



無痛連結 Google Workspace - REST API(含 demo) - 進階

Solution Architect
Martin Chen



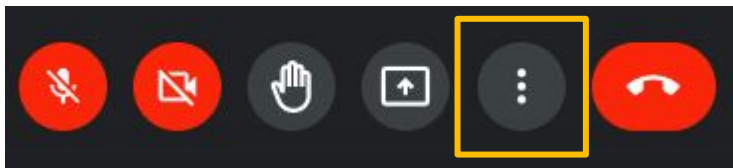
CloudMile

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

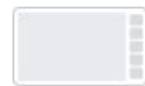
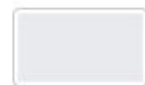
系統會記住你選取的版面配置，以供日後的會議使用

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

Google Apps Script

Google AppSheet

Hybrid Cloud Solution

Apigee Solution



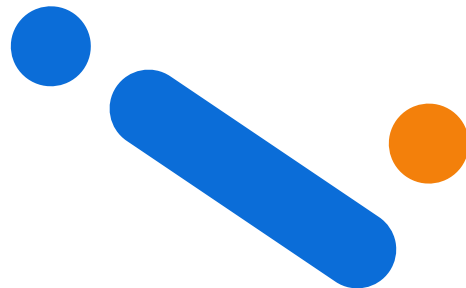


AGENDA

- 01  Recap - REST API & App Script for Drive
- 02  透過 Google Apps Script 串接 GWS 常用之 API - Gmail、Drive、Calendar
- 03  使用 Google App Script 串接第三方開源 API 的應用
- 04  總結:How Google App Script can help?

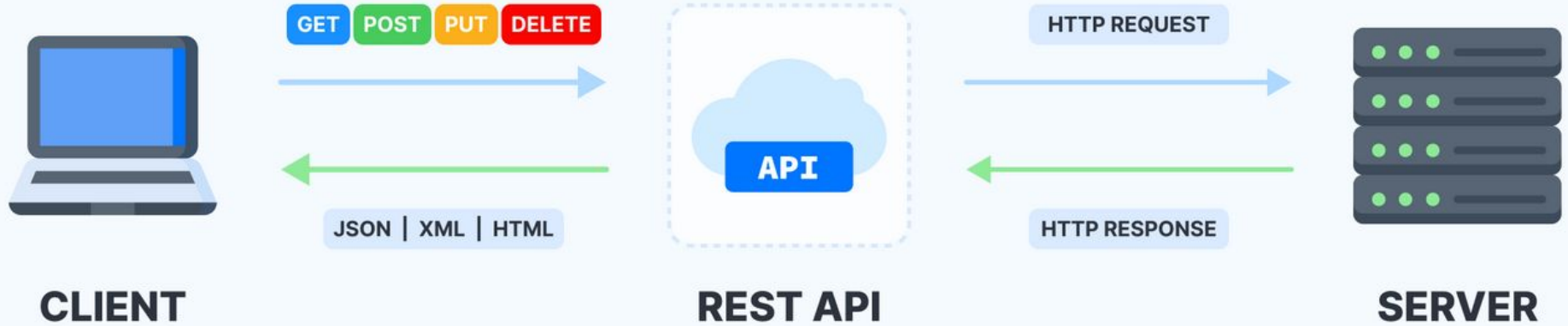
01

Recap - REST API & App Script for Drive



Recap - RESTful API

REST API Model



Recap - 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

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](#)



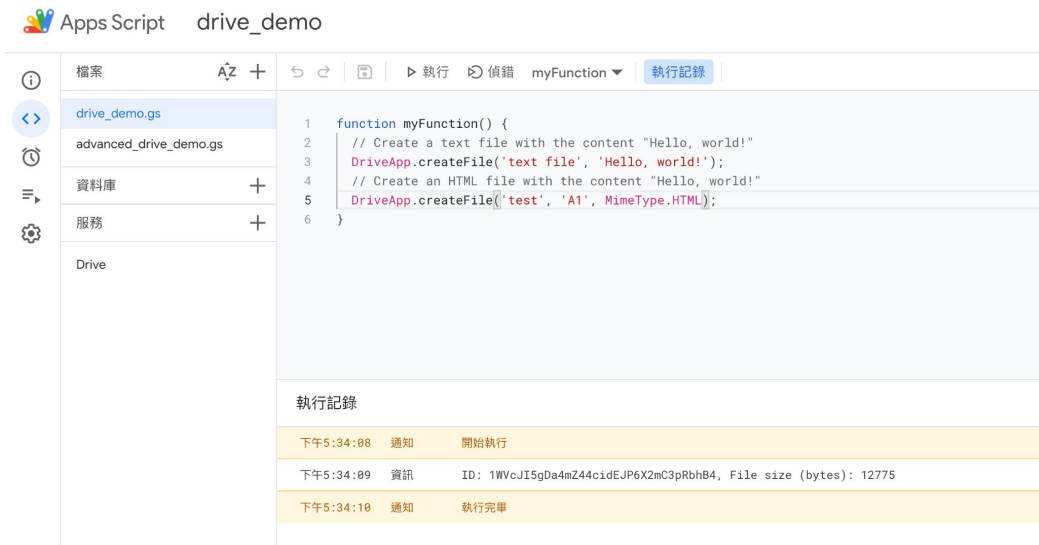
Manage calendars & events

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

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

Recap - 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 displays the Apps Script logo and the project name 'drive_demo'. The left sidebar contains a file explorer with a tree view showing '檔案' (Files) with sub-items 'drive_demo.gs' and 'advanced_drive_demo.gs', '資料庫' (Datastore), and '服務' (Services). The main editor area shows a JavaScript function named 'myFunction' with the following code:

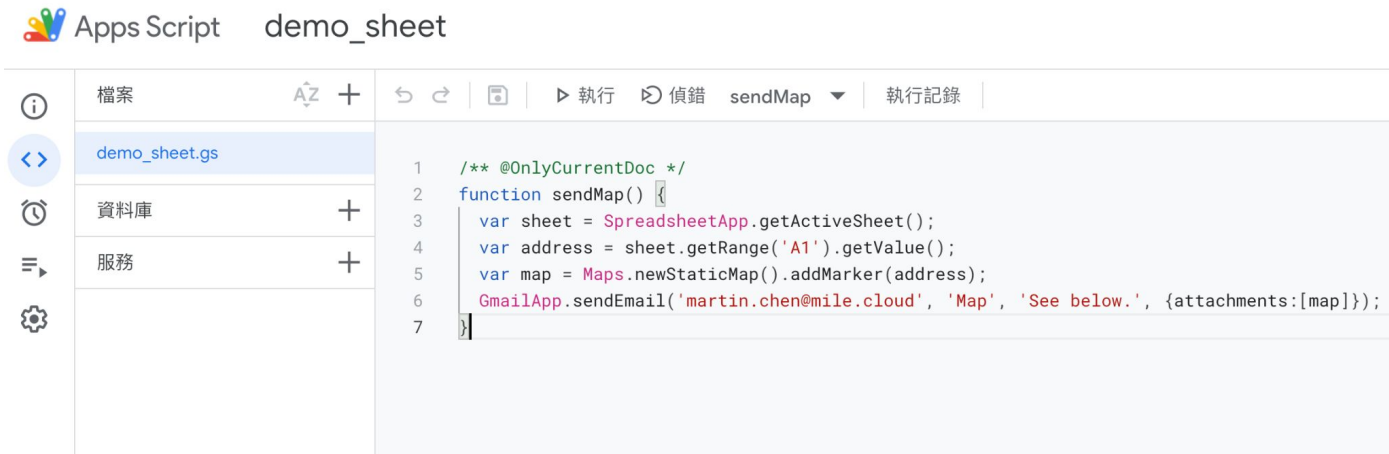
```
1 function myFunction() {  
2   // Create a text file with the content "Hello, world!"  
3   DriveApp.createFile('text file', 'Hello, world!');  
4   // Create an HTML file with the content "Hello, world!"  
5   DriveApp.createFile('test', 'A1', MimeType.HTML);  
6 }
```

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

Time	Message	Details
下午5:34:08	通知	開始執行
下午5:34:09	資訊	ID: 1WVcJI5gDa4mZ44ci4JP6X2mC3pRbhB4, File size (bytes): 12775
下午5:34:10	通知	執行完畢

Recap - 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！



```
1  /** @OnlyCurrentDoc */
2  function sendMap() {
3      var sheet = SpreadsheetApp.getActiveSheet();
4      var address = sheet.getRange('A1').getValue();
5      var map = Maps.newStaticMap().addMarker(address);
6      GmailApp.sendEmail('martin.chen@mile.cloud', 'Map', 'See below.', {attachments:[map]});
7  }
```

02

透過 Google Apps Script 串接 GWS 常用之 API - Gmail、Drive、Calendar



Google Workspace API: Gmail API

Filter

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?  

Gmail API

[Send feedback](#)

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

Service: 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](#)

- 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

Filter

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 [↗](#)

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 https://www.googleapis.com/calendar/v3 , unless otherwise noted		
delete	DELETE /calendars/ <i>calendarId</i> /acl/ <i>ruleId</i>	Deletes an access control rule.
get	GET /calendars/ <i>calendarId</i> /acl/ <i>ruleId</i>	Returns an access control rule.
insert	POST /calendars/ <i>calendarId</i> /acl	Creates an access control rule.
list	GET /calendars/ <i>calendarId</i> /acl	Returns the rules in the access control list for the calendar.
patch	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

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

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 https://www.googleapis.com/drive/v3 , unless otherwise noted		
get	GET /about	Gets information about the user, the user's Drive, and system capabilities. Required query parameters: <code>fields</code>

Changes

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

On this page

[Resource types](#)

- [About](#)
- [Changes](#)
- [Channels](#)
- [Comments](#)
- [Files](#)
- [Permissions](#)
- [Replies](#)
- [Revisions](#)
- [Drives](#)

Let's go with Apps Script again!

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/1qnUk49PZQrgD3FVHNKuq7tB8f5gN9IHELe2wDO1bNN8/edit#heading=h.ulg92ayu1gk0>

在 App Script 啟用相關的 API 服務

The image shows the 'Add a service' dialog box in the Google Apps Script interface. The dialog is overlaid on a blurred background of the script editor. The dialog contains the following elements:

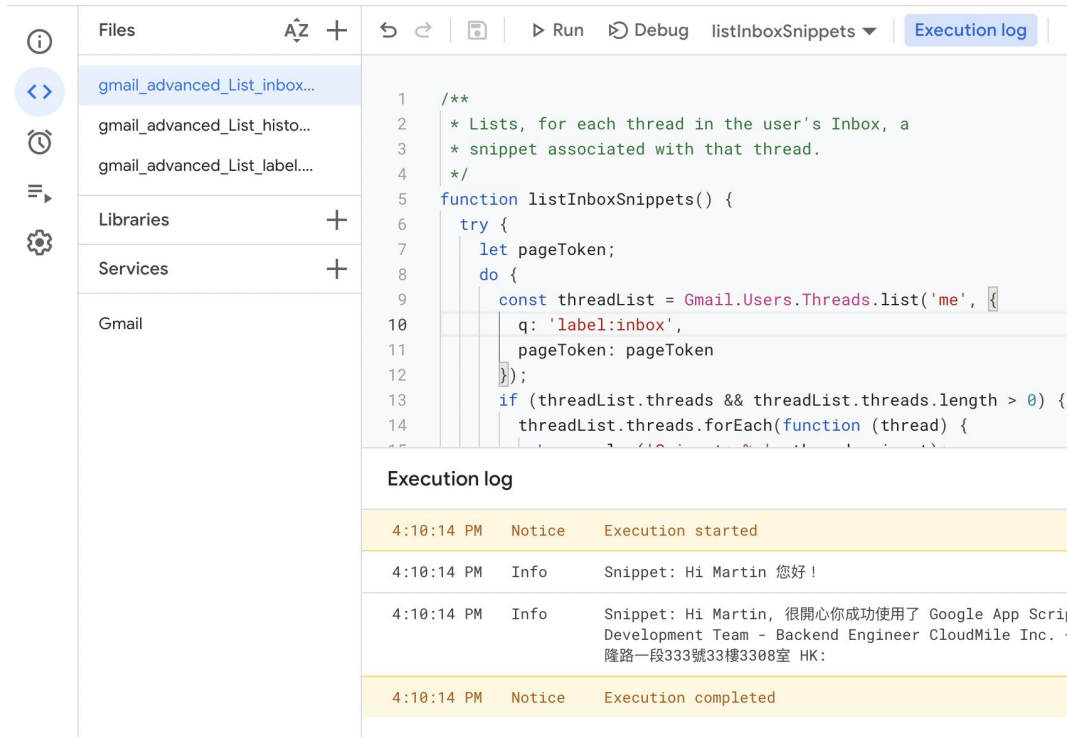
- Header:** 'Add a service'
- Text:** 'To accomplish advanced tasks, you can take advantage of Advanced Google Services in your project. [Learn More](#)'
- Service List:** A scrollable list of services including Drive API, Drive Activity API, Enterprise License Manager API, Gmail API (highlighted with a red box and annotation '2 選擇 Gmail API'), Google Analytics API, and Google Analytics Admin API.
- Version:** A dropdown menu currently set to 'v1' (highlighted with a red box and annotation '3 選擇 API 版本').
- Available versions:** A section for listing available versions.
- Identifier:** A text input field containing 'Gmail'.
- Text:** 'This is used to reference this services within this project.'
- Text:** 'By using this product you agree to the [Google APIs Terms of Service](#), and the terms of service of [any applicable services and APIs](#).' (highlighted with a red box and annotation '4 點選 Add').
- Buttons:** 'Cancel' and 'Add' buttons at the bottom.

Annotations in the image include:

- '1 左側選單點選 Services' pointing to the 'Services' button in the left sidebar.
- '2 選擇 Gmail API' pointing to the 'Gmail API' entry in the service list.
- '3 選擇 API 版本' pointing to the 'v1' dropdown.
- '4 點選 Add' pointing to the 'Add' button.

Gmail with Apps Script(Advanced: API) - List inbox snippets

Apps Script Gmail-Advanced



The screenshot shows the Google Apps Script editor interface. The left sidebar contains icons for help, code, timer, menu, and settings, along with a file explorer showing 'Files', 'Libraries', 'Services', and 'Gmail'. The main editor area displays a JavaScript function named 'listInboxSnippets'. The code lists threads in the user's inbox with a snippet 'Hi Martin 您好!'. Below the code is the 'Execution log' showing the script running successfully at 4:10:14 PM.

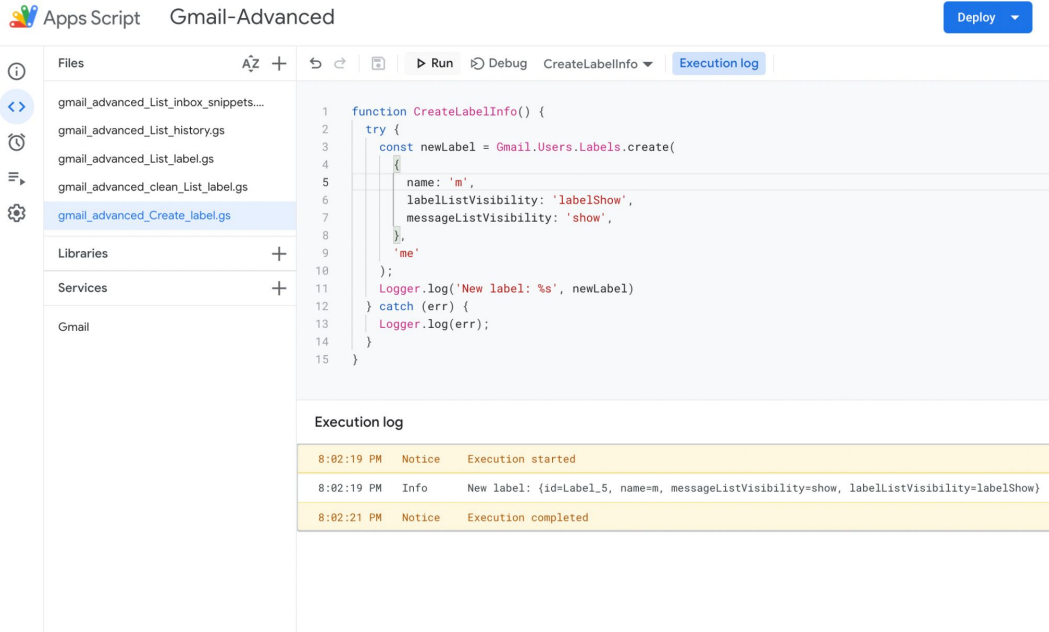
```
1  /**
2  * Lists, for each thread in the user's Inbox, a
3  * snippet associated with that thread.
4  */
5  function listInboxSnippets() {
6    try {
7      let pageToken;
8      do {
9        const threadList = Gmail.Users.Threads.list('me', {
10         q: 'label:inbox',
11         pageToken: pageToken
12       });
13       if (threadList.threads && threadList.threads.length > 0) {
14         threadList.threads.forEach(function (thread) {
```

Execution log

4:10:14 PM	Notice	Execution started
4:10:14 PM	Info	Snippet: Hi Martin 您好!
4:10:14 PM	Info	Snippet: Hi Martin, 很開心你成功使用了 Google App Script Development Team - Backend Engineer CloudMile Inc. + 隆路一段333號33樓3308室 HK:
4:10:14 PM	Notice	Execution completed

Trying to **List the threads**
in the user's mailbox!
列出 Gmail 收件匣內的信件
(要記得在「服務」中點選+ 啟用 Gmail
API 服務!)

Gmail with Apps Script(Advanced: API) - Create label information



The screenshot shows the Google Apps Script editor interface for a project named "Gmail-Advanced". The left sidebar displays a file explorer with several files, including "gmail_advanced_Create_labels.gs" which is selected. The main editor area contains the following JavaScript code:

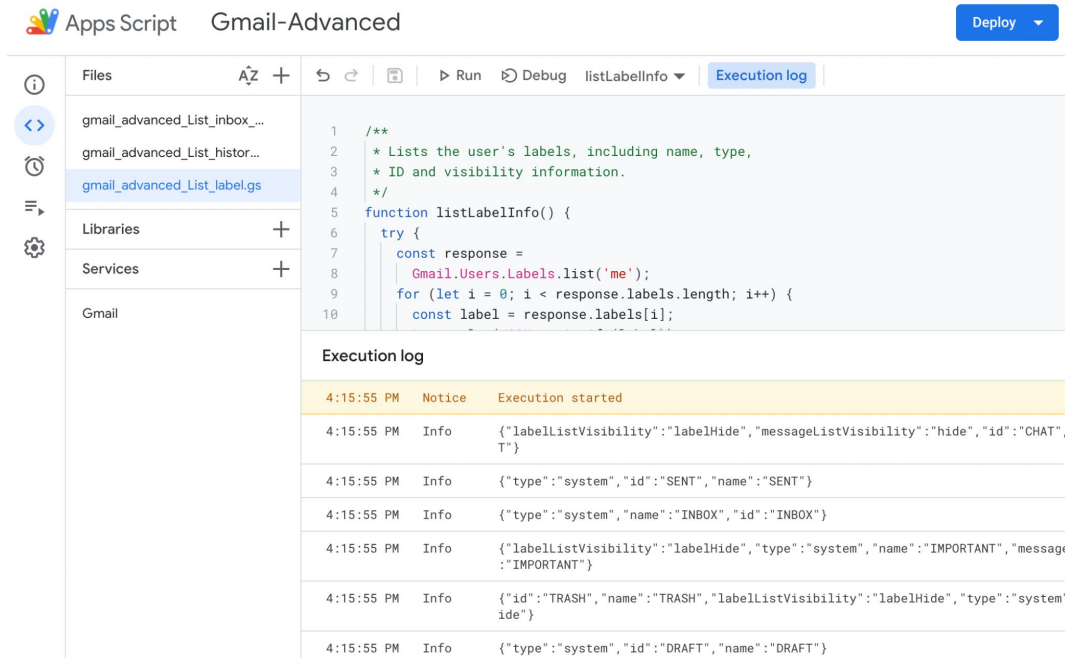
```
1 function CreateLabelInfo() {
2   try {
3     const newLabel = Gmail.Users.Labels.create(
4       {
5         name: 'm',
6         labelListVisibility: 'labelShow',
7         messageListVisibility: 'show',
8       },
9       'me'
10    );
11    Logger.log('New label: %s', newLabel)
12  } catch (err) {
13    Logger.log(err);
14  }
15 }
```

Below the code, the "Execution log" is visible, showing three entries:

Time	Level	Message
8:02:19 PM	Notice	Execution started
8:02:19 PM	Info	New label: {id=Label_5, name=m, messageListVisibility=show, labelListVisibility=labelShow}
8:02:21 PM	Notice	Execution completed

Trying to **List the threads**
in the user's mailbox!
創造 Gmail 左側的 label
(要記得在「服務」中點選+ 啟用 Gmail
API 服務!)

Gmail with Apps Script(Advanced: API) - List label information



The screenshot shows the Google Apps Script editor interface. At the top, it says "Apps Script Gmail-Advanced" with a "Deploy" button. The left sidebar shows a file explorer with "gmail_advanced_List_label.gs" selected. The main editor area contains the following JavaScript code:

```
1 /**
2  * Lists the user's labels, including name, type,
3  * ID and visibility information.
4  */
5 function listLabelInfo() {
6   try {
7     const response =
8       Gmail.Users.Labels.list('me');
9     for (let i = 0; i < response.labels.length; i++) {
10      const label = response.labels[i];
```

Below the code is the "Execution log" section, which contains the following entries:

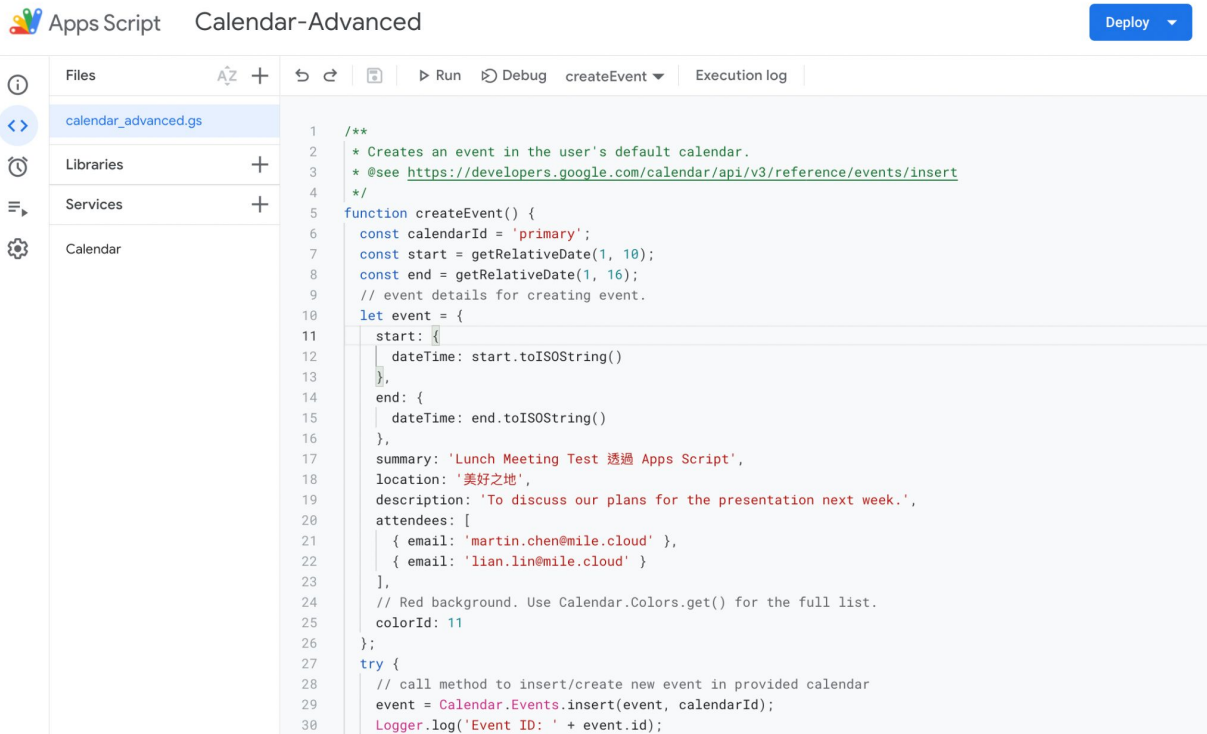
Time	Notice	Execution started
4:15:55 PM	Info	{ "labelListVisibility": "labelHide", "messageListVisibility": "hide", "id": "CHAT", "type": "system" }
4:15:55 PM	Info	{ "type": "system", "id": "SENT", "name": "SENT" }
4:15:55 PM	Info	{ "type": "system", "name": "INBOX", "id": "INBOX" }
4:15:55 PM	Info	{ "labelListVisibility": "labelHide", "type": "system", "name": "IMPORTANT", "messageListVisibility": "hide", "id": "IMPORTANT" }
4:15:55 PM	Info	{ "id": "TRASH", "name": "TRASH", "labelListVisibility": "labelHide", "type": "system", "messageListVisibility": "hide" }
4:15:55 PM	Info	{ "type": "system", "id": "DRAFT", "name": "DRAFT" }

Trying to **List the threads**
in the user's mailbox!

列出 Gmail 左側的 label

(要記得在「服務」中點選+ 啟用 Gmail
API 服務!)

Calendar with Apps Script(Advanced: API)



The screenshot shows the Google Apps Script editor interface. At the top, it says "Apps Script Calendar-Advanced" and has a "Deploy" button. The left sidebar shows a file named "calendar_advanced.gs" selected. The main editor area contains the following JavaScript code:

```
1  /**
2  * Creates an event in the user's default calendar.
3  * @see https://developers.google.com/calendar/api/v3/reference/events/insert
4  */
5  function createEvent() {
6    const calendarId = 'primary';
7    const start = getRelativeDate(1, 10);
8    const end = getRelativeDate(1, 16);
9    // event details for creating event.
10   let event = {
11     start: {
12       dateTime: start.toISOString()
13     },
14     end: {
15       dateTime: end.toISOString()
16     },
17     summary: 'Lunch Meeting Test 透過 Apps Script',
18     location: '美好之地',
19     description: 'To discuss our plans for the presentation next week.',
20     attendees: [
21       { email: 'martin.chen@mile.cloud' },
22       { email: 'lian.lin@mile.cloud' }
23     ],
24     // Red background. Use Calendar.Colors.get() for the full list.
25     colorId: 11
26   };
27   try {
28     // call method to insert/create new event in provided calendar
29     event = Calendar.Events.insert(event, calendarId);
30     Logger.log('Event ID: ' + event.id);
```

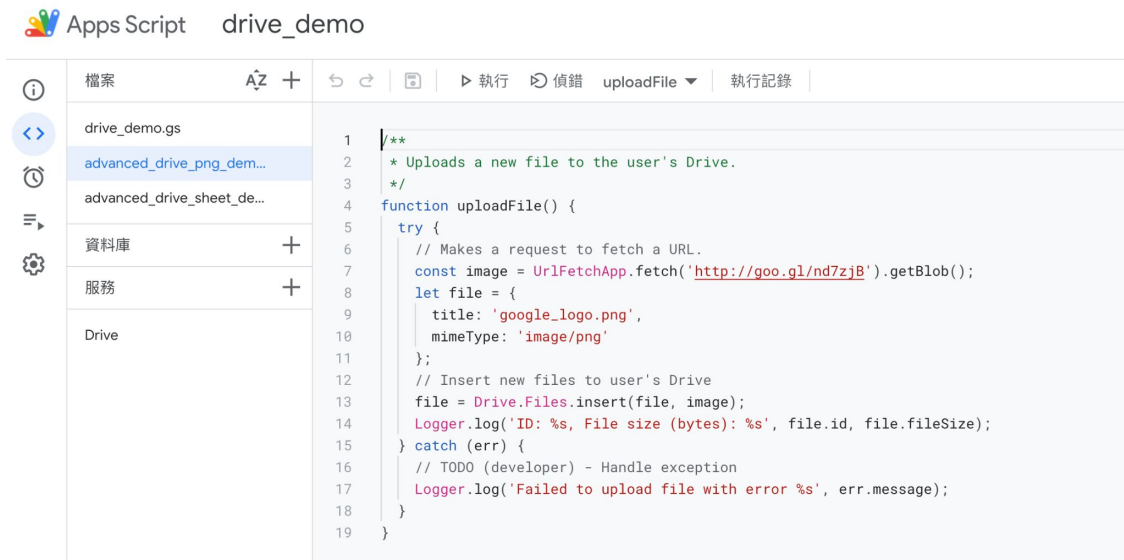
Trying to **Add a new activity on Google Calendar!**
在 Calendar 新增活動
(要記得在「服務」中點選 + 啟用 Google Calendar API 服務!)

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！

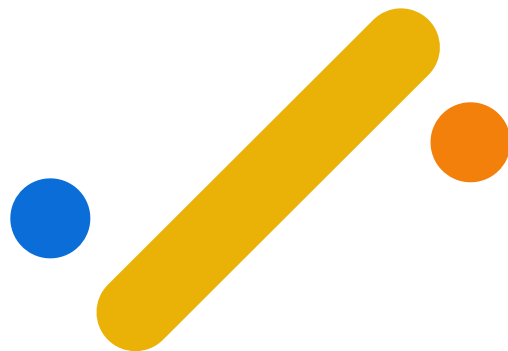
(要記得在「服務」中點選+ 啟用 Drive API 服務)



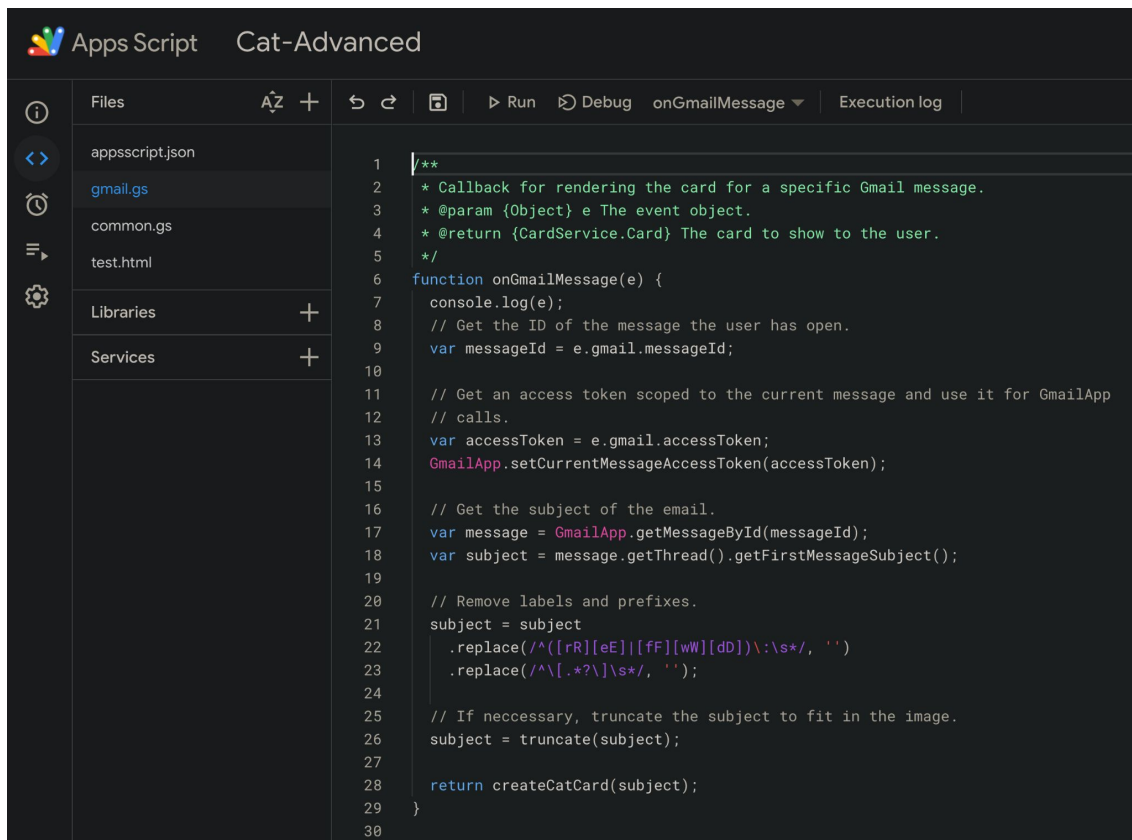
```
1 /**
2  * Uploads a new file to the user's Drive.
3  */
4  function uploadFile() {
5    try {
6      // Makes a request to fetch a URL.
7      const image = UrlFetchApp.fetch('http://goo.gl/nd7zjB').getBlob();
8      let file = {
9        title: 'google_logo.png',
10       mimeType: 'image/png'
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 }
```

03

使用 Google App Script 串接第三方 開源 API 的應用



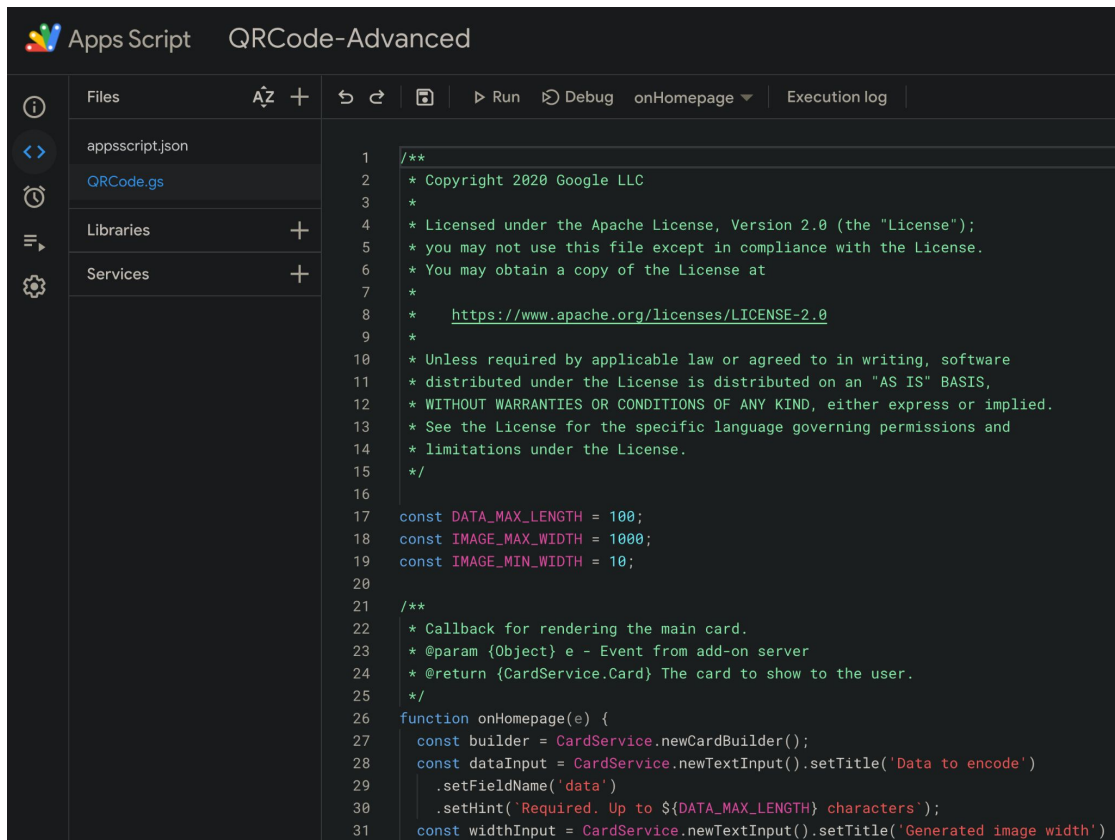
To Change Cat!



```
1 /**
2  * Callback for rendering the card for a specific Gmail message.
3  * @param {Object} e The event object.
4  * @return {CardService.Card} The card to show to the user.
5  */
6 function onGmailMessage(e) {
7   console.log(e);
8   // Get the ID of the message the user has open.
9   var messageId = e.gmail.messageId;
10
11   // Get an access token scoped to the current message and use it for GmailApp
12   // calls.
13   var accessToken = e.gmail.accessToken;
14   GmailApp.setCurrentMessageAccessToken(accessToken);
15
16   // Get the subject of the email.
17   var message = GmailApp.getMessageById(messageId);
18   var subject = message.getThread().getFirstMessageSubject();
19
20   // Remove labels and prefixes.
21   subject = subject
22     .replace(/^[rR][eE][fF][wW][dD]:\s*/, '')
23     .replace(/^[.]*?\s*/, '');
24
25   // If necessary, truncate the subject to fit in the image.
26   subject = truncate(subject);
27
28   return createCatCard(subject);
29 }
30
```

Trying to develop
add-on for Gmail!
在 Gmail 右側的欄
位新增小工具
(注意: **appscript/json** 為
App Script 設定檔, 不是
手動新增的檔案)

To Generate QR Code, insert into your Gmail!



The screenshot shows the Google Apps Script editor interface. The top bar displays 'Apps Script' and the file name 'QRCode-Advanced'. The left sidebar shows a file explorer with 'appscript.json' and 'QRCode.gs'. The main editor area shows the following code:

```
1  /**
2   * Copyright 2020 Google LLC
3   *
4   * Licensed under the Apache License, Version 2.0 (the "License");
5   * you may not use this file except in compliance with the License.
6   * You may obtain a copy of the License at
7   *
8   * https://www.apache.org/licenses/LICENSE-2.0
9   *
10  * Unless required by applicable law or agreed to in writing, software
11  * distributed under the License is distributed on an "AS IS" BASIS,
12  * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
13  * See the License for the specific language governing permissions and
14  * limitations under the License.
15  */
16
17  const DATA_MAX_LENGTH = 100;
18  const IMAGE_MAX_WIDTH = 1000;
19  const IMAGE_MIN_WIDTH = 10;
20
21  /**
22   * Callback for rendering the main card.
23   * @param {Object} e - Event from add-on server
24   * @return {CardService.Card} The card to show to the user.
25   */
26  function onHomepage(e) {
27    const builder = CardService.newCardBuilder();
28    const dataInput = CardService.newTextInput().setTitle('Data to encode')
29      .setFieldName('data')
30      .setHint('Required. Up to ${DATA_MAX_LENGTH} characters');
31    const widthInput = CardService.newTextInput().setTitle('Generated image width')
```

Trying to develop
add-on for Gmail!
在 Gmail 右側的欄
位新增小工具
(注意: appscript/json 為
App Script 設定檔, 不是
手動新增的檔案)

04

總結：How Google App Script
can help?



How Google App Script Can Help?

- **怎麼樣使用 REST API 資源**
 - 政府資料開放平臺終於可以知道如何初步使用 API 了！
- **體驗 Google low code / no code 的產品**
 - Google App Script
 - 未來可以嘗試 Google Cloud 的其他產品
- **一次編譯、隨處使用**
 - 透過 App Script 在熟悉的 GWS 產品上增加工作效率，如同 QR code 的開發範例

If you need more - Google AppSheet - 發布您的第一個應用程式



Contact sales

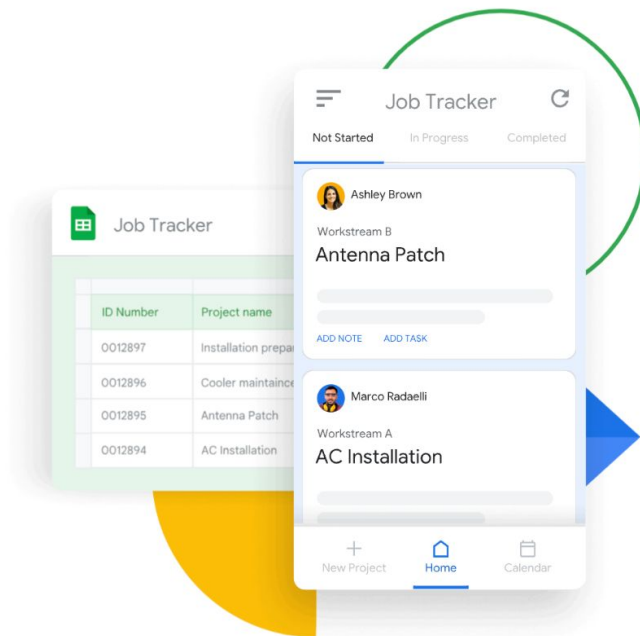
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無痛連結 Google Workspace, REST APIs (含Demo)

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!**