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Lab 3

- In previous lab we had created subneta& subnetb
    - re-create one of them to make them both in the same region

	Name ↑	Region	Stack Type	Internal IP ranges	External IP ranges	Secondary IPv4 ranges	Gateway
☐	subneta	us-east1	IPv4	10.1.0.0/16	None	None	10.1.0.1
☐	subnetb	us-east1	IPv4	192.168.1.0/24	None	None	192.168.1.1

      - create cloud NAT, attach 2 subnets to it

	Gateway name ↑	Region	NAT type	Cloud router	Status	
☐	ngw-lab-iti	us-east1	Public	router-iti	✅ Running	⋮

- Create new instance "server-3" with no public ip address in subneta.

←   server-3   ✏ EDIT   ⟳ RESET   ➕ CREATE MACHINE IMAGE   ➕ CREATE SIMILAR   ▶ START / RESUME   ■ STOP   ❚❚ SUSPEND   🗑 DELETE

DETAILS   OBSERVABILITY   OS INFO   SCREENSHOT

Name ↑	Network	Subnetwork	Primary internal IP address	Alias IP ranges	IP stack type	External IP address	Networ
nic0	prod-vpc	subneta	10.1.0.3		IPv4	None	-

Storage

Boot disk

Name ↑	Image	Interface type	Size (GB)	Device name	Type	Architecture	Encryption	Mode	Wh
server-3	debian-11-bullseye-v20231004	SCSI	10	persistent-disk-0	Standard persistent disk	x86/64	Google-managed	Boot, read/write	Del

allow-http	Ingress	Apply to all	IP ranges: 192.168.1.2	tcp:22, 3389 icmp	Allow
allow-ssh-and-curl	Ingress	Apply to all	IP ranges: 35.235.240.0/20	tcp:22, 80	Allow

- Using gcloud commands, try to ssh to server-3

```
seifhendawy1@cloudshell:~ (iti-experiment)$ gcloud config set compute/zone us-east1-b
Updated property [compute/zone].
seifhendawy1@cloudshell:~ (iti-experiment)$ gcloud compute ssh server-3
External IP address was not found; defaulting to using IAP tunneling.
Updating project ssh metadata...working.Updated [https://www.googleapis.com/compute/v1/projects/iti-experiment].
Updating project ssh metadata...done.
Waiting for SSH key to propagate.
WARNING:

To increase the performance of the tunnel, consider installing NumPy. For instructions,
please see https://cloud.google.com/iap/docs/using-tcp-forwarding#increasing_the_tcp_upload_bandwidth

Warning: Permanently added 'compute.3790915683954356799' (ECDSA) to the list of known hosts.
WARNING:

To increase the performance of the tunnel, consider installing NumPy. For instructions,
please see https://cloud.google.com/iap/docs/using-tcp-forwarding#increasing_the_tcp_upload_bandwidth

Linux server-3 5.10.0-25-cloud-amd64 #1 SMP Debian 5.10.191-1 (2023-08-16) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
seifhendawy1@server-3:~$ █
```

- Try to update packages and install apache2

```
seifhendawy1@server-3:~$ sudo apt update
Get:1 https://packages.cloud.google.com/apt google-compute-engine-bullseye-stable InRelease [5146 B]
Get:2 https://deb.debian.org/debian bullseye InRelease [116 kB]
Get:3 https://packages.cloud.google.com/apt cloud-sdk-bullseye InRelease [6406 B]
Get:4 https://deb.debian.org/debian-security bullseye-security InRelease [48.4 kB]
Get:5 https://deb.debian.org/debian bullseye-updates InRelease [44.1 kB]
Get:6 https://deb.debian.org/debian bullseye-backports InRelease [49.0 kB]
Get:7 https://packages.cloud.google.com/apt google-compute-engine-bullseye-stable/main amd64 Packages [1926 B]
Get:8 https://deb.debian.org/debian bullseye/main Sources [8502 kB]
Get:9 https://deb.debian.org/debian bullseye/main amd64 Packages [8062 kB]
Get:10 https://deb.debian.org/debian bullseye/main Translation-en [6236 kB]
Get:11 https://deb.debian.org/debian-security bullseye-security/main Sources [156 kB]
Get:12 https://deb.debian.org/debian-security bullseye-security/main amd64 Packages [254 kB]
Get:13 https://deb.debian.org/debian-security bullseye-security/main Translation-en [164 kB]
Fetched 23.6 MB in 6s (4213 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
36 packages can be upgraded. Run 'apt list --upgradable' to see them.
N: Repository 'https://deb.debian.org/debian bullseye InRelease' changed its 'Version' value from '11.7' to '11.8'
seifhendawy1@server-3:~$ sudao apt install apache2
-bash: sudao: command not found
seifhendawy1@server-3:~$ apt install apache2
E: Could not open lock file /var/lib/dpkg/lock-frontend - open (13: Permission denied)
E: Unable to acquire the dpkg frontend lock (/var/lib/dpkg/lock-frontend), are you root?
seifhendawy1@server-3:~$ ^C
seifhendawy1@server-3:~$ sudo apt install apache2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils bzip2 libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap libgdbm-compat4 
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom www-browser bzip2-doc perl-doc libterm-readline-gnu-perl | libt
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils bzip2 libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap libgdbm-
0 upgraded, 18 newly installed, 0 to remove and 36 not upgraded.
Need to get 9911 kB of archives.
After this operation, 56.0 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 https://deb.debian.org/debian bullseye/main amd64 perl-modules-5.32 all 5.32.1-4+deb11u2 [2823 kB]
Get:2 https://deb.debian.org/debian bullseye/main amd64 libgdbm-compat4 amd64 1.19-2 [44.7 kB]
```

- Create instance template from "server-3" instance and use it to

	Name ↑	Machine type	Image	Disk type	Location ❓	Placement policy ❓	In use by	Creation time	Actions
☐	my-instance-template	n1-standard-1	debian-11-bullseye-v20231004	Standard persistent disk	global	No policy		Oct 9, 2023, 1:07:18 PM UTC+03:00	⋮

- create MIG group using the template
- auto scaling mode: on
- autoscaling policy on CPU usage at 85%
- select the rest of options as you want

OVERVIEW	DETAILS	MONITORING	ERRORS

Instances by status	Instance by health ❓	Autoscaling
1 instance ⓘ	Not configured	On (min 1, max 3)
✅ 1	Autohealing off. Configure	Based on 1 metric and 0 schedules ⓘ

- What is auto-healing in GCP?

if an instance in a managed instance group fails GCP automatically replaces it with a new instance

- Using the SDK commands create 3 buckets with the below specification:
    - 1st:
        - name: bucket-1

Can't create bucket with the given name (NOT UNIQUE)

```
C:\Program Files (x86)\Google\Cloud SDK>gsutil mb -l us-east1 gs://bucket-1
Creating gs://bucket-1/...
ServiceException: 409 A Cloud Storage bucket named 'bucket-1' already exists. Try another name. Bucket names must be globally unique across all Google Cloud projects, including those outside of your organization.
```

- versioning: on
- public access: on
- security using the IAM roles

```
C:\Program Files (x86)\Google\Cloud SDK>gsutil mb -l us-east1 gs://bucket-iti-lab-1
Creating gs://bucket-iti-lab-1/...

C:\Program Files (x86)\Google\Cloud SDK>gsutil versioning set on gs://bucket-iti-lab-1
Enabling versioning for gs://bucket-iti-lab-1/...

C:\Program Files (x86)\Google\Cloud SDK>gsutil iam ch allUsers:objectViewer gs://bucket-iti-lab-1

C:\Program Files (x86)\Google\Cloud SDK>
```

- 2nd:
    - name: bucket-2
    - retention: keep the file for 2 months

```
C:\Program Files (x86)\Google\Cloud SDK>gsutil mb -l us-east1 gs://bucket-iti-lab-2
Creating gs://bucket-iti-lab-2/...

C:\Program Files (x86)\Google\Cloud SDK>gsutil retention set 60d gs://bucket-iti-lab-2
Setting Retention Policy on gs://bucket-iti-lab-2/...

C:\Program Files (x86)\Google\Cloud SDK>
```

- 3rd:
   - name: bucket-3
    - public access: on

```
C:\Program Files (x86)\Google\Cloud SDK>gsutil mb -l us-east1 gs://bucket-iti-lab-3
Creating gs://bucket-iti-lab-3/...

C:\Program Files (x86)\Google\Cloud SDK>gsutil iam ch allUsers:objectViewer gs://bucket-iti-lab-3
```

	Name ↑	Created	Location type	Location	Default storage class ❓	Last modified	Public access ❓	Access control ❓	Protection ❓
☐	bucket-iti-lab-1	Oct 9, 2023, 1:28:29 PM	Region	us-east1	Standard	Oct 9, 2023, 1:29:51 PM	⚠ Public to internet	Fine-grained	Object versioning
☐	bucket-iti-lab-2	Oct 9, 2023, 1:33:10 PM	Region	us-east1	Standard	Oct 9, 2023, 1:33:33 PM	Subject to object ACLs	Fine-grained	🔒 Retention: 60 days
☐	bucket-iti-lab-3	Oct 9, 2023, 1:34:38 PM	Region	us-east1	Standard	Oct 9, 2023, 1:35:52 PM	⚠ Public to internet	Fine-grained	None

- Use 3rd bucket to host static website, please attach the url :)
https://storage.googleapis.com/bucket-iti-lab-3/index.html
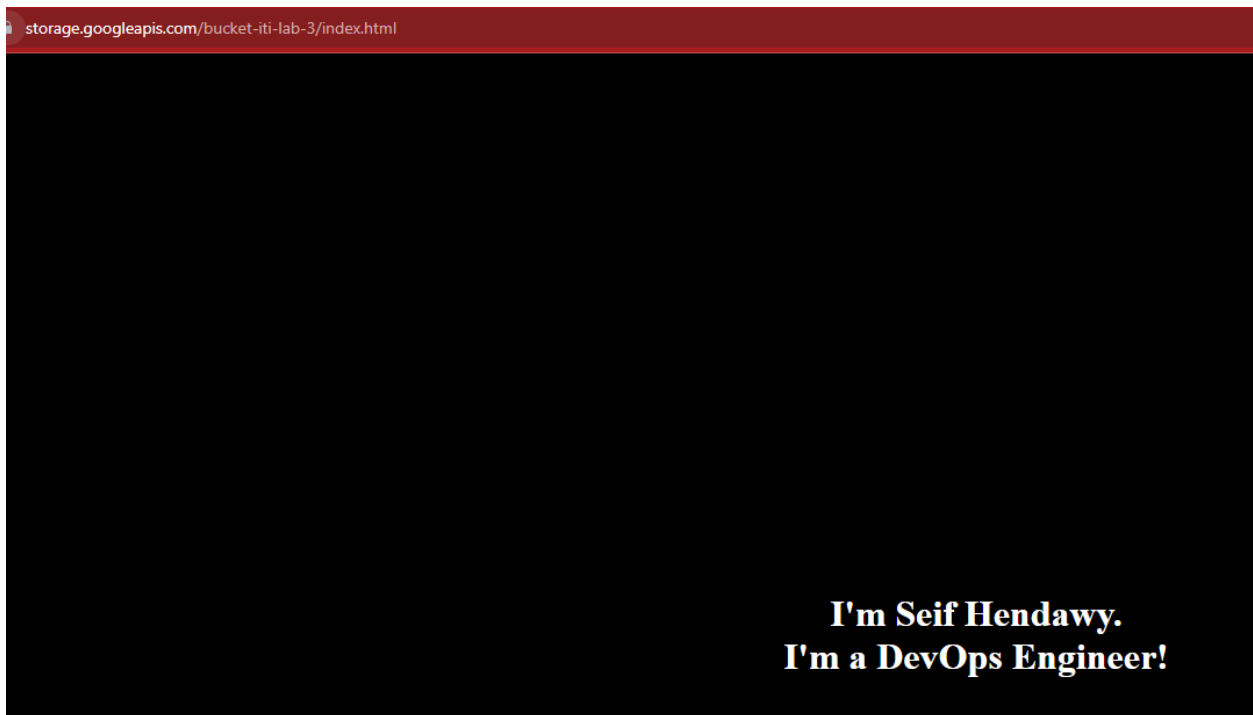
- Upload txt file to the 1st bucket edit the file, upload again, do we have the first file can we set it back to be the default? and how? https://storage.cloud.google.com/bucket-iti-lab-1/SH.txt
Yes we can set to the first file by restoring the first object in the version history

```
D:\Education\ITI\DevOps ITI\Week 14\1 Google Cloud Platform\Day 03\Lab 3>gsutil cp SH.txt gs://bucket-iti-lab-1
Copying file://SH.txt [Content-Type=text/plain]...
/ [1 files][   41.0 B/   41.0 B]
Operation completed over 1 objects/41.0 B.
```

```
D:\Education\ITI\DevOps ITI\Week 14\1 Google Cloud Platform\Day 03\Lab 3>gsutil cp SH.txt gs://bucket-iti-lab-1
Copying file://SH.txt [Content-Type=text/plain]...
/ [1 files][  102.0 B/  102.0 B]
Operation completed over 1 objects/102.0 B.
```

```
D:\Education\ITI\DevOps ITI\Week 14\1 Google Cloud Platform\Day 03\Lab 3>gsutil cp "SH.txt" gs://bucket-iti-lab-1
Copying file://SH.txt [Content-Type=text/plain]...
- [1 files][  153.0 B/  153.0 B]
Operation completed over 1 objects/153.0 B.
```

```
I'm Seif Hendawy.
I'm a DevOps Engineer!

---------------------
Edit #1
This is GCP Course Day 03


---------------------
Edit #2
it is 2:20 PM
```

- Restrict 3rd bucket access (Reading only to you), can your friends access the bucket from the browser, why?

NO, bec. I removed public access and only granted access to my account

Remove these 4 principals?

Are you sure you want to remove these 4 principals? They will lose all non-inherited roles on this resource.

CANCEL   CONFIRM

Permissions

VIEW BY PRINCIPALS   VIEW BY ROLES

+ GRANT ACCESS   - REMOVE ACCESS

Filter   Enter property name or value

Type	Principal ↑	Name	Role	Inheritance	
☑	allUsers		Storage Object Viewer		✏
☑	Editors of project: iti-experiment		Storage Legacy Bucket Owner		✏
☑	Owners of project: iti-experiment		Storage Legacy Bucket Owner		✏
☐	service-619429842382@compute-system.iam.gserviceaccount.com	Compute Engine Service Agent for Project 619429842382 ❓	Compute Engine Service Agent	ITI-Experiment	✏
☑	Viewers of project: iti-experiment		Storage Legacy Bucket Reader		✏

Permissions

VIEW BY PRINCIPALS   VIEW BY ROLES

+ GRANT ACCESS   - REMOVE ACCESS

Filter   Enter property name or value

Type	Principal ↑	Name	Role	Inheritance	
☐	seifhendawy1@gmail.com	Seif Hendawy	bkt	ITI-Experiment	✏
☐	service-619429842382@compute-system.iam.gserviceaccount.com	Compute Engine Service Agent for Project 619429842382 ❓	Compute Engine Service Agent	ITI-Experiment	✏
☐	svc-acc@iti-experiment.iam.gserviceaccount.com	svc-acc	bkt	ITI-Experiment	✏

- Create private sql instance and connect to it from any private vm on your network (don't use proxy)

Overview   ✏ EDIT   ⬆ IMPORT   ⬆ EXPORT   ↻ RESTART   ■ STOP   🗑 DELETE   📋 CLONE   📇 FAILOVER

All instances > iti-labs
✓ iti-labs
SQL Server 2019 Standard

Chart
CPU utilization   ▾   ❓

Oct 9, 2023, 1:00:42 AM
━● CPU utilization   -

Oct 8, 3:41 PM ⚑   6:00 PM   8:00 PM   10:00 PM   Oct 9   2:00 AM   4:00 AM   6:00 AM   8:00 AM   10:00 AM   12

1 hour   6 hours   ✓ 1 (

→ Connect to this instance

Private IP address
10.179.32.2   📋

Associated networking
projects/iti-experiment/global/networks/prod-vpc   📋

Connection name
iti-experiment:us-east1:iti-labs   📋

Need help connecting?
Review the documentation to learn about the many ways to connect to your instance.
Learn more ↗

📋 Configuration

vCPUs   Memory
4   26 GB

🕐 Database version is SQL Server 2019 Standard CU20
⬥ Auto storage increase is enabled
📷 Automated backups are enabled
☰ Point-in-time recovery is disabled
🛡 Instance deletion protection is enabled
◯ Located in us-east1-d

Uploads and ITI-Exper
✓ Created iti-labs

```
shared@server-3:~$ sqlcmd -S 10.179.32.2 -U sqlserver
Password:
1> exit
shared@server-3:~$ sqlcmd -S 10.179.32.2 -U sqlserver -P 123 -Q "SELECT name FROM sys.databases;"
name
----------------------------------------------------------------------------
master
tempdb
model
msdb

(4 rows affected)
shared@server-3:~$ 
```