



Automatic Sampling and Analysis of YouTube Data

Setting Up Access to the YouTube API

Johannes Breuer, Annika Deubel, & M. Rohangis Mohseni

February 14th-15th, 2023

Setting up access to the *YouTube* API

To work with *YouTube* data, we need access to its Application Programming Interface (API). As this process can be a bit tedious, we prepared this 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 assist you in setting up access to the *YouTube* API. If setting up access to the API does not work for you and we don't find a solution or if you can't access the API during the workshop, we will have some data prepared that you can work with in the workshop.

Contact: annika.deubel@cais-research.de

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

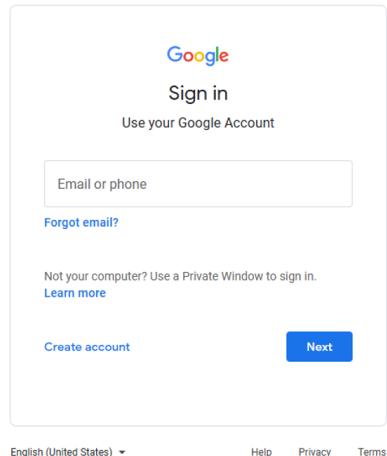
Setting up API Access

- For starters, you need a *Gmail* account
- We suggest that you create a new account specifically for this workshop
- 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.

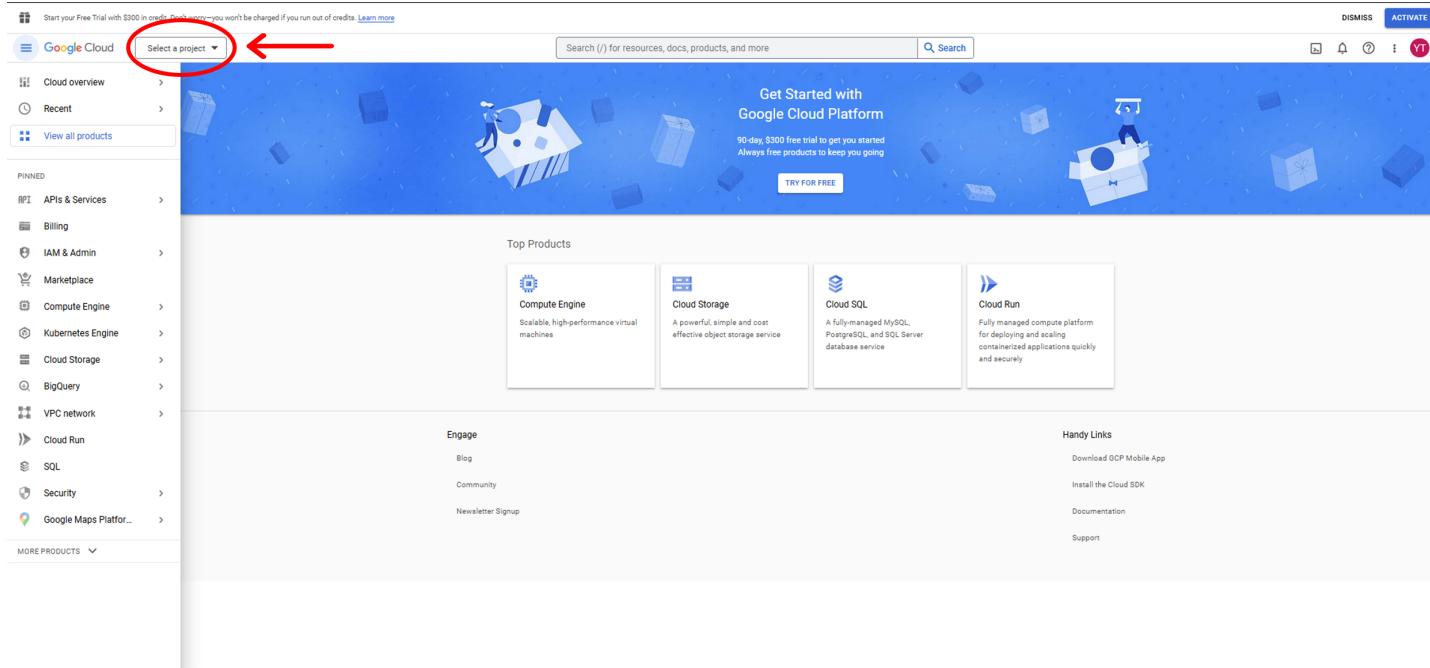
Google Developer Console

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



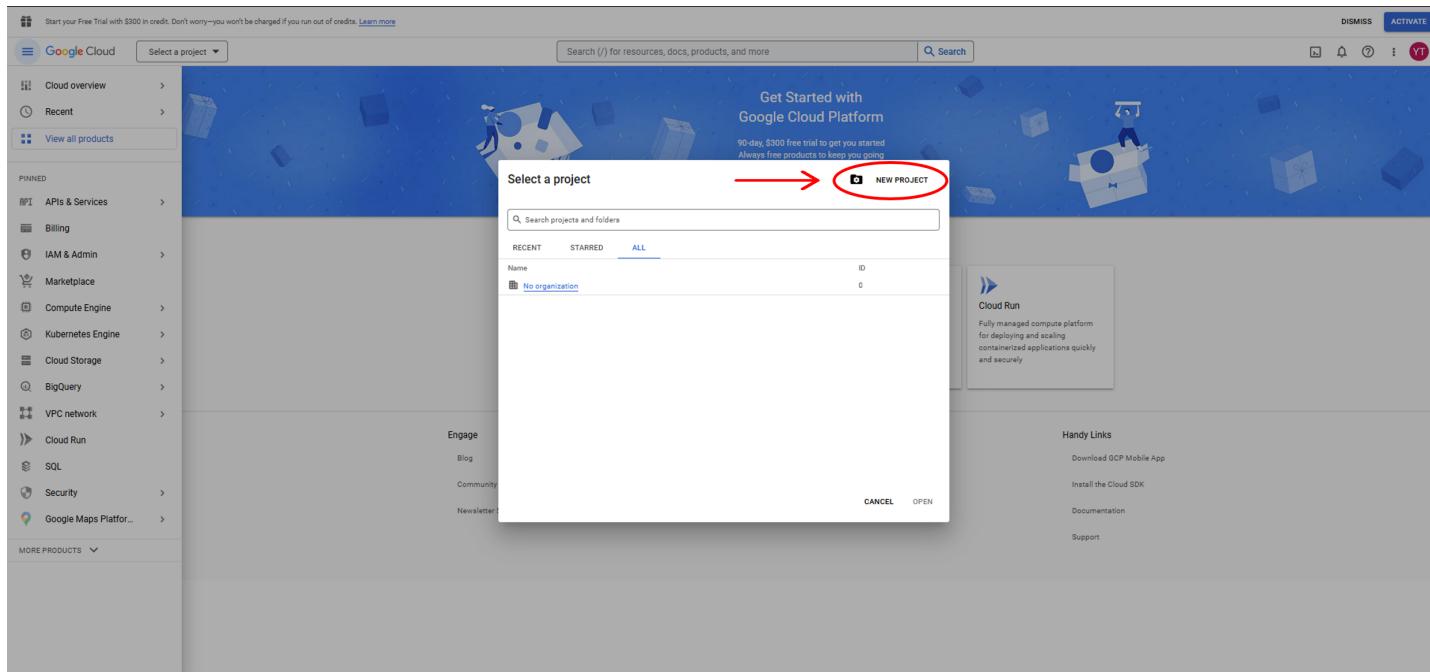
Creating a Project

After that, you need to click on "Select a project" on the top left of the screen.



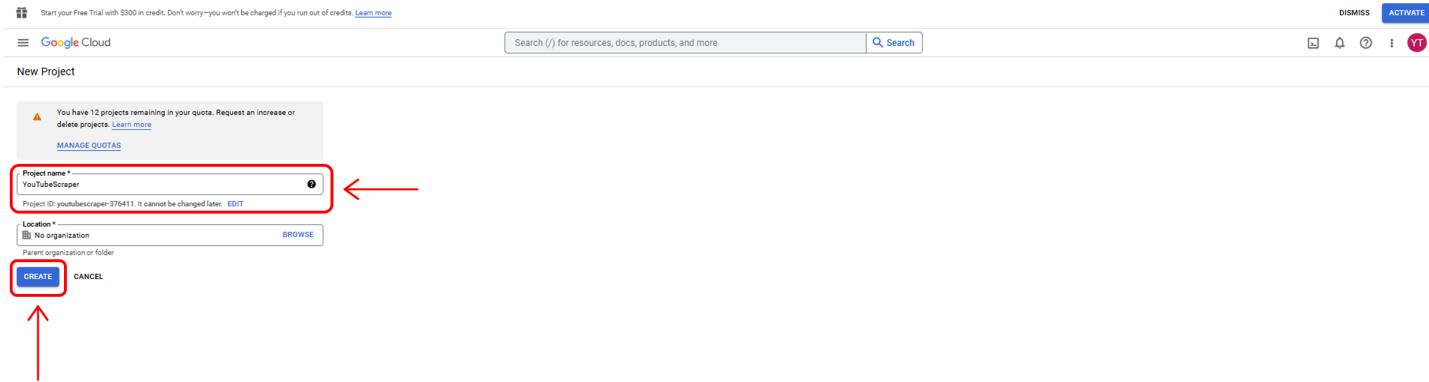
Creating a Project

In the pop-up window, click on "New project" to create a new project.



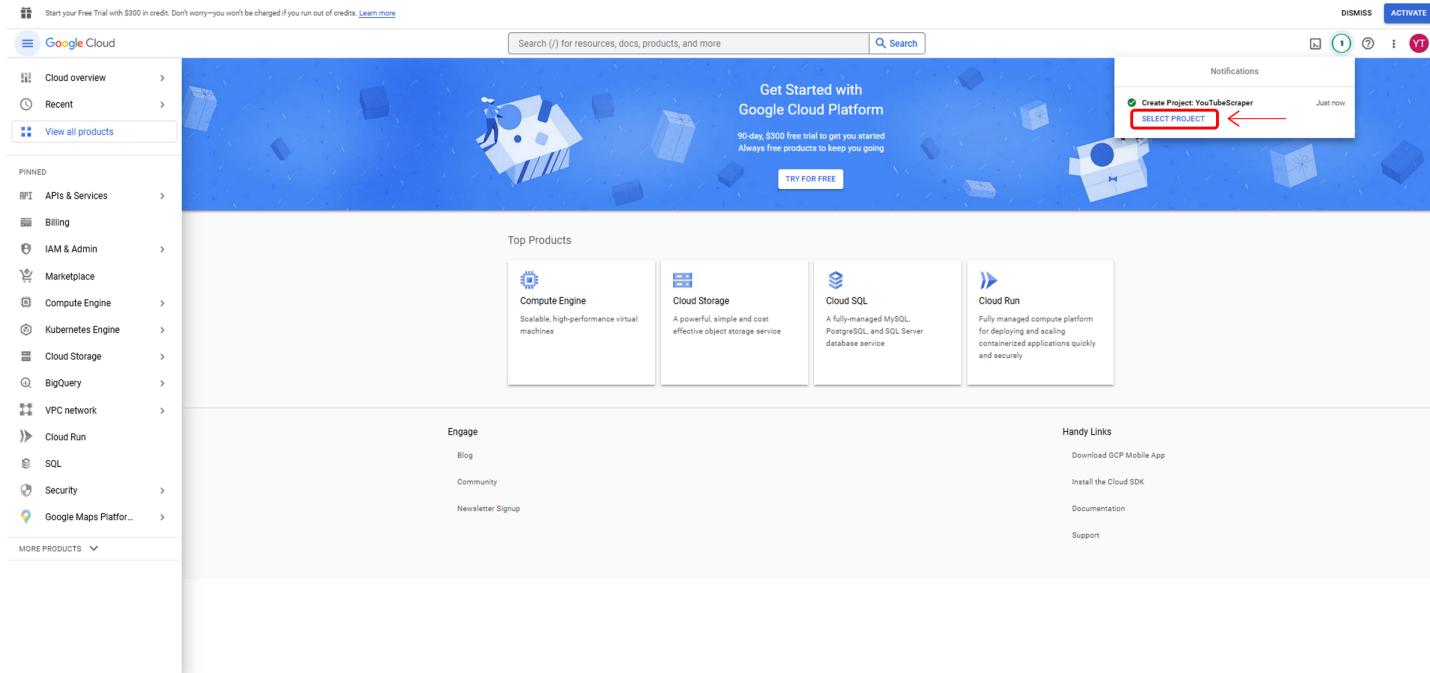
Creating a Project

Enter a project name and click on "create". You don't need to specify an organization.



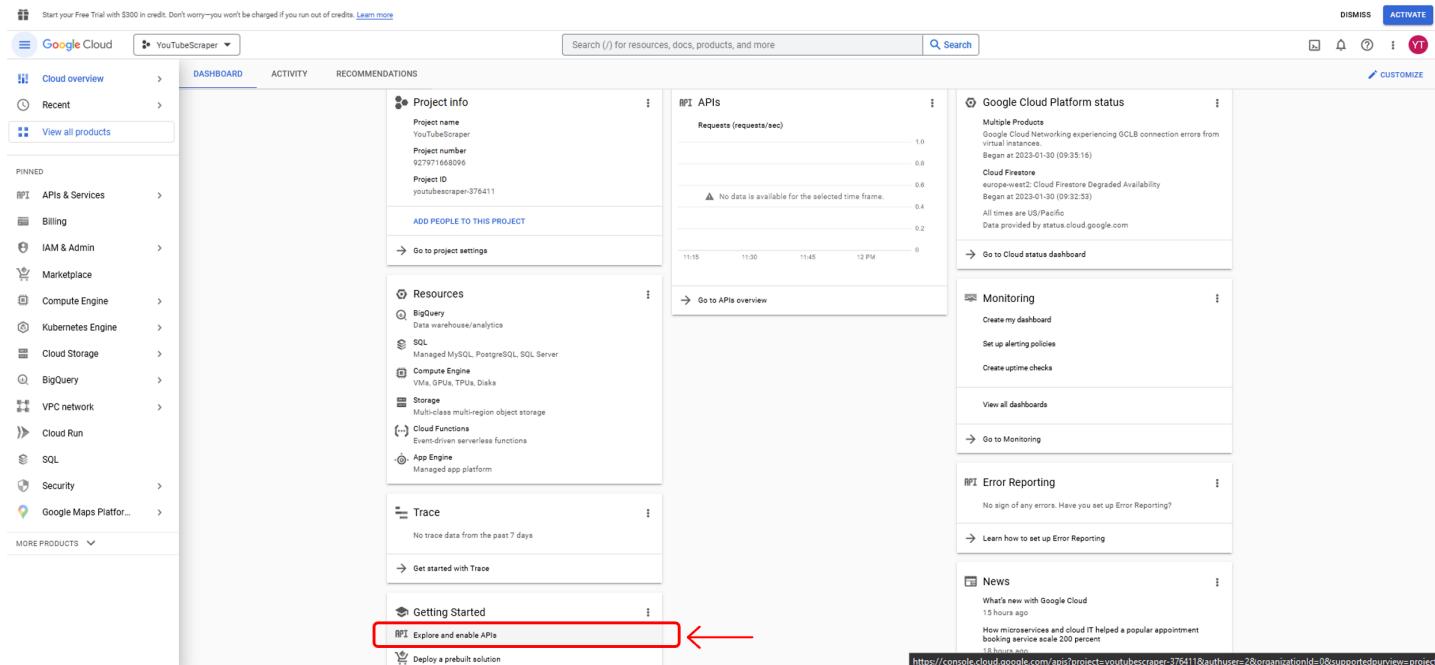
Activating the YouTube Data API v3

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



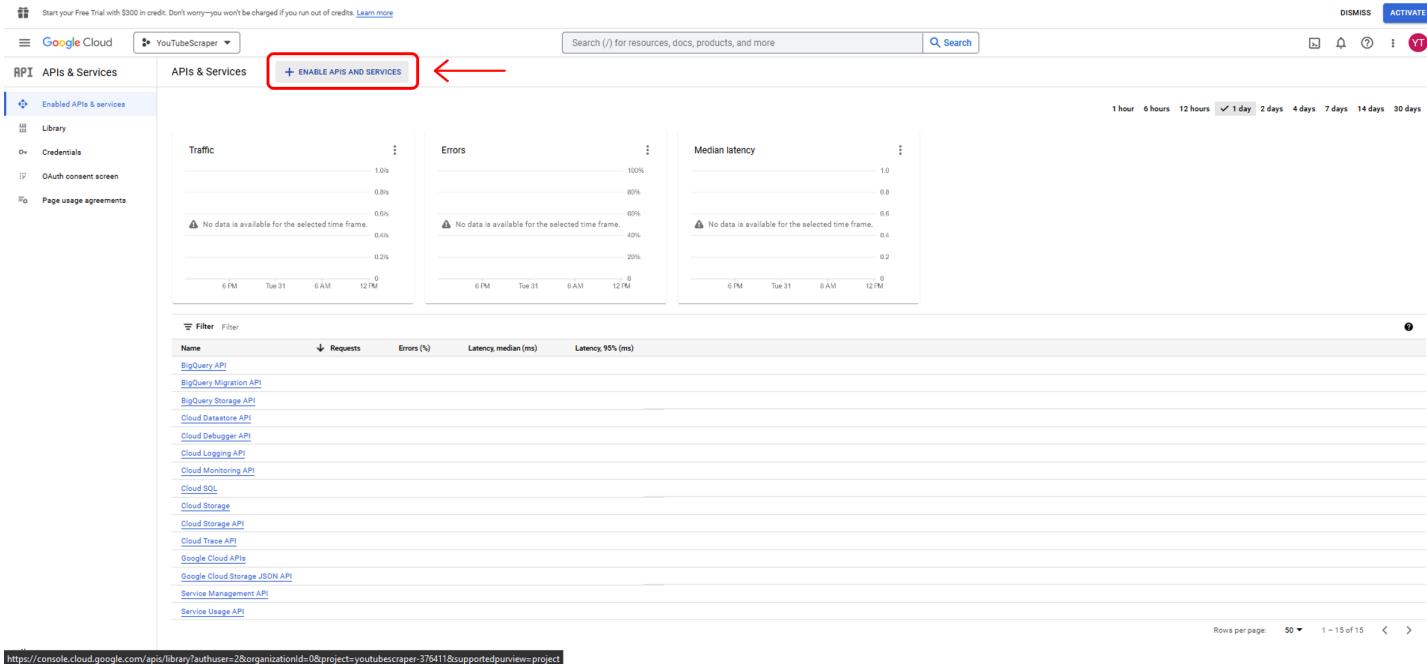
Activating the YouTube Data API v3

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



Activating the YouTube Data API v3

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

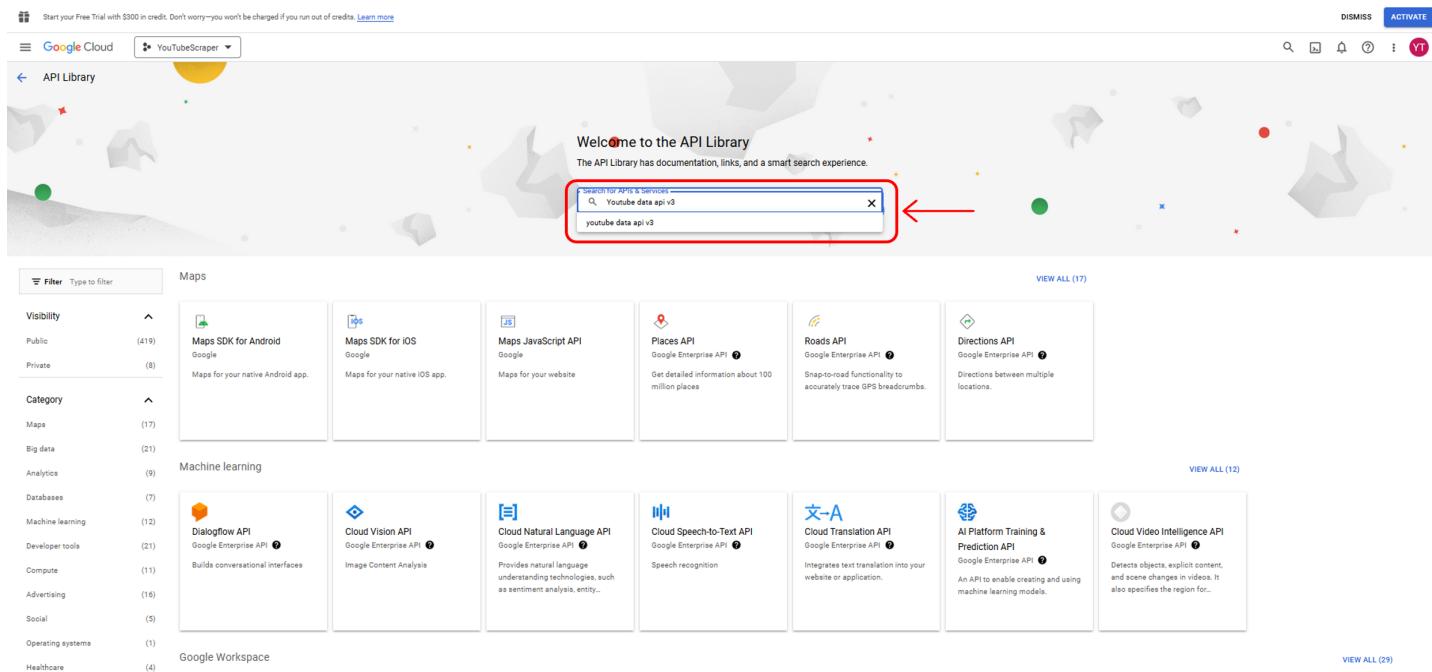


The screenshot shows the Google Cloud Platform API & Services page. At the top, there is a banner for a free trial with \$300 in credit. Below the banner, the navigation bar includes 'Google Cloud' and 'YouTubeScraper'. A search bar is present, along with 'DISMISS' and 'ACTIVATE' buttons. The main area displays three charts: 'Traffic', 'Errors', and 'Median latency'. The 'Traffic' chart shows 1.0% traffic with a note that no data is available for the selected time frame. The 'Errors' chart shows 100% errors with a note that no data is available for the selected time frame. The 'Median latency' chart shows 1.0 ms with a note that no data is available for the selected time frame. Below the charts, there is a table titled 'Filter' with columns for Name, Requests, Errors (%), Latency, median (ms), and Latency 95% (ms). The table lists various Google Cloud APIs. At the bottom of the page, there are pagination controls for 'Rows per page' (50) and '1 - 15 of 15'.

<https://console.cloud.google.com/api/library?authuser=2&organizationId=0&project=youtubescraper-376411&supportedpurview=project>

Activating the YouTube Data API v3

On the next page, search for "youtube data api v3".



Activating the YouTube Data API v3

Select "YouTube Data API v3"

The screenshot shows the Google Cloud API Library interface. A search bar at the top right contains the text "Youtube data api v3". Below it, a list of results is shown, with one item highlighted by a red box and a red arrow pointing to it. The highlighted item is "YouTube Data API v3" by Google, which is described as an API for accessing YouTube data. The URL for this page is visible at the bottom of the screenshot.

Start your Free Trial with \$300 in credit. Don't worry—you won't be charged if you run out of credits. [Learn more](#)

DISMISS ACTIVATE

≡ Google Cloud ▾ YouTubeScraper

API Library

Search for APIs & Services X

API Library > "Youtube data api v3"

1 result

Filter Type to filter

Visibility

Public (1)

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.

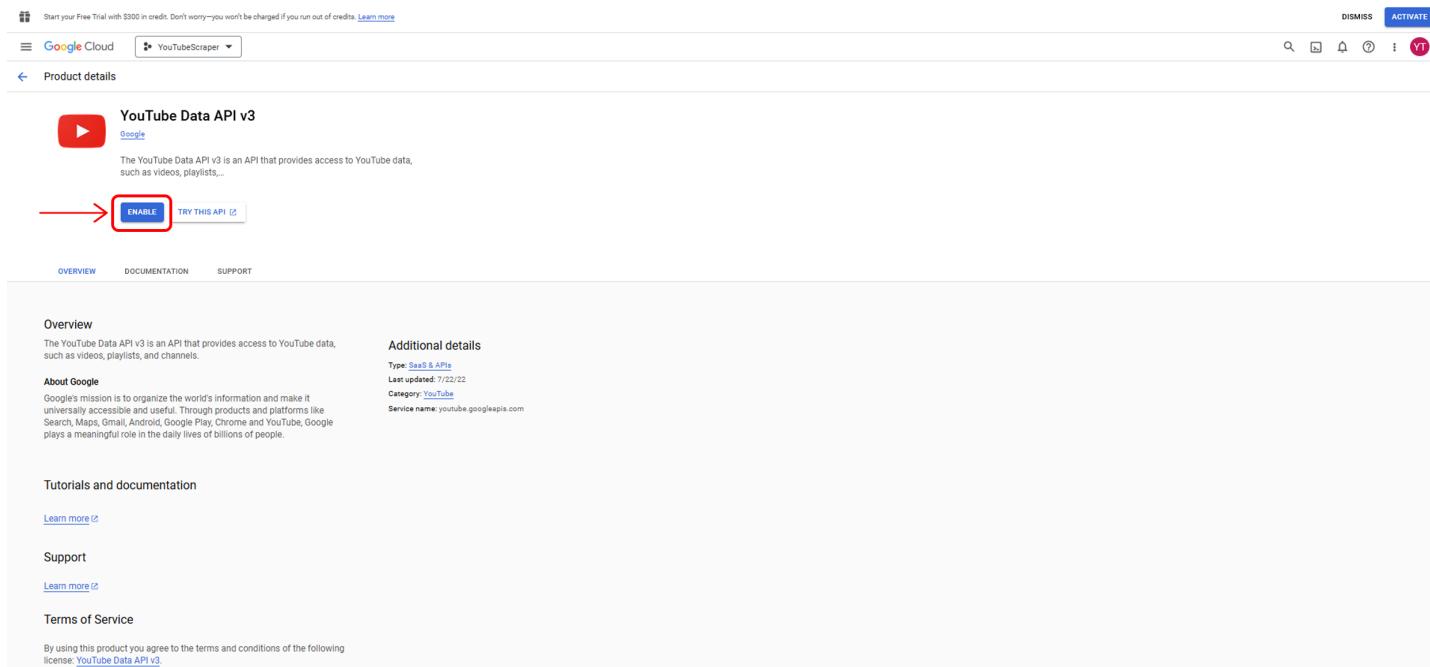
Category

YouTube (1)

<https://console.cloud.google.com/api/library/youtube.googleapis.com?authuser=2&organizationId=0&project=youtubescraper-376411&supportedpurview=project>

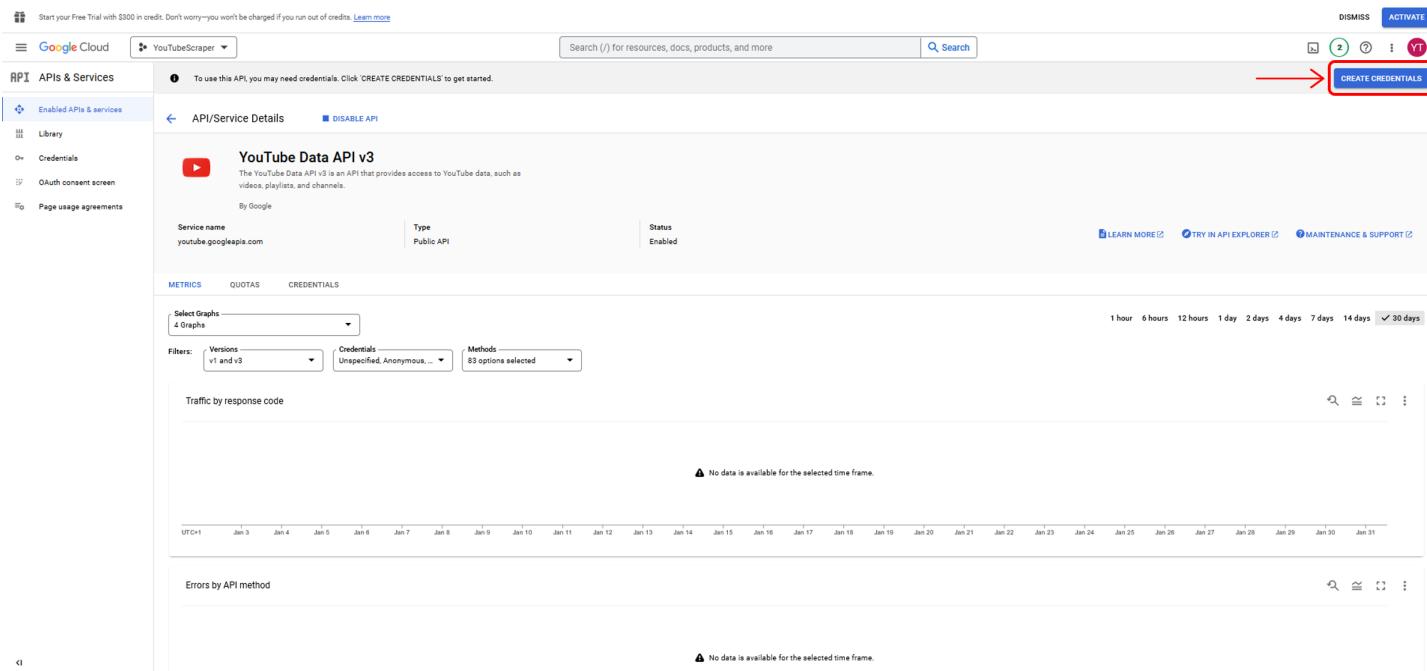
Activating the YouTube Data API v3

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



Creating Credentials

In the next step, click on "Create Credentials" on the top right.



Creating Credentials

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

The screenshot shows the 'Create credentials' wizard in the Google Cloud Platform. The left sidebar has 'Enabled APIs & services' expanded, with 'Credentials' selected. The main area is titled 'Credential Type'. It asks 'Which API are you using?' with a dropdown set to 'YouTube Data API v3'. It then asks 'What data will you be accessing?' with two options: 'User data' (selected) and 'Public data'. A red box highlights the 'User data' radio button, and another red box highlights the 'NEXT' button at the bottom. Below this, a section titled 'Your Credentials' shows 'API key' and 'OAuth client ID' with their respective icons.

Start your Free Trial with \$300 in credit. Don't worry—you won't be charged if you run out of credits. [Learn more](#)

DISMISS ACTIVATE

Google Cloud YouTubeScraper Search (/) for resources, docs, products, and more [Search](#)

API APIs & Services Create credentials

Enabled APIs & services

Library

Credentials

OAuth consent screen

Page usage agreements

① Credential Type

Which API are you using?

Select an API ... YouTube Data API v3

What data will you be accessing?

User data Public data

NEXT

② Your Credentials

API key OAuth client ID

DONE CANCEL

Creating Credentials

Next, specify an app name of your choosing and enter your (new) *Gmail* address as the user support email and developer contact email. Click "Save and continue" afterwards.

The screenshot shows the 'Create credentials' page in the Google Cloud Platform. The 'OAuth Consent Screen' tab is selected. The 'App information' section is expanded, showing the 'App name' field set to 'TubeScraper' and the 'User support email' field set to 'yt.workshop23@gmail.com'. The 'Developer contact information' section shows the 'Email addresses' field also set to 'yt.workshop23@gmail.com'. Red boxes and arrows highlight these three fields.

Start your Free Trial with \$300 in credit. Don't worry—you won't be charged if you run out of credits. [Learn more](#)

DISMISS ACTIVATE

Google Cloud YouTubeScraper Search / for resources, docs, products, and more [Search](#)

API APIs & Services Create credentials

Enabled APIs & services

Library

Credentials **OAuth consent screen**

Page usage agreements

Credential Type

OAuth Consent Screen

App information

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

App name *
TubeScraper

User support email *
yt.workshop23@gmail.com

For users to contact you with questions about their consent

App logo

This is your logo. It helps people recognize your app and is featured on the OAuth consent screen.

BROWSE

Logo file to upload

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

Developer contact information

Email addresses *
yt.workshop23@gmail.com

These email addresses are for Google to notify you about any changes to your project.

Scopes (optional)

OAuth Client ID

SAVE AND CONTINUE

Creating Credentials

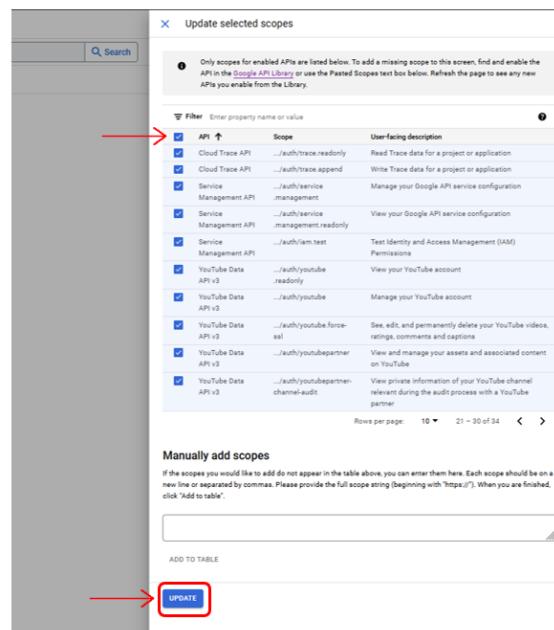
Click on "Add or remove scopes" next.

The screenshot shows the 'Create credentials' page in the Google Cloud Platform. The left sidebar is titled 'APIs & Services' and has sections for 'Enabled APIs & services', 'Library', 'Credentials' (which is selected), 'OAuth consent screen', and 'Page usage agreements'. The main content area is titled 'OAuth Consent Screen' and includes a section for 'Scopes (optional)'. A red arrow points to the 'ADD OR REMOVE SCOPES' button. Below this, there are three sections: 'Your non-sensitive scopes', 'Your sensitive scopes', and 'Your restricted scopes', each with a table header and a note indicating 'No rows to display'.

Creating Credentials

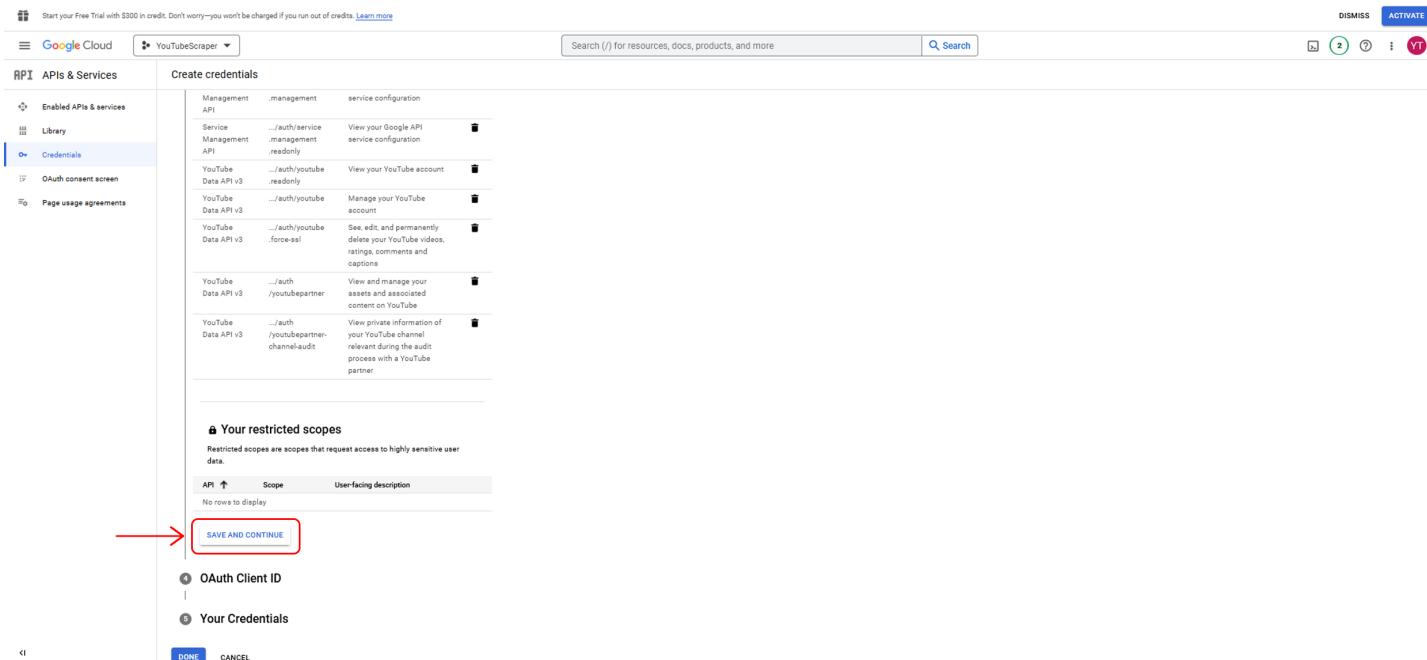
Use the upper checkbox to select all scopes on all pages of the table.

Note: For this workshop it's sufficient to only select the scopes for the YouTube Data API v3, but it is quicker and easier if you select everything. Afterwards, click on "update".



Creating Credentials

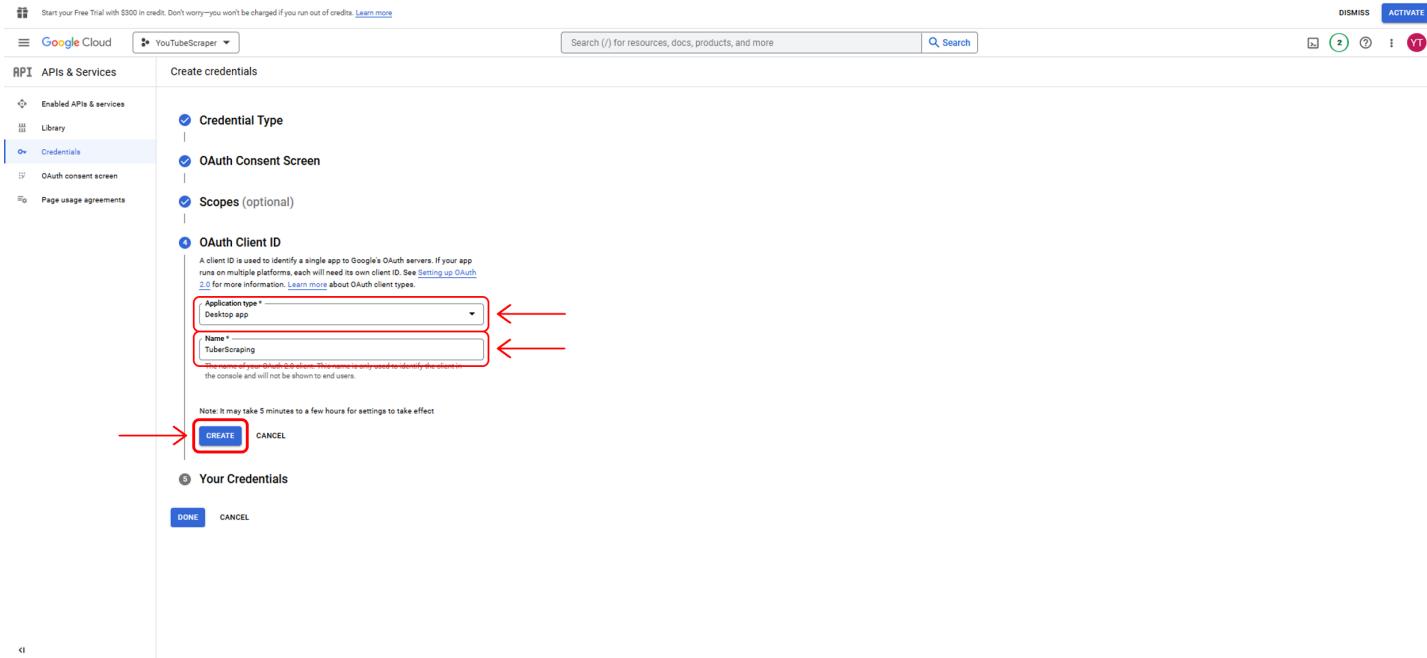
Next, click on "Save and continue" to confirm your selection of scopes.



The screenshot shows the Google Cloud Platform interface for creating credentials. On the left, there's a sidebar with 'Google Cloud' branding and navigation links for 'Enabled APIs & services', 'Library', 'Credentials' (which is selected), 'OAuth consent screen', and 'Page usage agreements'. The main area is titled 'Create credentials' under 'API & Services'. It lists several scopes for different YouTube Data API v3 endpoints, each with a brief description and a trash icon. Below this, a section titled 'Your restricted scopes' is shown with a note about restricted scopes being highly sensitive. At the bottom, there's a table header for 'API ↑ Scope User-facing description' followed by a message 'No rows to display'. Finally, there are two buttons: 'SAVE AND CONTINUE' (highlighted with a red box and arrow) and 'DONE CANCEL'.

Creating Credentials

Select "Desktop App" as the application type and specify the name for the set of credentials (can be anything). Click "Create" to confirm.



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

Creating Credentials

Navigate to the "OAuth Consent Screen" tab in the menu on the left and click on "Add Test Users".

The screenshot shows the Google Cloud Platform interface for managing APIs & Services. The left sidebar has 'APIs & Services' selected, with 'Enabled APIs & services' expanded. Under 'Credentials', the 'OAuth consent screen' tab is highlighted and circled in red. The main content area shows the 'TuberScraper' app details, including 'Testing' publishing status and 'External' user type. The 'Test users' section has a red arrow pointing to the '+ ADD USERS' button, which is also circled in red. To the right, there's a 'Learn' sidebar with various help articles.

Start your Free Trial with \$300 in credits. Don't worry—you won't be charged if you run out of credits. [Learn more](#)

DISMISS ACTIVATE

☰ Google Cloud YouTubeScraper ▾

Search () for resources, docs, products, and more [Search](#)

API APIs & Services OAuth consent screen

Enabled APIs & services TuberScraper [EDIT APP](#)

Library

Credentials [OAuth consent screen](#) (highlighted and circled)

Page usage agreements

Publishing status Testing [PUBLISH APP](#)

User type External [MAKE INTERNAL](#)

OAuth user cap 100

While publishing status is set to 'Testing', only test users are able to access the app. Allowed user cap prior to app verification is 100, and is counted over the entire lifetime of the app. [Learn more](#)

0 users (0 test, 0 other) / 100 user cap [?](#)

Test users [+ ADD USERS](#) (highlighted and circled with a red arrow)

Filter Enter property name or value

User information No rows to display

[SHOW LESS](#)

OAuth rate limits

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? ▾

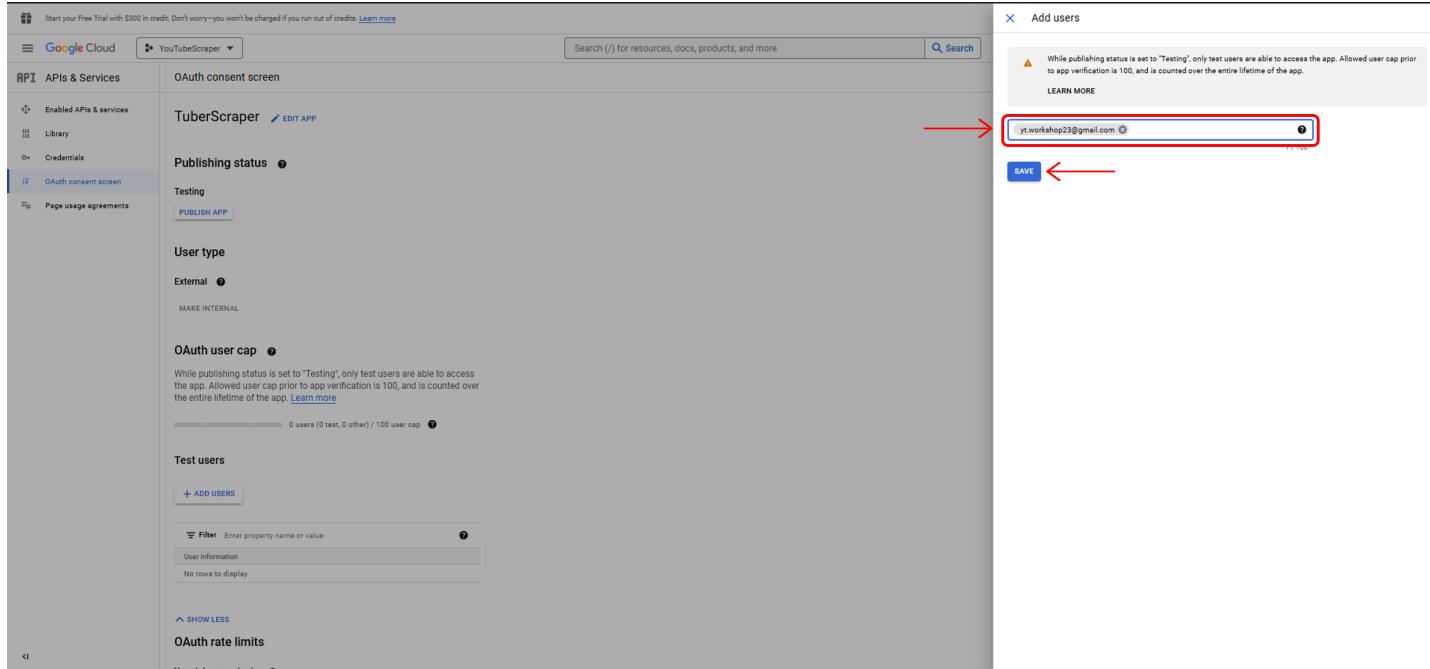
How many users can use my app? ▾

Domain verification

What else should I review? ▾

Creating Credentials

In the sidebar panel that should open on the right, enter your *Gmail* address as a test user and click "Save".



Creating Credentials

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

The screenshot shows the Google Cloud Platform API & Services dashboard. The left sidebar has a 'Credentials' section highlighted with a red box and a blue arrow pointing to it. The main area displays the 'OAuth consent screen' configuration, including sections for 'User type' (set to 'External'), 'OAuth user cap' (set to 100), 'Test users' (with one user added: 'yt.workshop23@gmail.com'), and 'OAuth rate limits' (set to 7 days). The right side of the screen contains a knowledge base with articles related to OAuth consent screens and app registration processes.

Start your Free Trial with \$300 in credit. Don't worry—you won't be charged if you run out of credits. [Learn more](#)

DISMISS ACTIVATE

Google Cloud YouTubeScraper Search / for resources, docs, products, and more

API APIs & Services OAuth consent screen

Enabled APIs & services

Library [PUBLISH APP](#)

On Credentials [User type](#)

External

MAKE INTERNAL

OAuth consent screen

Page usage agreements

OAuth user cap [100](#)

While publishing status is set to "Testing", only test users are able to access the app. Allowed user cap prior to app verification is 100, and is counted over the entire lifetime of the app. [Learn more](#)

1 user (1 test, 0 other) / 100 user cap [Edit](#)

Test users

+ ADD USERS

Filter Enter property name or value

User information yt.workshop23@gmail.com

SHOW LESS

OAuth rate limits

Your token grant rate [10,000](#)

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](#)

3 hours 7 days

<https://console.cloud.google.com/apis/credentials?authuser=2&project=ctric-yen-3764118supportedpurview=project>

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

While we are here, we can also generate an API key that can be used for access to publicly available YouTube data using the API. Click on the blue "Create Credentials" button on the top and select "API key".

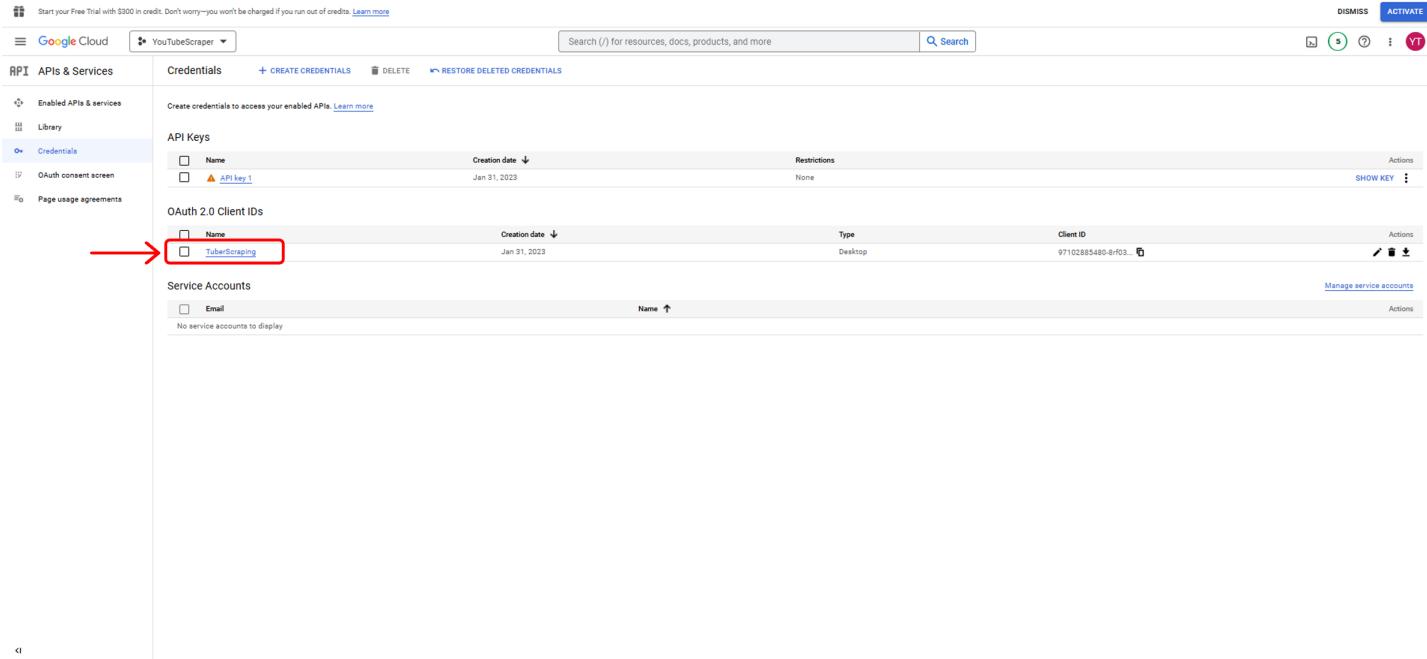
The screenshot shows the Google Cloud Platform interface for managing credentials. The left sidebar has 'APIs & Services' selected under 'Credentials'. The main area shows a table of existing credentials:

Name	Creation date	Type	Client ID	Actions
TuberScraping	Jan 31, 2023	Desktop	97102885480-8f03...	

At the top right of the table, there is a 'CREATE CREDENTIALS' button with a red box and arrow highlighting it. A tooltip above the button says: 'Create credentials to add... Identify your project using a simple API key to check quota and access'.

Creating Credentials

We also need an OAuth client ID + secret. Click on the "Oauth 2.0 Client ID" name that you specified before.

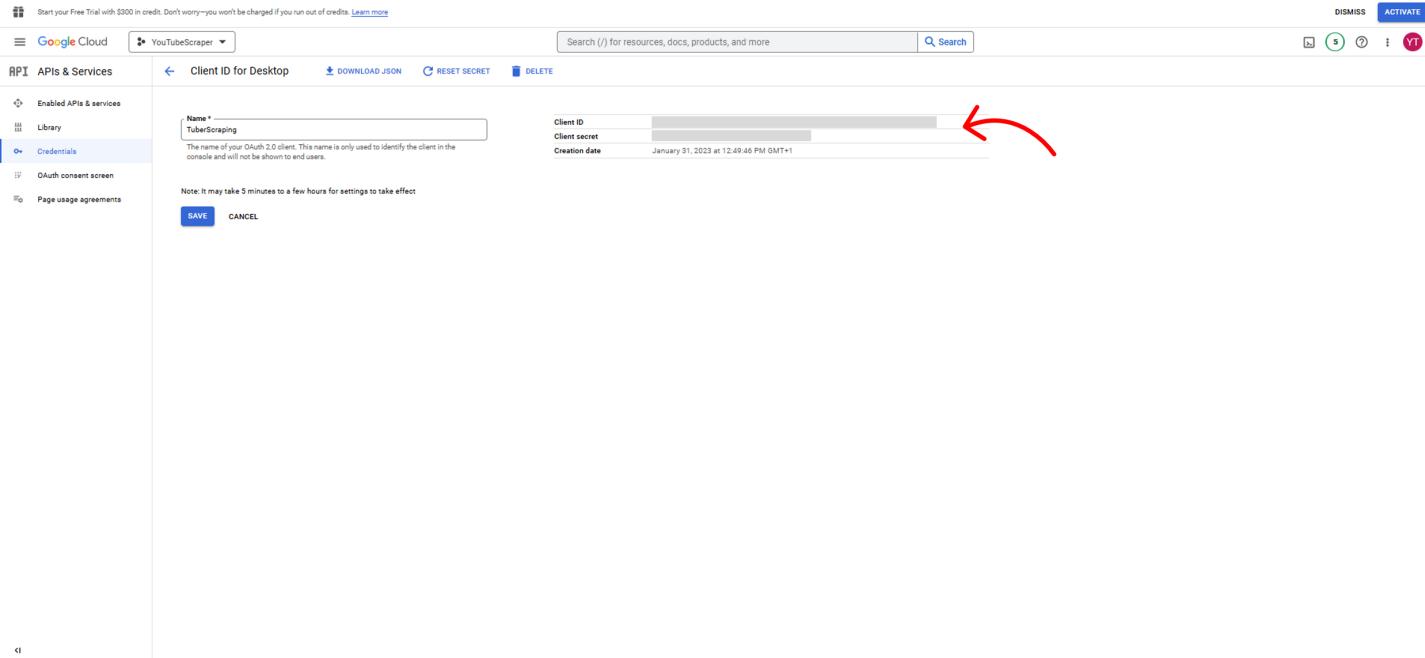


The screenshot shows the Google Cloud Platform interface for managing credentials. The left sidebar has sections for Enabled APIs & services, Library, and Credentials (which is selected). The main content area is titled 'Credentials' and shows two sections: 'API Keys' and 'OAuth 2.0 Client IDs'. In the 'OAuth 2.0 Client IDs' section, there is a table with one row. A red arrow points to the 'Name' column of this row, which contains the value 'TuberScraping'. The table columns are Name, Creation date, Type, Client ID, and Actions.

Name	Creation date	Type	Client ID	Actions
TuberScraping	Jan 31, 2023	Desktop	97102885480-8rf03...	

Creating Credentials

Congratulations! You now have your credentials! You can see your client ID and secret on the screen that should open now.



The screenshot shows the Google Cloud Platform interface for managing API credentials. The user is in the 'Credentials' section of the 'APIs & Services' library. A new credential has been created for a 'YouTubeScraping' client, with the 'Client ID' and 'Client secret' fields displayed. A red arrow points to the 'Client ID' field, which contains a long, randomly generated string of characters. The 'Client secret' field is also visible below it. The 'Creation date' is listed as January 31, 2023 at 12:49:46 PM GMT+1. At the bottom of the form, there are 'SAVE' and 'CANCEL' buttons.

Testing Your API Access

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

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

# load the tuber package
library(tuber)

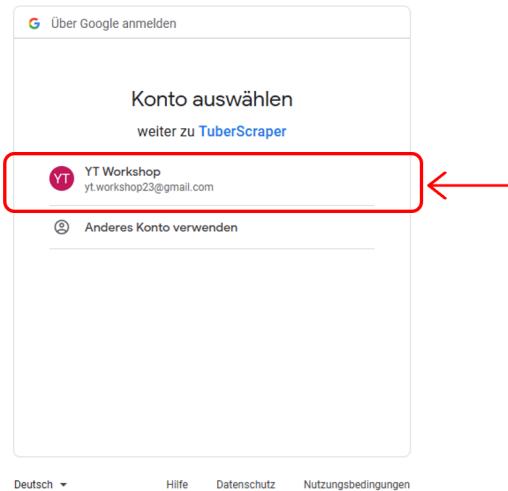
# Set your credentials (NEVER SHARE THIS INFORMATION)
ID <- "ENTER-YOUR-CLIENT-ID-HERE"
secret <- "ENTER-YOUR-CLIENT-SECRET-HERE"

# 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
```

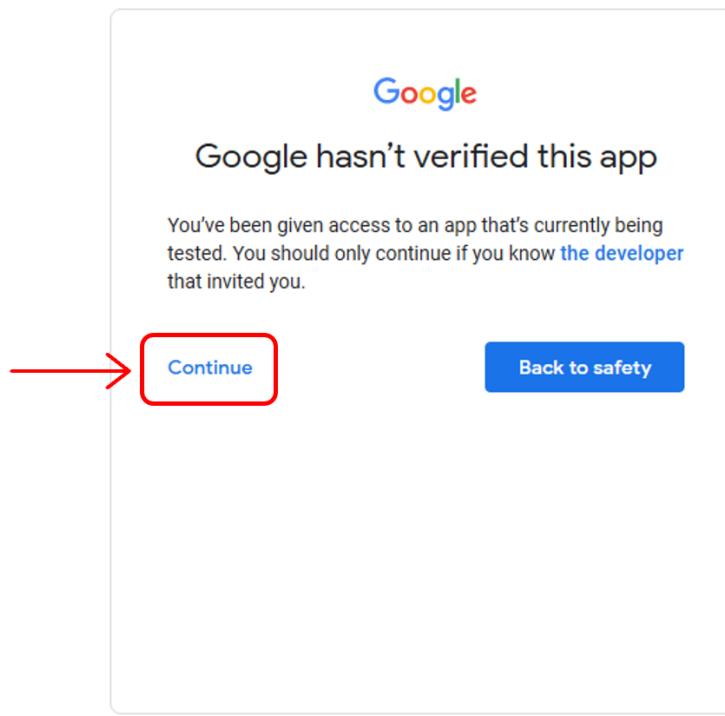
Grant Yourself Access

In the browser window that opens from your R session, select your (new) *Gmail* account.



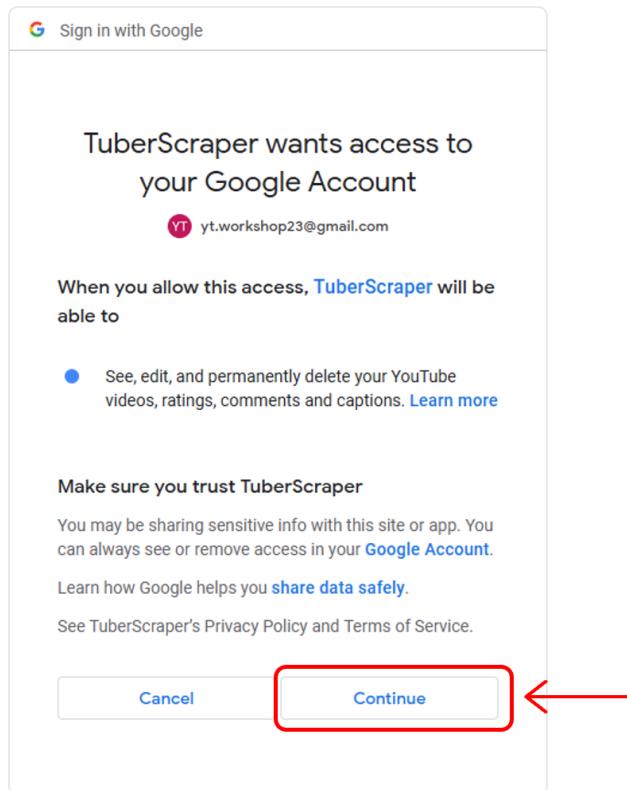
Grant Yourself Access

Google warns you that the app has not been verified, but you can trust yourself and click on "Continue".



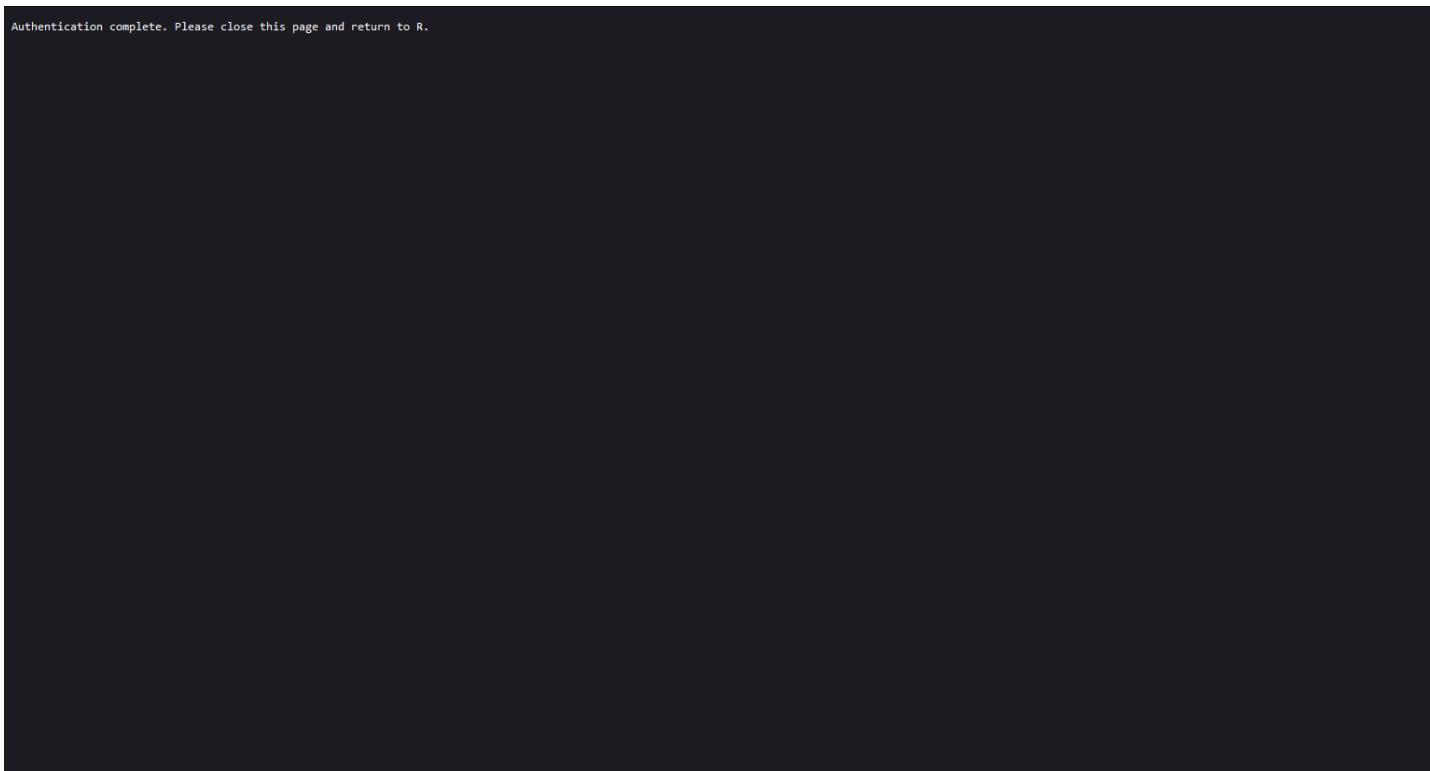
Grant Yourself Access

Allow the app (and, hence, yourself) to make changes to the account (you have created).



Grant Yourself Access

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

A dark gray rectangular box containing a single line of white text.

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

API Test 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")
```

API Test Call Output

If everything worked correctly, the output should look like this. *Note:* The actual numbers will vary because they might have changed in the meantime.

```
$id
[1] "HluANRwPyNo"

$viewCount
[1] "21452466"

$likeCount
[1] "1044454"

$favoriteCount
[1] "0"

$commentCount
[1] "36874"
```

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

- 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 or API key! 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, e.g., 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 at the workshop!