



Make Digital
Transformation
Possible

2024/08/16

無痛連結

Google Workspace, REST APIs (初階)

Tri-Thong Tran 陳智聰
Cloud Architect

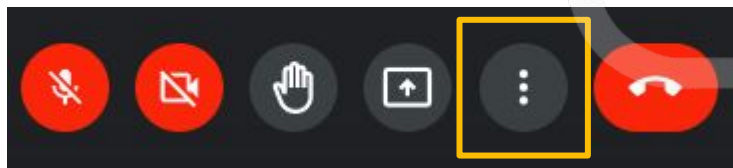


在會議中 有任何疑問時

1. 請點擊 Meet 右上角的即時「問與答」功能提出您的問題！
2. 大家可以點擊互動按讚，我們將會優先回答按讚數較多的問題！



為了確保 會議品質



變更版面配置

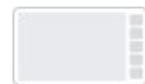
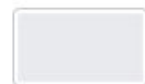
系統會記住你選取的版面配置，以供日後的會議使用

自動

圖塊

聚光燈

側欄



並排顯示

無法變更這個版面配置的圖塊數量



Tri-Thong Tran 陳智聰

Cloud Architect

擁有 3 年雲端架構師經歷。

現任 CloudMile 萬里雲雲端架構師，專精於為國內外金融、零售、航空及半導體等產業巨擘，量身打造以 Google Workspace 和 Google Cloud 為核心的數位轉型藍圖，協助企業順利遷移至雲端，並優化基礎設施及資料管理。

- # Google Workspace
- # Google Apps Script
- # Google AppSheet
- # GCP Landing Zone Solution
- # GCP APIM Solution
- # GCP Application Modernization Solution
- # DevOps Solution



AGENDA

1

Apps Script Overview

2

透過 Google Apps Script 串接 GWS 常用之服務 - Gmail、Calendar、Drive、Sheet

3

Google Apps Script 內建 Key-Value 資料儲存 (Demo + 實作)

4

利用 Google Apps Script 打造微服務 - Google Forms 表單送出次數計數器





01

Apps Script Overview

CloudMile



What is Apps Script?



Google Apps Script is a rapid application development platform that makes it **fast and easy to create business applications that integrate with Google Workspace.**

You write code in modern **JavaScript** and have access to **built-in libraries for favorite Google Workspace applications** like Gmail, Calendar, Drive, and more. There's **nothing to install**—we give you a code editor right in your browser, and your scripts run on Google's servers.

What can Apps Script do?



Apps Script is versatile. Among other things, you can:

- Add **custom menus**, **dialogs**, and **sidebars** to Google Docs, Sheets, and Forms.
- Write **custom functions** and **macros** for Google Sheets.
- Publish **web apps** — either standalone or embedded in Google Sites.
- Interact with other **Google services**, including AdSense, Analytics, Calendar, Drive, Gmail, and Maps.
- Build **add-ons** and publish them to the Google Workspace Marketplace.

Google Workspace API: Overview



Connect to Google Workspace

REST APIs make it easy to programmatically interact with Google Workspace.



Manage files & sharing

Use the **Drive API** to programmatically search files, upload documents, and manage file permissions.

[View documentation](#) [Try it out](#)



Manage Gmail settings & messages

Use the **Gmail API** to programmatically send emails, update email signatures, and manage other settings.

[View documentation](#) [Try it out](#)



Optimize your admin work

Use the **Admin SDK** to programmatically manage new and existing users, audit activity, or get alerts about your account.

[View documentation](#) [Try it out](#)



Manage calendars & events

Use the **Calendar API** to programmatically add or update Calendar events.

[View documentation](#) [Try it out](#)

Apps Script vs Advanced REST APIs

Developer products

[Send feedback](#)

Below are the development platforms, built-in extensions, and Google Workspace apps you can enhance, automate, or connect with your service.

Development platforms

 Apps Script

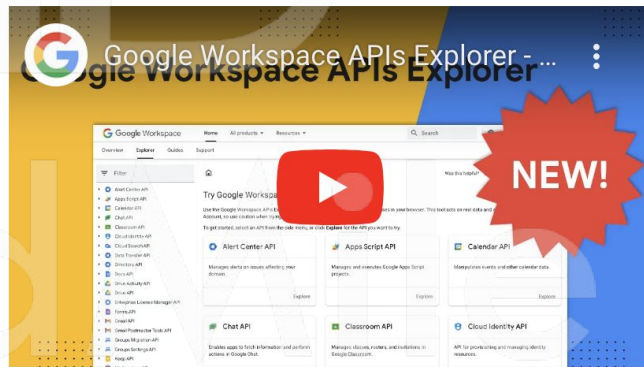
Anyone can use our web-based, low-code environment to automate and enhance Google Workspace.

[Explore Apps Script](#)

 REST APIs

Advanced developers can use the Google Workspace REST APIs to interact programmatically with users' email, calendars, files, and other Google Workspace data.

[Explore Google Workspace APIs](#)



Class

Methods

Gmail Service

[Send feedback](#)

This Service lets you send email, compose drafts, manage labels, mark messages and threads, and conduct a variety of other Gmail account management tasks. See also [Mail Service](#), a simpler service that only allows the sending of email.

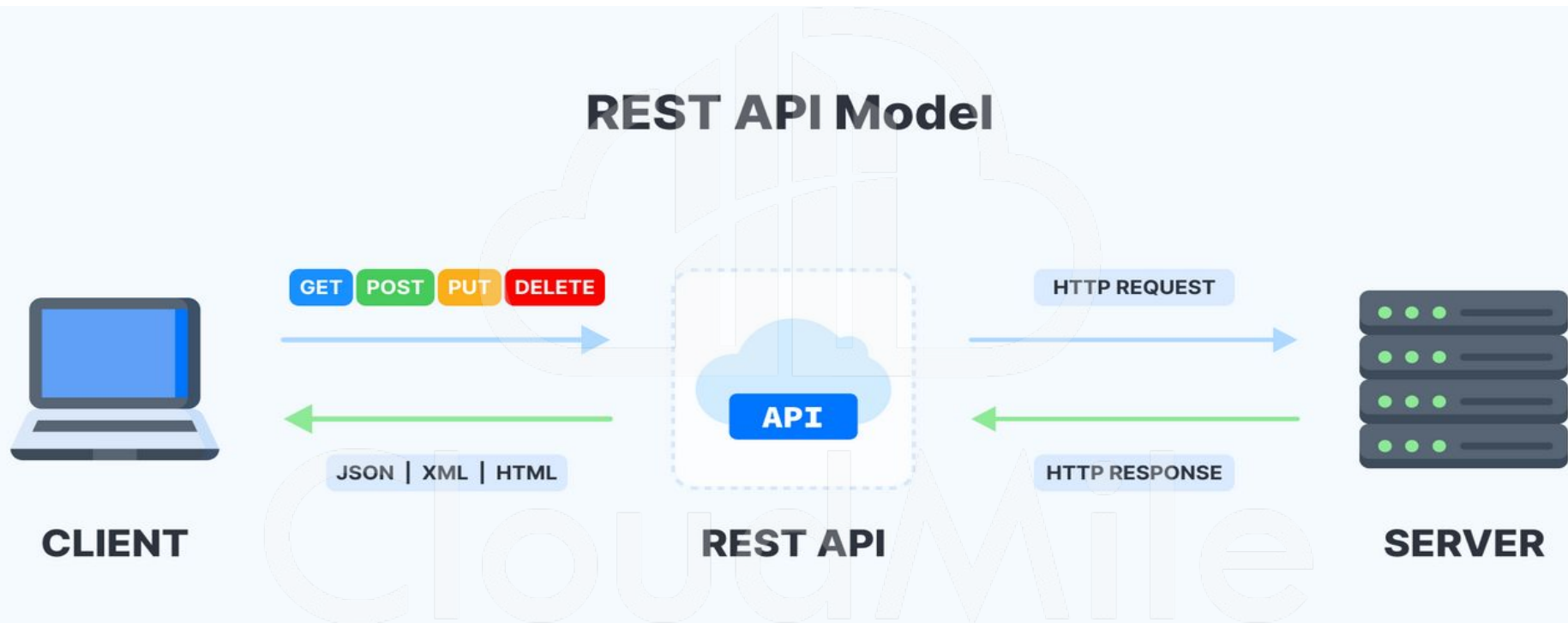
Classes

Name	Brief description
GmailApp	Provides access to Gmail threads, messages, and labels.
GmailAttachment	An attachment from Gmail.
GmailDraft	A user-created draft message in a user's Gmail account.
GmailLabel	A user-created label in a user's Gmail account.
GmailMessage	A message in a user's Gmail account.
GmailThread	A thread in a user's Gmail account.

GmailApp

Methods

Method	Return type	Brief description
createDraft(recipient, subject, body)	GmailDraft	Creates a draft email message.
createDraft(recipient, subject, body, options)	GmailDraft	Creates a draft email message with optional arguments.



HTTP methods in RESTful API development

HTTP Methods	Path	Action
GET	/products/{sku}	Read
POST	/products	Create
PUT	/products/{sku}	Update
PATCH	/products/{sku}	Partial Update
DELETE	/products/{sku}	Delete



02

透過 Google Apps Script
串接 GWS 常用之服務 -
Gmail、Calendar、
Drive、Sheet



Let's go with Apps Script!

您需要先完成以下幾件事：

1. A Google Account (登入您的 Google 帳戶)
(Google Workspace accounts might require administrator approval)
2. A web browser with access to the internet (已連上網路的網頁頁面)
3. 開啟 Apps Script 頁面
<https://script.google.com/home>
4. 開啟「練習用程式碼」文件
https://github.com/trithong12/GWS_AppsScript_examples/blob/main/Apps%20Script%20Fundamental.md

Apps Script 在開發前有哪些注意事項？

1. Apps Script IDE
2. Trigger
3. Deploy
4. Execution Logs
5. Project Settings
6. OAuth Setting

Apps Script Demo

Project Settings

General settings

Settings that pertain to the entire Apps Script project. Changes to these settings will not impact your existing deployment.

Time zone
(GMT+08:00) Taipei Standard Time - Taipei


Log uncaught exceptions to Cloud logs

Enable Chrome V8 runtime

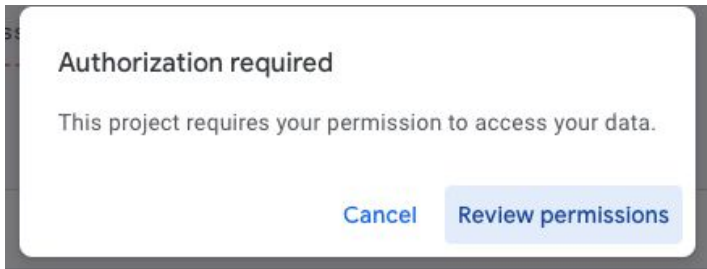
Show "appsscript.json" manifest file in editor

IDs

IDs are the unique identifiers of your Apps Script project.

Script ID 
[Copy](#)

執行時是否有出現這個畫面？



Google hasn't verified this app

The app is requesting access to sensitive info in your Google Account. Until the developer (trithong12@gmail.com) verifies this app with Google, you shouldn't use it.

[Hide Advanced](#)

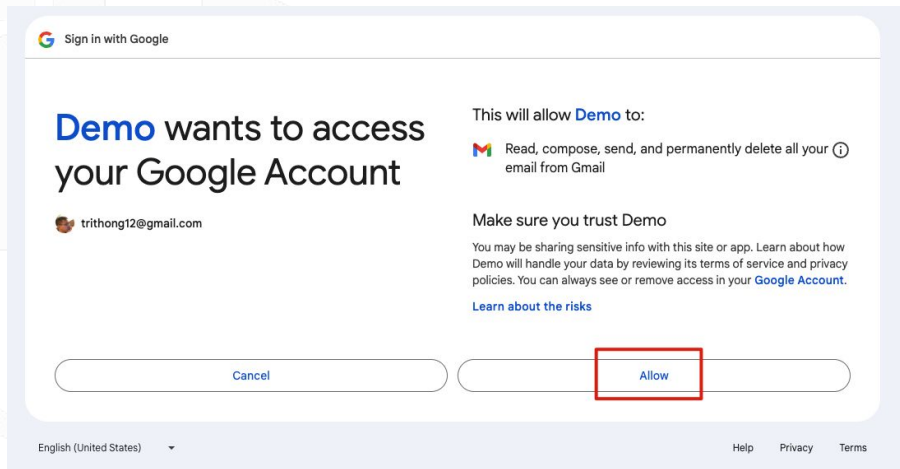
1

[BACK TO SAFETY](#)

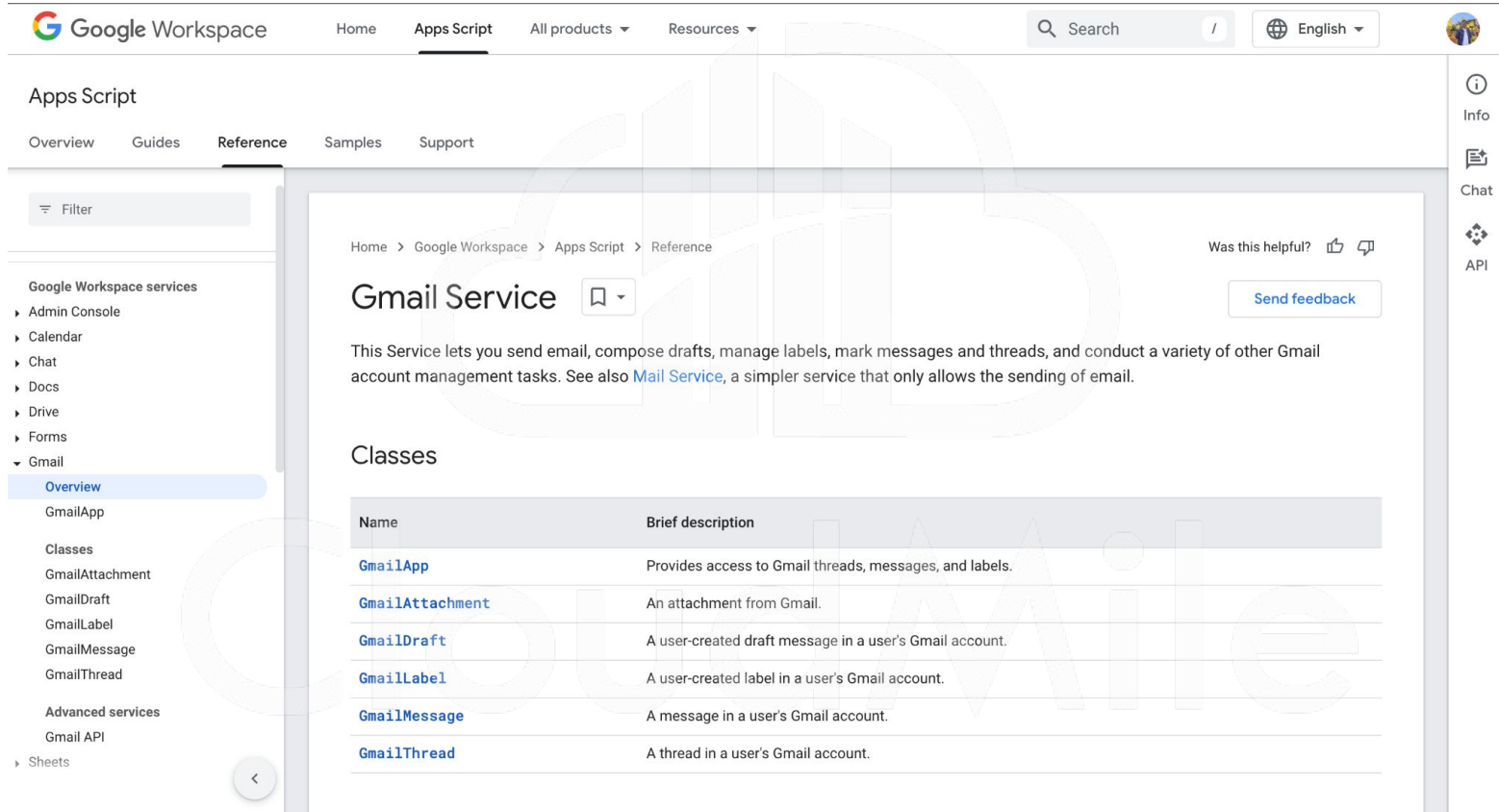
Continue only if you understand the risks and trust the developer (trithong12@gmail.com).

[Go to Demo \(unsafe\)](#)

2



Google Workspace: Gmail SDK



The screenshot shows the Google Workspace App Script Reference page for the Gmail Service. The page is titled "Gmail Service" and includes a "Send feedback" button. The main content area describes the service and lists several classes with their brief descriptions.

Home > Google Workspace > App Script > Reference

Was this helpful?

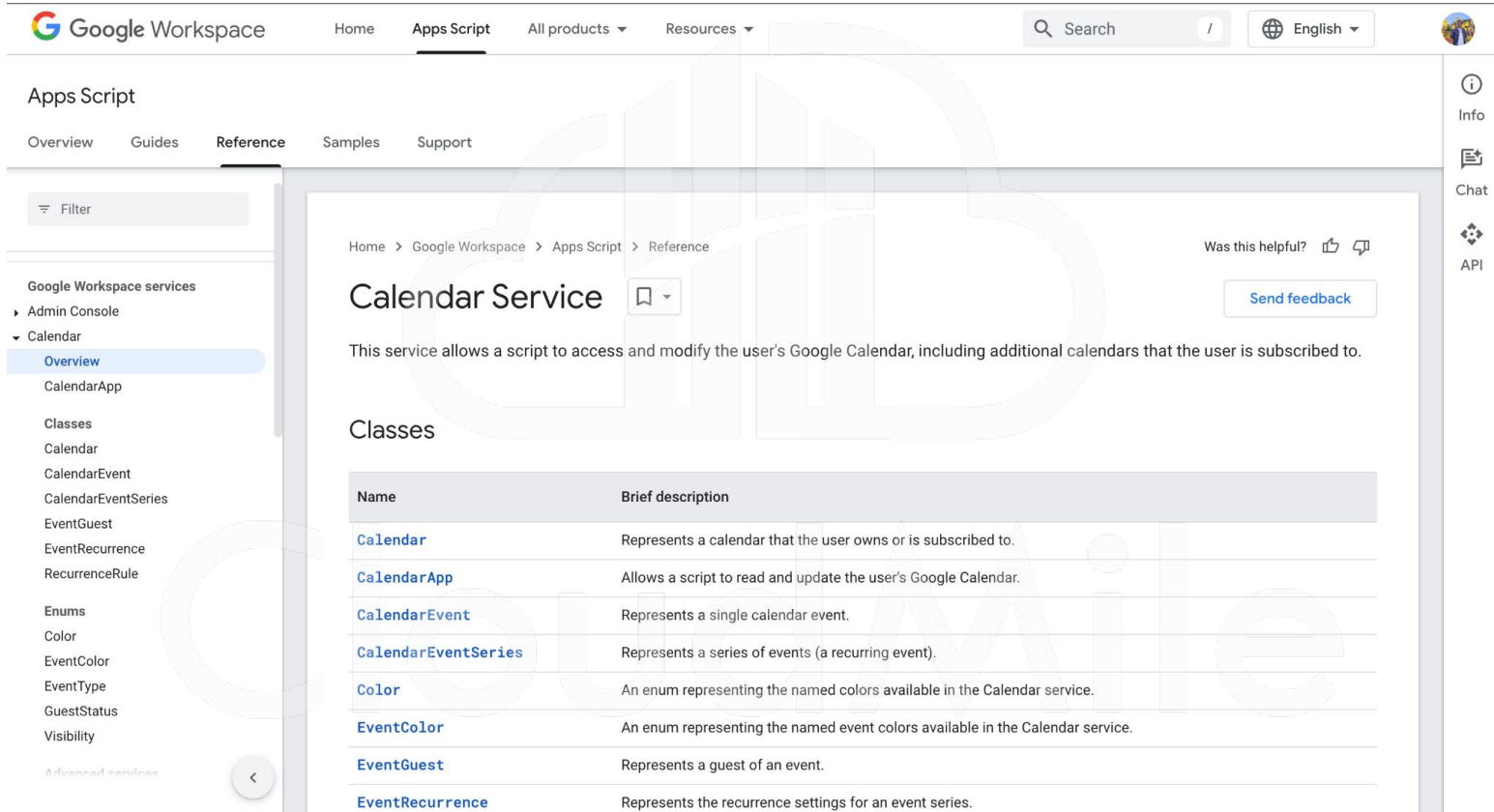
[Send feedback](#)

This Service lets you send email, compose drafts, manage labels, mark messages and threads, and conduct a variety of other Gmail account management tasks. See also [Mail Service](#), a simpler service that only allows the sending of email.

Classes

Name	Brief description
GmailApp	Provides access to Gmail threads, messages, and labels.
GmailAttachment	An attachment from Gmail.
GmailDraft	A user-created draft message in a user's Gmail account.
GmailLabel	A user-created label in a user's Gmail account.
GmailMessage	A message in a user's Gmail account.
GmailThread	A thread in a user's Gmail account.

Google Workspace: Calendar SDK

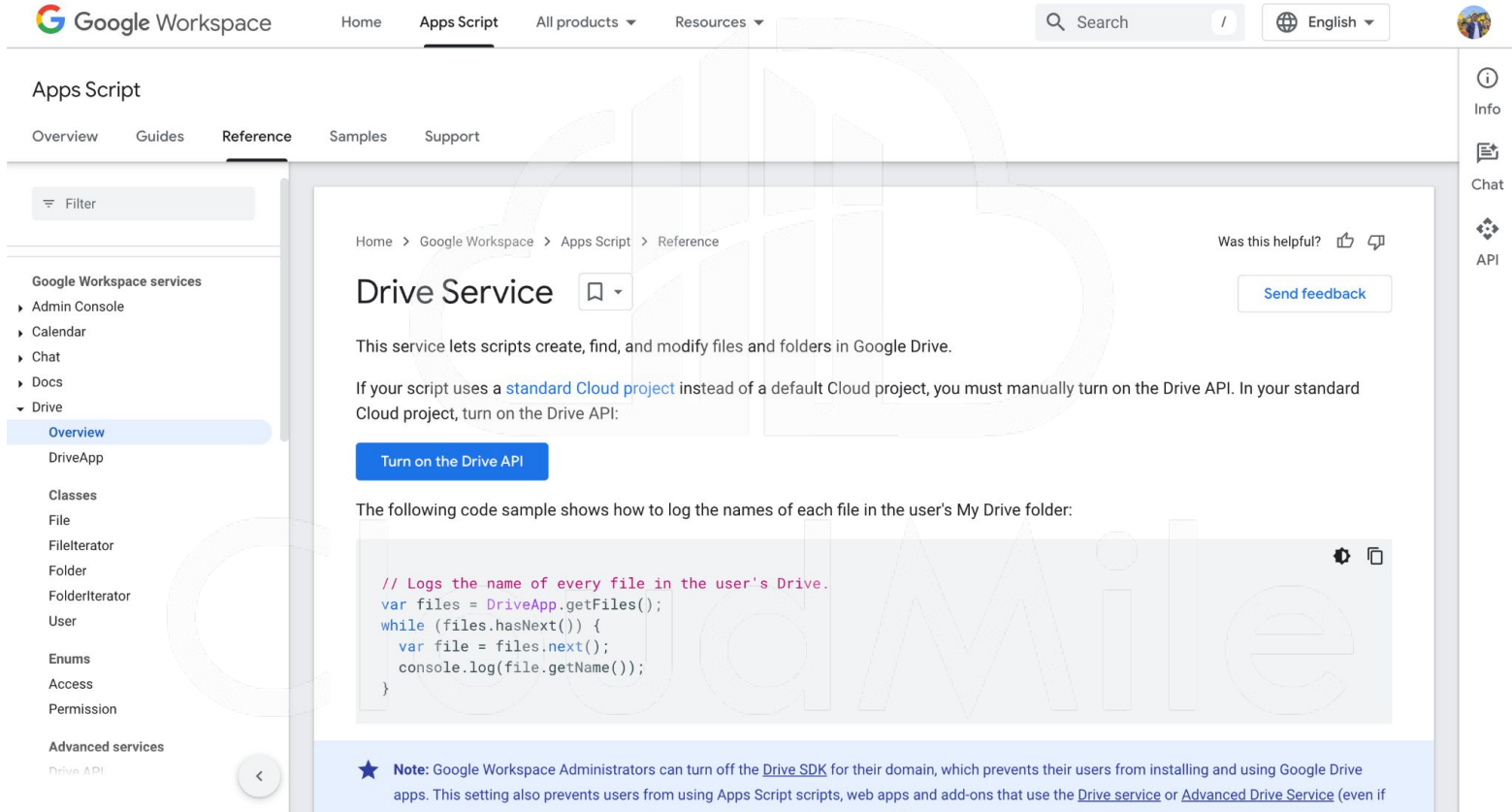


The screenshot shows the Google Workspace developer console for the Calendar Service. The page is titled "Calendar Service" and includes a breadcrumb trail: Home > Google Workspace > Apps Script > Reference. A "Send feedback" button is visible in the top right. The main content area is titled "Classes" and contains a table with the following data:

Name	Brief description
Calendar	Represents a calendar that the user owns or is subscribed to.
CalendarApp	Allows a script to read and update the user's Google Calendar.
CalendarEvent	Represents a single calendar event.
CalendarEventSeries	Represents a series of events (a recurring event).
Color	An enum representing the named colors available in the Calendar service.
EventColor	An enum representing the named event colors available in the Calendar service.
EventGuest	Represents a guest of an event.
EventRecurrence	Represents the recurrence settings for an event series.

The left sidebar shows the navigation menu with "Calendar" expanded and "Overview" selected. The right sidebar contains utility icons for Info, Chat, and API.

Google Workspace: Drive SDK



The screenshot shows the Google Workspace Apps Script reference page for the Drive Service. The page is titled "Drive Service" and includes a navigation menu on the left with categories like "Google Workspace services" and "Advanced services". The main content area contains a description of the Drive Service, a "Turn on the Drive API" button, and a code sample for logging file names. A note at the bottom explains that administrators can turn off the Drive SDK for their domain.

Google Workspace

Home Apps Script All products Resources

Search English

Apps Script

Overview Guides Reference Samples Support

Filter

Google Workspace services

- Admin Console
- Calendar
- Chat
- Docs
- Drive
- Overview
- DriveApp
- Classes
- File
- FileIterator
- Folder
- FolderIterator
- User
- Enums
- Access
- Permission
- Advanced services
- Drive API

Home > Google Workspace > Apps Script > Reference

Drive Service

Was this helpful? [Send feedback](#)

This service lets scripts create, find, and modify files and folders in Google Drive.

If your script uses a [standard Cloud project](#) instead of a default Cloud project, you must manually turn on the Drive API. In your standard Cloud project, turn on the Drive API:

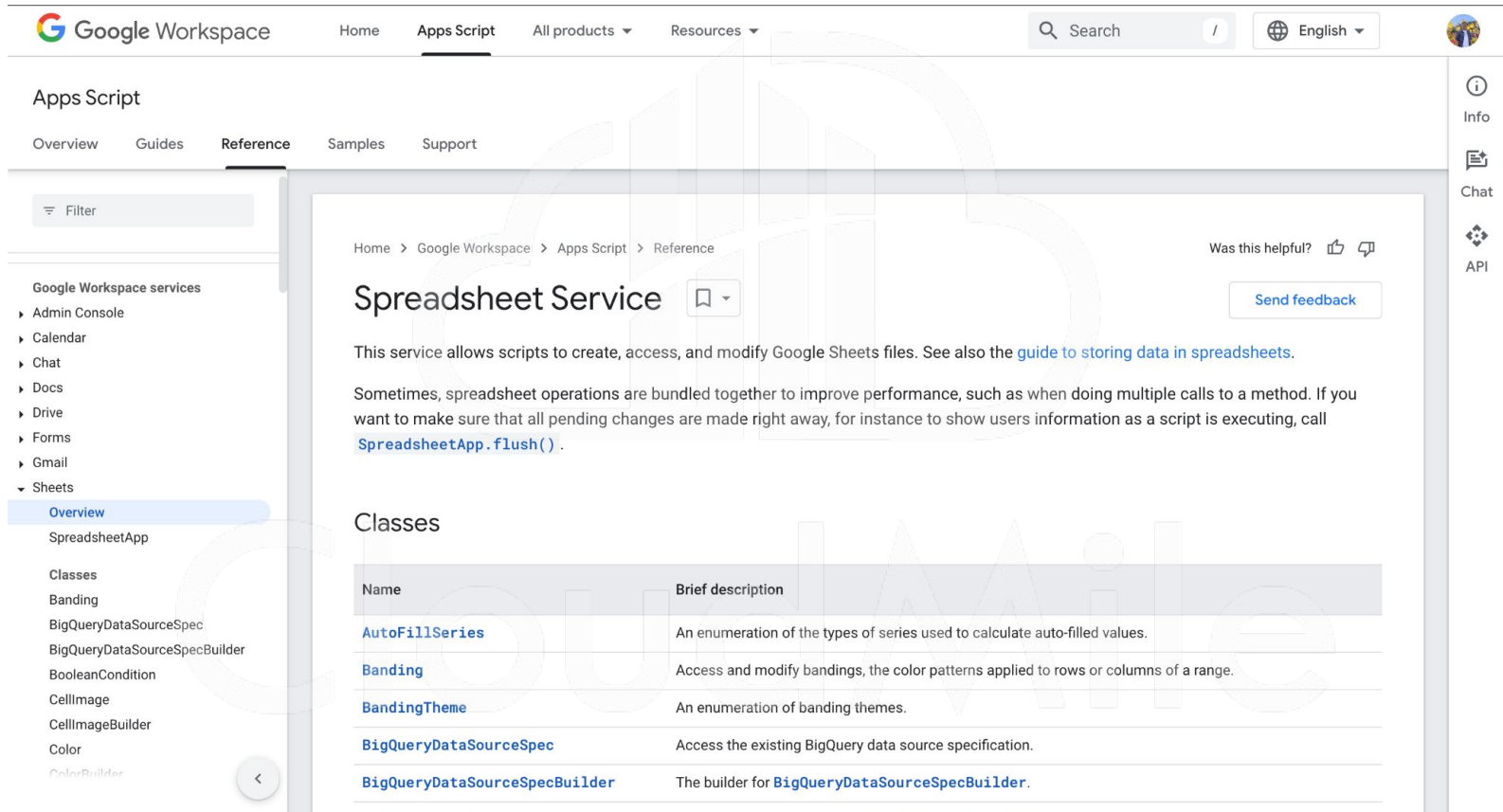
[Turn on the Drive API](#)

The following code sample shows how to log the names of each file in the user's My Drive folder:

```
// Logs the name of every file in the user's Drive.
var files = DriveApp.getFiles();
while (files.hasNext()) {
  var file = files.next();
  console.log(file.getName());
}
```

★ **Note:** Google Workspace Administrators can turn off the [Drive SDK](#) for their domain, which prevents their users from installing and using Google Drive apps. This setting also prevents users from using Apps Script scripts, web apps and add-ons that use the [Drive service](#) or [Advanced Drive Service](#) (even if

Google Workspace: Sheet SDK



The screenshot shows the Google Workspace Apps Script Reference page for the Spreadsheet Service. The page includes a navigation menu on the left with categories like Overview, Guides, Reference, Samples, and Support. The main content area features a breadcrumb trail (Home > Google Workspace > Apps Script > Reference), a search bar, and a 'Send feedback' button. The title 'Spreadsheet Service' is prominently displayed. Below the title, there is a brief description of the service and a link to a guide on storing data in spreadsheets. A section titled 'Classes' contains a table with columns for 'Name' and 'Brief description'. The table lists several classes, including AutoFillSeries, Banding, BandingTheme, BigQueryDataSourceSpec, and BigQueryDataSourceSpecBuilder.

Home > Google Workspace > Apps Script > Reference

Spreadsheet Service

Was this helpful? [Send feedback](#)

This service allows scripts to create, access, and modify Google Sheets files. See also the [guide to storing data in spreadsheets](#).

Sometimes, spreadsheet operations are bundled together to improve performance, such as when doing multiple calls to a method. If you want to make sure that all pending changes are made right away, for instance to show users information as a script is executing, call `SpreadsheetApp.flush()`.

Classes

Name	Brief description
AutoFillSeries	An enumeration of the types of series used to calculate auto-filled values.
Banding	Access and modify bandings, the color patterns applied to rows or columns of a range.
BandingTheme	An enumeration of banding themes.
BigQueryDataSourceSpec	Access the existing BigQuery data source specification.
BigQueryDataSourceSpecBuilder	The builder for BigQueryDataSourceSpecBuilder .



03

Google Apps Script 內建 Key-Value 資料 儲存 (Demo + 實作)



Apps Script 有哪些可以儲存資料的方法？

1. Properties
2. External Databases

The screenshot shows the Google Cloud documentation page for the Properties Service. The page title is "Properties Service" and it includes a breadcrumb trail: Home > Google Workspace > Apps Script > Guides. The main content explains that the Properties service allows storing data in key-value pairs, typically used for developer configuration or user preferences. It also mentions that properties are never shared between scripts. A section titled "Comparison of property stores" describes the `PropertiesService` global object and its methods: `getScriptProperties()`, `getUserProperties()`, and `getDocumentProperties()`.

	Script Properties	User Properties	Document Properties
Method to	<code>getScriptProperties()</code>	<code>getUserProperties()</code>	<code>getDocumentProperties()</code>

Properties

Comparison of property stores

The `PropertiesService` global object offers three methods, each of which returns a similar `Properties` object but with different access rights, as shown in the following table:

	Script Properties	User Properties	Document Properties
Method to access	<code>getScriptProperties()</code>	<code>getUserProperties()</code>	<code>getDocumentProperties()</code>
Data shared among	All users of a script, add-on, or web app	The current user of a script, add-on, or web app	All users of an add-on in the open document
Typically used for	App-wide configuration data, like the username and password for the developer's external database	User-specific settings, like metric or imperial units	Document-specific data, like the source URL for an embedded chart

Let's try PropertiesService (Key-Value)



IDs

IDs are the unique identifiers of your Apps Script project.

Script ID 1a0cSDuTm-jqtxZgmQ_cihNVdWa-C6sRKpGLzrhYs2qsc0Dde4zF6f7Jy
[Copy](#)

Google Cloud Platform (GCP) Project

Apps Script projects use Google Cloud Platform to manage authorizations, advanced services, and other details. To learn more, visit [Google Cloud Platform](#).

GCP Default

[Change project](#)

Script Properties

Script properties provide a simple and powerful way of defining and exposing custom properties for a specific object instance. Learn more in [script properties documentation](#).

Property	Value	X
----------	-------	---

[Add script property](#)

[Save script properties](#)



04

利用 Google Apps
Script 打造微服務 -
Google Forms 表單
送出次數計數器

CloudMile

Introduction

Sometimes, a form is allowed to edit or resubmit multiple times per user.

This microservice may help record the number of form submissions of each user for tracking or statistic purpose.

CloudMile

Step 1: 創建一 Google Forms 表單

The screenshot shows the Google Forms editor interface. At the top, there's a navigation bar with a menu icon, the title '回饋表單', a folder icon, a star icon, and the text 'All changes saved in Drive'. On the right, there are icons for a bookmark, a speech bubble, an eye, a refresh icon, a share icon, a 'Send' button, and a profile picture.

Below the navigation bar, there are three tabs: 'Questions', 'Responses', and 'Settings'. The 'Questions' tab is active.

The main content area shows a form titled '回饋表單'. Underneath the title is a 'Form description' section with the text: 'This form is automatically collecting emails from all respondents. [Change settings](#)'.

The first question is a linear scale question titled '服務滿意度'. The question type is set to 'Linear scale'. The scale is configured from 1 to 5. The labels for the scale are '1 非常不滿意' and '5 非常滿意'. The 'Required' checkbox is checked.

On the right side of the question editor, there is a vertical toolbar with icons for adding a new question, duplicating, deleting, changing the question type, adding an image, adding a video, and a list icon.

Step 2: 調整表單回應設定

Questions Responses **1** Settings

Make this a quiz

Assign point values, set answers, and automatically provide feedback

Responses ^

Manage how responses are collected and protected

Collect email addresses

Required to **send response copies** Responder input

Respondents will manually enter their email response

Send responders a copy of their response When requested

Allow response editing

Responses can be changed after being submitted

REQUIRES SIGN IN

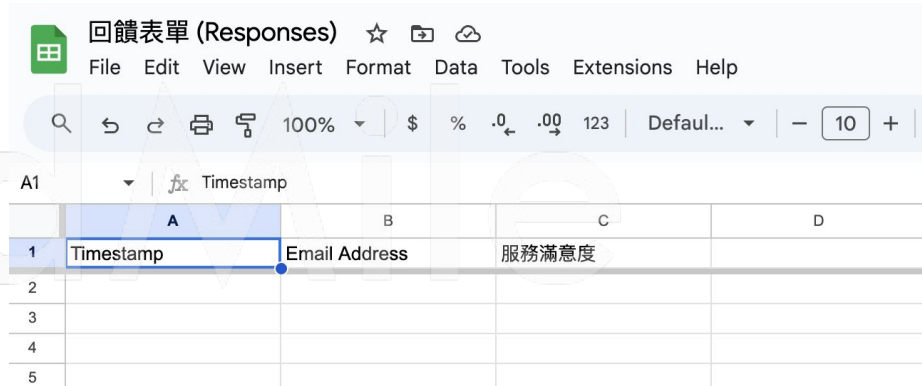
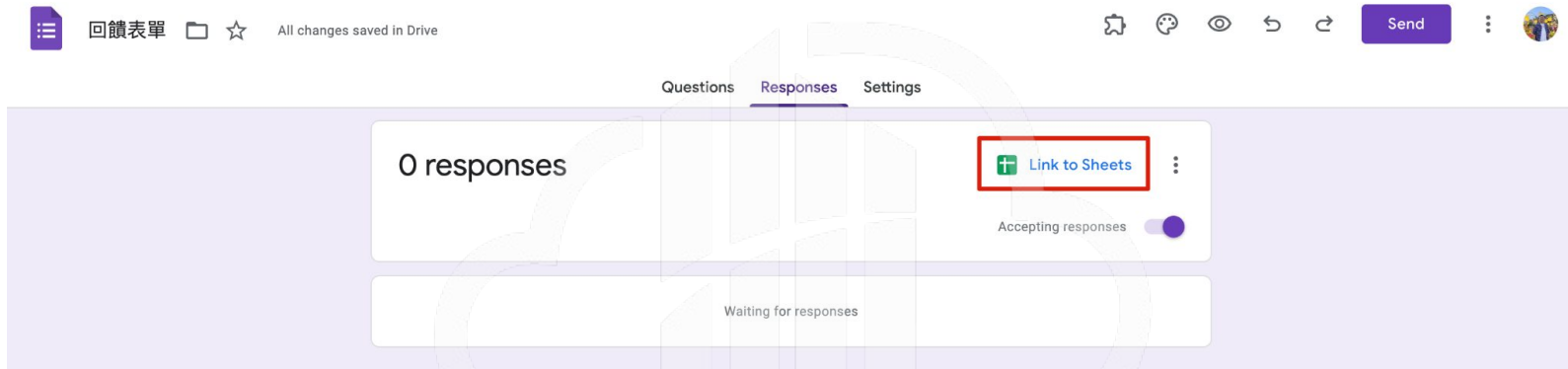
Restrict to users in Cloud Mile and its trusted organizations

Limit to 1 response

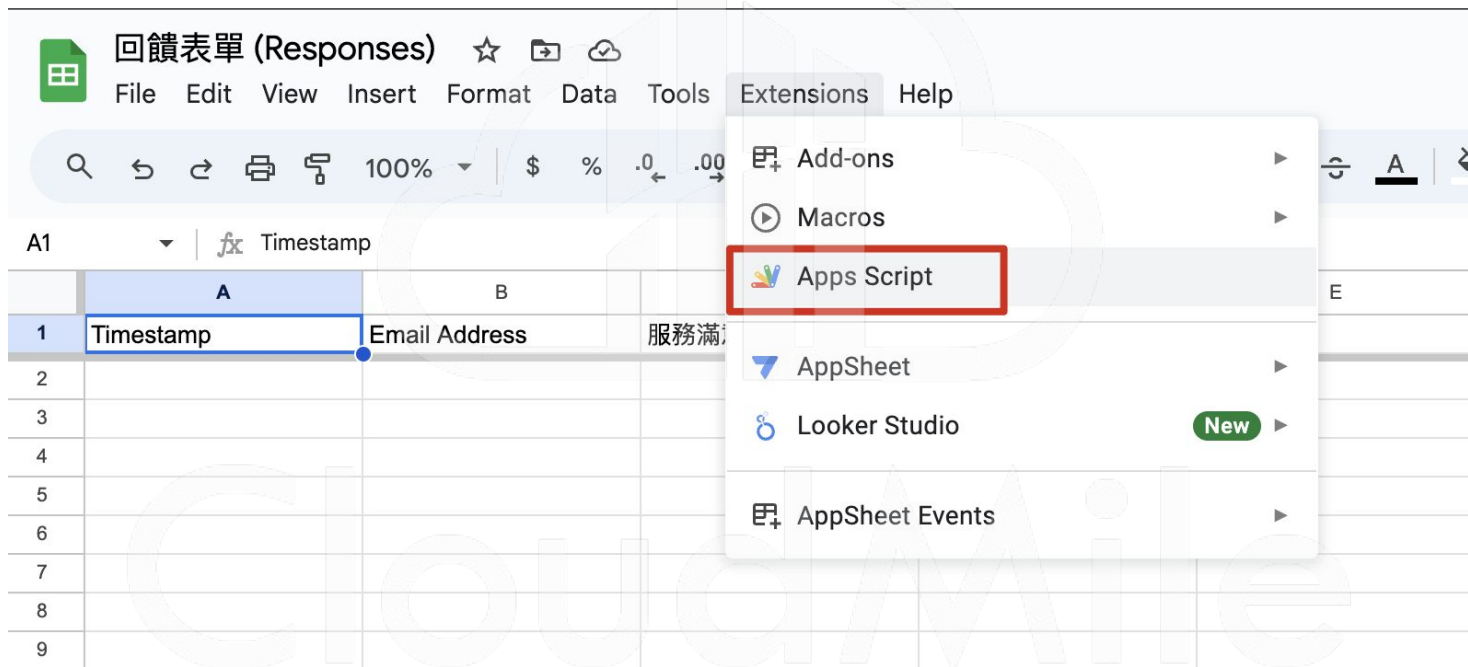
Presentation v

Manage how the form and responses are presented

Step 3: 創建一 Google Sheets 試算表用作紀錄表單回饋



Step 4: 創建一有跟 Google Sheets 試算表用連結的 Apps Script project



The screenshot shows the Google Sheets interface for a spreadsheet titled "回饋表單 (Responses)". The menu bar includes File, Edit, View, Insert, Format, Data, Tools, Extensions, and Help. The "Extensions" menu is open, displaying a list of add-ons: Add-ons, Macros, Apps Script (highlighted with a red box), AppSheet, Looker Studio (with a "New" button), and AppSheet Events. The spreadsheet grid shows column headers "Timestamp" in cell A1 and "Email Address" in cell B1. The text "服務滿" is visible in cell C1. The active cell is A1, containing the text "Timestamp".

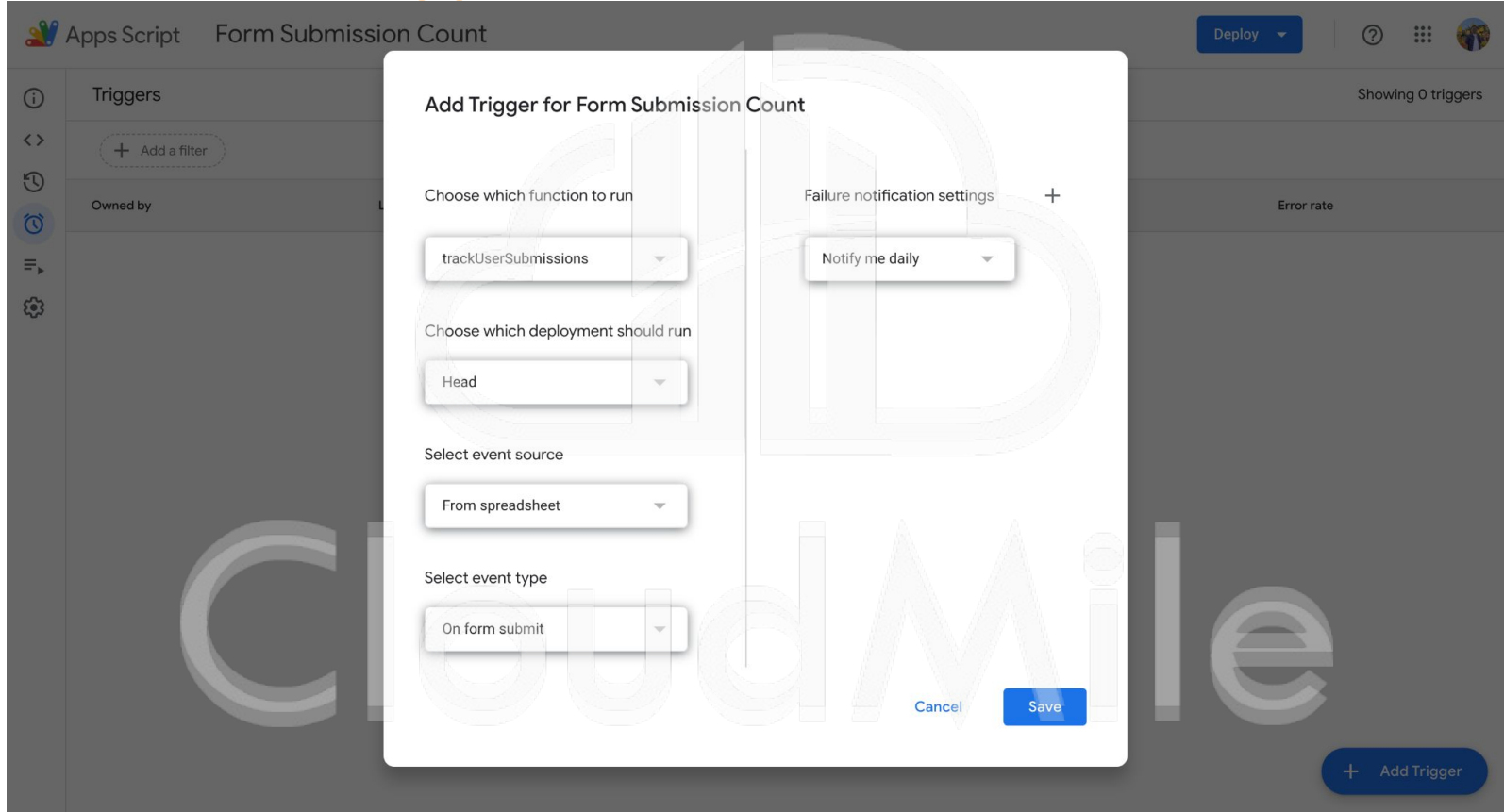
Step 5: 撰寫程式

請從此連結取得範例程式碼：

https://github.com/trithong12/GWS_AppsScript_examples/blob/main/Google%20Form%20Submission%20Counter.md

CloudMile

Step 6: 創建一 Trigger (On edit)



The screenshot shows the Google Apps Script interface for a script named "Form Submission Count". A modal dialog box titled "Add Trigger for Form Submission Count" is open, allowing the user to configure a new trigger. The dialog contains the following settings:

- Choose which function to run:** trackUserSubmissions
- Choose which deployment should run:** Head
- Select event source:** From spreadsheet
- Select event type:** On form submit
- Failure notification settings:** Notify me daily

At the bottom of the dialog, there are "Cancel" and "Save" buttons. In the background, the "Triggers" tab is visible, showing a list of triggers with a "Showing 0 triggers" message and an "Add Trigger" button at the bottom right.

測試成果 (1)

回饋表單

tri-thong.tran@mile.cloud [Switch account](#)

Draft saved

* Indicates required question

Email *

tri-thong.tran@mile.cloud

服務滿意度 *

1 2 3 4 5

非常不滿意 非常滿意

Send me a copy of my response.

Submit

Clear form

	A	B	C
1	Timestamp	Email Address	服務滿意度
2	8/15/2024 11:35:07	tri-thong.tran@mile.cloud	5
3			
4			

+ ≡ **Form Responses 1** Submission Count

	A	B	C	D
1	Email Address	Submission Count		
2	tri-thong.tran@mile.cloud	1		
3				
4				

+ ≡ **Form Responses 1** Submission Count

測試成果 (2)

回饋表單

tri-thong.tran@mile.cloud [Switch account](#)

Draft saved

* Indicates required question

Email *

trithong12@gmail.com

服務滿意度 *

1 2 3 4 5

非常不滿意 ○ ○ ○ ○ ● 非常滿意

Send me a copy of my response.

Submit

Clear form

	A	B	C
1	Timestamp	Email Address	服務滿意度
2	8/15/2024 11:35:07	tri-thong.tran@mile.cloud	5
3	8/15/2024 11:36:45	trithong12@gmail.com	5
4			

+ ≡ Form Responses 1 Submission Count

	A	B	C	D
1	Email Address	Submission Count		
2	tri-thong.tran@mile.cloud	1		
3	trithong12@gmail.com	1		
4				

+ ≡ Form Responses 1 Submission Count



總結：

How Google Apps Script can help?

CloudMile

How Google App Script Can Help?

- **怎麼樣使用 AppScript 內建 SDK 及 REST API 資源**
 - 瞭解如何使用自動化方式玩轉 Google Workspace
- **一次編譯、隨處使用**
 - 透過 Apps Script 在熟悉的 Google Workspace 產品上增加工作效率



THANK YOU

Make Digital Transformation Possible



2024/08/16 簽到與滿意度 QR Code 無痛連結 Google Workspace, REST APIs (初階)

