



## 無痛連結 Google Workspace - REST API (含Demo)

**Solution Architect**  
Martin Chen

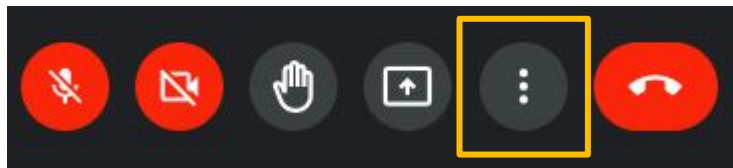


## 在會議中 有任何疑問時

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



-  投放這場會議
-  白板  
開啟 Jam
-  錄製會議

## 變更版面配置

-  全螢幕
-  套用視覺效果
-  字幕  
關閉
-  使用電話收發音訊

-  回報問題
-  檢舉違規情形
-  疑難排解與說明

 設定

## 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



# Martin Chen

Solution Architect

Backend Engineer

公館大學社科院背景的轉職仔，喜歡創造，後來發現資訊業是個好玩又有趣修羅場。

擁有超過 3 年以上的產品工程師、後端工程師之經驗。

現任職 CloudMile 萬里雲雲端解決方案架構師及開發團隊後端工程師，幫助多家大型企業如金融業、製造業、半導體業、零售業用戶在 CloudMile Google 雲端生態圈建立雲端搬遷之解決方案、雲地混合解決方案、APIM 導入、Google Workspace 開發規劃 (Apps Script & AppSheet)。

# Google Workspace for Developer

# Apps Script

# AppSheet

# Hybrid Cloud Solution

# Apigee Solution





# AGENDA

01



GWS 常用功能的 API 說明與介紹

02



如何使用 REST API 串接常用的 GWS 服務

03



Google Apps Script 說明與介紹

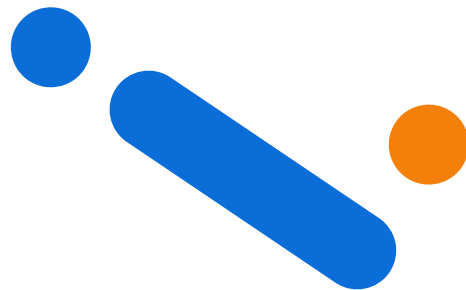
04



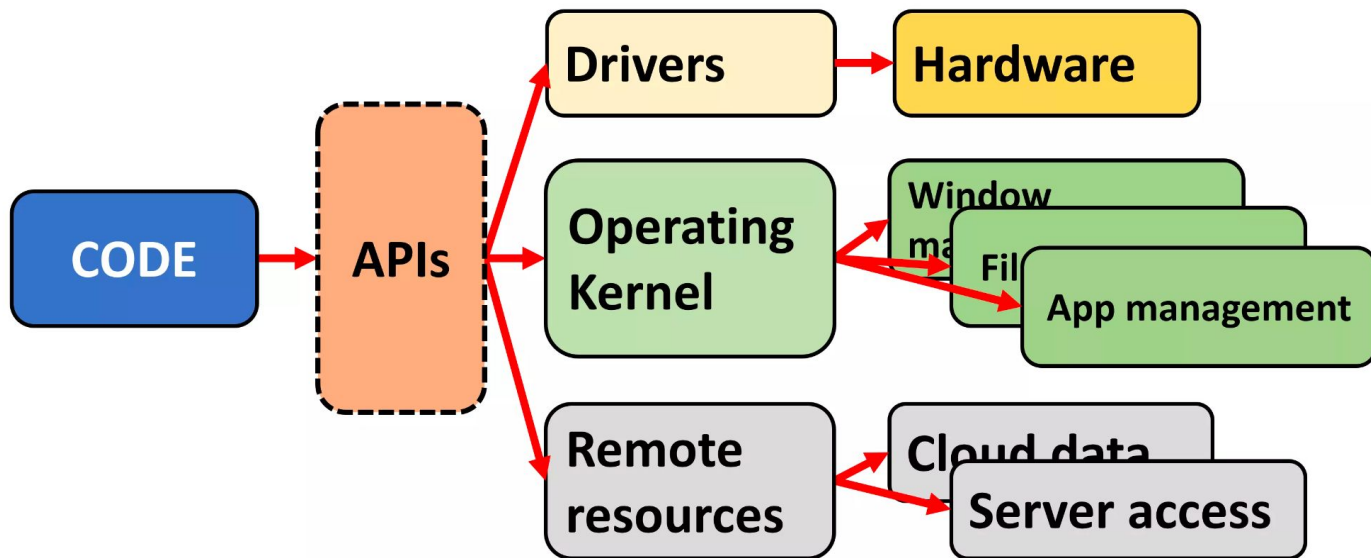
(Demo)透過 Google Apps Script 串接  
GWS 常用之 API

# 01

## GWS 常用功能的 API 說明與介紹

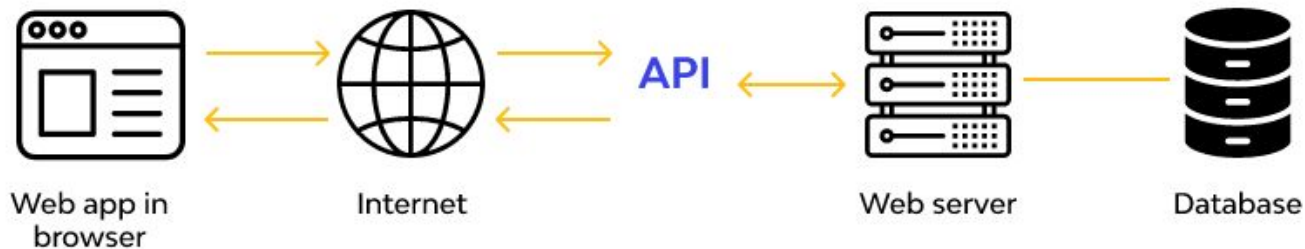


# 什麼是 API？



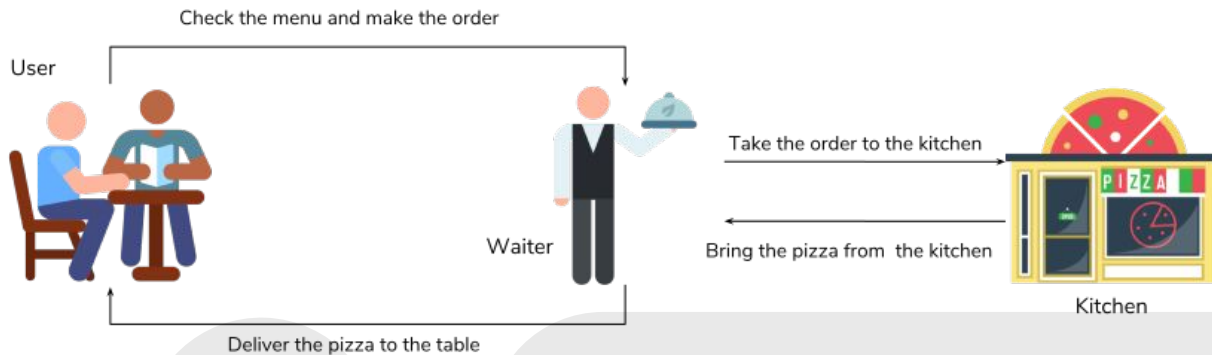
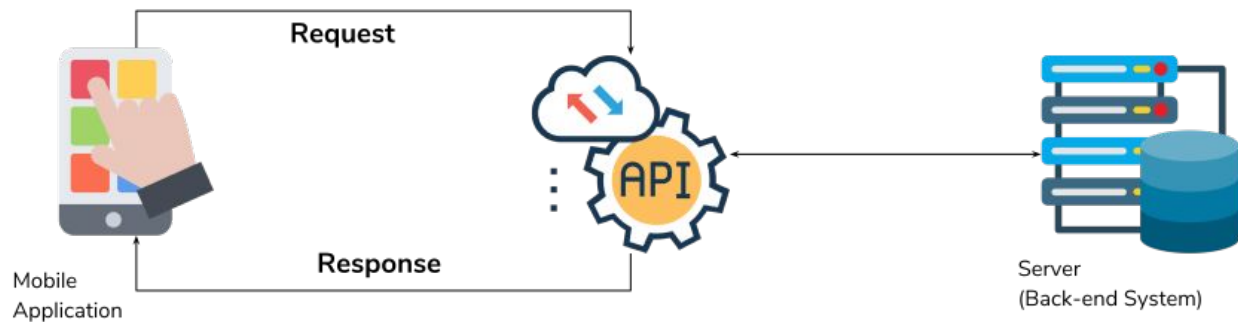
# 什麼是 API？

## How API works





# 什麼是 API?



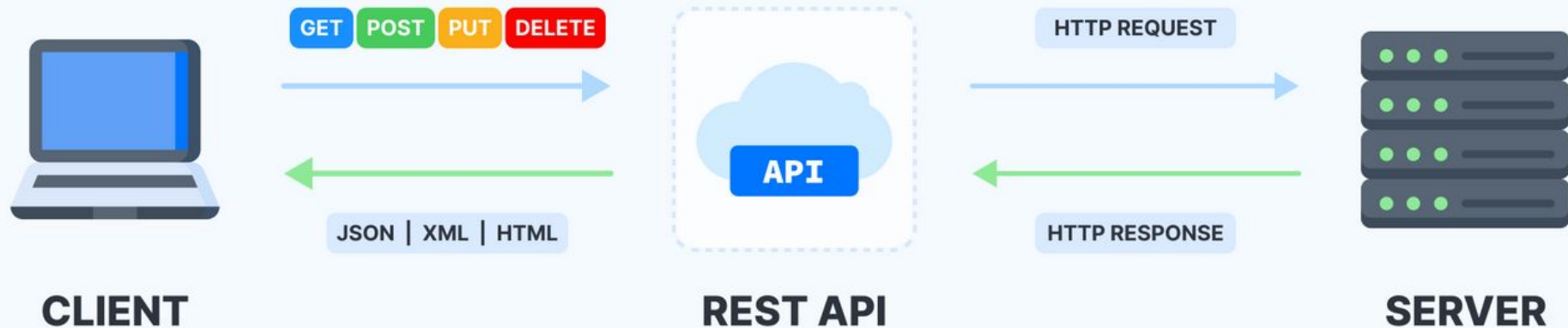
# 什麼是 RESTful API?

**REST is an Architecture, Not a Standard**

REST is an Architecture, Not a Standard

# 什麼是 RESTful API?

## REST API Model

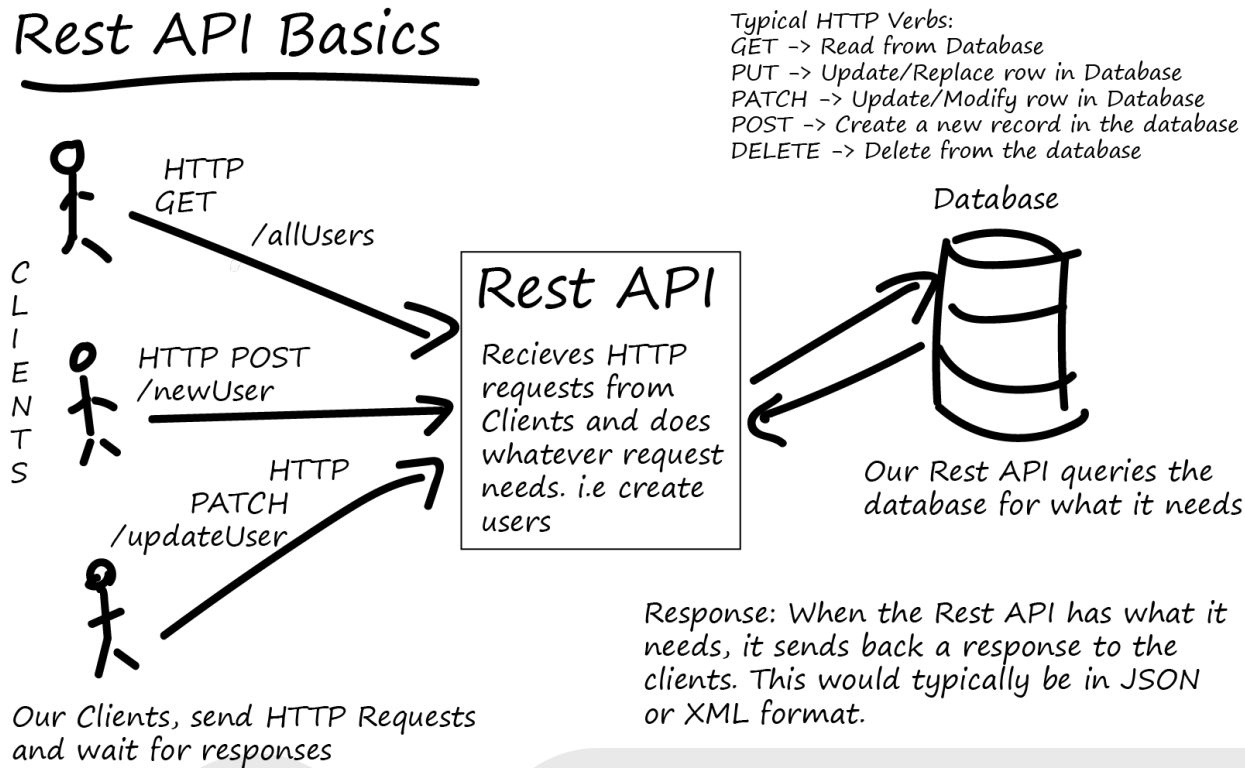


# 什麼是 RESTful API?

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

# 什麼是 RESTful API?

## Rest API Basics



# 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](#)

# 02

## 如何使用 REST API 串接常用的 GWS 服務



# Google Workspace API: Gmail API

 Gmail for Developers > Gmail API

 Search

 English ▾

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REST Reference

[Resource Summary](#)

REST Resources

- ▶ users
- ▶ users.drafts
- ▶ users.history
- ▶ users.labels
- ▶ users.messages
- ▶ users.messages.attachments
- ▶ users.settings
- ▶ users.settings.delegates
- ▶ users.settings.filters
- ▶ users.settings.forwardingAddresses
- ▶ users.settings.sendAs
- ▶ users.settings.sendAs.smimeInfo
- ▶ users.threads

Types

AutoForwarding  
Format  
ImapSettings  
InternalDataSource  
LanguageSettings  
PopSettings  
VacationSettings  
Query Parameters

[Home](#) > [Google Workspace for Developers](#) > [Gmail for Developers](#) > [Gmail API](#) > [Reference](#)

Was this helpful?  

[Send feedback](#)

## Gmail API

The Gmail API lets you view and manage Gmail mailbox data like threads, messages, and labels.

### Service: [gmail.googleapis.com](https://gmail.googleapis.com)

To call this service, we recommend that you use the Google-provided [client libraries](#). If your application needs to use your own libraries to call this service, use the following information when you make the API requests.

#### Discovery document

A [Discovery Document](#) is a machine-readable specification for describing and consuming REST APIs. It is used to build client libraries, IDE plugins, and other tools that interact with Google APIs. One service may provide multiple discovery documents. This service provides the following discovery document:

- [https://gmail.googleapis.com/\\$discovery/rest?version=v1](https://gmail.googleapis.com/$discovery/rest?version=v1)

#### Service endpoint

A [service endpoint](#) is a base URL that specifies the network address of an API service. One service might have multiple service endpoints. This service has the following service endpoint and all URIs below are relative to this service endpoint:

- <https://gmail.googleapis.com>

On this page

[Service: \[gmail.googleapis.com\]\(https://gmail.googleapis.com\)](#)

[Discovery document](#)

[Service endpoint](#)

[REST Resource: v1.users](#)

[REST Resource: v1.users.drafts](#)

[REST Resource: v1.users.history](#)

[REST Resource: v1.users.labels](#)

[REST Resource: v1.users.messages](#)

[REST Resource: v1.users.messages.attachments](#)

[REST Resource: v1.users.settings](#)

[REST Resource: v1.users.settings.delegates](#)

[REST Resource: v1.users.settings.filters](#)

[REST Resource: v1.users.settings.forwardingAddresses](#)

[REST Resource: v1.users.settings.sendAs](#)

[REST Resource: v1.users.settings.sendAs.smimeInfo](#)

[REST Resource: v1.users.threads](#)



# Google Workspace API: Calendar API

 Google Calendar for Developers > Calendar API

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REST Reference

Resource Summary

- ▶ Acl
- ▶ CalendarList
- ▶ Calendars
- ▶ Channels
- ▶ Colors
- ▶ Events
- ▶ Freebusy
- ▶ Settings

Client Library Reference

Overview

Browser 

Go 

- ▶ Java
- ▶ .NET
- ▶ Node.js 
- ▶ PHP 
- ▶ Python
- ▶ Ruby 

Home > Google Workspace for Developers > Google Calendar for Developers > Calendar API > Reference

Was this helpful?  

## API Reference

[Send feedback](#)

This API reference is organized by resource type. Each resource type has one or more data representations and one or more methods.

### Resource types

#### Acl

For Acl Resource details, see the [resource representation](#) page.

Method	HTTP request	Description
URIs relative to <a href="https://www.googleapis.com/calendar/v3">https://www.googleapis.com/calendar/v3</a> , unless otherwise noted		
<a href="#">delete</a>	DELETE /calendars/ <i>calendarId</i> /acl/ <i>ruleId</i>	Deletes an access control rule.
<a href="#">get</a>	GET /calendars/ <i>calendarId</i> /acl/ <i>ruleId</i>	Returns an access control rule.
<a href="#">insert</a>	POST /calendars/ <i>calendarId</i> /acl	Creates an access control rule.
<a href="#">list</a>	GET /calendars/ <i>calendarId</i> /acl	Returns the rules in the access control list for the calendar.
<a href="#">patch</a>	PATCH /calendars/ <i>calendarId</i> /acl/ <i>ruleId</i>	Updates an access control rule. This method supports patch semantics.

On this page

[Resource types](#)

- Acl
- CalendarList
- Calendars
- Channels
- Colors
- Events
- Freebusy
- Settings

# Google Workspace API: Drive API

Google Drive for Developers > Drive API

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Filter

v3

Resource summary

- ▶ About
- ▶ Changes
- ▶ Channels
- ▶ Comments
- ▶ Files
- ▶ Permissions
- ▶ Replies
- ▶ Revisions
- ▶ Drives

v2

Standard features

Query parameters

Supported MIME types

Client libraries

Other resources

Single-parenting behavior changes

Search query terms

Google Workspace documents and supporting MIME types

Shared drive versus My Drive differences

Usage limits

Home > Google Workspace for Developers > Google Drive for Developers > Drive API > Reference

Was this helpful?  

## API Reference

[Send feedback](#)

This API reference is organized by resource type. Each resource type has one or more data representations and one or more methods.

### Resource types

### About

For About Resource details, see the [resource representation](#) page.

Method	HTTP request	Description
URIs relative to <a href="https://www.googleapis.com/drive/v3">https://www.googleapis.com/drive/v3</a> , unless otherwise noted		
<a href="#">get</a>	GET /about	Gets information about the user, the user's Drive, and system capabilities. Required query parameters: <b>fields</b>

### Changes

For Changes Resource details, see the [resource representation](#) page.

On this page

[Resource types](#)

[About](#)

[Changes](#)

[Channels](#)

[Comments](#)

[Files](#)

[Permissions](#)

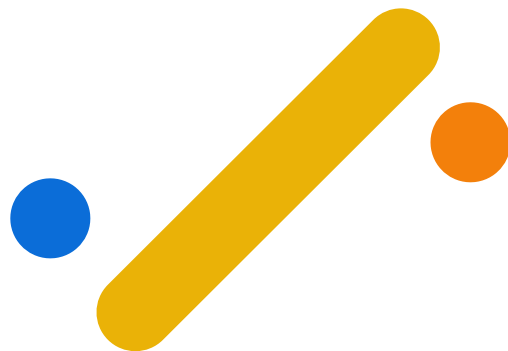
[Replies](#)

[Revisions](#)

[Drives](#)

# 03

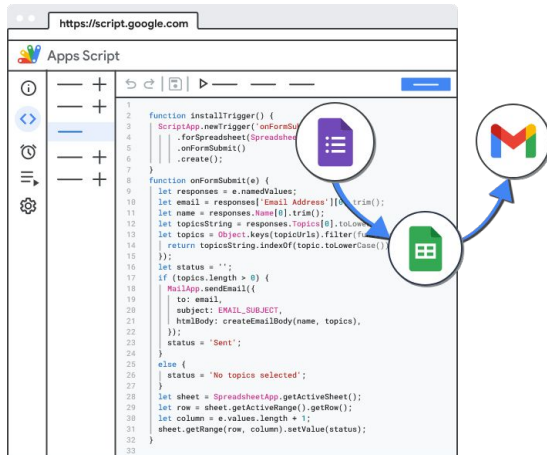
## Google Apps Script 說明與介紹



# Apps Script

Google Apps Script is a scripting language based on JavaScript, which provides simple methods for building web applications by automating tasks from Google and third-party services.

Google Apps Script 是一種基於 JavaScript 的腳本語言，它通過自動執行來自 Google 和第三方服務的任務，為構建 Web 應用程序提供更簡單的方法。



# Apps Script 中有什麼?

Apps Script

搜尋

我的專案

專案

擁有者

上次修改時間 ↓

QrCode

我

2022年7月22日

Cats

我

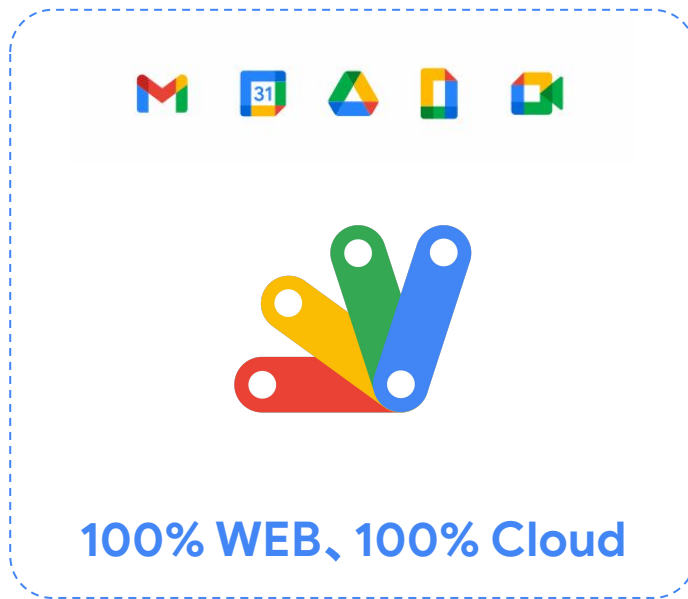
2022年3月31日

Who you are



目前顯示 2 個專案

## 換句話說, VB macros, but...



VB Macros

# Use case 範例

## Workflow

Document approval flow, purchase application

## Resource Management

Time management, Helpdesk, project management

## Automation

Calendar and Mail integration, complex table calculation

## Reporting

Dashboards, reports

## 3rd Party Integration

CRM, accounting, sales promotion, HR systems

## Domain Management

User management/creation/removal/etc.

● **●**

Product Information ☆ 📁

File Edit View Insert Format Data Tools








$f_x$	Cotton T-shirt Small	
	A	B
1	Cotton T-shirt Small	cts001
2	Cotton T-shirt Medium	cts002
3	Cotton T-shirt Large	cts003
4	Cotton Sweatshirt Small	css001
5	Cotton Sweatshirt Medium	css002
6	Cotton Sweatshirt Large	css003
7		

Copy of Content sign up (Sheet with script)

File Edit View Insert Format Data Tools Form Add-ons Help All changes saved in Drive

100% 123+ Default (en) 18

Overlapping	Email Address	Name	Topics	Confirmation
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				

Form Responses 1

## Sheets Function

Web app that sends email,  
creates calendar invites, sends  
out customized docs

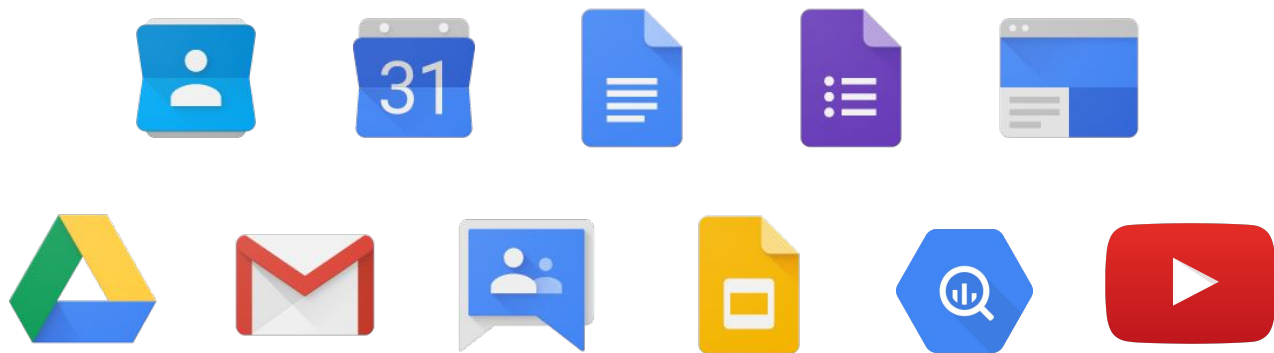
100

100





# 可以自動化的 GWS 及 Google 服務



<https://developers.google.com/apps-script/reference>

# Each service is provided as a JavaScript class

## 每個服務都以 JavaScript class 的形式呈現

```
20
24 // Creates an all-day event for the moon landing and logs the ID.
25 var event = CalendarApp
26     .getDefaultCalendar()
27     .createAllDayEvent('Apollo 11 Landing',
28                       new Date('July 20, 1969'),
29                       { location: 'The Moon' });
```

### Calendar

#### Methods

Method	Return type	Brief description
<a href="#">createAllDayEvent(title, date)</a>	<a href="#">CalendarEvent</a>	Creates a new all-day event.
<a href="#">createAllDayEvent(title, date, options)</a>	<a href="#">CalendarEvent</a>	Creates a new all-day event.
<a href="#">createAllDayEventSeries(title, startDate, recurrence)</a>	<a href="#">CalendarEventSeries</a>	Creates a new all-day event series.
<a href="#">createAllDayEventSeries(title, startDate, recurrence, options)</a>	<a href="#">CalendarEventSeries</a>	Creates a new all-day event series.
<a href="#">createEvent(title, startTime, endTime)</a>	<a href="#">CalendarEvent</a>	Creates a new event.
<a href="#">createEvent(title, startTime, endTime, options)</a>	<a href="#">CalendarEvent</a>	Creates a new event.
<a href="#">createEventFromDescription(description)</a>	<a href="#">CalendarEvent</a>	Creates an event from a free-form description.
<a href="#">createEventSeries(title, startTime)</a>	<a href="#">CalendarEventSeries</a>	Creates a new event series.

```
20 function createDoc() {
21     var doc = DocumentApp.create('Sample Document');
22     var body = doc.getBody();
23     var rowsData = [['Plants', 'Animals'], ['Ficus', 'Goat'], ['Basil', 'Cat'], ['Moss', 'Frog']];
24     body.insertParagraph(0, doc.getName())
25         .setHeading(DocumentApp.ParagraphHeading.HEADING1);
26     table = body.appendTable(rowsData);
27     table.getRow(0).editAsText().setBold(true);
28 }
```

# 04

[Demo] 透過 Google Apps  
Script 串接 GWS 常用之 API



# Let's go with Apps Script!

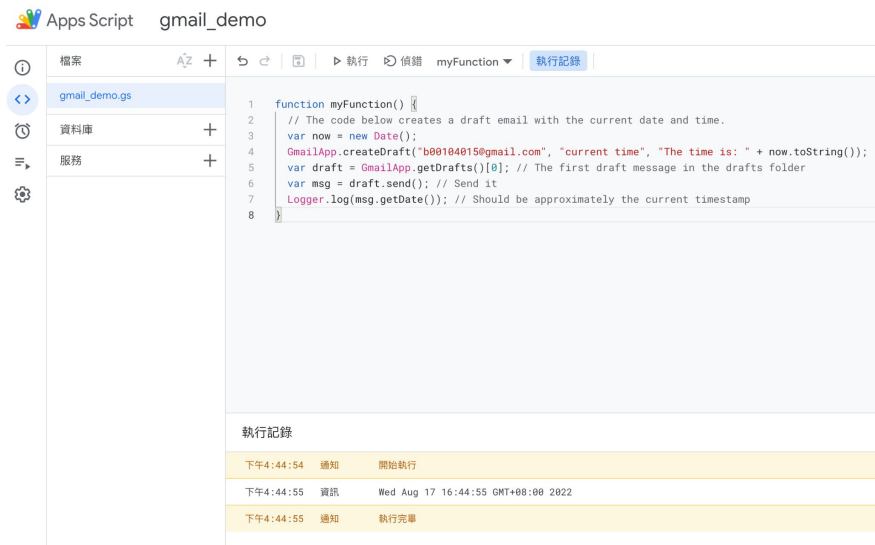
## 在開始使用 Demo Sample 之前…

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://docs.google.com/document/d/1YGhyQuuN-YHEbsMA\\_QKVgmd\\_6HpRcPxD1Oys6JuQjec/edit#](https://docs.google.com/document/d/1YGhyQuuN-YHEbsMA_QKVgmd_6HpRcPxD1Oys6JuQjec/edit#)

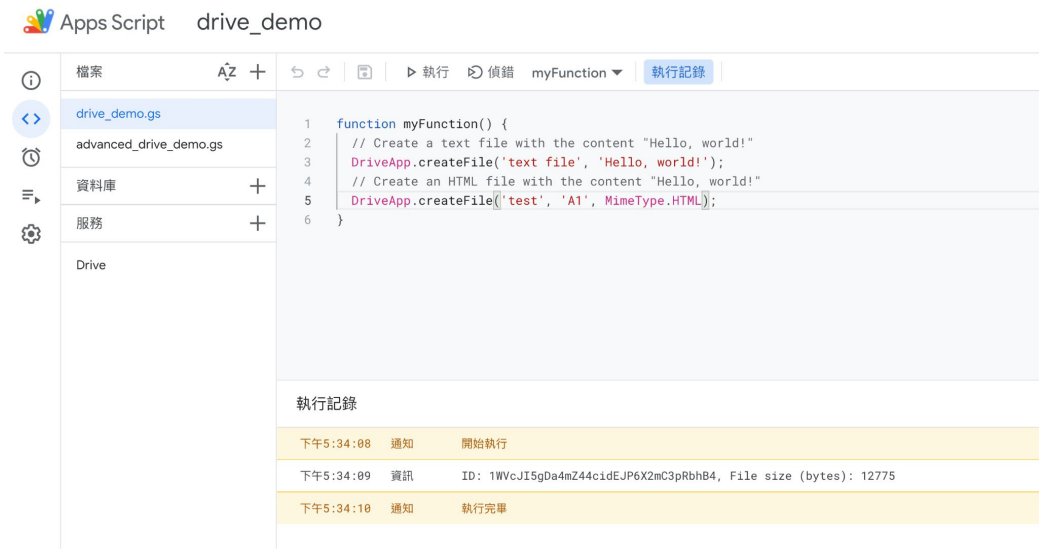
# Demo 1: Gmail with Apps Script

Trying to **create a draft** and **send email** from Apps Script!  
試試使用 Apps Script 建立草稿及寄信吧！



# Demo 2: Drive with Apps Script

Trying to **create a file** to your **drive** from Apps Script!  
試試使用 Apps Script 在 drive 中新增檔案吧！



The screenshot shows the Google Apps Script editor interface. The top bar indicates the project is named "drive\_demo". The left sidebar shows a file explorer with "drive\_demo.gs" selected. The main editor area contains the following JavaScript code:

```
1 function myFunction() {  
2   // Create a text file with the content "Hello, world!"  
3   DriveApp.createFile('text file', 'Hello, world!');  
4   // Create an HTML file with the content "Hello, world!"  
5   DriveApp.createFile('test', 'A1', MimeType.HTML);  
6 }
```

Below the code editor, the "執行記錄" (Execution Log) is visible, showing the following entries:

時間	通知	執行記錄
下午5:34:08	通知	開始執行
下午5:34:09	資訊	ID: 1WVcJI5gDa4mZ44cidEJP6X2mC3pRbhB4, File size (bytes): 12775
下午5:34:10	通知	執行完畢

# Demo 3: Drive with Apps Script(Advanced: API)

Trying to **create a file** to your **drive** from Apps Script!

試試使用 Apps Script 在 drive 中建立資料吧！

(要記得在「服務」中點選 + 啟用 Drive API 服務)

Apps Script drive\_demo

檔案

AZ +

↶ ↷ ↺ ↻

▶ 執行

🐞 偵錯

uploadFile ▼

執行記錄

drive\_demo.gs

advanced\_drive\_png\_dem...

advanced\_drive\_sheet\_de...

資料庫 +

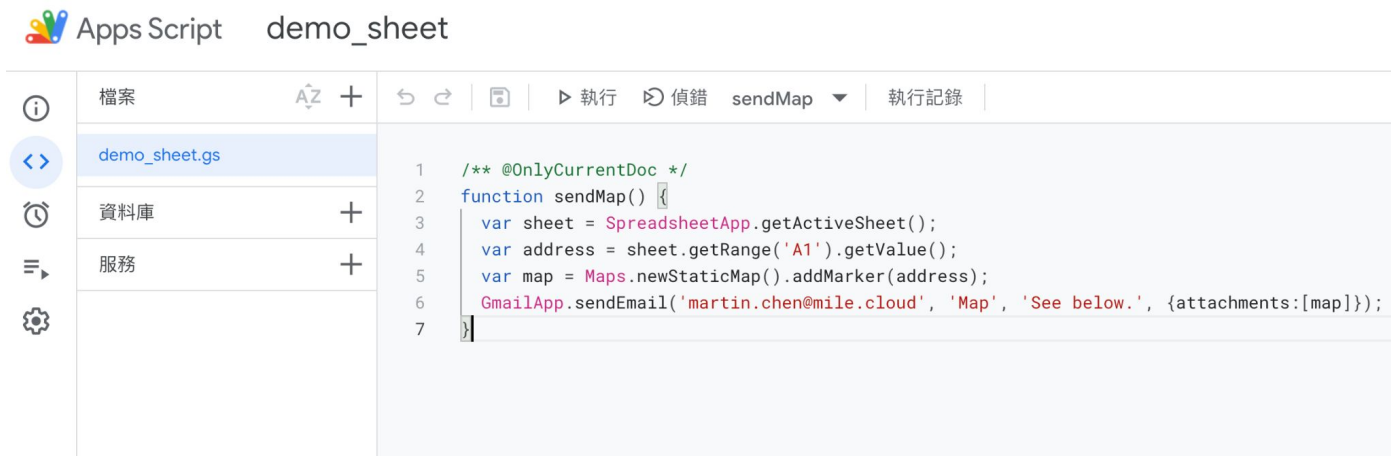
服務 +

Drive

```
1  /**
2   * Uploads a new file to the user's Drive.
3   */
4   function uploadFile() {
5     try {
6       // Makes a request to fetch a URL.
7       const image = UrlFetchApp.fetch('http://goo.gl/nd7zjB').getBlob();
8       let file = {
9         title: 'google_logo.png',
10        mimeType: 'image/png'
11      };
12      // Insert new files to user's Drive
13      file = Drive.Files.insert(file, image);
14      Logger.log('ID: %s, File size (bytes): %s', file.id, file.fileSize);
15    } catch (err) {
16      // TODO (developer) - Handle exception
17      Logger.log('Failed to upload file with error %s', err.message);
18    }
19  }
```

# Demo 4: A simple workflow with Apps Script

Just **4 lines** to create a **simple workflow**: You can connect sheet, Map and Gmail from now on!  
只需用 4 行程式碼就可以建立簡單的工作流程！





# 無痛連結 Google Workspace, REST APIs (含Demo)

## 課後問卷



請務必掃 QR code 後填寫相關資料並送出，若填寫不全/未送出，主辦單位未收到資料，則視同未參與課程，恕無法提供補簽到、補登時數等事宜！

**Thank  
You!**