

Automatic Sampling and Analysis of YouTube Data

Setting Up Access to the YouTube API

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Setting up API access to the *YouTube* API

To effectively work with *YouTube* data, we need access to its Application Programming Interface (API). As this process, unfortunately, can be a bit tedious, we prepared this preliminary tutorial so you don't have to spend time setting up your API access during the workshop. Please follow this tutorial and check if the setup works before the workshop. If your setup does not work, feel free to contact us before the workshop (the sooner the better) and we'll try to assist you in setting up access to the *YouTube* API. If, for some reason, setting up access to the API does not work for you and we don't find a solution or if you cannot access the API during the workshop, we will have some data prepared that you can then work with in the workshop.

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HINT: Pink texts in the slides are hyperlinks that you can simply click on

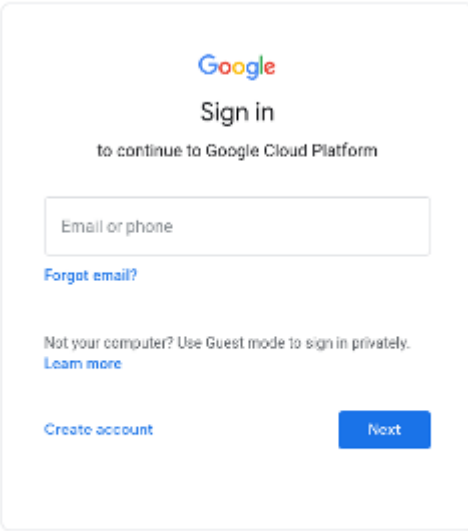
Setting up API Access

- For starters, you need a *Gmail* account
- We suggest that you create a new account specifically for this workshop, so you don't mess up or accidentally share the credentials of your private or work account
- You can create a new account [here](#)
- Next, you need to:
 - Sign up for the *Google Developer Console*
 - Create a new project
 - Activate the Youtube Data API v3
 - Create authentication credentials
 - Test the credentials from R

We will explain these steps in detail on the following slides.

Google Developer Console

- Go to the **Developer Console** and log in with your (new) *Google* Account
- You need to accept the Google Developer ToS, can deselect the email updates, and click "Agree and continue".

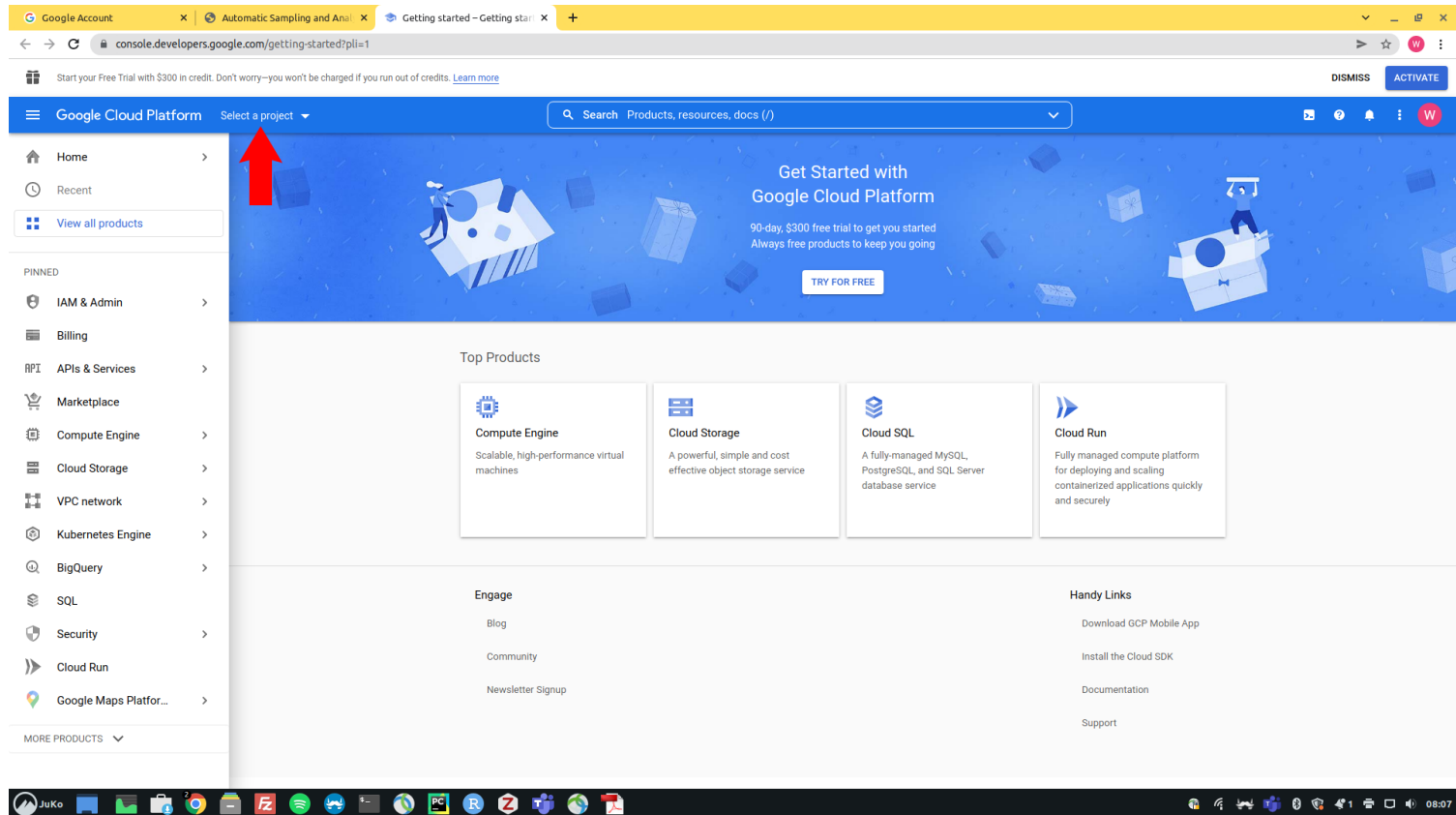


The screenshot shows the Google sign-in interface. At the top is the Google logo, followed by the text "Sign in to continue to Google Cloud Platform". Below this is a text input field labeled "Email or phone". To the left of the input field is a link "Forgot email?". Below the input field is a line of text: "Not your computer? Use Guest mode to sign in privately." followed by a link "Learn more". At the bottom left is a link "Create account" and at the bottom right is a blue button labeled "Next". At the very bottom of the page, there is a language selector "English (United States)" with a dropdown arrow, and three links: "Help", "Privacy", and "Terms".

English (United States) ▼ [Help](#) [Privacy](#) [Terms](#)

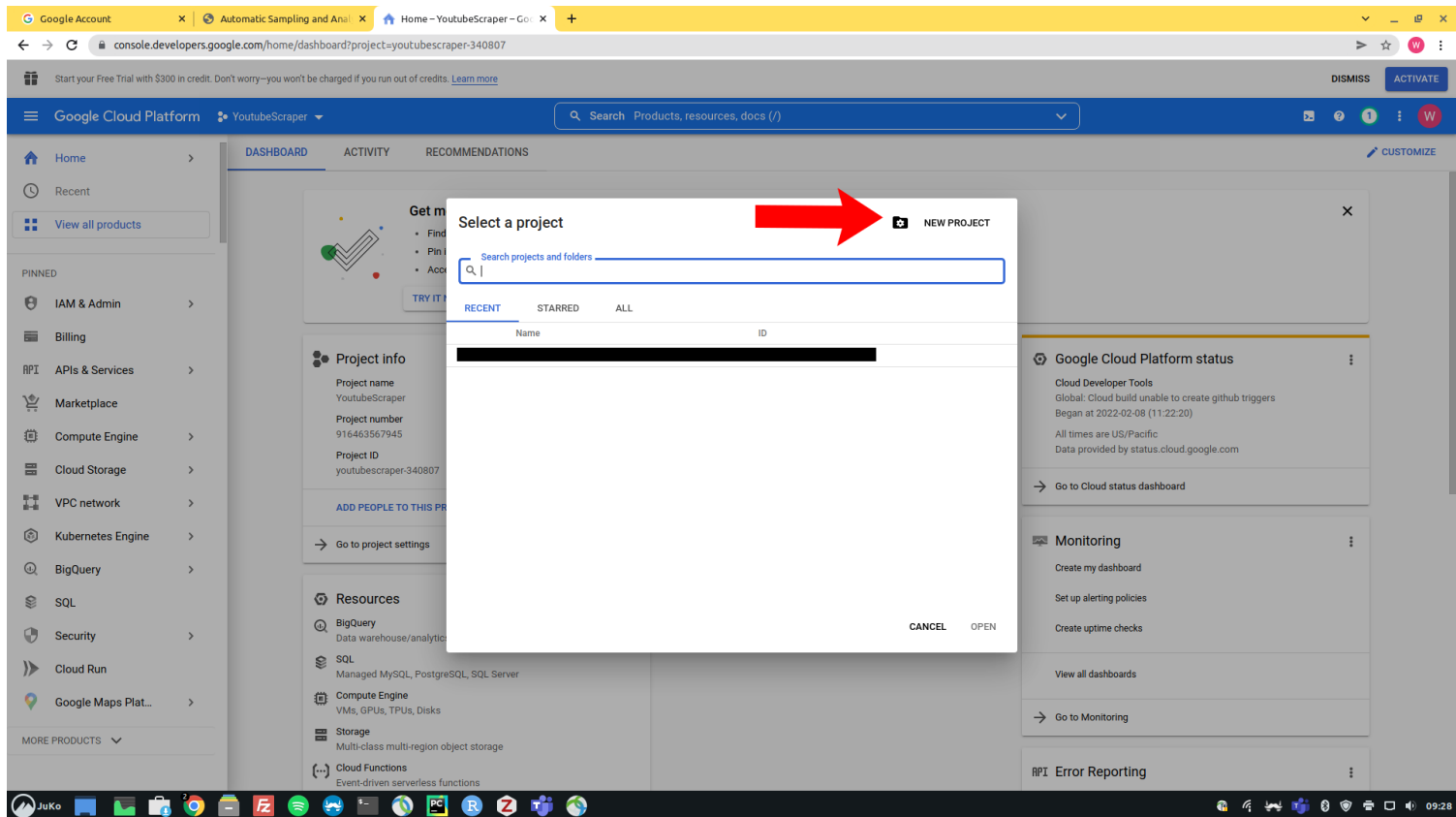
Creating a Project

- After that, you can click on "select project" on the top left of the screen.



Creating a Project

- In the pop-up window, click on "new project" to start a new project



Creating a Project

- Enter a project name and click on "create"; you don't need to specify an organization

Google Account Automatic Sampling and Analysis New Project - Google Cloud

console.developers.google.com/projectcreate?previousPage=%2Fgetting-started%3Fpl%3D1&organizationId=0

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DISMISS ACTIVATE

Google Cloud Platform Search Products, resources, docs (/)

New Project

You have 12 projects remaining in your quota. Request an increase or delete projects. [Learn more](#)

[MANAGE QUOTAS](#)

Project name *
YoutubeScrape

Project ID: youtubescraper-340807. It cannot be changed later. [EDIT](#)

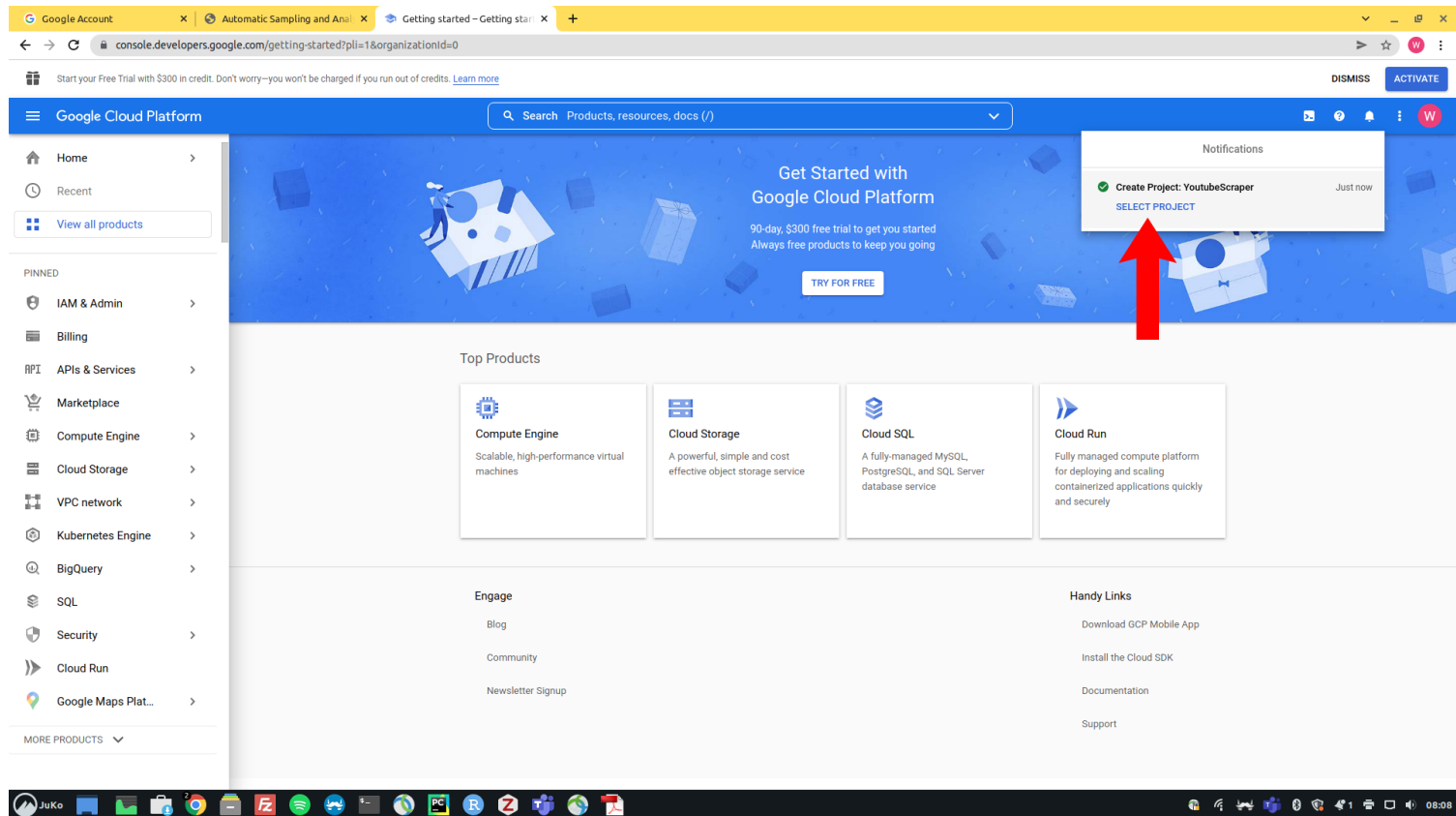
Location *
No organization [BROWSE](#)

Parent organization or folder

CREATE CANCEL

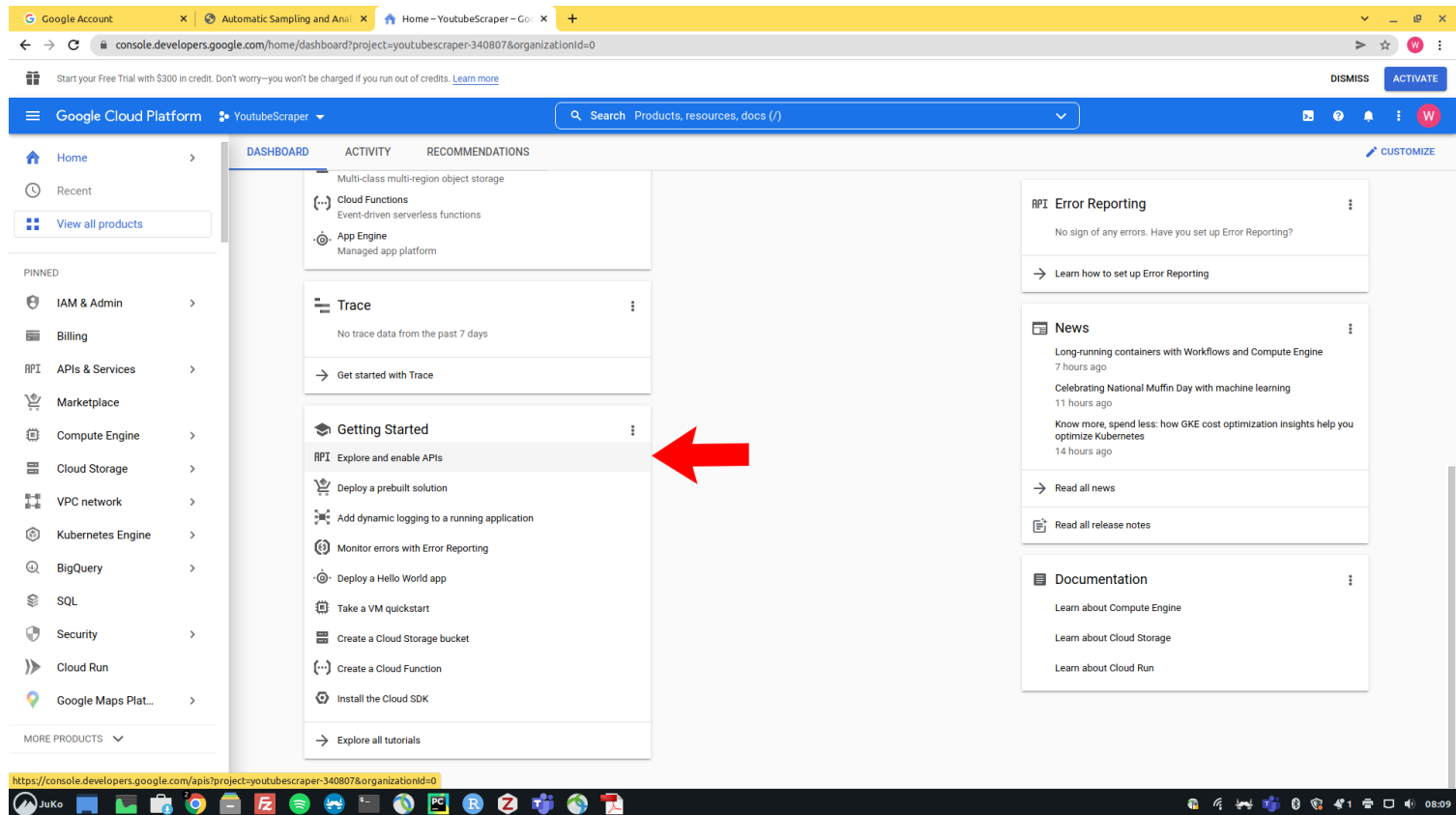
Activating YouTube Data API v3

- On the next screen, go to your project by clicking on "Select Project" in the pop-up window on the top right



Activating YouTube Data API v3

- On your project site, scroll down and click on "Explore and enable APIs"



Activating YouTube Data API v3

- Next, click on the blue "Enable APIs and services" button on the top left side

The screenshot shows the Google Cloud Platform 'APIs & Services' dashboard. A red arrow points to the '+ ENABLE APIS AND SERVICES' button in the top navigation bar. The dashboard displays three charts: Traffic, Errors, and Median latency, all showing 'No data is available for the selected time frame.' Below the charts is a table of enabled APIs.

Name	Requests	Errors (%)	Latency, median (ms)	Latency, 95% (ms)
BigQuery API				
BigQuery Storage API				
Cloud Datastore API				
Cloud Debugger API				
Cloud Logging API				
Cloud Monitoring API				
Cloud SQL				
Cloud Storage				
Cloud Storage API				
Cloud Trace API				
Google Cloud APIs				
Google Cloud Storage JSON API				

Activating YouTube Data API v3

- On the next page, search for "youtube data api v3" and hit enter

The screenshot shows the Google Cloud Platform API Library interface. At the top, there's a navigation bar with 'Google Cloud Platform' and 'YoutubeScrapper' selected. Below this, a search bar contains the text 'Youtube data api v3'. A red arrow points to the search bar. The search results are displayed in two sections: 'Maps' and 'Machine learning'. The 'Maps' section lists APIs like 'Maps SDK for Android', 'Maps SDK for iOS', 'Maps JavaScript API', 'Places API', 'Roads API', and 'Directions API'. The 'Machine learning' section lists APIs like 'Dialogflow API', 'Cloud Vision API', 'Cloud Natural Language API', 'Cloud Speech-to-Text API', 'Cloud Translation API', and 'AI Platform Training & Prediction API'. A sidebar on the left provides filters for visibility and category.

Google Account | Automatic Sampling and Analysis | API Library - APIs & Services

console.developers.google.com/apis/library?organizationId=0&project=youtubescraper-340807

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Google Cloud Platform | YoutubeScrapper

API Library

Welcome to the API Library

The API Library has documentation, links, and a smart search experience.

Search: Youtube data api v3

youtube data api v3

Filter by

VISIBILITY

Public (363)

Private (5)

CATEGORY

Maps (15)

Big data (16)

Analytics (5)

Databases (6)

Machine learning (9)

Developer tools (18)

Compute (8)

Advertising (14)

Social (4)

Operating systems (1)

Healthcare (4)

Google Enterprise APIs (182)

Blog & CMS (1)

Security (5)

Maps

VIEW ALL (15)

Maps SDK for Android

Google

Maps for your native Android app.

Maps SDK for iOS

Google

Maps for your native iOS app.

Maps JavaScript API

Google

Maps for your website

Places API

Google Enterprise API

Get detailed information about 100 million places

Roads API

Google Enterprise API

Snap-to-road functionality to accurately trace GPS breadcrumbs.

Directions API

Google Enterprise API

Directions between multiple locations.

Machine learning

VIEW ALL (9)

Dialogflow API

Google Enterprise API

Build conversational interfaces

Cloud Vision API

Google Enterprise API

Image Content Analysis

Cloud Natural Language API

Google Enterprise API

Process natural language

Cloud Speech-to-Text API

Google Enterprise API

Speech recognition

Cloud Translation API

Google Enterprise API

Integrate text translation into your

AI Platform Training & Prediction API

Google Enterprise API

JuKo

08:09

Activating YouTube Data API v3

- Select "YouTube Data API v3"

The screenshot shows the Google Cloud Platform API Library interface. The browser address bar displays the URL: `console.developers.google.com/apis/library/browse?organizationid=0&project=youtubescraper-340807&q=Youtube%20data%20api%20v3`. The page header includes the Google Cloud Platform logo and the project name 'YoutubeScraper'. A search bar at the top contains the text 'Youtube data api v3'. Below the search bar, the results section shows '1 result' for 'YouTube Data API v3' by Google. The result card includes a YouTube logo, the API name, the provider 'Google', and a description: 'The YouTube Data API v3 is an API that provides access to YouTube data, such as videos, playlists, and channels.' A large red arrow points to the result card. The bottom of the image shows a Windows taskbar with various application icons and the system clock at 08:10.

Google Account Automatic Sampling and Analysis API Library - APIs & Services - YoutubeScraper

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Google Cloud Platform YoutubeScraper


API Library

Search: Youtube data api v3

API Library > "Youtube data api v3"

"Youtube data api v3"

1 result

 **YouTube Data API v3**
Google
The YouTube Data API v3 is an API that provides access to YouTube data, such as videos, playlists, and channels.

<https://console.developers.google.com/apis/library/youtube.googleapis.com?organizationid=0&project=y...>

Activating YouTube Data API v3

- On the next screen, click "enable" to activate the YouTube data API v3

The screenshot shows the Google Cloud Platform console interface. At the top, there's a navigation bar with the Google Cloud Platform logo and the project name 'YoutubeScrapper'. Below this, the main content area displays the 'YouTube Data API v3' page. A red arrow points to the 'ENABLE' button, which is located next to the 'TRY THIS API' button. The page also includes an 'OVERVIEW' section with a description of the API, an 'About Google' section, and an 'Additional details' section with links to documentation and support.

Google Account Automatic Sampling and Analysis API YouTube Data API v3 - APIs & Services +

console.developers.google.com/apis/library/youtube.googleapis.com?organizationId=0&project=youtubescraper-340807

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Google Cloud Platform YoutubeScrapper

YouTube Data API v3

Google

The YouTube Data API v3 is an API that provides access to YouTube data, such as videos, playlists,...

ENABLE TRY THIS API

OVERVIEW DOCUMENTATION SUPPORT

Overview

The YouTube Data API v3 is an API that provides access to YouTube data, such as videos, playlists, and channels.

About Google

Google's mission is to organize the world's information and make it universally accessible and useful. Through products and platforms like Search, Maps, Gmail, Android, Google Play, Chrome and YouTube, Google plays a meaningful role in the daily lives of billions of people.

Additional details

Type: [SaaS & APIs](#)

Last updated: 7/22/21

Category: [YouTube](#)

Service name: youtube.googleapis.com

Tutorials and documentation

[Learn more](#)

Support

Creating Credentials

- On the next screen, click on "Create Credentials" on the top right

The screenshot shows the Google Cloud Platform console interface. The browser address bar displays the URL: `console.developers.google.com/apis/api/youtube.googleapis.com/overview?project=youtubescraper-340807`. The page title is "YouTube Data API v3". The left sidebar contains navigation links: Overview, Metrics, Quotas, and Credentials. The main content area has a header with "Overview" and "DISABLE API". Below this, a message states: "To use this API, you may need credentials. Click 'Create credentials' to get started." A red arrow points to the "CREATE CREDENTIALS" button in the top right corner. The "Details" section on the left lists the API name, service name, and activation status. The "Traffic by response code" section on the right shows a line chart with the message "No data is available for the selected time frame." The bottom of the screen shows a Windows taskbar with various application icons and a system clock displaying 08:10.

Creating Credentials

- On the next screen, select "YouTube Data API v3" and click on the "User Data" radio button, then click "next"

Google Account Automatic Sampling and Analysis API Create credentials - APIs & Services console.developers.google.com/apis/credentials/wizard?project=youtubescraper-340807

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API APIS & Services Create credentials

Dashboard Library Credentials OAuth consent screen Domain verification Page usage agreements

1 Credential Type

Which API are you using?
Different APIs use different auth platforms and some credentials can be restricted to only call certain APIs.

Select an API *
YouTube Data API v3

What data will you be accessing? *
Different credentials are required to authorize access depending on the type of data that you request. [Learn more](#)

☒ **User data** ⓘ
Data belonging to a Google user, like their email address or age. User consent required. This will create an OAuth client.

☐ **Public data**
Google data that is publicly available, like public Maps data showing restaurant information. This will create an API key.

NEXT

2 Your Credentials

DONE CANCEL

Creating Credentials

- Next, specify an arbitrary App name and enter your own new Gmail address as the user support email and developer contact email. "Save and continue" afterwards

The screenshot shows the Google Cloud Platform console at the URL `console.developers.google.com/apis/credentials/wizard?project=youtubescraper-340807`. The left sidebar shows the 'APIs & Services' menu with 'Credentials' selected. The main content area is titled 'Create credentials' and shows the 'OAuth Consent Screen' configuration page. The page has a blue header with the Google Cloud Platform logo and a search bar. The left sidebar lists the following items: Dashboard, Library, Credentials (selected), OAuth consent screen, Domain verification, and Page usage agreements. The main content area is divided into sections: 'App information' and 'Developer contact information'. The 'App information' section contains the following fields: 'App name' (text input, value: 'TuberScraper'), 'User support email' (dropdown menu, value: 'workshoptester2022@gmail.com'), and 'App logo' (button: 'BROWSE'). The 'Developer contact information' section contains the following field: 'Email addresses' (text input, value: 'workshoptester2022@gmail.com'). Below these fields is a 'SAVE AND CONTINUE' button. Red arrows point to the 'App name', 'User support email', 'Developer contact information', and 'SAVE AND CONTINUE' button. The bottom of the screen shows a Windows taskbar with various application icons and a system clock showing 08:12.

Google Account x Automatic Sampling and Analysis x #1 Create credentials - APIs & Services x

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APIs & Services

Dashboard

Library

Credentials

OAuth consent screen

Domain verification

Page usage agreements

Create credentials

2 OAuth Consent Screen

App information

This shows in the consent screen, and helps end users know who you are and contact you

App name *
TuberScraper
The name of the app asking for consent

User support email *
workshoptester2022@gmail.com
For users to contact you with questions about their consent

App logo BROWSE
Upload an image, not larger than 1MB on the consent screen that will help users recognize your app. Allowed image formats are JPG, PNG, and BMP. Logos should be square and 120px by 120px for the best results.

Developer contact information

Email addresses *
workshoptester2022@gmail.com
These email addresses are for Google to notify you about any changes to your project.

SAVE AND CONTINUE

3 Scopes (optional)

4 OAuth Client ID

Creating Credentials

- Click on "Add or removes scopes" next

The screenshot shows the Google Cloud Platform console at the URL `console.developers.google.com/apis/credentials/wizard?project=youtubescraper-340807`. The left sidebar shows the 'APIs & Services' menu with 'Credentials' selected. The main content area is titled 'Create credentials' and shows the 'OAuth Consent Screen' step. Below this, the 'Scopes (optional)' step is active. A red arrow points to the 'ADD OR REMOVE SCOPES' button. The page also shows sections for 'Your non-sensitive scopes', 'Your sensitive scopes', and 'Your restricted scopes', each with a table header for API, Scope, and User-facing description.

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Google Cloud Platform YoutubeScraper Search Products, resources, docs (/)

APIs & Services

- Dashboard
- Library
- Credentials
- OAuth consent screen
- Domain verification
- Page usage agreements

Create credentials

- OAuth Consent Screen
- Scopes (optional)

You can also choose scopes when you register your app.

Scopes express the permissions you request users to authorize for your app and allow your project to access specific types of private user data from their Google Account. [Learn more](#)

ADD OR REMOVE SCOPES

Your non-sensitive scopes

API	Scope	User-facing description
No rows to display		

Your sensitive scopes

Sensitive scopes are scopes that request access to private user data.

API	Scope	User-facing description
No rows to display		

Your restricted scopes

Restricted scopes are scopes that request access to highly sensitive user

Creating Credentials

- Use the uppermost checkbox to select all scopes. Do that for every page of scopes using the arrow on the bottom right of the table. Afterwards, click on "update"

The screenshot shows the Google Cloud Platform console with the 'Create credentials' wizard open. The 'Scopes (optional)' step is selected. A red arrow points from this step to the 'Update selected scopes' dialog. The dialog shows a table of scopes with checkboxes for selection. A red arrow points to the 'UPDATE' button at the bottom of the dialog.

Update selected scopes

Only scopes for enabled APIs are listed below. To add a missing scope to this screen, find and enable the API in the [Google API Library](#) or use the Pasted Scopes text box below. Refresh the page to see any new APIs you enable from the Library.

Filter: Enter property name or value

API	Scope	User-facing description
<input checked="" type="checkbox"/> YouTube Data API v3	.../auth/youtube.upload	Manage your YouTube videos
<input checked="" type="checkbox"/> YouTube Data API v3	.../auth/youtube.channel-memberships.creator	See a list of your current active channel members, their current level, and when they became a member
<input checked="" type="checkbox"/> YouTube Data API v3	.../auth/youtube.third-party-link.creator	Link to your YouTube channel, and add, remove, and edit the apps own info on your YouTube channel
<input checked="" type="checkbox"/> YouTube Data API v3	.../auth/youtube.download	Download your public YouTube videos

Rows per page: 10 31 - 34 of 34

Manually add scopes

If the scopes you would like to add do not appear in the table above, you can enter them here. Each scope should be on a new line or separated by commas. Please provide the full scope string (beginning with "https://"). When you are finished, click "Add to table".

ADD TO TABLE

UPDATE

Creating Credentials

- Next, click on "save and continue" to confirm your selection of scopes

The screenshot shows the Google Cloud Platform 'Create credentials' wizard. The left sidebar contains the 'APIs & Services' menu with options like Dashboard, Library, Credentials (selected), OAuth consent screen, Domain verification, and Page usage agreements. The main content area is titled 'Create credentials' and displays a table of APIs and their scopes. A red arrow points to the 'SAVE AND CONTINUE' button at the bottom of the table.

API	Scope	User-facing description
Cloud Monitoring API	.../auth/monitoring.write	Publish metric data to your Google Cloud projects
Cloud Storage API	.../auth/devstorage.write_only	Manage your data in Google Cloud Storage
Cloud Trace API	.../auth/trace.readonly	Read Trace data for a project or application
Cloud Trace API	.../auth/trace.append	Write Trace data for a project or application
Service Management API	.../auth/service.management	Manage your Google API service configuration

Rows per page: 10 11 - 20 of 29

Your restricted scopes
Restricted scopes are scopes that request access to highly sensitive user data.

API	Scope	User-facing description
No rows to display		

SAVE AND CONTINUE

OAuth Client ID

Your Credentials

DONE CANCEL

Creating Credentials

- Select "Desktop App" as the application type and specify the name of you set of credentials (can be any name). Click on "Create" to confirm

The screenshot shows the 'Create credentials' wizard in the Google Cloud Platform console. The left sidebar shows the 'APIs & Services' menu with 'Credentials' selected. The main content area shows the 'Create credentials' wizard with the following steps:

- 1. Credential Type (checked)
- 2. OAuth Consent Screen (checked)
- 3. Scopes (optional) (checked)
- 4. OAuth Client ID (active)

The 'OAuth Client ID' step includes a description: 'A client ID is used to identify a single app to Google's OAuth servers. If your app runs on multiple platforms, each will need its own client ID. See [Setting up OAuth 2.0](#) for more information. [Learn more](#) about OAuth client types.'

The form fields are:

- Application type * (Dropdown menu, set to 'Desktop app')
- Name * (Text input, set to 'TuberScraping')

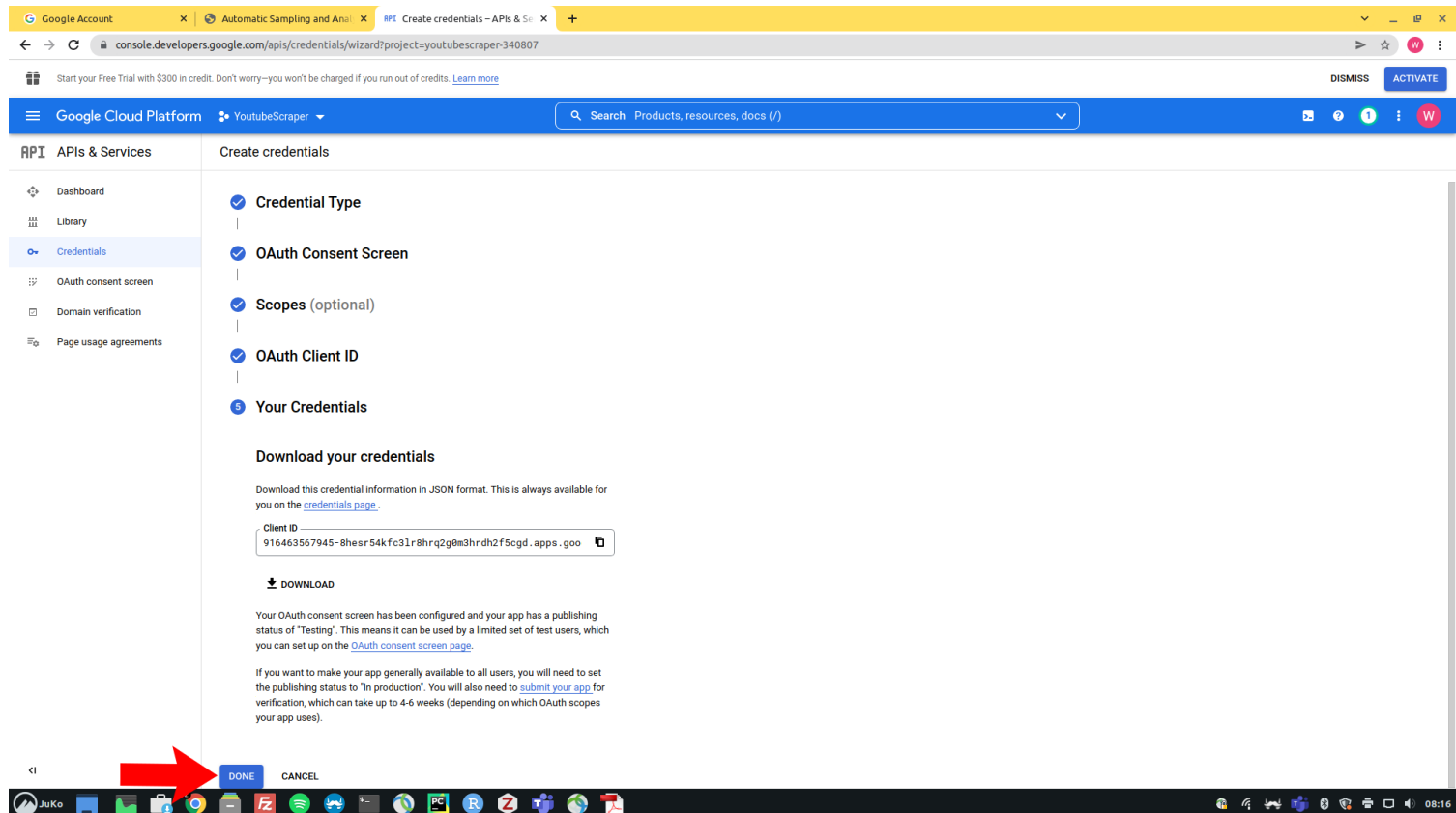
A note below the fields states: 'Note: It may take 5 minutes to a few hours for settings to take effect.'

At the bottom of the form, there are two buttons: 'CREATE' and 'CANCEL'. A red arrow points to the 'CREATE' button.

Below the form, there is a section titled 'Your Credentials' with a 'DONE' button and a 'CANCEL' button.

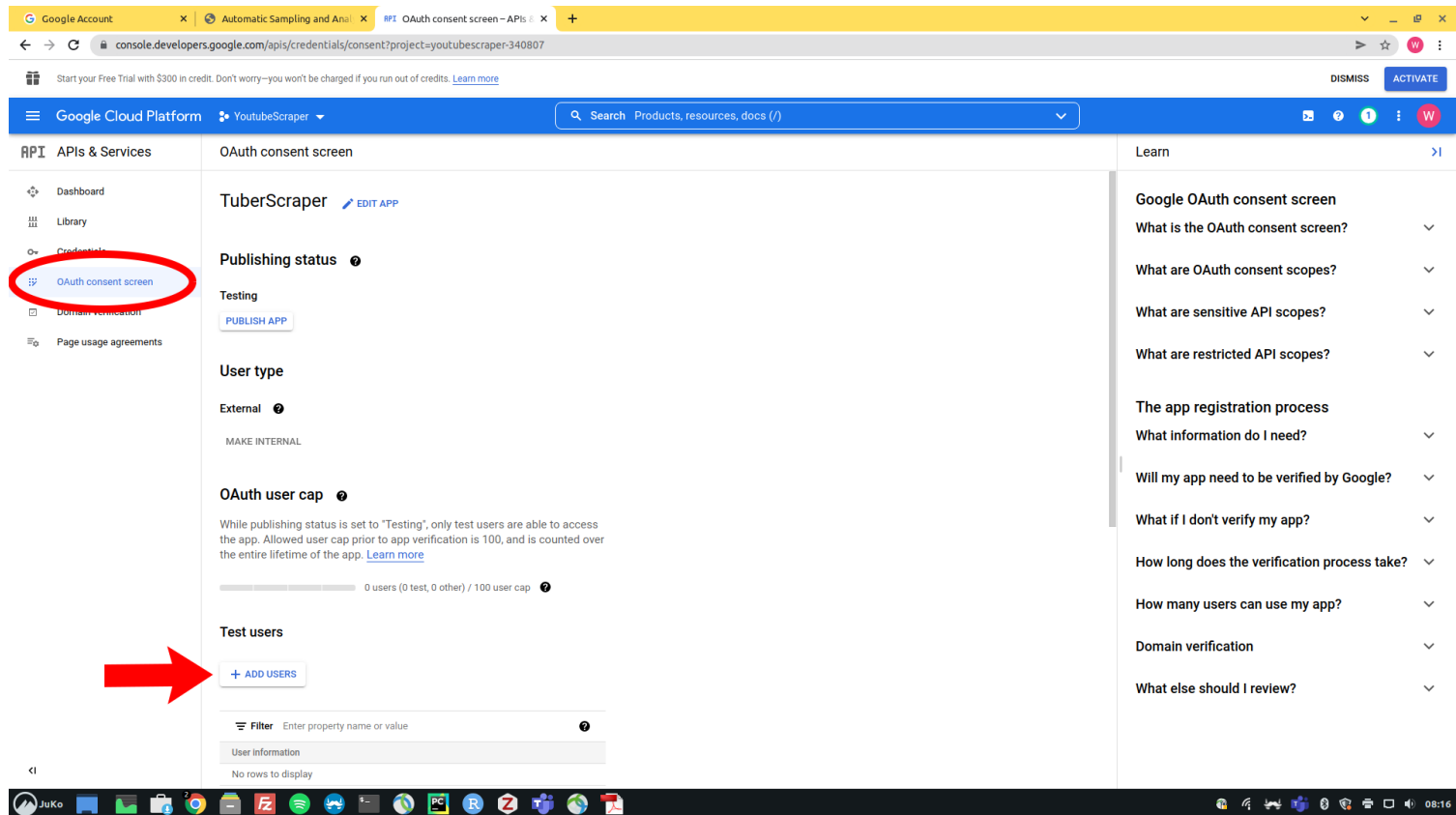
Creating Credentials

- On the bottom of the page, click on "Done" to finalize your changes



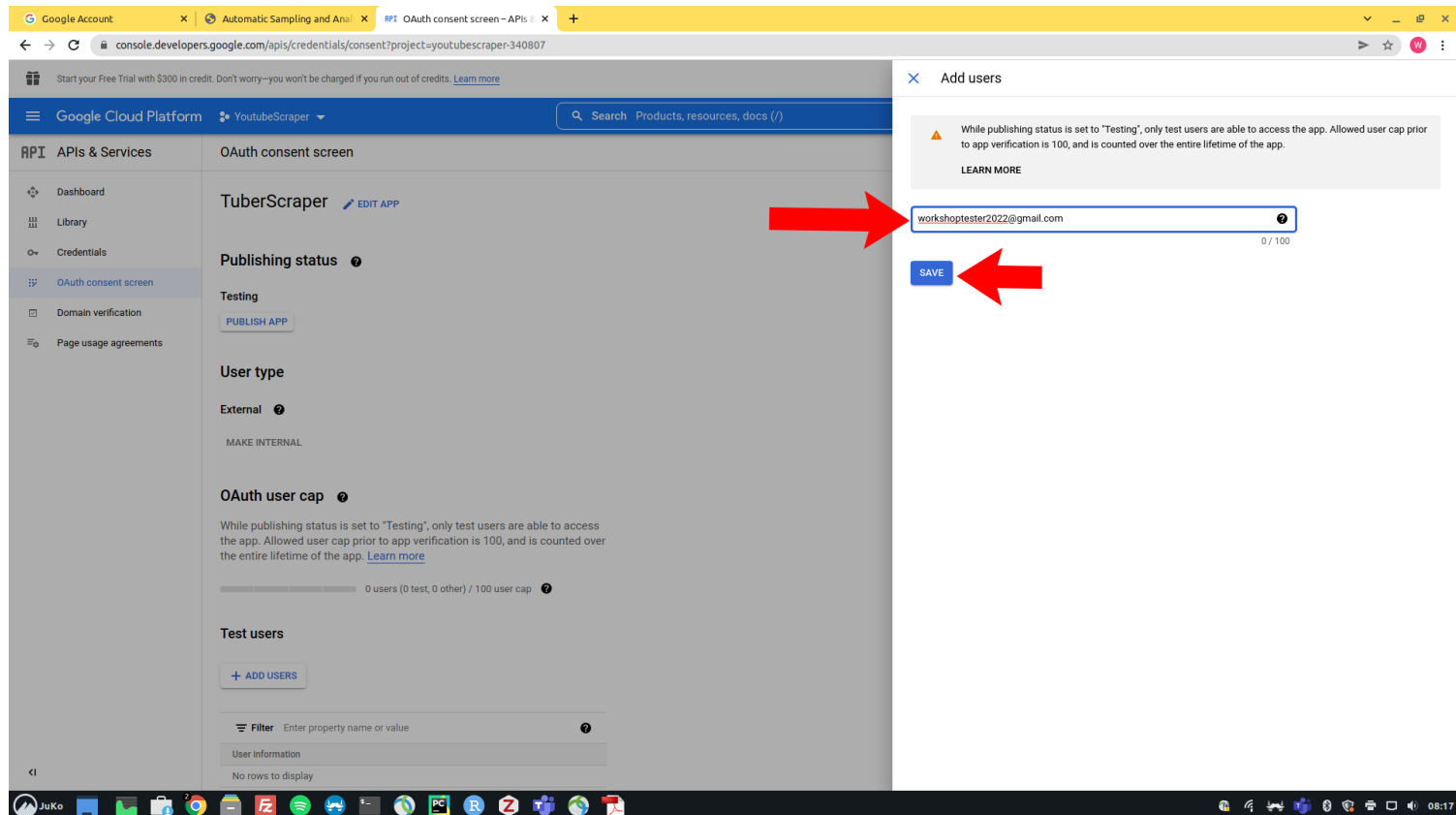
Creating Credentials

- This should automatically bring you to the "OAuth Consent Screen" tab, where you should click on "Add Test Users"



Creating Credentials

- In the sidebar panel opening from the right, enter your Gmail address as a test user and click on "save"



Creating Credentials

- Next, go back to the credentials page using the menu on the left side

The screenshot shows the Google Cloud Platform console interface. The left sidebar contains the 'APIs & Services' menu, with 'Credentials' highlighted. A red arrow points to this menu item. The main content area displays the 'OAuth consent screen' configuration for the 'YoutubeScrapper' project. It includes sections for 'Test users' (with an 'ADD USERS' button), 'OAuth rate limits' (showing a token grant rate of 10,000 per day), and a 'Learn' sidebar on the right with various links related to OAuth consent screens.

Google Cloud Platform | YoutubeScrapper

APIs & Services

- Dashboard
- Library
- Credentials** (highlighted with a red arrow)
- OAuth consent screen
- Domain verification
- Page usage agreements

OAuth consent screen

Test users

[+ ADD USERS](#)

Filter Enter property name or value

User information
workshopster2022@gmail.com

[SHOW LESS](#)

OAuth rate limits

Your token grant rate

Token grant rates limit how quickly your application can get new users. Your current per day token grant rate limit is 10,000 grants per day. The per day token grant rate resets every day. [Raise daily token limit](#)

5 minutes ☒ 1 day 10,001

No data is available for the selected time frame.

[SHOW LESS](#)

[Let us know what you think about our OAuth experience](#)

<https://console.developers.google.com/apis/credentials/?project=youtubescraper-340807>

Learn

- Google OAuth consent screen
- What is the OAuth consent screen?
- What are OAuth consent scopes?
- What are sensitive API scopes?
- What are restricted API scopes?
- The app registration process
- What information do I need?
- Will my app need to be verified by Google?
- What if I don't verify my app?
- How long does the verification process take?
- How many users can use my app?
- Domain verification
- What else should I review?

Creating Credentials

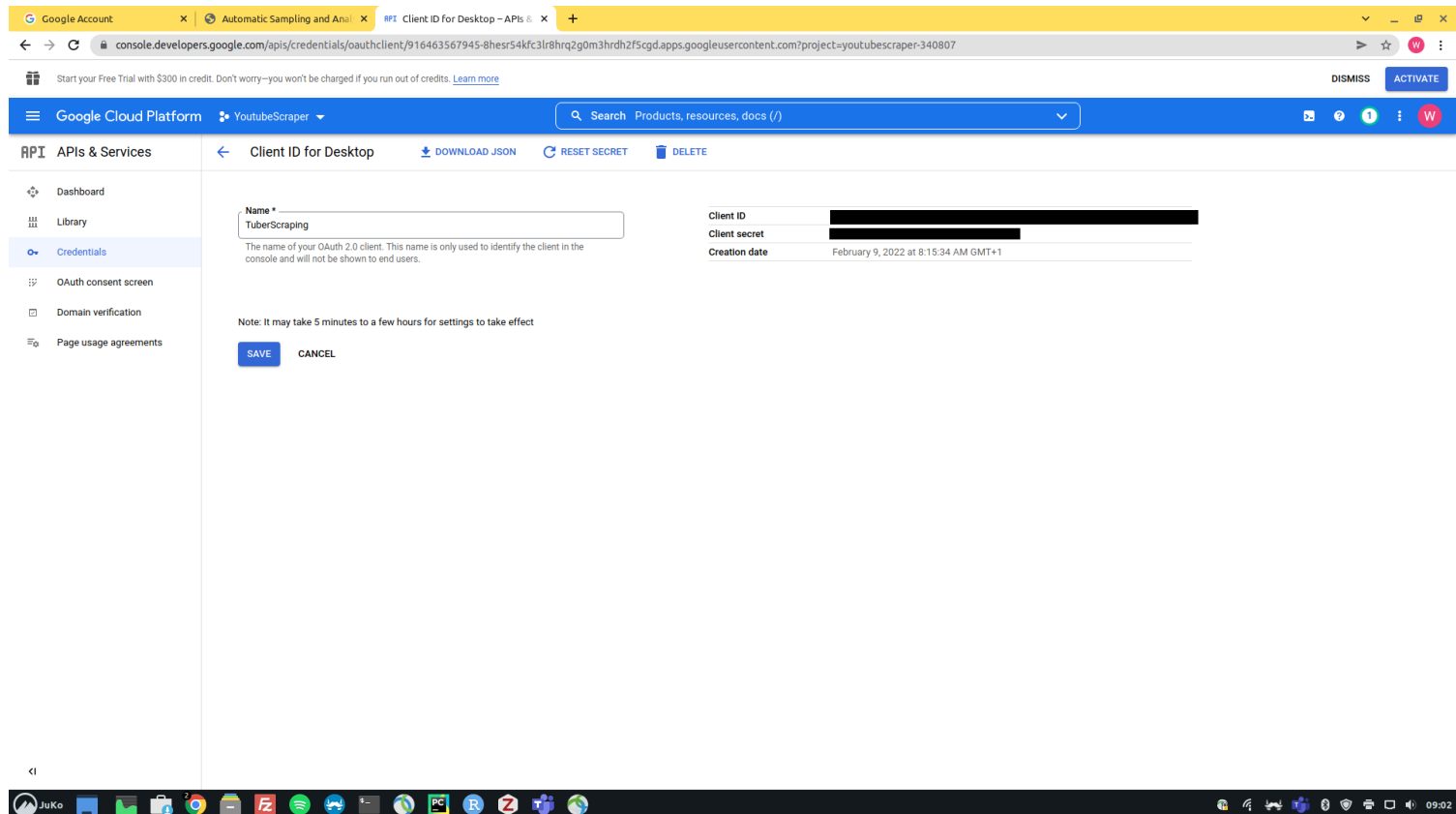
- Click on the "OAuth 2.0 Client ID" name that you specified before

The screenshot shows the Google Cloud Platform console for the project 'youtubescraper-340807'. The 'Credentials' page is active, displaying three sections: 'API Keys', 'OAuth 2.0 Client IDs', and 'Service accounts'. The 'OAuth 2.0 Client IDs' section contains one entry, 'TuberScraping', which is highlighted by a red arrow. The entry shows a creation date of 'Feb 9, 2022', a type of 'Desktop', and a client ID of '916463567945-8hes...'. The 'Service accounts' section is currently empty.

Name	Creation date	Type	Client ID	Actions
TuberScraping	Feb 9, 2022	Desktop	916463567945-8hes...	

Creating Credentials

- Congratulations! You now have your credentials! You can see your client ID and secret on the top right of the screen.



Testing Access

- You can now safely try whether your *YouTube* API access works as intended by running the following commands in R. Please do *NOT* save an access token when prompted by R (see instructions in code comments)

```
# installing the tuber package if not installed already
if("tuber" %in% installed.packages() != TRUE) {
  install.packages("tuber")
}

# loading tuber package
library(tuber)

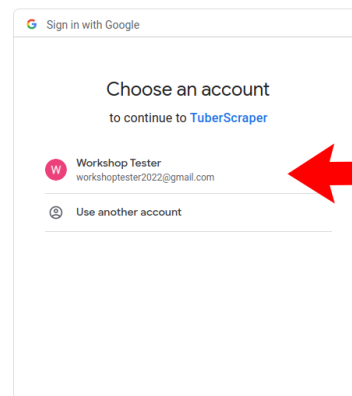
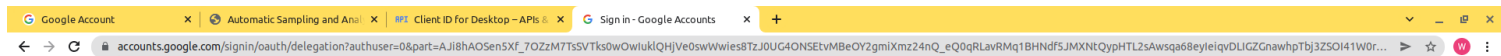
# Your Credentials (NEVER SHARE THIS INFORMATION)
ID <- "ENTER-YOUR-CLIENT-ID-HERE"
secret <- "ENTER-YOUR-CLIENT-SECRET-HERE"

# authentication
yt_oauth(ID,secret)

# You will be asked in the R-console to
# save an access token: Select "NO" by entering 2
# You will be sent to your browser to log in
```

Grant yourself access

- In the browser window that was opened from your R session, select your new Gmail account

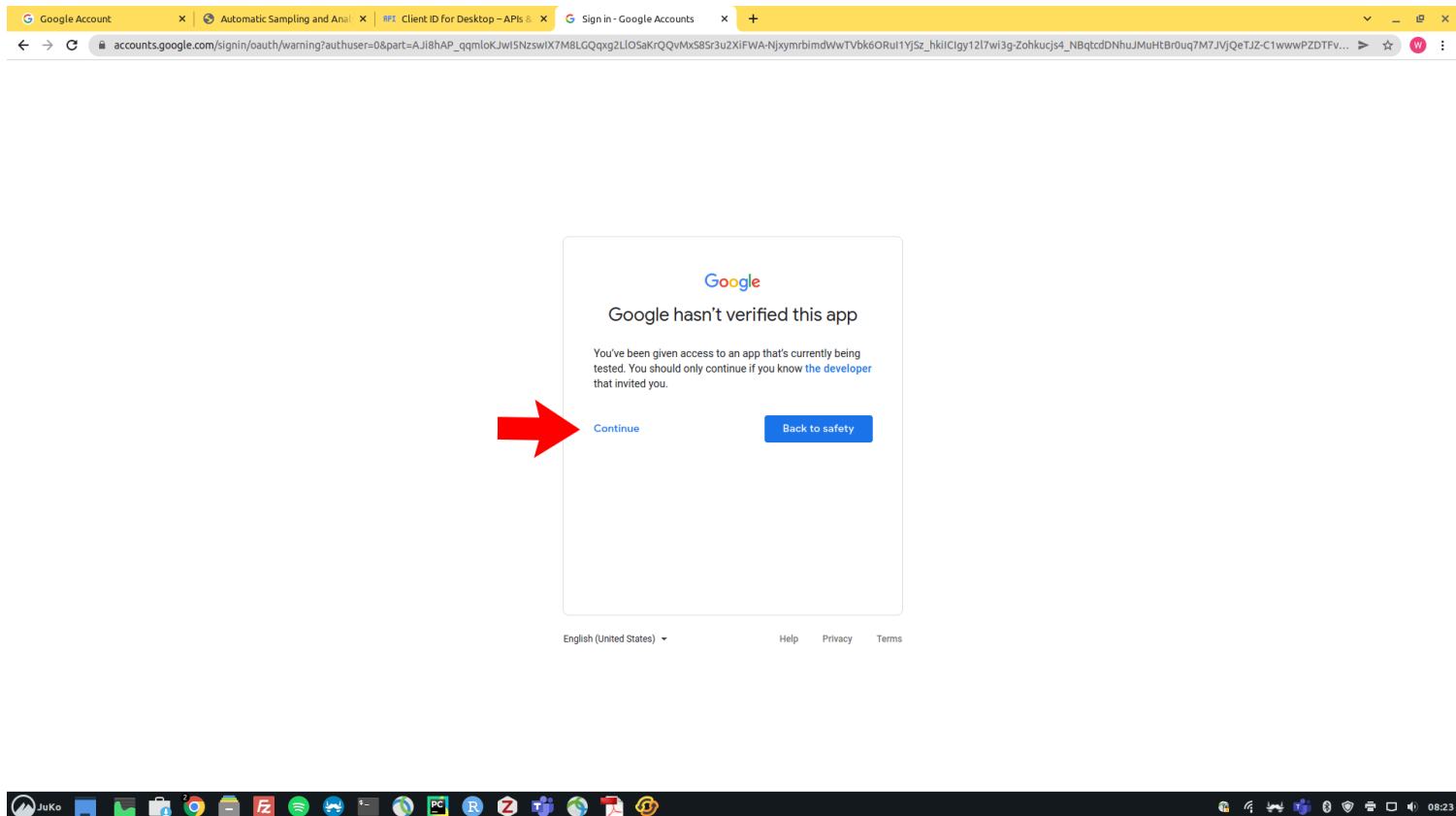


English (United States) ▼ Help Privacy Terms



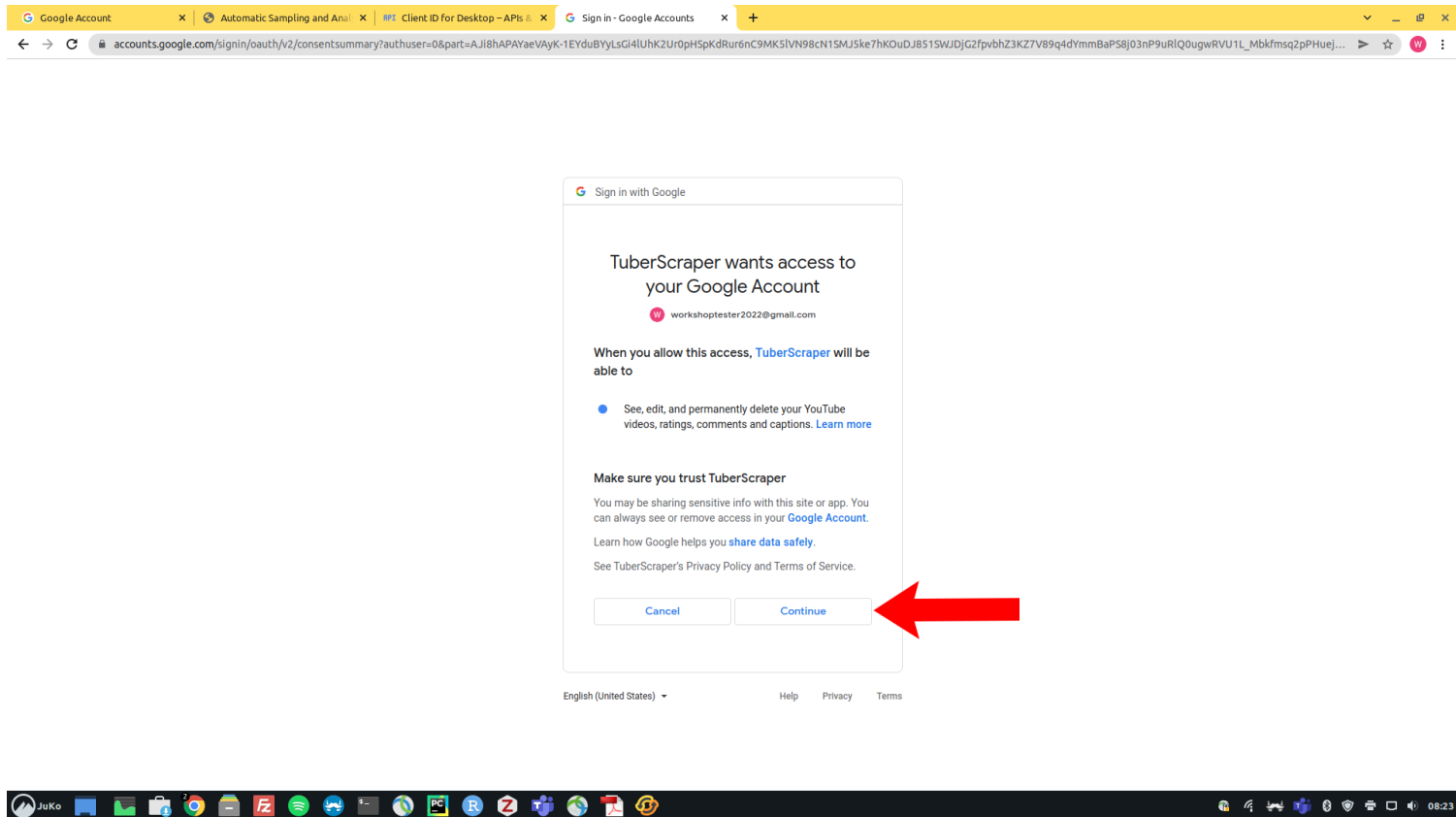
Grant yourself access

- Google warns you that the app has not been verified, you can trust yourself and click on "continue"



Grant yourself access

- Allow the app (and hence yourself) to make changes to the account you created



Grant yourself access

- confirm your choices once more by clicking on "Allow". Your browser should now display the following message: Authentication complete. Please close this page and return to R.

Authentication complete. Please close this page and return to R.

Test API call

- To easily check if everything worked, let's try to collect some simple data for a video.

```
# get statistics of https://www.youtube.com/watch?v=HluANRwPyNo  
get_stats(video_id="HluANRwPyNo")
```


Output

- If everything worked correctly, your output structure should look something like this. The actual numbers will vary because they might change in the meantime.

```
$id  
[1] "HluANRwPyNo"  
  
$viewCount  
[1] "21275354"  
  
$likeCount  
[1] "1043372"  
  
$favoriteCount  
[1] "0"  
  
$commentCount  
[1] "37859"
```

A Few Words of Advice on Handling Your *YouTube API Access*

- Have one account and project ready for the workshop for which you know that it works
- Do not use your API access too excessively before the workshop to avoid any risk of it being suspended
- Never share your OAuth login credentials! This can easily happen by accident when:
 - saving code in a GitHub Repo
 - sending scripts to colleagues
 - troubleshooting someone else's code
 - for added security you can use the **keyring package** (we'll say a bit more about this in the workshop)

**We hope that you are now all set up and
look forward to seeing you online!**