



# S3 & CF 每月寄送用量到email



# Agenda

- S3 自動化寄送設定
  - 設定SNS Topic
  - 設定Lambda
  - 設定EventBridge
- CloudFront自動化寄送設定

## S3 自動化寄送設定

# 設定SNS Topic

Amazon SNS

Dashboard

Topics

Subscriptions

▼ Mobile

Push notifications

Text messaging (SMS)

Amazon SNS > Topics

Topics (6)

Search

1

Edit

Delete

Publish message

Create topic

	Name	Type	ARN
<input type="radio"/>	<a href="#">cole-cf-usage-test1</a>	Standard	arn:aws:sns:us-east-1:123456789012:cole-cf-usage-test1
<input type="radio"/>	<a href="#">cole-s3-usage-test1</a>	Standard	arn:aws:sns:us-east-1:123456789012:cole-s3-usage-test1
<input type="radio"/>	<a href="#">Fred-iam</a>	Standard	arn:aws:sns:us-east-1:123456789012:Fred-iam
<input type="radio"/>	<a href="#">jimmyec2alarm-CPUUtilization</a>	Standard	arn:aws:sns:us-east-1:123456789012:jimmyec2alarm-CPUUtilization
<input type="radio"/>	<a href="#">PublicResourcesMonitor-NotificationTopic-Pyp...</a>	Standard	arn:aws:sns:us-east-1:123456789012:PublicResourcesMonitor-NotificationTopic-Pyp...
<input type="radio"/>	<a href="#">RootAccessDetection</a>	Standard	arn:aws:sns:us-east-1:123456789012:RootAccessDetection

# 設定SNS Topic

## Create topic

### Details

#### Type | Info

Topic type cannot be modified after topic is created

☐ FIFO (first-in, first-out)

- Strictly-preserved message ordering
- Exactly-once message delivery
- Subscription protocols: SQS

☒ Standard

- Best-effort message ordering
- At-least once message delivery
- Subscription protocols: SQS, Lambda, Data Firehose, HTTP, SMS, email, mobile application endpoints

#### Name

cole-s3-usage-test2

Maximum 256 characters. Can include alphanumeric characters, hyphens (-) and underscores (\_).

#### Display name - optional | Info

To use this topic with SMS subscriptions, enter a display name. Only the first 10 characters are displayed in an SMS message.

# 設定SNS Topic

Amazon SNS > Topics > Create topic




The policy defines how Amazon SNS retries failed deliveries to HTTP/S endpoints. To modify the default settings, expand this section.

## ► Delivery status logging - *optional* [Info](#)

These settings configure the logging of message delivery status to CloudWatch Logs.

## ► Tags - *optional*

A tag is a metadata label that you can assign to an Amazon SNS topic. Each tag consists of a key and an optional value. You can use tags to search and filter your topics and track your costs. [Learn more](#) 

## ► Active tracing - *optional* [Info](#)

Use AWS X-Ray active tracing for this topic to view its traces and service map in Amazon CloudWatch. Additional costs apply.

[無標題]

其他保持預設，點Create topic

Cancel

Create topic

# 設定SNS Topic

Amazon SNS

<

Dashboard

Topics

Subscriptions

▼ Mobile

Push notifications

Text messaging (SMS)

Amazon SNS > Topics > cole-s3-usage-test2

Info

Share

Alert

Name

cole-s3-usage-test2

ARN

arn:aws:sns:us-east-1:027155467263:cole-s3-usage-test2

Type

Standard

Display name

-

Topic owner

027155467263

紀錄ARN，等等Lambda需要用到

<

Subscriptions

Access policy

Data protection policy

Delivery policy (HTTP/S)

Delivery status logging

Encrypt >

Subscriptions (0)

Edit

Delete

Request confirmation

Confirm subscription

Create subscription

Search

< 1 >

Settings

ID

▲

Endpoint

▼

Status

# 設定SNS Topic

Amazon SNS > Subscriptions > Create subscription



## Topic ARN

arn:aws:sns:us-east-1:027155467263:cole-s3-usage-test2

## Protocol

The type of endpoint to subscribe

Email

## Endpoint

An email address that can receive notifications from Amazon SNS.

colelin@grandtechcloud.com

選擇要收信的email

After your subscription is created, you must confirm it. [Info](#)

## ► Subscription filter policy - optional [Info](#)

This policy filters the messages that a subscriber receives.

# 設定SNS Topic

Amazon SNS > Topics > [cole-s3-usage-test2](#) > Subscription: 791c66b6-e556-49de-aec8-8fe92ac87a0b



## Amazon SNS

Dashboard

Topics

Subscriptions

### ▼ Mobile

Push notifications

Text messaging (SMS)

✓ Subscription to [cole-s3-usage-test2](#) created successfully.

The ARN of the subscription is `arn:aws:sns:us-east-1:027155467263:cole-s3-usage-test2:791c66b6-e556-49de-aec8-8fe92ac87a0b`.

## Subscription: 791c66b6-e556-49de-aec8-8fe92ac87a0b

Edit

Delete

### Details

#### ARN

`arn:aws:sns:us-east-1:027155467263:cole-s3-usage-test2:791c66b6-e556-49de-aec8-8fe92ac87a0b`

#### Endpoint

`colelin@grandtechcloud.com`

#### Topic

[cole-s3-usage-test2](#)

#### Subscription Principal

`arn:aws:iam::027155467263:role/aws-reserved/sso.amazonaws.com/eu-west-2/AWSReservedSSO_AdministratorAccess_ad73b4a3ff9b7341`

#### Status

⌚ Pending confirmation

收驗證信

#### Protocol

EMAIL

# 設定SNS Topic

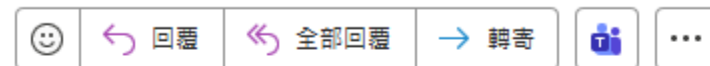
## AWS Notification - Subscription Confirmation



AWS Notifications <no-reply@sns.amazonaws.com>

收件者: Cole Lin - GCS

將郵件翻譯為: 繁體中文 (繁體) | 一律不翻譯自: 英文 | 翻譯喜好設定



2025/11/7 (週五) 下午 02:22

You have chosen to subscribe to the topic:

`arn:aws:sns:us-east-1:027155467263:cole-s3-usage-test2`

To confirm this subscription, click or visit the link below (If this was in error no action is necessary):

[Confirm subscription](#)

Please do not reply directly to this email. If you wish to remove yourself from receiving these notifications, please visit the link below.



Simple Notification Service

### Subscription confirmed!

You have successfully subscribed.

Your subscription's id is:

`arn:aws:sns:us-east-1:027155467263:cole-s3-usage-test2:791c66b6-e556-49de-aec8-8fe92ac87a0b`

If it was not your intention to subscribe, [click here to unsubscribe](#).

SNS設定完成

# 設定Lambda

☰ Lambda > 函數

## Lambda

儀表板

應用程式

函數

### ▼ Additional resources

程式碼簽署組態

事件來源映射

層

複本

### ▼ 相關的 AWS 資源

Step Functions 狀態機器

## 函數 (18)

上次已擷取 0 秒前

動作 ▼

建立函數

🔍 以屬性篩選或以關鍵字搜尋

<input type="checkbox"/>	函數名稱 ▼	描述 ▼	套件類型 ▼	執行時期 ▼	上次修改時間 ▼
<input type="checkbox"/>	<a href="#">reply_to_freshservice_crossaccount</a>	-	Zip	Python 3.12	2 年前
<input type="checkbox"/>	<a href="#">test-sts-role</a>	-	Zip	Python 3.12	2 年前
<input type="checkbox"/>	<a href="#">Test-header-custom</a>	-	Zip	nodejs14.x	4 年前
<input type="checkbox"/>	<a href="#">cole-s3-usage-test</a>	-	Zip	Python 3.13	3 小時前
<input type="checkbox"/>	<a href="#">CF-header</a>	-	Zip	nodejs14.x	4 年前
<input type="checkbox"/>	<a href="#">liya-cf-test</a>	-	Zip	Python 3.13	37 分鐘前

# 設定Lambda

三 [Lambda](#) > [函數](#) > 建立函式



## 建立函式 [資訊](#)

選擇下列選項之一來建立您的函式。

☒ 從頭開始撰寫  
從簡單的 Hello World 範例開始。

☐ 使用藍圖  
透過常用案例的範本程式碼與組態預設，建置 Lambda 應用程式。

☐ 容器映像  
選取要為函數部署的容器映像。

### 基本資訊

#### 函數名稱

輸入描述函式目的之名稱。

cole-s3-usage-test2

函數名稱必須為 1 至 64 個字元，對於區域而言必須是唯一的，且不能包含空格。有效的字元為 a-z、A-Z、0-9、連字號 (-) 及底線 (\_)。

#### 執行時間 [資訊](#)

選擇用於編寫功能的語言。請注意，控制台代碼編輯器僅支持Node.js，Python和Ruby。

Python 3.13



此範例是使用python

#### 架構 [資訊](#)

為您的函式程式碼選擇您需要的指令集架構。

# 設定 Lambda



Lambda > 函數 > 建立函式

Python 3.13

## 架構 | 資訊

為您的函式程式碼選擇您需要的指令集架構。

☐ arm64

☒ x86\_64

## 許可 | 資訊

預設情況下，Lambda 會建立具有將日誌上傳至 Amazon CloudWatch Logs 許可的執行角色。您可以在稍後新增觸發條件時，自訂此預設角色。

▶ 變更預設執行角色

## ▶ 其他組態

[無標題]

Use additional configurations to set up networking, security, and governance for your function. These settings help secure and customize your Lambda function deployment.

取消

建立函式

# 設定Lambda

☰ Lambda > 函數 > cole-s3-usage-test2



## cole-s3-usage-test2

調節

複製 ARN

操作 ▼

▼ 函式概觀 資訊

圖表 | 範本



cole-s3-usage-test2



Layers

(0)

+ 新增觸發

+ 新增目的地

匯出至基礎架構編輯器

下載 ▼

描述

-

上次修改時間

41 秒前

函數 ARN

arn:aws:lambda:us-east-1:027155467263:function:cole-s3-usage-test2

函數 URL 資訊

-

程式碼

測試

監控

組態

別名

版本

點選組態，這個步驟要給予Lambda權限

1. 抓取CloudWatch的metrics
2. 發佈到SNS
3. List S3所有bucket

# 設定Lambda

☰ [Lambda](#) > [函數](#) > [cole-s3-usage-test2](#)



程式碼 | 測試 | 監控 | **組態** | 別名 | 版本

一般組態

觸發

**許可**

目的地

函數 URL

環境變數

標籤

VPC

RDS 資料庫

監控和操作工具

## 執行角色



編輯

檢視角色文件

角色名稱

[cole-s3-usage-test2-role-xi811ms9](#)

點選該角色，會自動跳到IAM

## 資源摘要

若要檢視函式有權存取的資源和操作，請選擇一項服務。



Amazon CloudWatch Logs

3 actions, 2 resources



依操作

**依資源**

資源

操作

arn:aws:logs:us-east-1:027155467263:\*

Allow : logs:CreateLogGroup

# 設定Lambda

Identity and Access Management (IAM)

Search IAM

Dashboard

▼ Access management

User groups

Users

Roles

Policies

Identity providers

Account settings

Root access management

▼ Access reports

Access Analyzer

Resource analysis New

IAM > Roles > cole-s3-usage-test2-role-xi811ms9

PermissionsTrust relationshipsTagsLast AccessedRevoke sessions

Permissions policies (1) Info

You can attach up to 10 managed policies.

Filter by Type

Search

All types

Attach policies

Create inline policy

1

	Policy name	Type	Attached entities
<input type="checkbox"/>	<a href="#">AWSLambdaBasicExecutionRole-55690e98-59...</a>	Customer managed	1

► Permissions boundary (not set)

▼ Generate policy based on CloudTrail events

You can generate a new policy based on the access activity for this role, then customize, create, and attach it to this role. AWS uses your CloudTrail events to identify the services and actions used and generate a policy. [Learn more](#)

Generate policy

# 設定Lambda

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "cloudwatch:GetMetricStatistics",
        "cloudwatch:ListMetrics"
      ],
      "Resource": "*"
    },
    {
      "Effect": "Allow",
      "Action": [
        "sns:Publish"
      ],
      "Resource": "*"
    }
  ]
}
```

新增一個自訂policy，左邊是JSON範例  
該policy給予：

1. 抓取CloudWatch的metrics
2. 發佈到SNS

<input type="checkbox"/>	Policy name <a href="#">↗</a>	Type	Attached entities
<input type="checkbox"/>	<a href="#">AWSLambdaBasicExecutionRole-55690e98-59...</a>	Customer managed	<a href="#">1</a>
<input type="checkbox"/>	<a href="#">cole-1107test</a>	Customer inline	0

cole-1107test

[Copy JSON](#) [Edit ↗](#)

```
1 {
2   "Version": "2012-10-17",
3   "Statement": [
4     {
5       "Effect": "Allow",
6       "Action": [
7         "cloudwatch:GetMetricStatistics",
8         "cloudwatch:ListMetrics"
9       ],
10      "Resource": "*"
11    },
12    {
13      "Effect": "Allow",
14      "Action": [
15        "sns:Publish"
16      ],
17      "Resource": "*"
18    },
19    {
20      "Effect": "Allow",
```

# 設定Lambda

Identity and Access Management (IAM)

Search IAM

Dashboard

Access management

- User groups
- Users
- Roles**
- Policies
- Identity providers
- Account settings
- Root access management

Access reports

- Access Analyzer
- Resource analysis [New](#)

IAM > Roles > cole-s3-usage-test2-role-xi811ms9

Creation date  
November 07, 2025, 14:26 (UTC+08:00)

Last activity  
-

ARN  
arn:aws:iam::027155467263:role/service-role/cole-s3-usage-test2-role-xi811ms9

Maximum session duration  
1 hour

Permissions

Trust relationships

Tags

Last Accessed

Revoke sessions

Permissions policies (2) [Info](#)

You can attach up to 10 managed policies.

Search

Filter by Type  
All types

☐

Policy name ↗

▲

☐

[AWSLambdaBasicExecutionRole-55690e98-59...](#)

Customer managed

1

☐

[cole-1107test](#)

Customer inline

0

cole-1107test

[Copy JSON](#)

[Edit ↗](#)

1 {

[Simulate ↗](#)

[Remove](#)

[Add permissions ▲](#)

[Attach policies](#)

[Create inline policy](#)

# 設定Lambda

☰ IAM > Roles > [cole-s3-usage-test2-role-xi811ms9](#) > Add Permissions



## Attach policy to cole-s3-usage-test2-role-xi811ms9

### ▶ Current permissions policies (1)

### Other permissions policies (1239)



🔍 s3rea ✕ Filter by Type All types ▼ 1 match < 1 > ⚙️

<input type="checkbox"/>	Policy name	▲	Type	▼	Description
<input type="checkbox"/>	<span>+</span> <a href="#">AmazonS3ReadOnlyAccess</a>		AWS managed		Provides read only access to all buckets vi...

給予S3 list的權限

Cancel

Add permissions

# 設定Lambda

Identity and Access Management (IAM)

Search IAM

Dashboard

▼ Access management

- User groups
- Users
- Roles**
- Policies
- Identity providers
- Account settings
- Root access management

▼ Access reports

- Access Analyzer
- Resource analysis [New](#)

Policy was successfully attached to role.

Permissions policies (3) [Info](#)

You can attach up to 10 managed policies.

Filter by Type

Search

All types

<input type="checkbox"/>	Policy name <a href="#">↗</a>	Type	Attached entities
<input type="checkbox"/>	<a href="#">+ AmazonS3ReadOnlyAccess</a>	AWS managed	5
<input type="checkbox"/>	<a href="#">+ AWSLambdaBasicExecutionRole-55690e98-59...</a>	Customer managed	1
<input type="checkbox"/>	<a href="#">+ cole-1107test</a>	Customer inline	0

► Permissions boundary (not set)

▼ Generate policy based on CloudTrail events

總共會有3個policy

# 設定Lambda

☰ [Lambda](#) > [函數](#) > cole-s3-usage-test2



程式碼 | 測試 | 監控 | **組態** | 別名 | 版本

一般組態

觸發

許可

目的地

函數 URL

環境變數

標籤

VPC

RDS 資料庫

監控和操作工具

一般組態 [資訊](#)

編輯

描述

-

記憶體

128 MB

暫時性儲存

512 MB

逾時

0 分鐘 3 秒

SnapStart [資訊](#)

None

修改逾時時間，先前測試跑抓S3的metric需要20幾秒  
如果稍後測試超過逾時時間，需回來這邊修改

# 設定 Lambda

☰ [Lambda](#) > [函數](#) > [cole-s3-usage-test2](#) > 編輯基本設定



將暫時性儲存 (/tmp) 設為介於 512 MB 與 10,240 MB 之間。

## SnapStart [資訊](#)

透過讓 Lambda 在函數初始化後快取函數的快照來縮短啟動時間。若要評估您的函數程式碼是否能夠對快照操作做出靈活反應，請檢閱 [SnapStart 相容性考量](#)。針對 Python 和 .NET 執行時期，請檢視定價。

None

支援的執行時間：.NET 8 (C#/F#/PowerShell), Java 11, Java 17, Java 21, Python 3.12, Python 3.13。

## 逾時

0

分鐘

30

秒

## 執行角色

選擇定義函數許可的角色。欲建立自訂角色，請前往 [IAM 主控台](#)。

- ☒ 使用現有的角色
- ☐ 透過 AWS 政策模板建立新的角色

## 現有角色

選擇您已建立的現有角色，以搭配此 Lambda 函式使用。該角色必須擁有將日誌上傳至 Amazon CloudWatch Logs 的許可。

service-role/cole-s3-usage-test2-role-xi811ms9

在 [IAM 主控台](#) 上檢視 [cole-s3-usage-test2-role-xi811ms9](#) 角色。

取消

儲存

# 設定Lambda

☰ [Lambda](#) > [函數](#) > [cole-s3-usage-test2](#)



程式碼

測試

監控

組態

別名

版本

程式碼來源 [資訊](#)

[Open in Visual Studio Code](#)

上傳於 ▼



EXPLORER



▼ COLE-S3-USAGE-TEST2

✚ lambda\_function.py

▼ DEPLOY

Deploy (Ctrl+Shift+U)

Test (Ctrl+Shift+I)

✚ lambda\_function.py ✕

✚ lambda\_function.py

```
1 import json
2
3 def lambda_handler(event, context):
4     # TODO implement
5     return {
6         'statusCode': 200,
7         'body': json.dumps('Hello from Lambda!')
8     }
9
```

# 設定Lambda

☰ Lambda > Functions > cole-s3-usage-test

Code source Info

Open in Visual Studio Code

Upload from



cole-s3-usage-test



EXPLORER



COLE-S3-USAGE-TEST

lambda\_function.py



DEPLOY [UNDEPLOYED CHANGES]

⚠ You have undeployed changes.

Deploy (Ctrl+Shift+U)

Test (Ctrl+Shift+I)

TEST EVENTS [SELECTED: TEST]

+ Create new test event

🔒 Private saved events

lambda\_function.py

lambda\_function.py

```
1 import boto3, datetime
2 from botocore.config import Config
3
4 CFG = Config(retries={'max_attempts': 5}, connect_timeout=2, read_timeout=8)
5
6 sns = boto3.client('sns', region_name='us-east-1', config=CFG) # SNS 放你想用的區
7 s3 = boto3.client('s3', config=CFG)
8
9 TOPIC_ARN = 'arn:aws:sns:us-east-1:027155467263:cole-s3-usage-test2' # 換成你的
10
11 # 快取: 不同區域的 CloudWatch client
12 cw_clients = {}
13
14 def cloudwatch_in(region: str):
15     if region not in cw_clients:
16         cw_clients[region] = boto3.client('cloudwatch', region_name=region, config=CFG)
17     return cw_clients[region]
18
19 def get_bucket_region(bucket: str) -> str:
```

寫好程式碼 (爬CloudWatch資料並發佈到SNS)

# 設定Lambda

☰ Lambda > 函數 > cole-s3-usage-test2

☑ 已成功更新函數 cole-s3-usage-test2

☰ EXPLORER ...

▼ COLE-S3-USAGE-TEST2

- ☛ lambda\_function.py

▼ DEPLOY

Deploy (Ctrl+Shift+U)

Test (Ctrl+Shift+I)

▼ TEST EVENTS [NONE SELECTED]

+ Create new test event

部屬 Code

☛ lambda\_function.py ×

☛ lambda\_function.py

```
69 def lambda_handler(event, context):
78     rows.sort(key=lambda x: (-1 if x[2] is None else x[2]), reverse=True)
79
80     # 明確逐行列印，每個 bucket 獨立一行
81     report_lines = []
82     report_lines.append("📦 S3 Storage Report (All buckets, KB)")
83     report_lines.append(f"Total buckets: {len(rows)}")
84     report_lines.append("") # 空行
85     for b, region, kb in rows:
86         report_lines.append(f"{b} [{region}]: {'N/A' if kb is None else f'{kb:,.2f} KB'}")
87
88     # 以 \n 連接，確保每行分開
89     msg = "" + "\n" + "\n\n".join(report_lines) + "\n"
90
91     sns.publish(
92         TopicArn=TOPIC_ARN,
93         Subject='S3 Monthly Usage Report (KB)',
94         Message=msg
95     )
96
```

# 設定Lambda

☰ Lambda > 函數 > cole-s3-usage-test2

☑ 已成功更新函數 cole-s3-usage-test2。

EXPLORER

COLE-S3-USAGE-TEST2

- lambda\_function.py

DEPLOY

Deploy (Ctrl+Shift+U)

Test (Ctrl+Shift+I)

TEST EVENTS [NONE SELECTED]

+ Create new test event

測試Code

```
lambda_function.py x
lambda_function.py
69 def lambda_handler(event, context):
78     rows.sort(key=lambda x: (-1 if x[2] is None else x[2]), reverse=True)
79
80     # 明確逐行列印，每個 bucket 獨立一行
81     report_lines = []
82     report_lines.append("📦 S3 Storage Report (All buckets, KB)")
83     report_lines.append(f"Total buckets: {len(rows)}")
84     report_lines.append("") # 空行
85     for b, region, kb in rows:
86         report_lines.append(f"{b} [{region}]: {'N/A' if kb is None else f'{kb:,.2f}' KB}")
87
88     # 以 \n 連接，確保每行分開
89     msg = "`\n" + "\n\n".join(report_lines) + "`\n"
90
91     sns.publish(
92         TopicArn=TOPIC_ARN,
93         Subject='S3 Monthly Usage Report (KB)',
94         Message=msg
95     )
96
```

# 設定Lambda

☰ Lambda > 函數 > cole-s3-usage-test2

☑ 已成功更新函數 cole-s3-usage-test2

Select test event

Choose the saved event that you want to use

Create new test event

```
69 def lambda_handler(event, context):
70     rows.sort(key=lambda x: (-1 if x[2] is None else x[2]), reverse=True)
71
72     # 明確逐行列印，每個 bucket 獨立一行
73     report_lines = []
74     report_lines.append("📦 S3 Storage Report (All buckets, KB)")
75     report_lines.append(f"Total buckets: {len(rows)}")
76     report_lines.append("") # 空行
77     for b, region, kb in rows:
78         report_lines.append(f"{b} [{region}]: {'N/A' if kb is None else f'{kb:,.2f}' KB}")
79
80     # 以 \n 連接，確保每行分開
81     msg = "" + "\n".join(report_lines) + "\n"
82
83     sns.publish(
84         TopicArn=TOPIC_ARN,
85         Subject='S3 Monthly Usage Report (KB)',
86         Message=msg
87     )
```

# 設定Lambda

☰ Lambda > 函數 > cole-s3-usage-test2



☑ 已成功更新函數 cole-s3-usage-test2



cole-s3-usage-test2



EXPLORER



COLE-S3-USAGE-TEST2

lambda\_function.py

DEPLOY

Deploy (Ctrl+Shift+U)

Test (Ctrl+Shift+I)

TEST EVENTS [NONE SELECTED]

+ Create new test event

lambda\_function.py

lambda\_function.py

```
69 def lambda_handler(event, context):
70     rows.sort(key=lambda x: (-1 if x[2] is None else x[2]),
71               reverse=True)
72
73     # 明確逐行列印，每個 bucket 獨立一行
74     report_lines = []
75     report_lines.append("📦 S3 Storage Report (All buckets)")
76     report_lines.append(f"Total buckets: {len(rows)}")
77     report_lines.append("") # 空行
78     for b, region, kb in rows:
79         report_lines.append(f"{b} [{region}]: {'N/A' if kb is None else f'{kb} KB'}")
80
81     # 以 \n 連接，確保每行分開
82     msg = "" + "\n".join(report_lines) + "\n"
83
84     sns.publish(
85         TopicArn=TOPIC_ARN,
86         Subject='S3 Monthly Usage Report (KB)',
87         Message=msg
88     )
```

Create new test event

Invoke

Save

## Create new test event

Event Name

test

Maximum of 25 characters consisting of letters, numbers, dots, hyphens and underscores.

Event sharing settings

☒ Private

This event is only available in the Lambda Console and to the event creator. You can configure a total of ten.

[Learn more](#)

☐ Shareable

This event is available to IAM users within the same account who have permissions to access and use shareable events. [Learn more](#)

Template - optional

Hello World

Event JSON

```
1 {
2   "key1": "value1",
3   "key2": "value2"
}
```

# 設定Lambda

☰ Lambda > 函數 > cole-s3-usage-test2



程式碼來源 資訊

Open in Visual Studio Code ↗

上傳於 ▼



🔍 cole-s3-usage-test2



EXPLORER



▼ COLE-S3-USAGE-TEST2

🔗 lambda\_function.py

▼ DEPLOY

Deploy (Ctrl+Shift+U)

Test (Ctrl+Shift+I)

▼ TEST EVENTS [SELECTED: TEST]

+ Create new test event

▼ Private saved events

test

🔗 lambda\_function.py ×

🔗 lambda\_function.py

```
69 def lambda_handler(event, context):
72     for b in buckets:
76
77     # 依用量排序 (N/A 放最後)
78     rows.sort(key=lambda x: (-1 if x[2] is None else x[2]),
79
80     # 明確逐行列印, 每個 bucket 獨立一行
81     report_lines = []
82     report_lines.append("📦 S3 Storage Report (All buckets)
83     report_lines.append(f"Total buckets: {len(rows)}")
84     report_lines.append("") # 空行
85     for b, region, kb in rows:
86         report_lines.append(f"{b} [{region}]: {'N/A' if kb
87
88     # 以 \n 連接, 確保每行分開
89     msg = "" + "\n" + "\n\n".join(report_lines) + "\n"
90
91     sns.publish(
92         TopicArn=TOPIC_ARN,
```

☰ Create new test event ×



## Create new test event

Invoke

Save

Event Name

test

Maximum of 25 characters consisting of letters, numbers, dots, hyphens and underscores.

Event sharing settings

☒ Private

This event is only available in the Lambda Console and to the event creator. You can configure a total of ten.

[Learn more](#)

☐ Shareable

This event is available to IAM users within the same account who have permissions to access and use shareable events. [Learn more](#)

Template - optional

test

Event JSON

```
1 {
2   "key1": "value1",
3   "key2": "value2"
```

# 設定Lambda

☰ Lambda > 函數 > cole-s3-usage-test2

COLE-S3-USAGE-TEST2

lambda\_function.py

DEPLOY

Deploy (Ctrl+Shift+U)

Test (Ctrl+Shift+I)

TEST EVENTS [SELECTED: TEST]

+ Create new test event

+ Private saved events

test

ENVIRONMENT VARIABLES

lambda\_function.py

```
69 def lambda_handler(event, context):
78     rows.sort(key=lambda x: (-1 if x[2] is None else x[2]), reverse=True)
79
80     # 明確逐行列印，每個 bucket 獨立一行
81     report_lines = []
82     report_lines.append("📦 S3 Storage Report (All buckets, KB)")
83     report_lines.append(f"Total buckets: {len(rows)}")
84     report_lines.append("") # 空行
85     for b, region, kb in rows:
86         report_lines.append(f"{b} [{region}]: {'N/A' if kb is None else f'{kb:.2f} KB'}")
```

PROBLEMS

OUTPUT

CODE REFERENCE LOG

TERMINAL

Execution Results

Loading...  
Execution started: 下午2:57:34 (0 seconds ago)  
Loading...  
Execution started: 下午2:57:34 (1 second ago)  
Loading...  
Execution started: 下午2:57:34 (2 seconds ago)

Test event is saved successfully.

Ln 12, Col 16

Spaces: 4

UTF-8

LF

Python

Lambda

Layout: US

再點選一次Test

# 設定Lambda

☰ Lambda > 函數 > cole-s3-usage-test2

COLE-S3-USAGE-TEST2

lambda\_function.py

DEPLOY

Deploy (Ctrl+Shift+U)

Test (Ctrl+Shift+I)

TEST EVENTS [SELECTED: TEST]

+ Create new test event

Private saved events

test

ENVIRONMENT VARIABLES

lambda\_function.py

```
69 def lambda_handler(event, context):
70     rows.sort(key=lambda x: (-1 if x[2] is None else x[2]), reverse=True)
71
72     # 明確逐行列印，每個 bucket 獨立一行
73     report_lines = []
74     report_lines.append("📦 S3 Storage Report (All buckets, KB)")
75     report_lines.append(f"Total buckets: {len(rows)}")
76     report_lines.append("") # 空行
77     for b, region, kb in rows:
78         report_lines.append(f"{b} [{region}]: {'N/A' if kb is None else f'{kb:,.2f}' KB}")
```

PROBLEMS

OUTPUT

CODE REFERENCE LOG

TERMINAL

Status: Succeeded

Test Event Name: test

Response:

```
{
  "buckets": 43
}
```

Function Logs:

START RequestId: 9cb2040a-fd5d-4e62-a725-26c5b8b4f390 Version: \$LATEST  
END RequestId: 9cb2040a-fd5d-4e62-a725-26c5b8b4f390  
REPORT RequestId: 9cb2040a-fd5d-4e62-a725-26c5b8b4f390 Duration: 20630.10 ms Billed Duration: 21272 ms Memory Size: 128 MB Max Memory Used: 98 MB Init Duration: 641.08 ms

Execution Results

Ln 12, Col 16 Spaces: 4 UTF-8 LF Python Lambda Layout: US

# 設定Lambda

## S3 Monthly Usage Report (KB)



AWS Notifications <no-reply@sns.amazonaws.com>  
收件者: Cole Lin - GCS



將郵件翻譯為: 繁體中文 (繁體) | 一律不翻譯自: 英文 | 翻譯喜好設定

...

### S3 Storage Report (All buckets, KB)

Total buckets: 43

n2ws-fredlee [ap-southeast-1]: 21,770,023.84 KB

glueworkshop-027155467263-eu-west-3 [eu-west-3]: 10,403,795.47 KB

rick-s3-for-lambda [ap-northeast-1]: 4,723,732.64 KB

demitest-123 [us-east-1]: 3,300,271.71 KB

aws-cloudtrail-logs--mark-test [ap-southeast-1]: 2,122,496.04 KB

freds3forvmdk [ap-southeast-1]: 826,710.09 KB

fredimportvmdk [ap-southeast-1]: 826,710.04 KB

fredcurbucket [ap-southeast-1]: 792,833.43 KB

cloudtrail-248189907648 [ap-southeast-1]: 295,469.27 KB

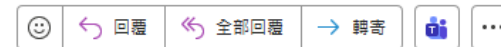
aws-quicksetup-patchpolicy-access-log-027155467263-9bee-2mzpi [ap-southeast-1]: 62,518.23 KB

aws-quicksetup-patchpolicy-027155467263-2mzpi [ap-southeast-1]: 43,180.33 KB

17live.2022.event [ap-southeast-1]: 22,691.92 KB

demitest [us-east-1]: 7,050.99 KB

cole-s3-api-log-bucket [us-east-1]: 456.98 KB



2025/11/7 (週五) 下午 02:11

測試會連同發信，Lambda設定完成

# 設定EventBridge



## Amazon EventBridge

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Application Integration

## Amazon EventBridge

# A serverless service for building event-driven applications

Amazon EventBridge is a serverless service that uses events to connect application components together, making it easier for developers to build scalable event-driven applications.

### Get started

- ☒ **EventBridge Rule**  
A rule matches incoming events and sends them to targets for processing.
- ☐ **EventBridge Pipes**  
A pipe connects an event source to a target with optional filtering and enrichment.
- ☐ **EventBridge Schedule**  
A schedule invokes a target one-time or at regular intervals defined by a cron or rate expression.
- ☐ **EventBridge Schema registry**  
Schema registries collect and organize schemas.

Create rule

### Pricing

# 設定EventBridge

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Schedule groups

Step 1  
Define rule detail  
Step 2  
Define schedule  
Step 3  
Select target(s)  
Step 4 - optional  
Configure tags  
Step 5  
Review and create

Define rule detail

Rule detail

Name

cole-s3-usage-test2

Maximum of 64 characters consisting of numbers, lower/upper case letters, ., -, \_.

Description - optional

Enter description

Event bus

Info

Select the event bus this rule applies to, either the default event bus or a custom or partner event bus.

default

Enable the rule on the selected event bus

Rule type

Info

Rule with an event pattern

A rule that runs when an event matches the defined event pattern.  
EventBridge sends the event to the specified target.

Schedule

A rule that runs on a schedule

# 設定EventBridge

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Step 4 - optional

Configure tags

Step 5

Review and create

cole-s3-usage-test2

Maximum of 64 characters consisting of numbers, lower/upper case letters, ., -, \_.

Description - optional

Enter description

Event bus Info

Select the event bus this rule applies to, either the default event bus or a custom or partner event bus.

default

Enable the rule on the selected event bus

Rule type Info

Rule with an event pattern

A rule that runs when an event matches the defined event pattern.  
EventBridge sends the event to the specified target.

Schedule

A rule that runs on a schedule

EventBridge Scheduler - A new AWS scheduling capability! New

A new EventBridge scheduling functionality that provides one-time and recurring scheduling functionality independent of Event buses and rules.  
You can create a schedule to invoke targets such as a Lambda function. [Learn More](#)

Continue to create rule

Cancel

Continue in EventBridge Scheduler

# 設定EventBridge

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Schedules

Step 1

Define rule detail

Step 2

Define schedule

Step 3

Select target(s)

Step 4 - optional

Configure tags

Step 5

Review and create

Define schedule Info

Schedule pattern

Schedule pattern

Choose the schedule type that best meets your needs.

☒ A fine-grained schedule that runs at a specific time, such as 8:00 a.m. PST on the first Monday of every month.

☐ A schedule that runs at a regular rate, such as every 10 minutes.

Cron expression Info

Define the cron expression for the schedule

cron (

minutes

hours

day of month

month

day of week

year

)

Minutes

Hours

Day of month

Month

Day of week

Year

Next 10 trigger date(s)

Scheduled dates will be generated here upon receiving a valid cron expression

設定觸發條件

Cancel

Previous

Next

# 設定EventBridge

Amazon EventBridge > Rules > Create rule

Define rule detail

Step 2 Define schedule

Step 3 Select target(s)

Step 4 - optional Configure tags

Step 5 Review and create

### Schedule pattern

Choose the schedule type that best meets your needs.

☒ A fine-grained schedule that runs at a specific time, such as 8:00 a.m. PST on the first Monday of every month.

☐ A schedule that runs at a regular rate, such as every 10 minutes.

### Cron expression

Define the cron expression for the schedule

☒ cron ( 0 0 1 \* ? \* )

Minutes Hours Day of month Month Day of week Year

Next 10 trigger date(s) Local time zone

Mon, Dec 1, 2025, 08:00 AM GMT+8  
Thu, Jan 1, 2026, 08:00 AM GMT+8  
Sun, Feb 1, 2026, 08:00 AM GMT+8  
Sun, Mar 1, 2026, 08:00 AM GMT+8  
Wed, Apr 1, 2026, 08:00 AM GMT+8  
Fri, May 1, 2026, 08:00 AM GMT+8  
Mon, Jun 1, 2026, 08:00 AM GMT+8  
Wed, Jul 1, 2026, 08:00 AM GMT+8  
Sat, Aug 1, 2026, 08:00 AM GMT+8  
Tue, Sep 1, 2026, 08:00 AM GMT+8

這邊的範例是每個月的1號會觸發

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Create rule

Define rule details

Step 2

Define schedule

Step 3

Select target(s)

Step 4 - optional

Configure tags

Step 5

Review and create

Permissions

Note: When using the EventBridge console, EventBridge will automatically configure the proper permissions for the selected targets. If you're using the AWS CLI, SDK, or CloudFormation, you'll need to configure the proper permissions.

Target 1

Target types

Select an EventBridge event bus, EventBridge API destination (SaaS partner), or another AWS service as a target.

EventBridge event bus

EventBridge API destination

AWS service

Select a target Info

Select target(s) to invoke when an event matches your event pattern or when schedule is triggered (limit of 5 targets per rule)

Lambda function

Target location

Target in this account

Target in another AWS account

Function

cole-s3-usage-test2

# 設定EventBridge

Amazon EventBridge > Rules > Create rule

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target in this account

target in another AWS account

Function

cole-s3-usage-test2

Configure version/alias

Permissions

☒ Use execution role (recommended)

Execution role

EventBridge needs permission to send events to the target specified above. By continuing, you are allowing us to do so. [EventBridge and AWS Identity and Access Management](#)

☒ Create a new role for this specific resource

☐ Use existing role

Role name

Amazon\_EventBridge\_Invoke\_Lambda\_1644256011

Additional settings

Add another target

Cancel

Skip to Review and create

Previous

Next

# 設定EventBridge

## Amazon EventBridge <

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Schedules

- Step 1  
● Define rule detail
- Step 2  
● Define schedule
- Step 3  
● Select target(s)
- Step 4 - optional  
● **Configure tags**
- Step 5  
○ Review and create

## Configure tags - optional [Info](#)

### Tags

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

No tags associated with the resource.

[Add new tag](#)

You can add 50 more tags

[Cancel](#)

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# 設定EventBridge

Amazon EventBridge > Rules > Create rule

Amazon EventBridge <

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  - Schedules
  - Schedule groups

▼	<a href="#">cole-s3-usage-test2</a>	Lambda function	<a href="#">arn:aws:lambda:us-east-1:027155467263:function:cole-s3-usage-test2</a>	Matched event	Amazon_EventBridge_Invoke_Lambda_1644256011
Input to target:		Matched event			
Additional parameters:		--			
Dead-letter queue (DLQ):		-			

**Step 4: Configure tag(s)** [Edit](#)

**Tags (0)**  
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key	Value
No tags associated with this resource.	

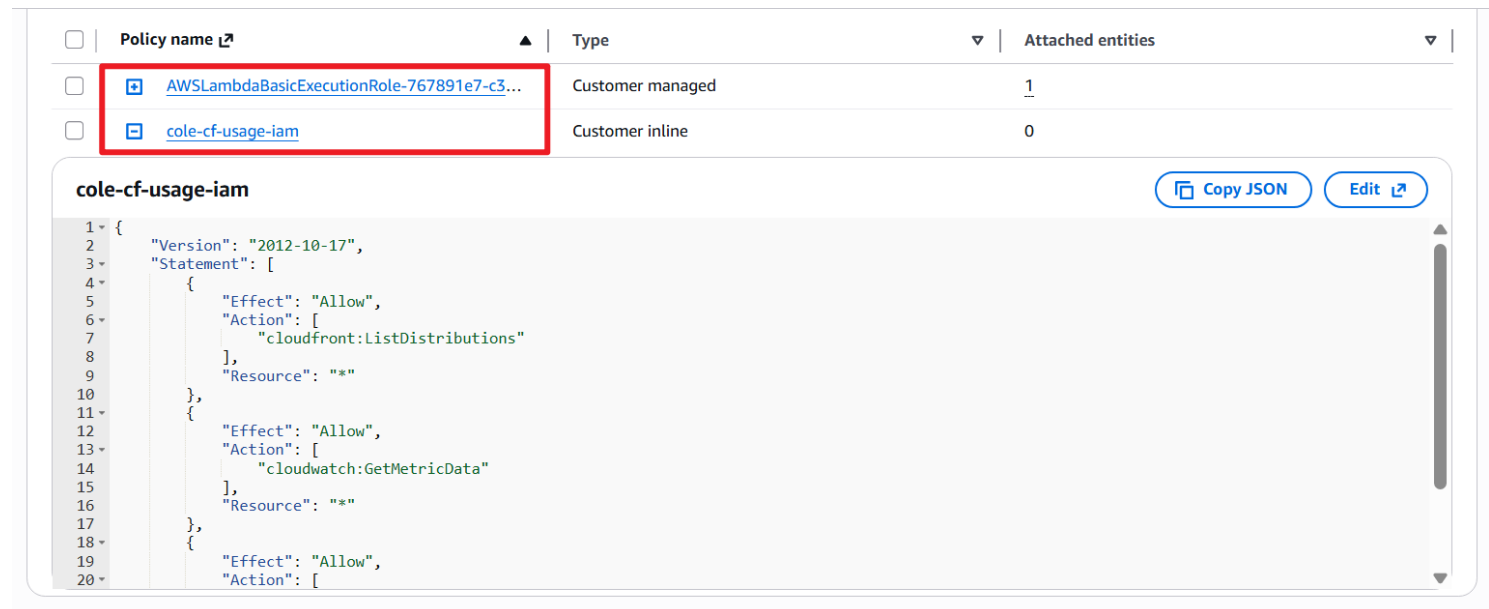
[Cancel](#) [Previous](#) [Create rule](#)

這樣就設定完成了，每個月1號會觸發Lambda去CloudWatch抓資料，並發佈到SNS，由SNS發信到用戶端

# CF 自動化寄送設定

CloudFront的設定步驟跟S3完全一致，可依需求看要不要建立不同的SNS Topic(也可使用同一個)。其他差在Lambda的程式碼及IAM的部分，因其他步驟都相同，故不再重複。

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "cloudfront:ListDistributions"
      ],
      "Resource": "*"
    },
    {
      "Effect": "Allow",
      "Action": [
        "cloudwatch:GetMetricData"
      ],
      "Resource": "*"
    },
    {
      "Effect": "Allow",
      "Action": [
        "sns:Publish"
      ],
      "Resource": "*"
    }
  ]
}
```



CF的Lambda只需要預設的policy以及左側的policy

1. 給予list CF Distributions權限
2. 給予抓取CloudWatch metrics權限
3. 發佈到SNS

☰ [Lambda](#) > [Functions](#) > [cole-cf-usage-test](#)

## Code source [Info](#)

[Open in Visual Studio Code](#)

[Upload from](#)



🔍 cole-cf-usage-test



EXPLORER



### ▼ COLE-CF-USAGE-TEST

🔗 lambda\_function.py

### ▼ DEPLOY

Deploy (Ctrl+Shift+U)

Test (Ctrl+Shift+I)

### ▼ TEST EVENTS [SELECTED: TEST]

+ Create new test event

▼ 📁 Private saved events

🔗 lambda\_function.py ✕

🔗 lambda\_function.py

```
1 import boto3
2 import datetime
3 from zoneinfo import ZoneInfo
4 from botocore.config import Config
5
6 # ----- 設定 -----
7 SNS_TOPIC_ARN = 'arn:aws:sns:us-east-1:027155467263:cole-cf-usage-test1'
8 AWS_REGION = 'us-east-1' # CloudFront metrics 都在 us-east-1 + Region=Global
9 TZ = ZoneInfo("Asia/Taipei") # 台灣時間
10 # -----
```

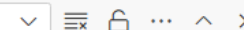
PROBLEMS OUTPUT CODE REFERENCE LOG TERMINAL

Status: Succeeded  
Test Event Name: test

Response:

```
{
  "ok": true,
  "dists": 3,
  "start_utc": "2025-10-31T16:00:00+00:00",
}
```

Execution Results



跟S3一樣，寫好程式碼並部屬後，進行測試

## CloudFront 當月用量報表 (台北時間) - 2025-11



AWS Notifications <no-reply@sns.amazonaws.com>

收件者 ● Cole Lin - GCS



將郵件翻譯為: 繁體中文 (繁體)

一律不翻譯自: 英文

翻譯喜好設定

...

### CloudFront 當月用量報表 (台北時間)

月份: 2025-11

區間 (台北時間): 2025-11-01 00:00:00 CST ~ 2025-11-07 15:00:00 CST

Distributions: 3

總 Requests: 11

總下載量: 0.00 GB

dez39yd4ngysi.cloudfront.net (E1EXMLLF9J0KCB)

Requests: 11

Download: 0.00 GB

d3vwj1vp4d8lvk.cloudfront.net (E9UY06JOE3W6M)

Requests: 0

Download: 0.00 GB

d2km9pj7ae1xo5.cloudfront.net (E1DJLM3LDFYME2)

Requests: 0

Download: 0.00 GB

...

測試成功，接著按照S3那邊的步驟，設定好EventBridge，  
即可在每月定期自動發信

# Thank you