

## Course 4\_Lab 4: Recover VMs with Google Backup and DR Service

### Scenario:

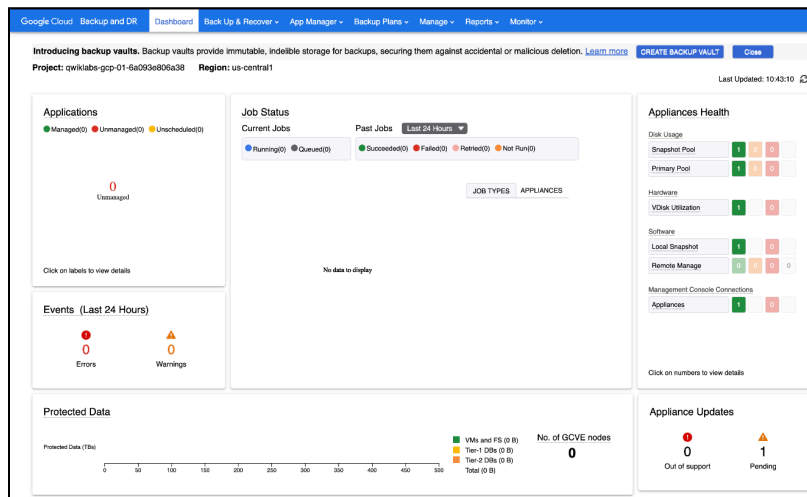
Cymbal Bank's Incident Response Team successfully responded to the security incident and contained the unauthorized access. Hannah and the rest of the Incident Response Team are working on implementing recovery actions to restore the affected virtual machines (VMs). You have been asked to assist with this.

Here's how you'll do this task: **First**, you'll connect to the Backup and DR management console. **Next**, you'll create and validate a backup plan template. **Then**, you'll discover and add a Compute Engine instance to the Backup and DR management console. **Finally**, you'll restore a Compute Engine instance in two different Google Cloud projects.

### MY WORK:

#### Task 1: Connect to the Backup and DR console

In this task, I was able to connect to the Google Backup and DR Management service.

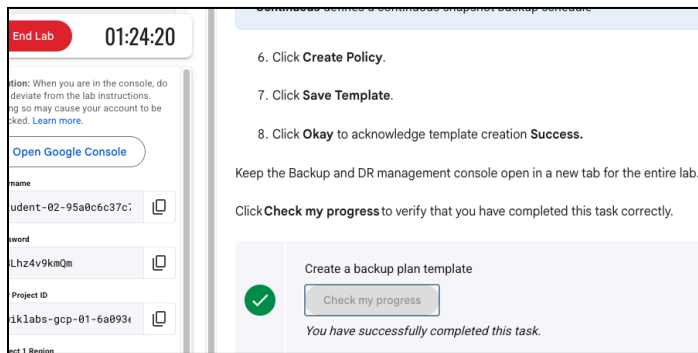
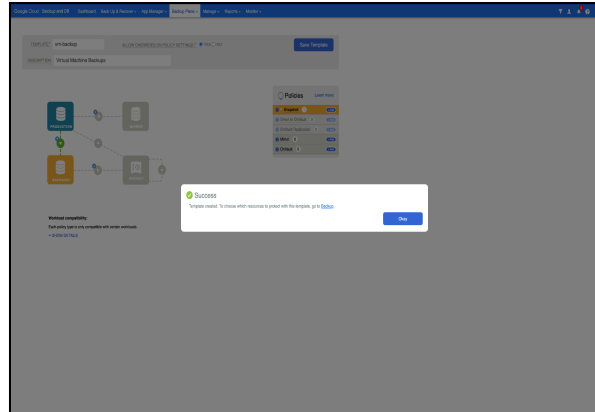
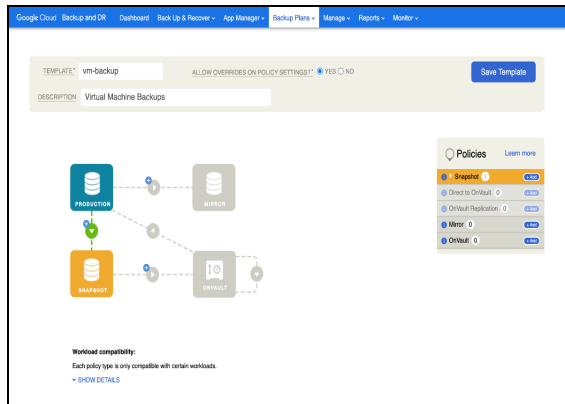


#### Task 2: Create a backup plan template

In this task, I was able to create a backup plan template that creates a snapshot every two hours.

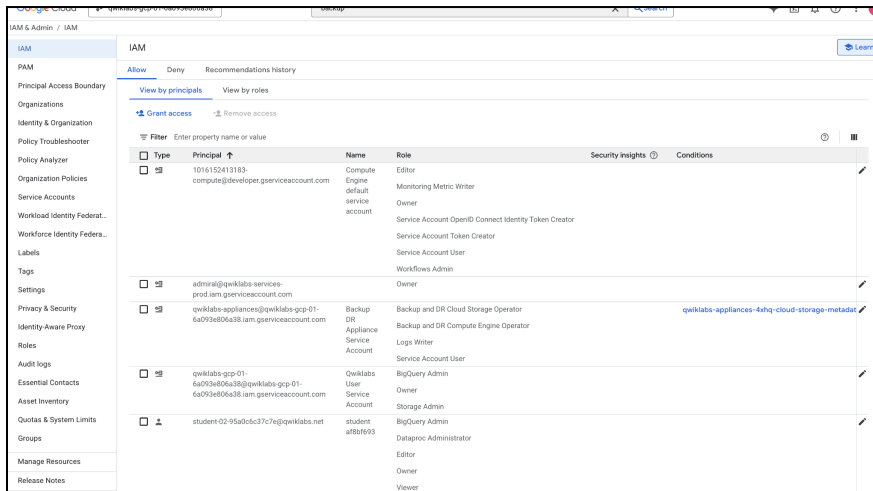
The screenshot shows the 'Create/Edit Policy' form in the Google Cloud Backup and DR Management console. The form is titled 'Production To Snapshot' and includes the following fields and options:

- POLICY NAME:** A text input field containing 'Daily VM snapshot'.
- SCHEDULING:** Radio buttons for 'ONCE' and 'CONTINUOUS'. 'CONTINUOUS' is selected.
- EVERY:** A dropdown menu set to '2'.
- STARTING AT:** A time selector set to '00:00'.
- RETAIN FOR:** A dropdown menu set to '2'.
- BACKUP PLAN COMPLIANCE:** A dropdown menu set to 'Default'.
- PRIORITY:** A dropdown menu set to 'Medium'.
- Advanced Policy Settings:** A button to expand the form.
- Buttons:** 'Cancel' and 'Create Policy' buttons at the bottom.



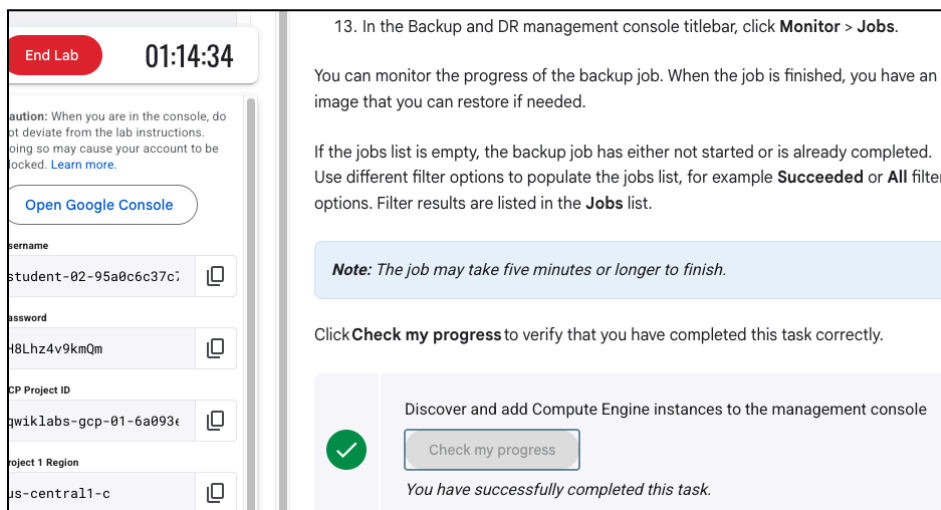
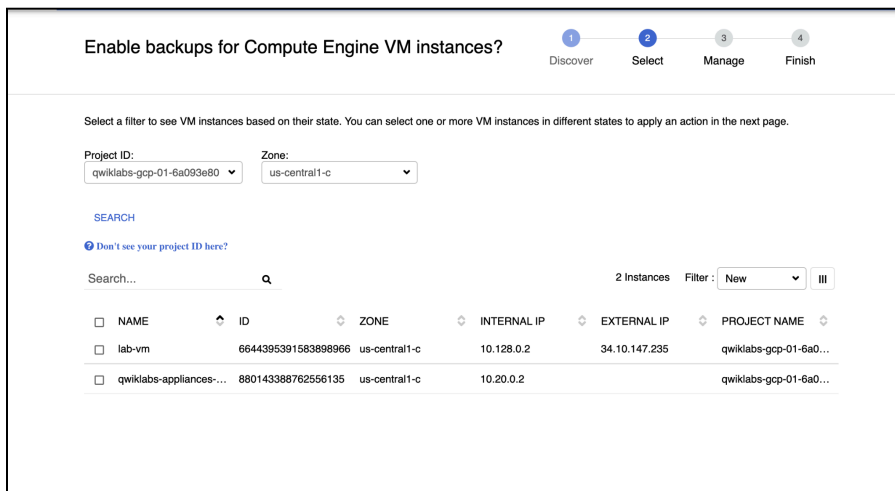
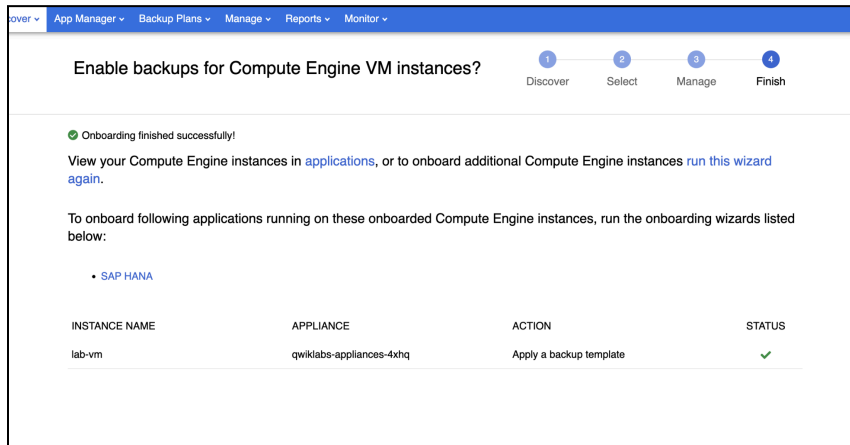
### Task 3: Validate the backup and recovery appliance service account permissions

In this task I reviewed the permissions of the backup/recovery appliance to verify it has the correct IAM roles.



## Task 4: Discover and add Compute Engine instances to the management console

In this task I was able to use the onboarding wizard to onboard a compute instance, attach a policy template, and monitor the backup job that was created.



## Task 5: Restore a Compute Engine instance

In this term I was able to restore a compute instance for recovery purposes.

### Enable backups for Compute Engine VM instances?

1

Discover

2

Select

3

Manage

4

Finish

Select one or more VM instances, then choose an action.

Action:

Backup template:

Apply a backup template

vm-backup

OK

<input checked="" type="checkbox"/>	INSTANCE NAME	GROUP	TEMPLATE/BACKUP PL...	PROFILE	VOLUME OPTIONS	PREVIEW
<input checked="" type="checkbox"/>	lab-vm	None	None	None	Capture All Volumes	...

### Enable backups for Compute Engine VM instances?

1

Discover

2

Select

3

Manage

4

Finish

Summary of changes

- 1 Instance will have a backup template applied

**Note:** Backup and DR will automatically create a Cloud Storage bucket with Standard storage to store VM metadata. Metadata will be charged at standard storage rates.

INSTANCE NAME	APPLIANCE	ACTION	STATUS
lab-vm	qwklabs-appliances-4xhq	Apply a backup template	--

Images

Hide filters

Type to search...

SHOW SELECTED (1)

<input checked="" type="checkbox"/>	IMAGE NAME	CONSISTENCY ...	IMAGE TYPE	SIZE (GB)	LABEL	IMMUTABILITY DATE	EXPIRATION	ACTIVE MOUNTS	RECOVERY RANGE	SENSITIVE DATA	APPLIANCE
<input checked="" type="checkbox"/>	Image_0010496	2025-05-26 10:54:08	snapshot	100.00			2025-05-28 10:56:09	0		No	qwklabs-appliances...

Jobs

Cloud Monitoring and Cloud Logging are now integrated with the Backup and DR Service. You can monitor metrics and logs, and set up email alerts for specific events of your choice.

Hide filters Status: Running

Type to search...

Refresh in: 07 Last Updated: 10:54:18

<input type="checkbox"/>	JOB	STATUS	HOST	APPLICATION	APPLIANCE	QUEUED	STARTED	ENDED	DURATION	TYPE	TEMPLATE/...	POLICY	PRIORITY	TRANSPORT	IS SCHEDU...
<input type="checkbox"/>	Job_0010496	Running: 30%	lab-vm	lab-vm	qwklabs-app...	2025-05-26 ...	2025-05-26 ...		00:00:19	snapshot	vm-backup	Daily VM sna...	medium	network based	Yes

Hide filters Status: Running Status: Succeeded

Type to search...

Refresh in: 08 Last Updated: 10:56:52

<input type="checkbox"/>	JOB	STATUS	HOST	APPLICATION	APPLIANCE	QUEUED	STARTED	ENDED	DURATION	TYPE	TEMPLATE/...	POLICY	PRIORITY	TRANSPORT	IS SCHEDU...
<input type="checkbox"/>	Job_0010496	Succeeded	lab-vm	lab-vm	qwklabs-app...	2025-05-26 ...	2025-05-26 ...	2025-05-26 ...	00:02:11	snapshot	vm-backup	Daily VM sna...	medium	network based	Yes

2025-05-28 10:54:08  
Snapshot Image

NAME

Image\_0010496

STATUS

Available

TRANSPORT

Network Based

IMAGE SIZE

100.00GB

EXPIRES ON

2025-05-28 10:56:09

APPLIANCE

Qwiklabs-Appliances-4xhq

POOL NAME

Qwiklabs-Appliances\_Pool

SNAPSHOT LOCATION

Multiregional:Us

SNAPSHOT TYPE

STANDARD

Mount

### Mount

☐ MOUNT TO EXISTING GCE INSTANCE

☒ MOUNT AS NEW GCE INSTANCE

Note: A network egress charge applies if you recover the instance in a region that's different from the region of the selected backup.

CLOUD CREDENTIALS NAME\*

qwiklabs-appliances

PROJECT NAME\*

qwiklabs-gcp-01-6a093e806a38

REGION\*

us-central1

ZONE\*

us-central1-c

INSTANCE NAME\*

lab-vm

SOLE TENANCY

None

MACHINE TYPE\*

e2-medium(2 vCPU, 4.00GB memory)

USE DEFAULT COMPUTE ENGINE SA

☐

NETWORK TAGS

Type to search...

LABELS

Please provide keys and values. Duplicate keys are not allowed.

Key

Value

NETWORK INTERFACES

Add NIC

Google Cloud

qwiklabs-gcp-01-6a093e806a38

backup

Search

Compute Engine

VM instances

Create instance

Import VM

Refresh

Learn

Overview

Instances

Observability

Instance schedules

VM instances

Filter: Enter property name or value

<input type="checkbox"/>	Status	Name	Zone	Recommendations	In use by	Internal IP	External IP	Connect
<input checked="" type="checkbox"/>	✓	lab-vm	us-central1-c			10.128.0.2 (nic0)	34.10.147.235 (nic0)	SSH
<input checked="" type="checkbox"/>	✓	lab-vm-recovered	us-central1-c			10.128.0.3 (nic0)		SSH
<input checked="" type="checkbox"/>	✓	qwiklabs-appliances-4xhq	us-central1-c			10.20.0.2 (nic0)		SSH

Related actions

Explore protection summary

Monitor VMs

Explore VM logs

Set up firewall rules

Patch management

Load balance between VMs

End Lab

01:07:30

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)

Open Google Console

Username

student-02-95a0c6c37c

Password


H8Lhz4v9kmQm

GCP Project ID

qwiklabs-gcp-01-6a093e806a38

Project 1 Region

Note: The job may take five minutes or longer depending on the region you selected.

To view the recovered VM, go to the Google Cloud console, in **Navigation menu** () , click **Compute Engine > VM instances** to view three VM instances:

- lab-vm
- lab-vm-recovered
- qwiklabs-appliance

Click **Check my progress** to verify that you have completed this task correctly.

Restore a Compute Engine instance

Check my progress

You have successfully completed this task.

## Task 6: Restore a Compute Engine instance to an alternate project

In this task I used IAM to grant access to a service account and add additional permissions.

The screenshot shows the Google Cloud IAM console for project 'qwklabs-gcp-00-24be28bf3f6'. The left sidebar contains navigation links for IAM, IAM Admin, Principal Access Boundary, Organizations, Identity & Organization, Policy Troubleshooter, Policy Analyzer, Organization Policies, Service Accounts, Workload Identity Federation, Workforce Identity Federation, Labels, Tags, Settings, Privacy & Security, Roles, Audit logs, Essential Contacts, Asset Inventory, Quotas & System Limits, and Groups. The main content area is titled 'Permissions for project "qwklabs-gcp-00-24be28bf3f6"' and includes tabs for 'Allow', 'Deny', and 'Recommendations History'. Below the tabs, there's a section for 'View by principals' and 'View by roles'. The 'Grant access' button is highlighted. A table lists the current permissions for the project, including roles like 'Compute Engine default service account', 'Owner', 'BigQuery Admin', 'Storage Admin', and 'Viewer'. On the right, a panel titled 'Grant access to "qwklabs-gcp-00-24be28bf3f6"' provides instructions on how to grant access to principals and includes a search box for adding new principals.

This screenshot shows the same Google Cloud IAM console after updates. The table of permissions now includes additional roles for the service accounts, such as 'Backup and DR Compute Engine Operator', 'Backup and DR Cloud Storage Operator', and 'BigQuery Admin'. A 'Policy updated' notification is visible at the bottom of the console.

The screenshot displays the 'Mount' configuration page in the Google Cloud Backup and DR console. It shows the process of mounting a snapshot to a new Compute Engine instance. Key configuration details include: 

- CLOUD CREDENTIALS NAME:** qwklabs-appliances
- PROJECT NAME:** qwklabs-gcp-00-24be28bf3f6
- REGION:** us-west1
- ZONE:** us-west1-a
- INSTANCE NAME:** lab-vm-project2
- SOLE TENANCY:** None
- MACHINE TYPE:** e2-medium (2 vCPU, 4.0GB memory)
- USE DEFAULT COMPUTE ENGINE SA:** Unchecked
- NETWORK TAGS:** Type to search...
- LABELS:** A table with 'Key' and 'Value' columns.
- NETWORK INTERFACES:** A section for adding network interfaces, with a table showing 'Network' (default (qwklabs-gcp-00-24be28bf3f6)) and 'External IPv4 IP' (None).

Google Cloud Backup and DR															
Dashboard Back Up & Recover App Manager Backup Plans Manage Reports Monitor															
Jobs															
Cloud Monitoring and Cloud Logging are now integrated with the Backup and DR Service. You can monitor metrics and logs, and set up email alerts for specific events of your choice.															
Type to search...															
Refresh in: 09 Last Updated: 11:19:07															
<input type="checkbox"/>	JOB	STATUS	HOST	APPLICATION	APPLIANCE	QUEUED	STARTED	ENDED	DURATION	TYPE	TEMPLATE/B...	POLICY	PRIORITY	TRANSPORT	IS SCHEDULED
<input type="checkbox"/>	Job_0011603	Running: 0%	lab-vm	lab-vm	qwiklabs-appla...	2025-05-26 11:...	2025-05-26 11:...		00:00:10	mount	vm-backup	Daily VM snap...	medium	SAN based	No
<input type="checkbox"/>	Job_0010787	Succeeded	lab-vm	lab-vm	qwiklabs-appla...	2025-05-26 11:...	2025-05-26 11:...	2025-05-26 11:...	00:02:52	mount	vm-backup	Daily VM snap...	medium	network based	No
<input type="checkbox"/>	Job_0010741	Succeeded	lab-vm	lab-vm	qwiklabs-appla...	2025-05-26 11:...	2025-05-26 11:...	2025-05-26 11:...	00:01:03	snapshot	vm-backup	Daily VM snap...	medium	network based	Yes
<input type="checkbox"/>	Job_0010496	Succeeded	lab-vm	lab-vm	qwiklabs-appla...	2025-05-26 09:...	2025-05-26 10:...	2025-05-26 10:...	00:02:11	snapshot	vm-backup	Daily VM snap...	medium	network based	Yes

VM instances							
Instances Observability Instance schedules							
VM instances							
Filter Enter property name or value							
<input type="checkbox"/>	Status	Name	Zone	Recommendations	In use by	Internal IP	External IP
<input type="checkbox"/>		lab-vm-project2	us-west1-a			10.138.0.2 (nic0)	SSH
Related actions							

Google Cloud Backup and DR											
Dashboard Back Up & Recover App Manager Backup Plans Manage Reports Monitor											
Appliances											
We strongly recommend that you keep your appliance up to date. <a href="#">Update appliance</a>											
Type to search...											
Refresh in: 09 Last Updated: 11:19:07											
<input type="checkbox"/>	NAME	APPLIANCE ID	CONNECTIVITY STAT...	IP	MACHINE TYPE	LAST SYNCHRONIZED	SYSTEM VERSION	SERVICE ACCOUNT	ZONE	PROJECT ID	UPDATE STATUS
<input type="checkbox"/>	qwiklabs-appliances-4...	142525085824		10.20.0.2	e2-standard-4	2025-05-26 10:43:38	11.0.13.278	qwiklabs-appliances@...	us-central1-c	qwiklabs-gcp-01-6a09...	Pending

End Lab

00:49:31

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)

[Open Google Console](#)

Username

student-02-95a0c6c37c

Password

H8Lhz4v9kmQm

GCP Project ID

qwiklabs-gcp-01-6a093c

Project 1 Region

us-central1-c

Project 1 Zone

us-central1

GCP Project 2 ID

- Zone: Change this to **us-west1-a**.

15. Select **Mount** at the bottom of the panel. A **Mount** job starts. On the **Success** dialog, click **Go to Job Monitor** to monitor the status of this current job. The job may take five minutes or longer depending on what region you selected.

16. To view the recovered Compute Engine instance in the Google Cloud console of Google Cloud project 2, in the **Navigation menu**, click **Compute Engine > VM instances**.

**Note:** The job may take five minutes or longer to finish.

**Note:** Before you set the default service account as a **Principal** in a different project, you must add the default service account as a **Principal** in the target project.

Click **Check my progress** to verify that you have completed this task correctly.

Restore a Compute Engine instance to an alternate project

Check my progress

You have successfully completed this task.

# My Assessment

In this lab I was able to recover VMs (virtual machines) using Google Backup and Disaster Recovery Service. While the steps were clear to complete the lab, there were a few steps that didn't match the instructions in a way that made the lab easy to understand and so additional review of the documentation is necessary.