

```
wycheng@cloudshell:~ (ds561-wyc-5304)$ gcloud storage buckets create gs://hw1-ds561
Creating gs://hw1-ds561/...
wycheng@cloudshell:~ (ds561-wyc-5304)$
```

Google Cloud

DS561-WYC-5304

Search (/) for resources, docs, products, and more

Search

Cloud Storage

Buckets

Monitoring

Settings

HELP ASSISTANT

LEARN

Buckets

CREATE

REFRESH

Transfer

New

Power near real-time analytics and replication with event-driven transfers

You can now capture changes faster at your Google Cloud Storage and Amazon S3 sources via event-driven transfers, enabling you to act on your data in near real time. To get started, create a transfer job with a Pub/Sub- or AWS SQS-based event stream configured to send event notifications when objects are created or updated.

CREATE TRANSFER JOB

LEARN MORE

Analytics

New

Preview the new Cloud Storage monitoring dashboard

Check out the new Cloud Storage monitoring dashboard and bucket observability pages! Powered by Cloud Operations, you can customize these dashboards for each project.

TRY NOW

Security

View security recommendations

Improve security by applying security recommendations to your buckets. The security insights column in the table describes which buckets have excess permissions.

VIEW IN TABLE

LEARN MORE

Filter

Filter buckets

| <input type="checkbox"/> | Name ↑ | Created | Location type | Location | Default storage class ? | Last modified | Public access ? | Access control ? | Protection ? | Lifecycle |
|--------------------------|---------------------|--------------------------|---------------|----------|--------------------------------------|--------------------------|------------------------------|-------------------------------|---------------------------|----------------------|
| <input type="checkbox"/> | hw1-ds561 | Sep 16, 2023, 6:04:20 PM | Multi-region | us | Standard | Sep 16, 2023, 6:04:20 PM | Subject to object ACLs | Fine-grained | None | None |

- Created through console option “*CREATE FOLDER*”

Google Cloud

DS561-WYC-5304

Search (/) for resources, docs, products, and more

Search

Cloud Storage

Buckets

Monitoring

Settings

Bucket details

REFRESH

HELP ASSISTANT

LEARN

hw1-ds561

Location

Storage class

Public access

Protection

us (multiple regions in United States)

Standard

Subject to object ACLs

None

OBJECTS

CONFIGURATION

PERMISSIONS

PROTECTION

LIFECYCLE

OBSERVABILITY

INVENTORY REPORTS

Buckets > hw1-ds561

UPLOAD FILES

UPLOAD FOLDER

CREATE FOLDER

TRANSFER DATA

MANAGE HOLDS

DOWNLOAD

DELETE

Filter by name prefix only

Filter Filter objects and folders

Show deleted data

| <input type="checkbox"/> | Name | Size | Type | Created | Storage class | Last modified | Public access | Version history | Encryption | Retention expiration date | Holds |
|--------------------------|----------------|------|--------|---------|---------------|---------------|---------------|-----------------|------------|---------------------------|-------|
| <input type="checkbox"/> | hw1-directory/ | — | Folder | — | — | — | — | — | — | — | — |

Marketplace

Release Notes

Terminal

Open Editor

Terminal

ds561-wyc-5304

3. Copy file into directory

- Create a file to be copied
 - Name: file-to-be-copied
 - With the following content

```

GNU nano 5.4                                file-to-be-copied *
Hello,
This file is to be copied into the directory inside the bucket.

```

Help Exit Write Out Read File Where Is Replace Cut Paste Execute Justify Location Go To Line Undo Redo Set Mark Copy To Bracket Where Was Previous Next

- Command to copy file

```

wycheng@cloudshell:~ (ds561-wyc-5304)$ gsutil ls gs://hw1-ds561
gs://hw1-ds561/hw1-directory/
wycheng@cloudshell:~ (ds561-wyc-5304)$ nano file-to-be-copied
wycheng@cloudshell:~ (ds561-wyc-5304)$ ls
file-to-be-copied  README-cloudshell.txt
wycheng@cloudshell:~ (ds561-wyc-5304)$ gsutil cp file-to-be-copied gs://hw1-ds561/hw1-directory/
Copying file://file-to-be-copied [Content-Type=application/octet-stream]...
/ [1 files] 71.0 B/ 71.0 B
Operation completed over 1 objects/71.0 B.
wycheng@cloudshell:~ (ds561-wyc-5304)$

```

- Result:

Google Cloud DS561-WYC-5304 Search (/) for resources, docs, products, and more

Cloud Storage Bucket details REFRESH HELP ASSISTANT LEARN

hw1-ds561

| Location | Storage class | Public access | Protection |
|--|---------------|------------------------|------------|
| us (multiple regions in United States) | Standard | Subject to object ACLs | None |

OBJECTS CONFIGURATION PERMISSIONS PROTECTION LIFECYCLE OBSERVABILITY INVENTORY REPORTS

Buckets > hw1-ds561 > hw1-directory

UPLOAD FILES UPLOAD FOLDER CREATE FOLDER TRANSFER DATA MANAGE HOLDS DOWNLOAD DELETE

Filter by name prefix only Filter objects and folders Show deleted data

| Name | Size | Type | Created | Storage class | Last modified | Public access | Version history | Encryption |
|-------------------|------|--------------------------|--------------------------|---------------|--------------------------|---------------|-----------------|----------------|
| file-to-be-copied | 71 B | application/octet-stream | Sep 16, 2023, 7:40:20 PM | Standard | Sep 16, 2023, 7:40:20 PM | Not public | -- | Google-managed |

Open Editor

4. Delete the directory with single operation

```
wycheng@cloudshell:~ (ds561-wyc-5304)$ gsutil rm -r gs://hw1-ds561/hw1-directory
Removing gs://hw1-ds561/hw1-directory/#1694907327637060...
Removing gs://hw1-ds561/hw1-directory/file-to-be-copied#1694907620508657...
/ [2 objects]
Operation completed over 2 objects.
wycheng@cloudshell:~ (ds561-wyc-5304)$
```

- Result:

The screenshot shows the Google Cloud Storage console for the project 'DS561-WYC-5304'. The 'Bucket details' page for 'hw1-ds561' is displayed. The bucket is located in 'us (multiple regions in United States)' with a 'Standard' storage class. The 'OBJECTS' tab is selected, showing a table with columns: Name, Size, Type, Created, Storage class, Last modified, Public access, Version history, Encryption, Retention expiration date, and Holds. The table is empty, with a message 'No rows to display' at the bottom.

5. Make a VM

```
wycheng@cloudshell:~ (ds561-wyc-5304)$ gcloud compute instances create hw1-vm
Did you mean zone [us-east1-b] for instance: [hw1-vm] (Y/n)?

API [compute.googleapis.com] not enabled on project [ds561-wyc-5304]. Would you like to enable and retry (this will take a few minutes)? (y/N)? y

Enabling service [compute.googleapis.com] on project [ds561-wyc-5304]...
Operation "operations/acf.p2-907220276251-013a26bd-eab2-46dc-80f6-ca79f84f2f4a" finished successfully.
Created [https://www.googleapis.com/compute/v1/projects/ds561-wyc-5304/zones/us-east1-b/instances/hw1-vm].
NAME: hw1-vm
ZONE: us-east1-b
MACHINE_TYPE: n1-standard-1
PREEMPTIBLE:
INTERNAL_IP: 10.142.0.2
EXTERNAL_IP: 35.229.43.177
STATUS: RUNNING
wycheng@cloudshell:~ (ds561-wyc-5304)$
```

- Result:

The screenshot shows the Google Cloud Compute Engine console for the project 'DS561-WYC-5304'. The 'VM instances' page is displayed, showing a table with columns: Status, Name, Zone, Recommendations, In use by, Internal IP, External IP, and Connect. One instance, 'hw1-vm', is listed with a status of 'Running' and a zone of 'us-east1-b'. Below the table, there are 'Related actions' such as 'Explore Backup and DR', 'View billing report', 'Monitor VMs', 'Explore VM logs', 'Set up firewall rules', 'Patch management', and 'Load balance between VMs'.

6. Pause the VM

```
wycheng@cloudshell:~ (ds561-wyc-5304)$ gcloud compute instances stop hw1-vm
Did you mean zone [us-east1-b] for instance: [hw1-vm] (Y/n)?

Stopping instance(s) hw1-vm...done.
Updated [https://compute.googleapis.com/compute/v1/projects/ds561-wyc-5304/zones/us-east1-b/instances/hw1-vm].
wycheng@cloudshell:~ (ds561-wyc-5304)$
```

- Result:

The screenshot shows the Google Cloud Platform console for project 'DS561-WYC-5304'. The 'VM instances' tab is selected, showing a table with one instance: 'hw1-vm' in the 'us-east1-b' zone. The instance is in a 'Stopped' state. The console also displays related actions such as 'Explore Backup and DR', 'View billing report', 'Monitor VMs', and 'Explore VM logs'.

7. Delete the VM

```
wycheng@cloudshell:~ (ds561-wyc-5304)$ gcloud compute instances delete hw1-vm
Did you mean zone [us-east1-b] for instance: [hw1-vm] (Y/n)?

The following instances will be deleted. Any attached disks configured to be auto-deleted will be deleted unless they are attached to any other instances or the '--keep-disks'
flag is given and specifies them for keeping. Deleting a disk is irreversible and any data on the disk will be lost.
- [hw1-vm] in [us-east1-b]

Do you want to continue (Y/n)?

Deleted [https://www.googleapis.com/compute/v1/projects/ds561-wyc-5304/zones/us-east1-b/instances/hw1-vm].
wycheng@cloudshell:~ (ds561-wyc-5304)$
```

- Result:

The screenshot shows the Google Cloud Platform console for project 'DS561-WYC-5304'. The 'VM instances' tab is selected, and the table is empty, indicating that the 'hw1-vm' instance has been successfully deleted. The console also displays related actions such as 'Explore Backup and DR', 'View billing report', 'Monitor VMs', and 'Explore VM logs'.

8. Make a service account and grant permission

```
wycheng@cloudshell:~ (ds561-wyc-5304)$ gcloud iam service-accounts create hw1-ac
```

- Result:

These permissions affect this project and all of its resources. [Learn more](#)

☐ Include Google-provided role grants

VIEW BY PRINCIPALS VIEW BY ROLES

[GRANT ACCESS](#) [REMOVE ACCESS](#)

Filter Enter property name or value

| Type | Principal | Name | Role | Security insights | Inheritance |
|------|--|--|--------|-------------------|-------------|
| | 907220276251-compute@developer.gserviceaccount.com | Compute Engine default service account | Editor | | |
| | kthanas2@bu.edu | Kottothanassis, Leonidas | Owner | | |
| | sahithi@bu.edu | | Owner | | |
| | vaishv@bu.edu | | Owner | | |
| | wycheng@bu.edu | Wai Yuen Cheng | Owner | | |

CLOUD SHELL Terminal (ds561-wyc-5304) [Open Editor](#)

Grant Permission To Access Bucket

```
wycheng@cloudshell:~ (ds561-wyc-5304)$ gsutil iam ch serviceAccount:907220276251-compute@developer.gserviceaccount.com:roles/storage.admin gs://hw1-ds561
wycheng@cloudshell:~ (ds561-wyc-5304)$
```

- Result:

Cloud Storage Bucket details [REFRESH](#) [HELP ASSISTANT](#) [LEARN](#)

VIEW BY PRINCIPALS VIEW BY ROLES

[GRANT ACCESS](#) [REMOVE ACCESS](#)

Filter Enter property name or value

| Type | Principal | Name | Role | Inheritance |
|------|---|--|------------------------------|-------------|
| | 907220276251-compute@developer.gserviceaccount.com | Compute Engine default service account | Storage Admin | |
| | Editors of project: ds561-wyc-5304 | | Storage Legacy Bucket Owner | |
| | Owners of project: ds561-wyc-5304 | | Storage Legacy Bucket Owner | |
| | service-907220276251@compute-system.iam.gserviceaccount.com | Compute Engine Service Agent | Compute Engine Service Agent | |
| | Viewers of project: ds561-wyc-5304 | | Storage Legacy Bucket Reader | |

CLOUD SHELL Terminal (ds561-wyc-5304) [Open Editor](#)

9. Delete Service Account

```
wycheng@cloudshell:~ (ds561-wyc-5304)$ gcloud iam service-accounts delete 907220276251-compute@developer.gserviceaccount.com
You are about to delete service account [907220276251-compute@developer.gserviceaccount.com]

Do you want to continue (Y/n)?

deleted service account [907220276251-compute@developer.gserviceaccount.com]
wycheng@cloudshell:~ (ds561-wyc-5304)$
```

- Result:

The screenshot displays the Google Cloud console interface for project DS561-WYC-5304. The top navigation bar includes the Google Cloud logo, project name, search bar, and user profile. The left sidebar shows the navigation menu with options like Cloud Storage, IAM & Admin, and Marketplace.

The main content area is divided into two sections:

- Cloud Storage - Bucket details:** This section shows the details for a bucket. It includes a "Subject to object ACLs" warning, a "Fine-grained: Object-level ACLs enabled" notification, and a "Permissions" table. The "Permissions" table lists the following entries:

| Type | Principal | Name | Role | Inheritance |
|-------------------------|--|------------------------------|------------------------------|----------------|
| Deleted Service Account | 907220276251-compute@developer.gserviceaccount.com?uid=109169001793004814522 | | Storage Admin | |
| | Owners of project: ds561-wyc-5304 | | Storage Legacy Bucket Owner | |
| | service-907220276251-compute-system-iam.gserviceaccount.com | Compute Engine Service Agent | Compute Engine Service Agent | DS561-WYC-5304 |
| | Viewers of project: ds561-wyc-5304 | | Storage Legacy Bucket Reader | |

- IAM & Admin - IAM:** This section shows the "Permissions for project 'DS561-WYC-5304'". It includes a "PERMISSIONS" tab and a "RECOMMENDATIONS HISTORY" tab. The "Permissions" table lists the following entries:

| Type | Principal | Name | Role | Security insights | Inheritance |
|-------------------------|--|--------------------------|--------|-------------------|-------------|
| Deleted Service Account | 907220276251-compute@developer.gserviceaccount.com?uid=109169001793004814522 | | Editor | | |
| | kthanas2@bu.edu | Kontothanassis, Leonidas | Owner | | |
| | sahithi@bu.edu | | Owner | | |
| | vaishv@bu.edu | | Owner | | |
| | wycheng@bu.edu | Wai Yuen Cheng | Owner | | |

The bottom of the console shows a terminal window with the command prompt (ds561-wyc-5304) and a notification that terminal tabs have been recovered from an existing session.

10. Delete Bucket

```
wycheng@cloudshell:~ (ds561-wyc-5304)$ gcloud storage buckets delete gs://hw1-ds561
Removing gs://hw1-ds561/...
Completed 1/1
wycheng@cloudshell:~ (ds561-wyc-5304)$
```

- Result:

The screenshot shows the Google Cloud console interface for the project 'DS561-WYC-5304'. The left sidebar shows the 'Cloud Storage' section with 'Buckets' selected. The main content area displays three promotional cards: 'Transfer' (Power near real-time analytics and replication with event-driven transfers), 'Analytics' (Preview the new Cloud Storage monitoring dashboard), and 'Security' (View security recommendations). Below these cards is a table with columns for Name, Created, Location type, Location, Default storage class, Last modified, Public access, Access control, Protection, and Lifecycle rules. The table is currently empty, showing 'No rows to display'.