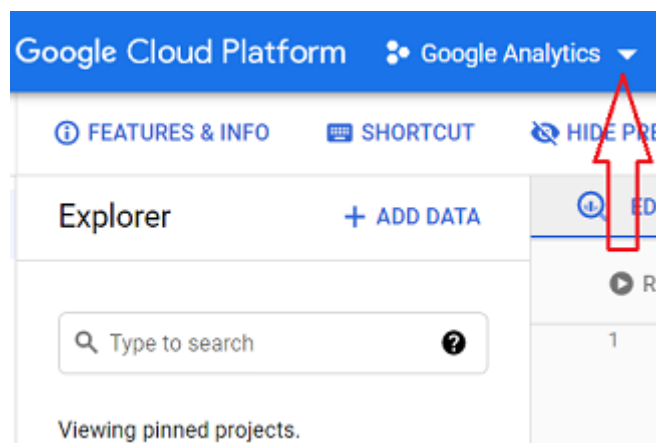
Step-3: Click on the 'New Project' button:
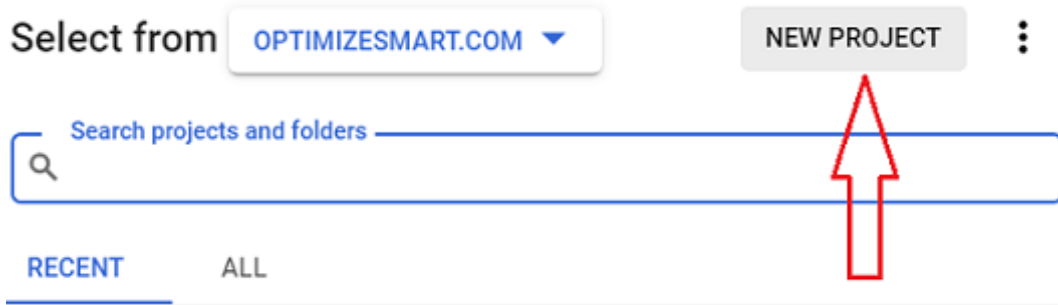
We are going to use this new project for collecting and querying Google Analytics 4 data into BigQuery.

Step-4: Name your new project and then click on the 'Create' button:
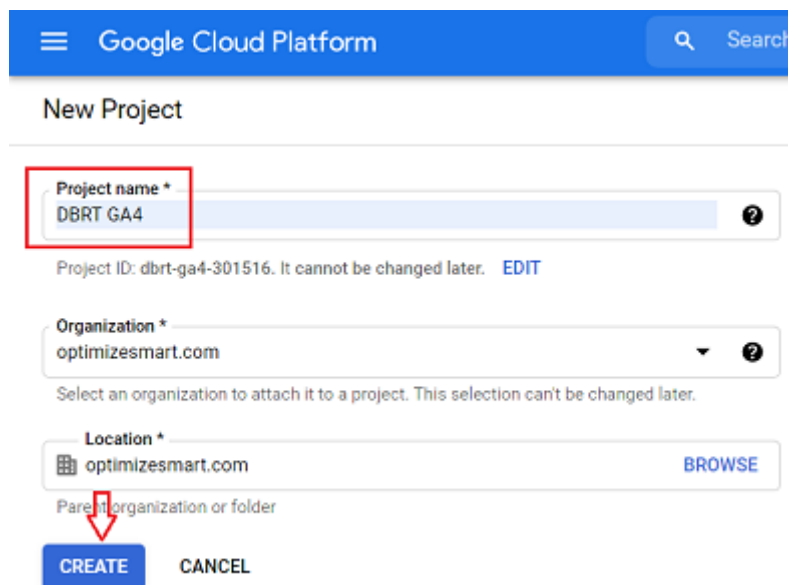
Step-5: At the top of your screen click on the drop-down menu:
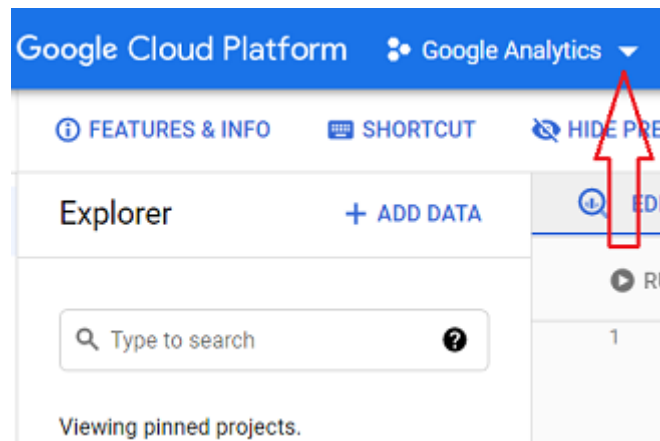
Step-6: Click on the name of the project you want to switch to (in our case 'DBRT GA4'):
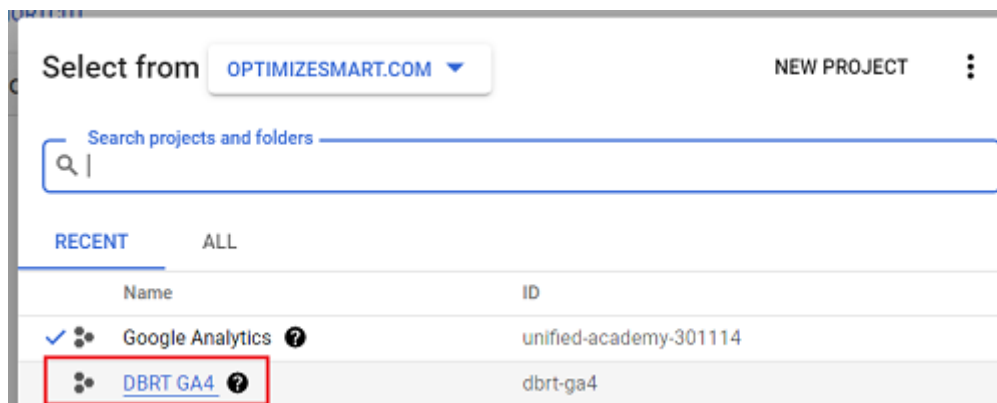
Congratulations! You are now in the 'DBRT GA4' project.

You will know that you are in the right project because the project name will appear at the top of your screen:
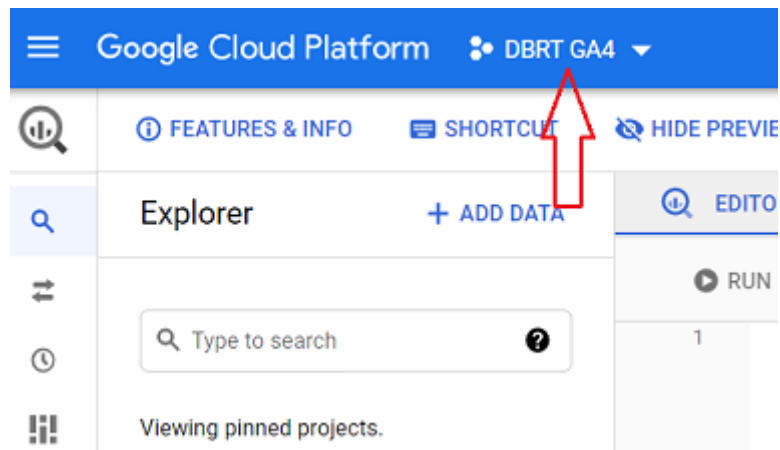
Step-7: Log in to your Google Analytics 4 property and click on 'Admin' under the left-hand side reporting menu.
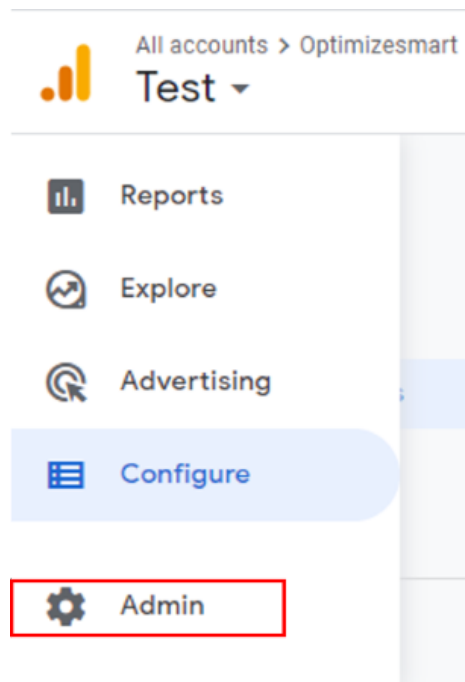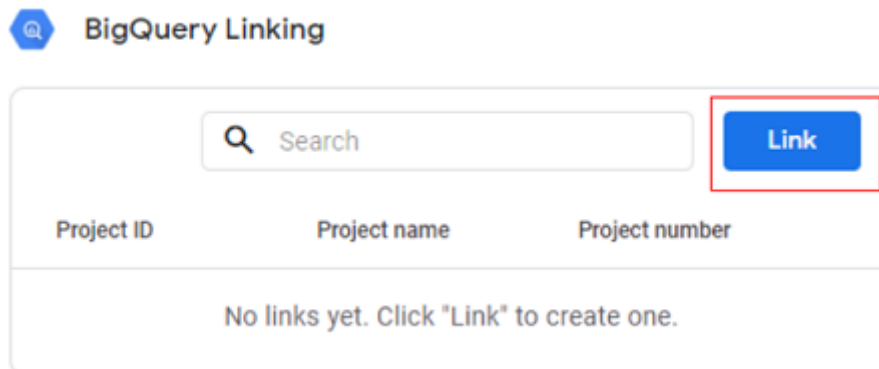
Step-8: Click on 'BigQuery Linking' under 'Product Linking':

![OptimizeSmart.com logo]

PRODUCT LINKING

Google Ads Linking

Ad Manager Linking

BigQuery Linking

Step-9: Click on the 'Link' button:

BigQuery Linking

Q Search		Link
Project ID	Project name	Project number
No links yet. Click "Link" to create one.		

Step-10: Click on 'Choose a BigQuery project':
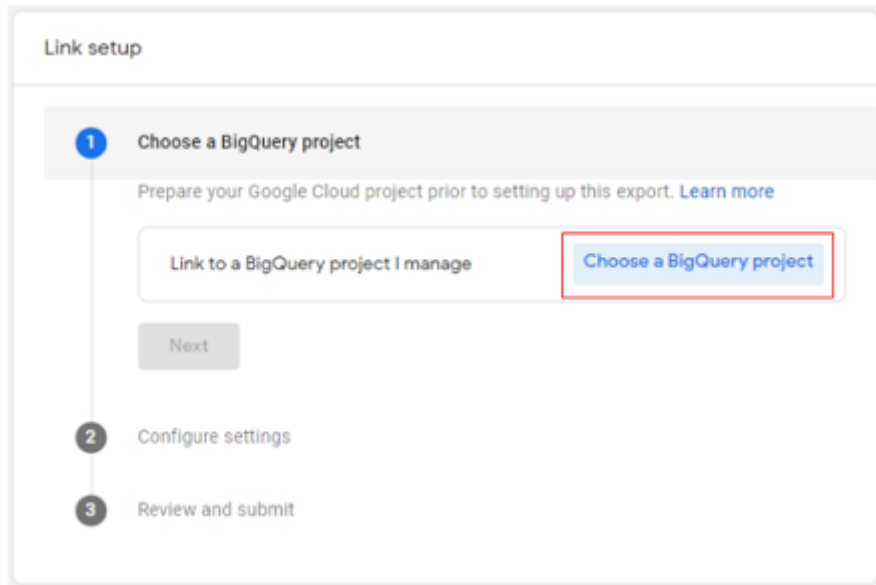
Step-11: Select the BigQuery project where you want to send your GA4 data and then click on the 'Confirm' button. In our case that project is 'DBRT GA4':
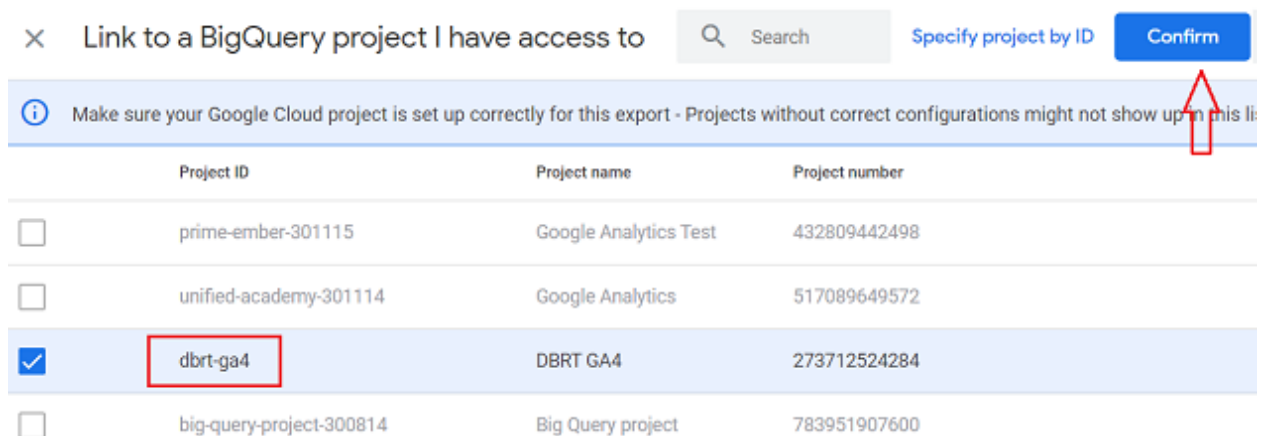
Step-12: Select your data location and then click on the 'Next' button.

Data location is the cloud region where your data is stored.

Step-13: 'Edit' your data stream(s) if required. Otherwise, move on to the next step. By default, all of the data streams are selected.

You have the option to select a specific data stream for which you will be exporting the data to BigQuery. Just click on 'Edit' if you want to edit your data streams:

Step-14: Click on the checkbox "*Include advertising identifiers for mobile app streams*" if you have a mobile app and you want to export mobile advertiser identifiers. Otherwise, move on to the next step.

Step-15: Select the frequency of your data import to BigQuery by selecting both 'Daily' and 'Streaming' settings and then click on the 'Next' button:

You should now see a screen like the one below:

Step-16: Click on the 'Submit' button. You should now see a screen like the one below:

Congratulations!

Your GA4 account is now successfully linked to your Big Query project.

Step-17: Navigate to https://console.cloud.google.com/apis/dashboard

Step-18: Make sure your BigQuery project for GA4 is selected:
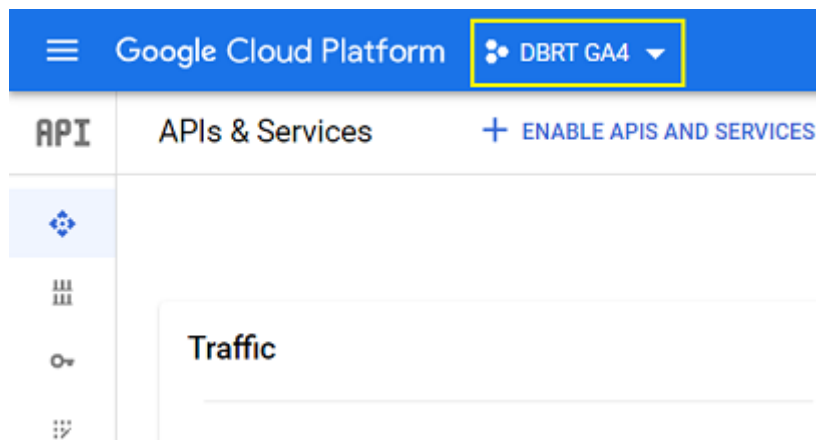
Step-19: Click on the '+ENABLE APIS AND SERVICES' button:
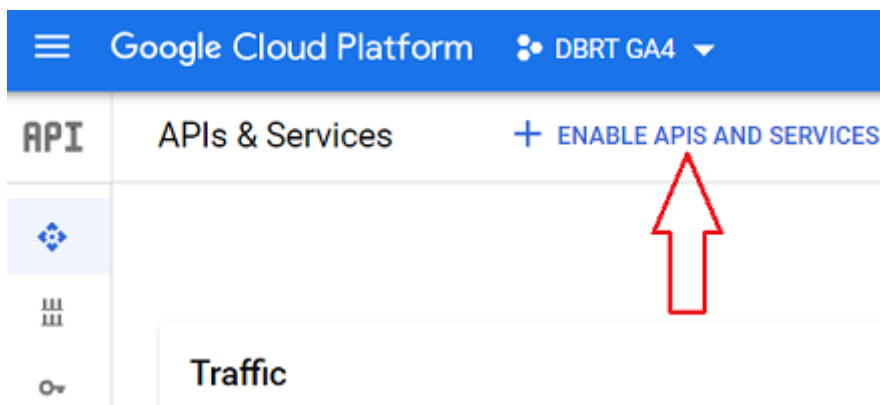
You should now see a screen like the one below:
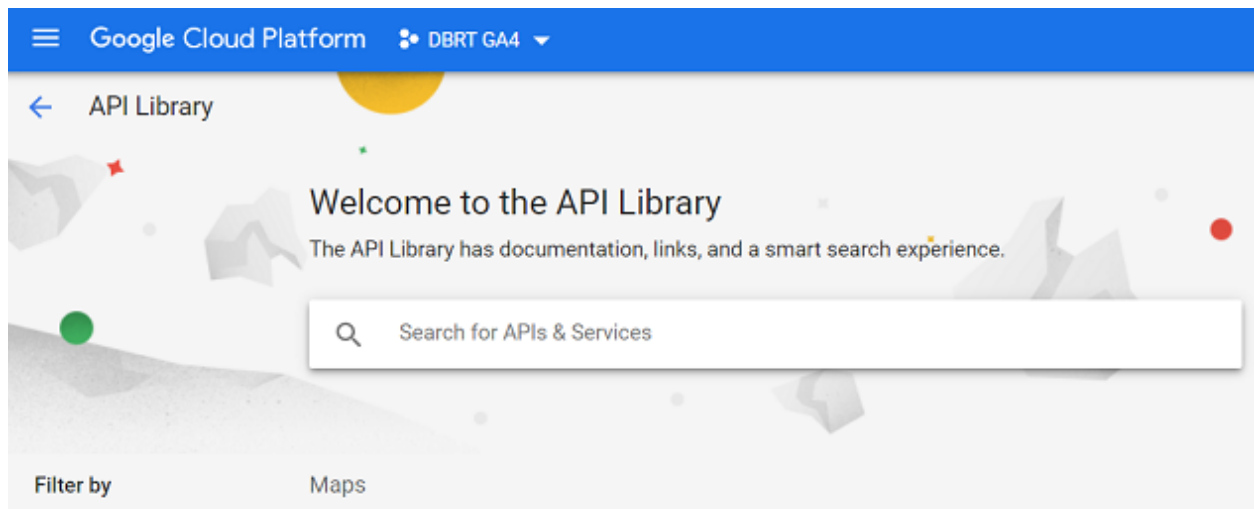
Step-20: Search for "Big Query" and then click on the 'Big Query API' button:
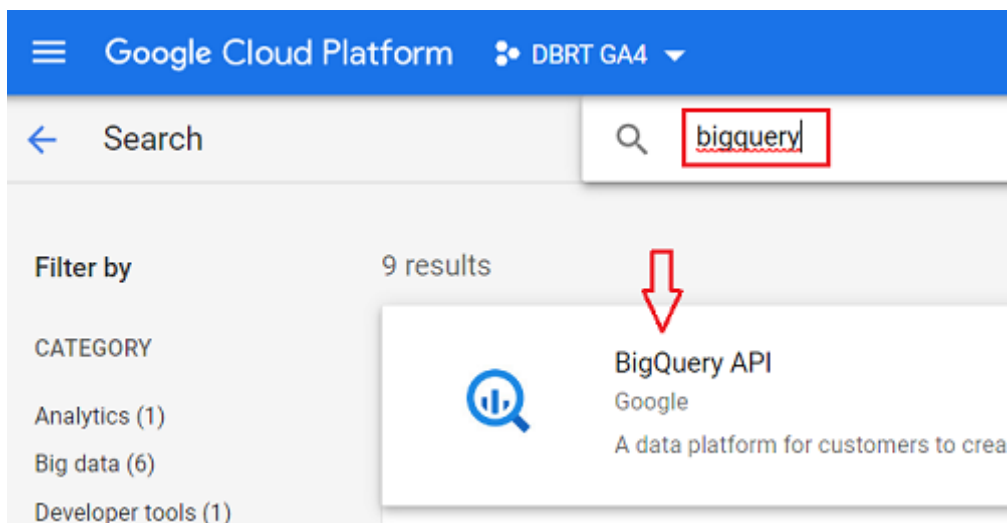
Step-21: Click on the 'Manage' button:
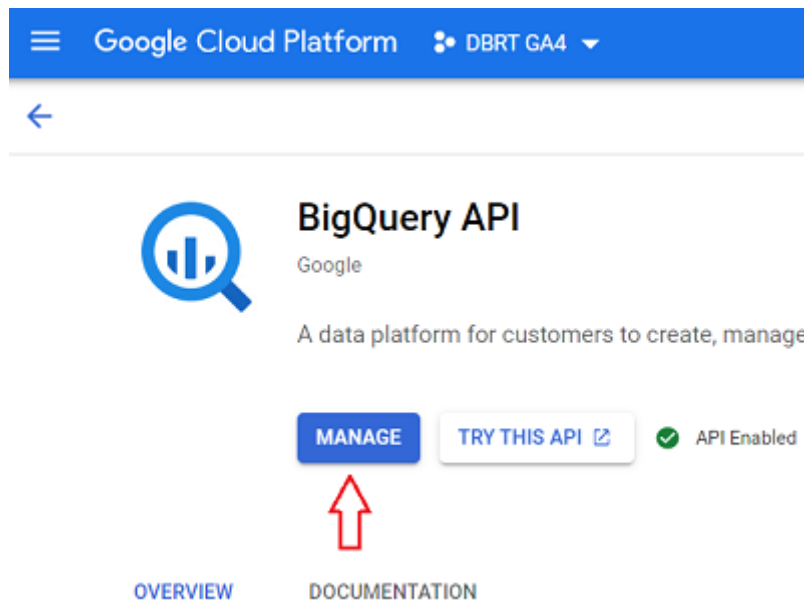
Step-22: Click on the 'Credentials' link from the left-hand side navigation menu:
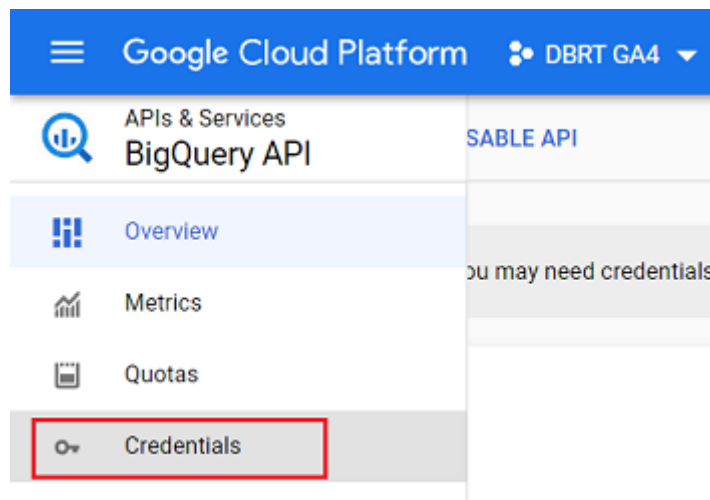
Step-23: You would now need to add a firebase service account.

This account would be used to export Google Analytics 4 data to BigQuery. To do that click on the '**+create credentials**' button:
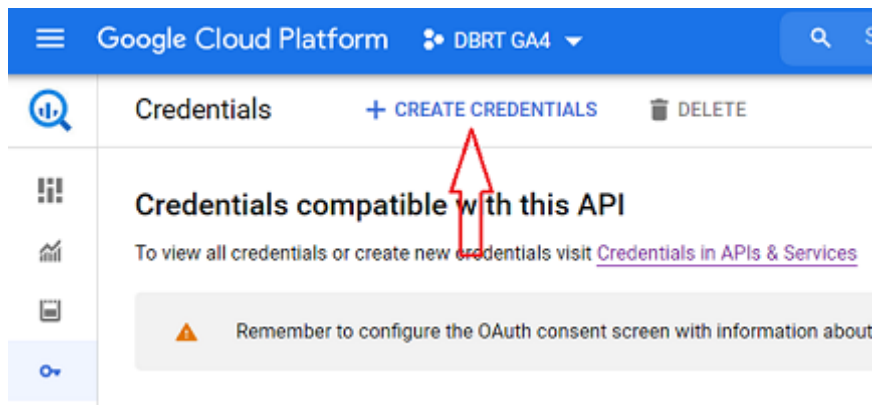
Step-24: Click on the 'Service account' link to create a new service account:

You should now see a screen like the one below:

Step-25: Enter **firebase-measurement@system.gserviceaccount.com** as service account name:
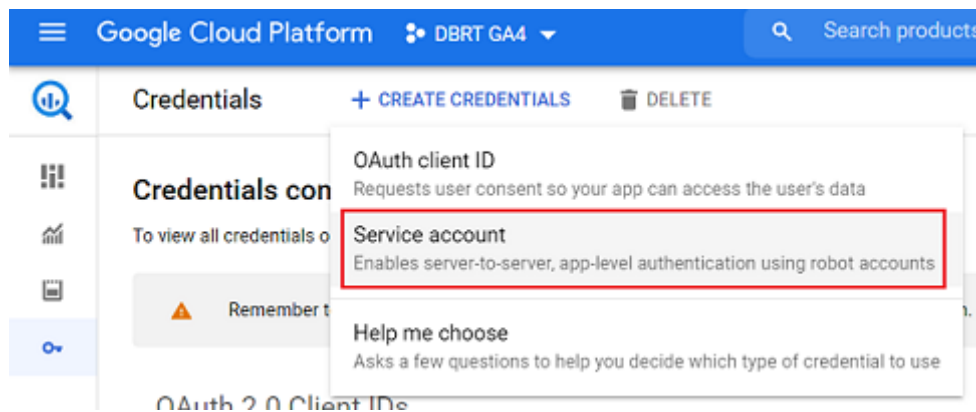
Create service account

① Service account details

Service account name
firebase-measurement@system.gserviceaccount.com

Display name for this service account

Service account ID
firebase-measurement-syste-627   @dbrt-ga4.iam.gserviceaccount.   ✕ ↻

Service account description

Describe what this service account will do

CREATE

② Grant this service account access to project (optional)

③ Grant users access to this service account (optional)

DONE   CANCEL

Step-26: Click on the 'Create' button:

You should now see a screen like the one below:
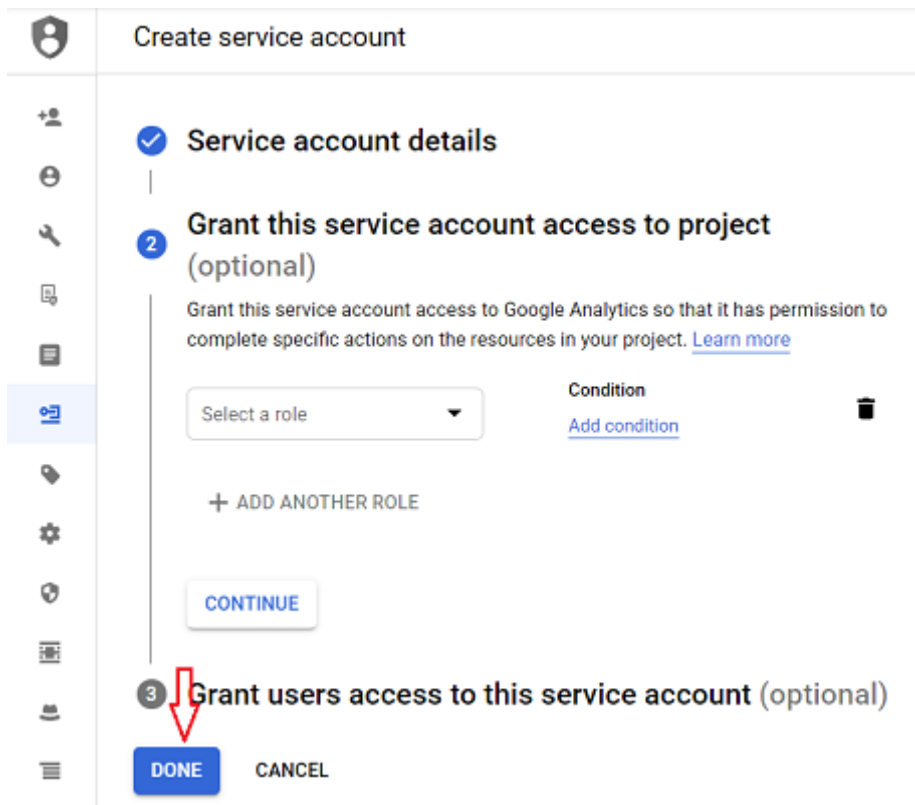
Step-27: Click on the 'DONE' button.

You should now see your new service account listed like the one below:
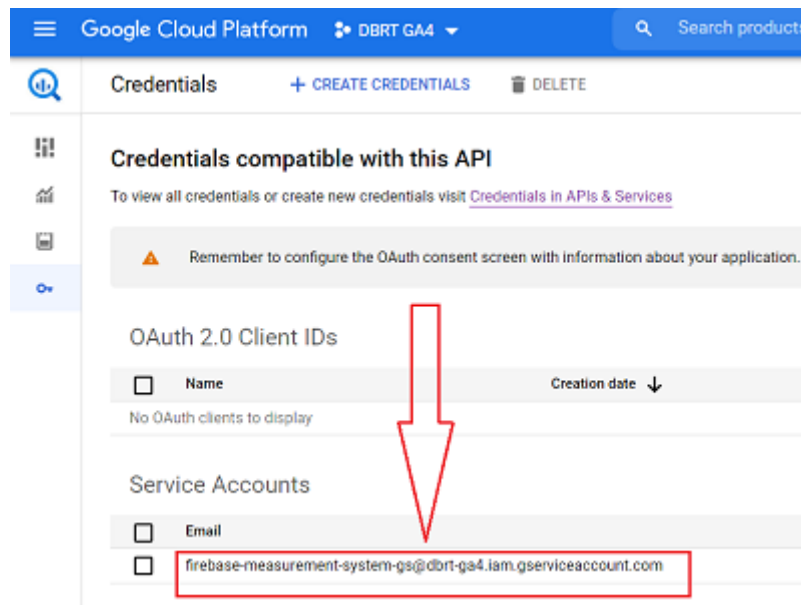
Step-28: Wait for a full 24 hours.

It usually takes around 24 hrs for your GA4 data to be available in your BigQuery project.

Step-29: Navigate back to your BigQuery account and make sure that your project used for collecting GA4 data is selected:
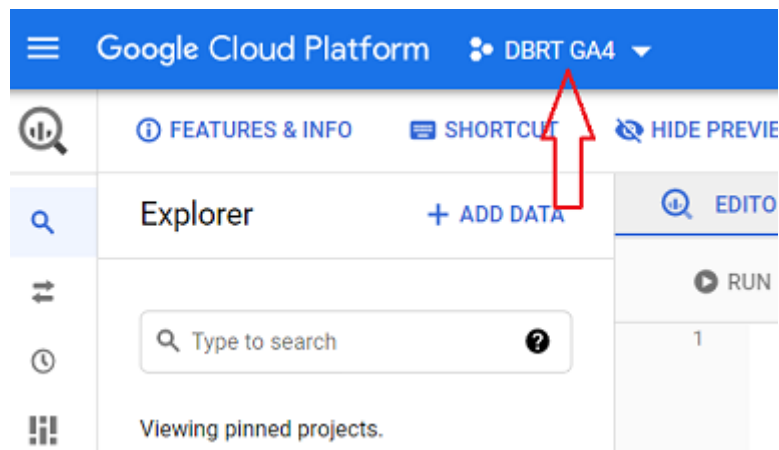
Step-30: Scroll down and then click on the project ID of the project which collects GA4 data:
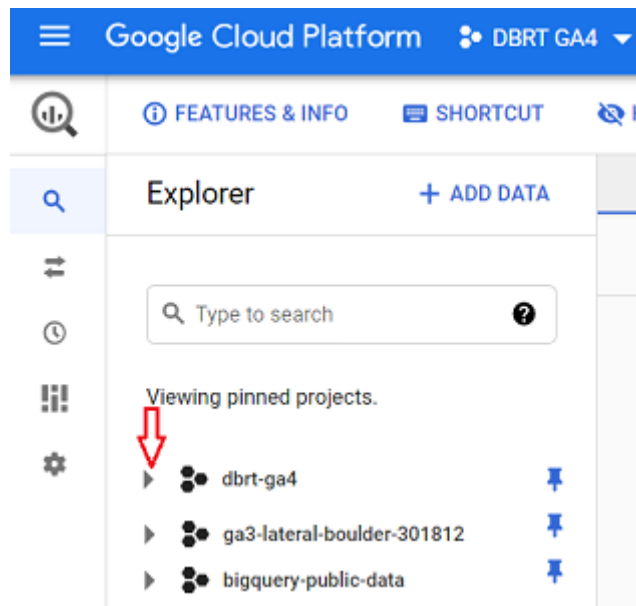
You should now be able to see a data set named "*analytics_<property_id>*":
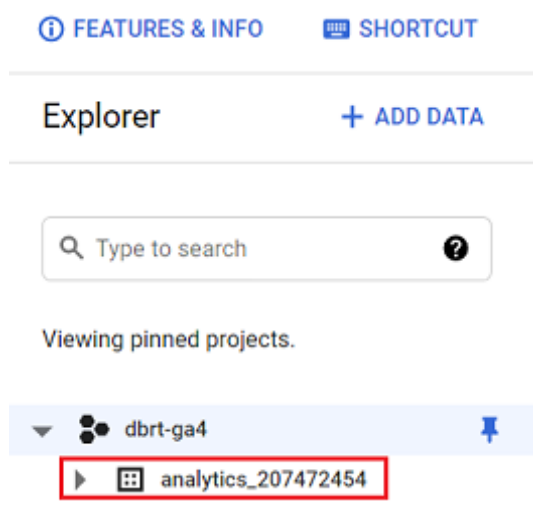
For each Google Analytics 4 property that is linked to BigQuery, a single dataset named "analytics_<property_id>" is added to your BigQuery project.

Property ID refers to your Analytics Property ID, which you can find in the property settings for your GA4 property.

In my case, the property ID is 207472454

That's why the name of my data set is '**analytics_207472454**'

This data set contains the following two data tables which contain your GA4 data:

1. **events_(<number of days>)**

2. **events_intraday_<current date>**
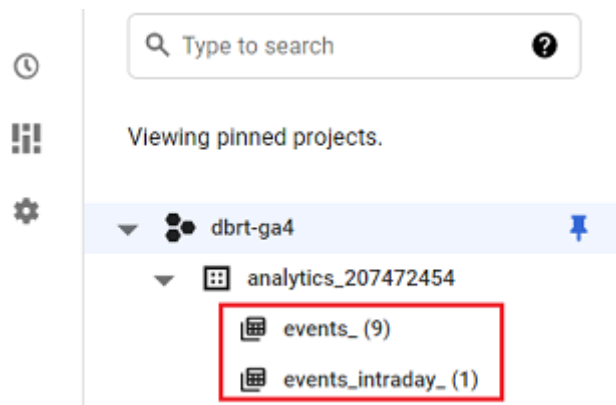
You are doing Google Analytics all wrong. Here is why...

OptimizeSmart.com

I have dealt with hundreds of Google Analytics accounts in my career.

I have seen a lot of issues from incorrect tracking code, selecting the wrong KPIs to analyzing data without using custom reports or advanced segments.

But do you know the biggest issue of all in Google analytics?....

It is the "misinterpretation of analytics data".

Many marketers make the mistake of crediting conversions to the wrong marketing channel.

And they seem to be making this mistake over and over again.

They give the credit for conversions to the last touchpoint (campaign, ad, search term...).

They can't help themselves because they believe that the Google Analytics reports are 'what you see is what you get'.

But they are actually 'what you interpret is what you get'.

This has resulted in marketers making wrong business decisions and losing money.

All the data you see in Google Analytics reports today lies to you unless you know exactly how to interpret it correctly.

For example, let's talk about direct traffic.

All untagged or incorrectly tagged marketing campaigns from display ads to emails could be reported as direct traffic by Google.

Whenever a referrer is not passed, the traffic is reported as direct traffic by Google.

Mobile applications don't send a referrer. Word/PDF documents don't send a referrer.

'302 redirects' sometimes cause the referrer to be dropped. Sometimes browsers don't pass the referrer.

During an HTTP to HTTPS redirect (or vice versa) the referrer is not passed because of security reasons.

All such traffic is reported as direct traffic by Google.

So on the surface, it may look like that most people are visiting your website directly but this is not usually the case.

But this analysis does not end here, because you are still not looking at the complete picture.

OptimizeSmart.com

People do not always access your website directly and then make a purchase straight away.

They are generally exposed to multiple marketing channels (display ads, social media, paid search, organic search, referral websites, email etc) before they access your website directly.

Before they make a purchase.

So if you are unaware of the role played by prior marketing channels, you will credit conversions to the wrong marketing channels.

Like in the present case to direct traffic.

To get this type of understanding you need to understand and implement web analytics.

But **you learn data analysis and data interpretation from web analytics and not from Google Analytics.**

The direction in which your analysis will move will determine the direction in which your marketing campaigns will move.

You get that direction from 'web analytics' and not from 'Google Analytics'.

OptimizeSmart.com

Web/Digital analytics is not about Google Analytics (GA) or Google Tag Manager (GTM). It is about analyzing and interpreting data, setting up goals, strategies and KPIs.

It's about creating a strategic roadmap for your business.

That's why the knowledge of web/digital analytics is so important.

So, what I have done is put together some completely free training for you.

This training will teach you what digital analytics really is and how I have been able to leverage it to generate floods of new sales and customers.

I will also show you how you can copy what I have done to get similar results.

You can sign up for the free training here:

Reserve My Seat Now

I hope you find it helpful.

All the best,

Himanshu