

Day 1:

<https://console.cloud.google.com/>

Compute units: ram,cpu etc

The screenshot shows the Google Cloud Platform dashboard for a project named "My First Project". The left sidebar includes sections for Marketplace, Billing, APIs & Services, Support, IAM & Admin, Getting started, Security, Anthos, and Compute (App Engine). The main area displays "Project info" (Project name: My First Project, Project ID: groovy-ward-287313, Project number: 497392490371), "API APIs" (Requests (requests/sec) chart showing 0.017/s), and "Resources" (button to Go to APIs overview). A notification at the top right says "Free trial status: ₹21,406.50 credit and 91 days remaining - with a full account, you'll get unlimited access to all of Google Cloud Platform." A blue button labeled "ACTIVATE" is visible in the top right corner.

The screenshot shows the same Google Cloud Platform dashboard as above, but with a modal window titled "Upgrade your account" overlaid. The modal contains text about unlocking all Google Cloud Platform features and paying only for usage. It includes a "CANCEL" button and a prominent "UPGRADE" button. The background dashboard elements remain visible, including the sidebar, project info, API requests chart, and resources section. The "ACTIVATE" button is still present in the top right corner.

click activate at the top right corner

Overview – Billing – Google Cloud Platform

console.cloud.google.com/billing/0182F7-E5BF61-5DE78C

New Tab Search | Inbox (157) - 2019p... | Inbox (1,144) - vish... | Inbox (252) - 2019p... | Gmail | YouTube | Maps | 29th APRIL - Googl... | YAMLint - The YAM... | Untitled document...

Google Cloud Platform

Billing Overview My Billing Account ▾

BILLING ACCOUNT OVERVIEW PAYMENT OVERVIEW

View all health checks

Promotional credits ₹21,406.50 Remaining credits Out of ₹21,406.50

Remaining credits ₹21,406.50 Free Trial

Credit details

Actual cost

Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug \$0

View report

Top projects August 1, 2019 – August 31, 2020

Type here to search

Home – My First Project – Google Cloud Platform

console.cloud.google.com/home/dashboard?project=groovy-ward-287313&pli=1

New Tab Search | Inbox (157) - 2019p... | Inbox (1,144) - vish... | Inbox (252) - 2019p... | Gmail | YouTube | Maps | 29th APRIL - Googl... | YAMLint - The YAM... | Untitled document...

Google Cloud Platform

VM Instances RECOMMENDATIONS CUSTOMIZE

VM Instances Instance groups Instance templates Sole-tenant nodes Machine Images Disks Snapshots Images TPUs Migrate for Compute Engine Committed use discounts Metadata Health checks Zones Network endpoint groups Operations

DISMISS

RPC APIs Requests (requests/sec)

10:30 11 PM Requests: 0.017/s

Go to APIs overview

Google Cloud Platform status All services normal

Go to Cloud status dashboard

Monitoring Set up alerting policies Create uptime checks View all dashboards

Type here to search

Compute Engine API - Marketplace

https://console.cloud.google.com/compute/disks?project=groovy-ward-287313

Google Cloud Platform

Pins appear here

VM Instances

Instance groups

Instance templates

Sole-tenant nodes

Machine images

Disks

Snapshots

Images

TPUs

Migrate for Compute Engine

Committed use discounts

Metadata

Health checks

Zones

Network endpoint groups

Operations

Additional details

Type: APIs & services

Last updated: 12/10/19

Category: Compute, Networking

Compute Engine API - Marketplace

https://console.cloud.google.com/compute.googleapis.com?returnUrl=%2Fcompute%2Fdisks%3Fproject%3Dgroovy-ward-287313&pr...

Google Cloud Platform

My First Project

Compute Engine API

Google

Compute Engine API

ENABLE TRY THIS API

Click to try this API in API Explorer

OVERVIEW DOCUMENTATION SUPPORT

Overview

Creates and runs virtual machines on Google Cloud Platform.

About Google

Google's mission is to organize the world's information and make it

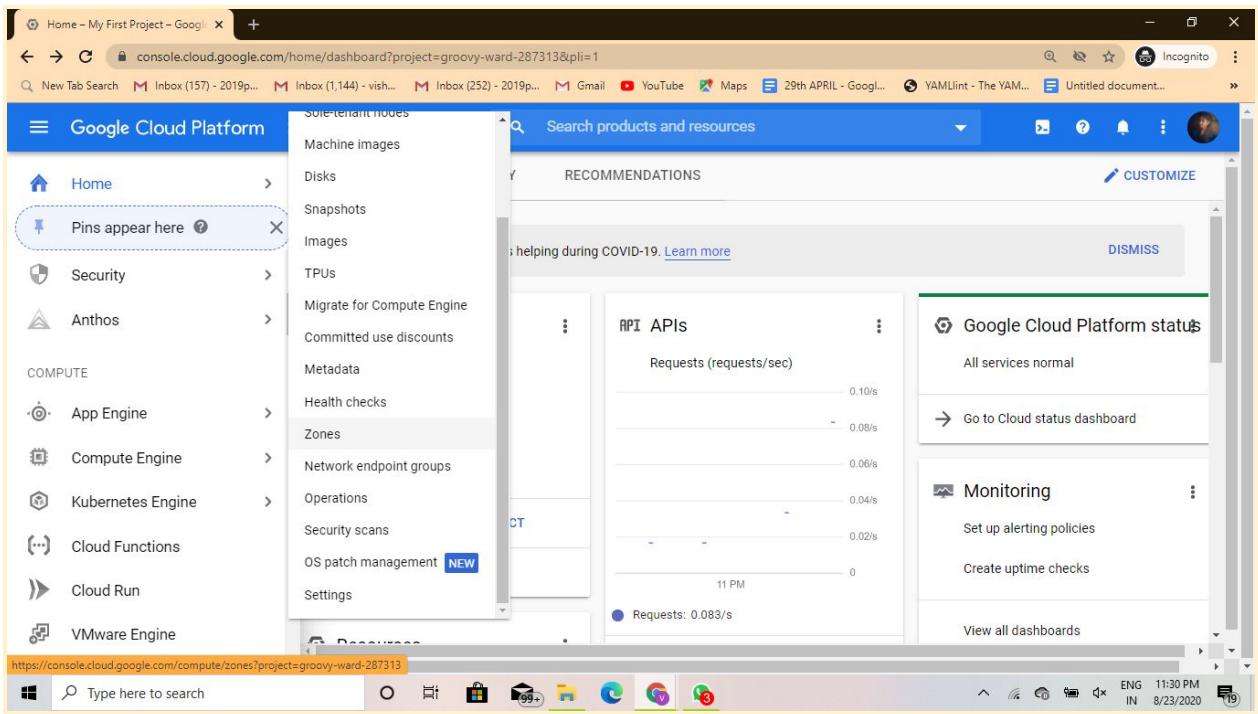
Additional details

Type: APIs & services

Last updated: 12/10/19

Category: Compute, Networking

user/tenant



data center/zone

Gcp also has a concept of multi-region

Compute Engine API – Marketplace

console.cloud.google.com/marketplace/product/google/compute.googleapis.com?returnUrl=%2Fcompute%2Fzones%3Fproject%3Dgroovy-ward-287313&p...

Google Cloud Platform My First Project Search products and resources

Compute Engine API

Google Compute Engine API

ENABLE TRY THIS API

Click to enable this API

OVERVIEW DOCUMENTATION SUPPORT

Overview

Creates and runs virtual machines on Google Cloud Platform.

About Google
Google's mission is to organize the world's information and make it

Additional details
Type: APIs & services
Last updated: 12/10/19
Category: Compute, Networking

Type here to search

Google data center - Google Search

google.com/search?q=google+data+center&oq=google+data+center&aqs=chrome..69i57j69i64.5314j0j1&sourceid=chrome&ie=UTF-8

New Tab Search Gmail YouTube Maps 29th APRIL - Google YAMLLint - The YAM...

Google data center

All Images News Maps Videos More Settings Tools

About 5,59,00,00,000 results (0.58 seconds)

Videos

- Inside a Google data center
- Google Data Center 360° Tour
- Google - Our Secure Data Centers

G Suite YouTube - Dec 17, 2014

Google Cloud Platform YouTube - Mar 23, 2016

Google Cloud Platform YouTube - Oct 5, 2016

Google data centers

Google Data Centers are the large data center facilities Google uses to provide their services, which combine large amounts of digital storage, computer nodes organized in racks, internal and external networking, environmental controls, and operations software. [Wikipedia](#)

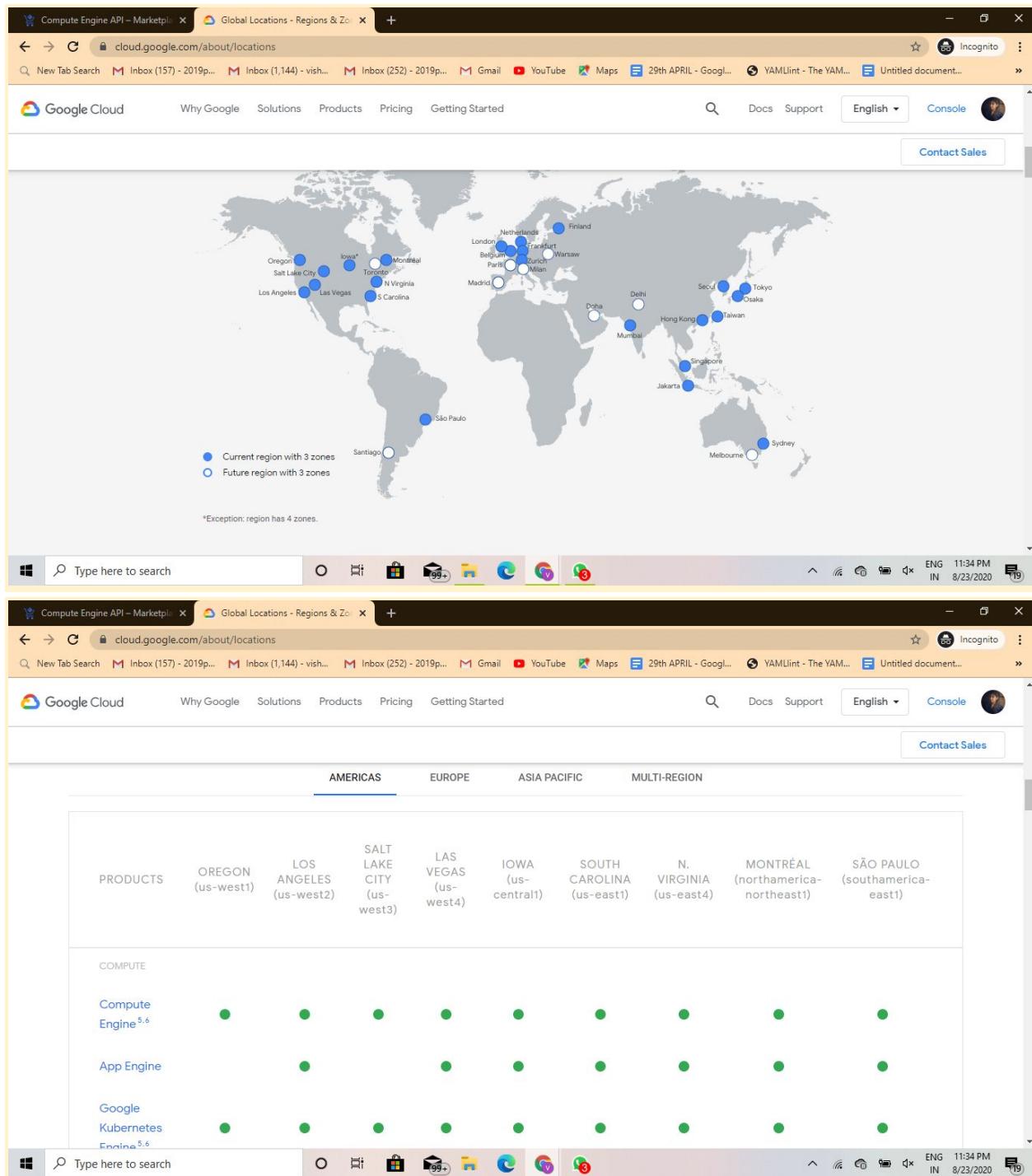
Feedback

www.google.com > about > datacenters

Data Centers - Google

https://www.youtube.com/watch?v=zDAYZU4A3w0

https://cloud.google.com/infrastructure



The screenshot shows a Microsoft Edge browser window with the following details:

- Title Bar:** Compute Engine API – Marketplace | Global Locations - Regions & Zon... | +
- Address Bar:** console.cloud.google.com/marketplace/product/google/compute.googleapis.com?returnUrl=%2Fcompute%2Fzones%3Fproject%3Dgroovy-ward-287313&p... | Incognito
- Toolbar:** New Tab Search, Inbox (157) - 2019p..., Inbox (1,144) - vish..., Inbox (252) - 2019p..., Gmail, YouTube, Maps, 29th APRIL - Googl..., YAMLint - The YAM..., Untitled document...
- Header:** Google Cloud Platform, My First Project, Search products and resources
- Content Area:**
 - Section:** Compute Engine API
 - Image:** Google logo
 - Title:** Compute Engine API
 - Status:** API Enabled
 - Buttons:** MANAGE, TRY THIS API
 - Navigation:** OVERVIEW (selected), DOCUMENTATION, SUPPORT
 - Overview Section:** Creates and runs virtual machines on Google Cloud Platform.
 - Additional Details:** Type: APIs & services, Last updated: 12/10/19, Category: Compute, Networking
- Taskbar:** Shows various pinned icons including File Explorer, Task View, Task Manager, and several Google services.
- System Tray:** ENG IN 11:34 PM 8/23/2020

The screenshot shows a Microsoft Edge browser window with the following details:

- Title Bar:** Compute Engine API – Marketplace | Global Locations - Regions & Zon... | +
- Address Bar:** cloud.google.com/about/locations | Incognito
- Toolbar:** New Tab Search, Inbox (157) - 2019p..., Inbox (1,144) - vish..., Inbox (252) - 2019p..., Gmail, YouTube, Maps, 29th APRIL - Googl..., YAMLint - The YAM..., Untitled document...
- Header:** Google Cloud, Why Google, Solutions, Products, Pricing, Getting Started, Docs, Support, English, Console
- Content Area:**
 - Contact Sales:** Contact sales, Go to console
 - Statistics:** AVAILABLE IN, 24 REGIONS, 73 ZONES, 144 NETWORK EDGE LOCATIONS, 200+ COUNTRIES AND TERRITORIES
 - Text:** COMING SOON! Google Cloud will continue expanding into the following regions: Warsaw (Poland), Doha (Qatar), Toronto (Canada), Melbourne (Australia), Delhi (India), Paris (France), Milan (Italy), Santiago (Chile), and Madrid (Spain).
- Taskbar:** Shows various pinned icons including File Explorer, Task View, Task Manager, and several Google services.
- System Tray:** ENG IN 11:35 PM 8/23/2020

Screenshot of the Google Cloud Platform Compute Engine interface showing three regions: asia-east1, asia-east2, and asia-northeast1.

Compute Engine

- VM instances
- Instance groups
- Instance templates
- Sole-tenant nodes
- Machine images
- Disks
- Snapshots
- Images
- TPUs
- Migrate for Compute Engine
- Marketplace

asia-east1

Zones ↑	Instances	Disks
Zone A	0	0
Zone B	0	0
Zone C	0	0

asia-east2

Zones ↑	Instances	Disks
Zone A	0	0
Zone B	0	0
Zone C	0	0

asia-northeast1

Zones ↑	Instances	Disks
Zone A	0	0
Zone B	0	0
Zone C	0	0

Global Locations - Regions & Zon

<https://cloud.google.com/about/locations#network>

The screenshot shows a world map illustrating Google's global network infrastructure. It highlights submarine cable investments (green lines) and the current network (blue lines). Key locations labeled include:

- Unity (US, JP)
- FASTER (US, JP, TW)
- PLCN (US, TW, HK) 2020
- Curie (CL, US, PA)
- Dunant (US, FR) 2020
- Equano (PT, NG, ZA) 2021
- Grace Hopper (US, UK, ES) 2022
- Havfrue (US, IE, DK) 2020
- Monet (US, BR)
- Junior (Rio, Santos)
- Tannat (BR, UY, AR)
- Indigo (SG, ID, AU)
- JGA-S (GU, AU)
- SJC (JP, HK, SG) 2020
- HK-G (HK, GU) 2020

LEGEND:

- Submarine Cable Investments
- Current Network

SELECT TO VIEW:

- Edge Point of Presence
- CDN Point of Presence

The screenshot shows two stacked windows of the Google Cloud Platform API Library.

The top window displays the "APIs & Services" section. The "Compute" category is selected, and its sub-options are visible in a dropdown menu:

- Dashboard
- Library
- Credentials
- OAuth consent screen
- Domain verification
- Page usage agreements

The main pane shows a line chart titled "Requests (requests/sec)" over time, with a sharp peak around 11:30. Below the chart, it says "Requests: 0.083/s". A link "Go to APIs overview" is present at the bottom of the chart area.

The right sidebar contains sections for "Google Cloud Platform status" (All services normal) and "Monitoring" (Set up alerting policies, Create uptime checks, View all dashboards).

The bottom window shows the "Compute" category details:

Category	API	Description
Compute	App Engine Admin API	Provisions and manages developers' App Engine applications.
Compute	Cloud Run API	Serverless agility for containerized apps
Compute	Compute Engine API	Compute Engine API
Compute	Compute Engine Instance Group Manager API	The Google Compute Engine Instance Group Manager API provides services for creating and
Compute	Google App Engine Flexible Environment	This service enables App Engine's Flexible Environment, which gives you the benefits of App...
Compute	Kubernetes Engine API	Builds and manages container-based applications, powered by the open source Kubernetes

The URL in the address bar of the bottom window is: <https://console.cloud.google.com/apis/library?filter=category%3Acompute&id=a05439d9-80d6-43f1-af2e-6878251018d&project=groovy-ward-287313>

The screenshot shows the Google Cloud Platform Compute Engine API Overview page. At the top, there's a navigation bar with tabs for 'Google Cloud Platform' and 'My First Project'. A search bar is also present. Below the header, the title 'Compute Engine API' is displayed with a blue icon. A sub-header 'Compute Engine API' follows, along with a 'Google' logo. A 'MANAGE' button, a 'TRY THIS API' button, and a 'API Enabled' status indicator are visible. Below these are three tabs: 'OVERVIEW' (which is selected), 'DOCUMENTATION', and 'SUPPORT'. The main content area starts with an 'Overview' section that says 'Creates and runs virtual machines on Google Cloud Platform.' To the right of this is an 'Additional details' section with 'Type: APIs & services' and 'Last updated: 12/10/19'. The bottom of the page features a Windows taskbar with various icons.

three ways to connect with the api:

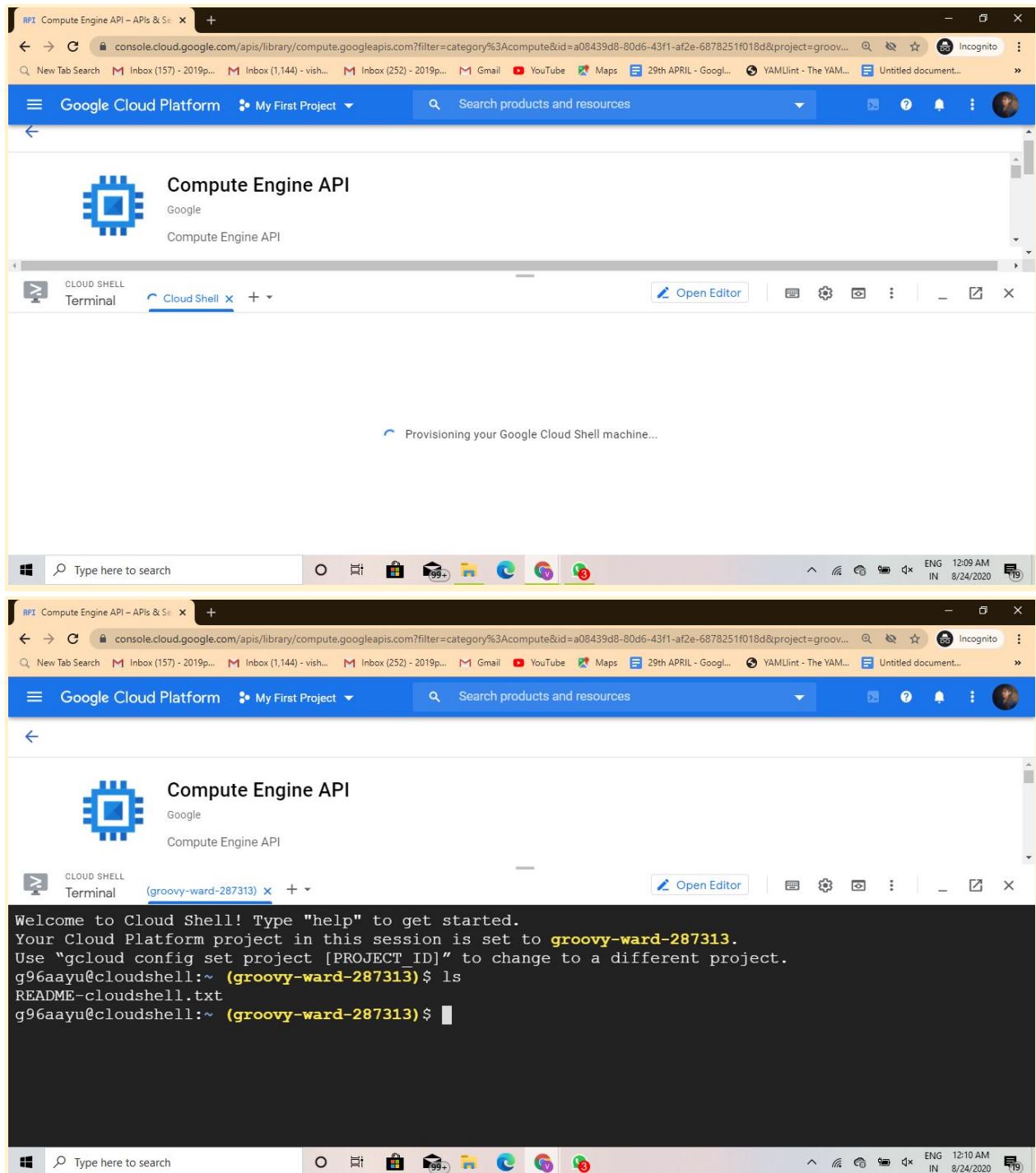
WEBUI

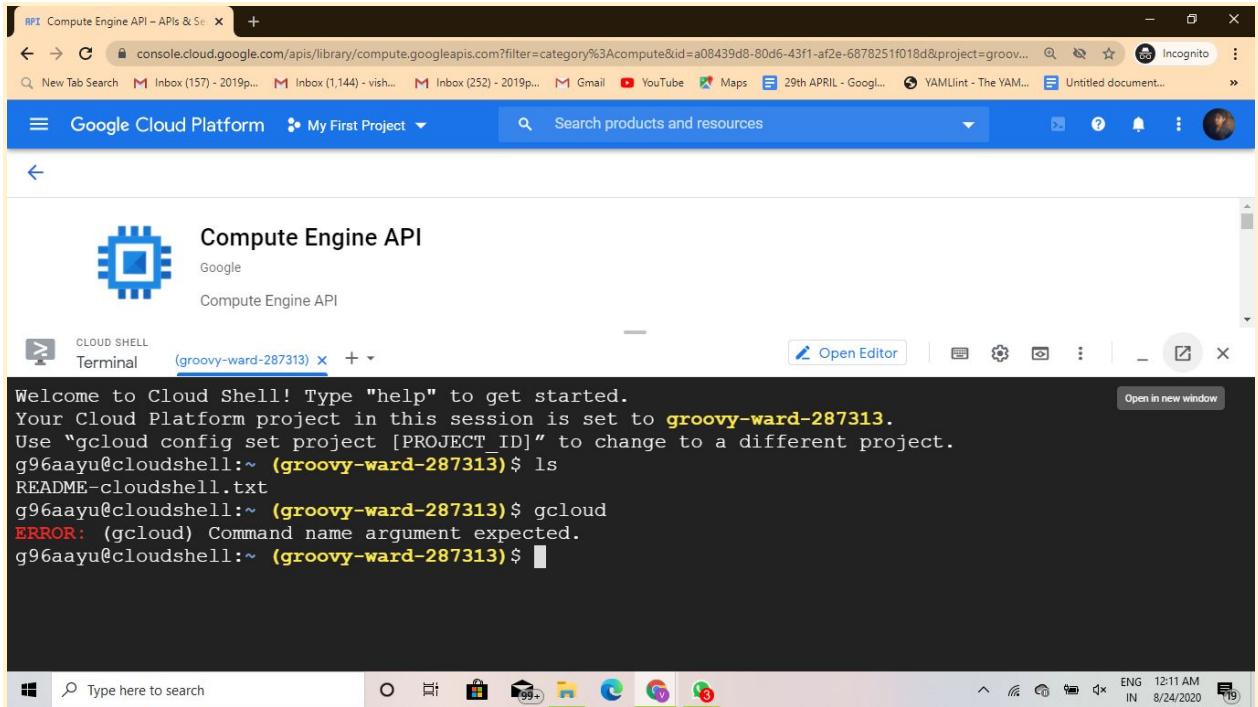
CLI

SDK

This screenshot is identical to the one above, showing the Compute Engine API Overview page. However, a 'Activate Cloud Shell' button has been added to the top right of the page content area. The rest of the interface, including the navigation bar, search bar, and taskbar at the bottom, remains the same.

to activate cloud shell





to open in new tab

Welcome to Cloud Shell! Type "help" to get started.
To set your Cloud Platform project in this session use "gcloud config set project [PROJECT_ID]"
g96aayu@cloudshell:~\$

Type here to search

Cloud Shell

cloudshell

Google Cloud Platform

Select a project

Compute Engine

VM instances

Instance groups

Instance templates

Sole-tenant nodes

Machine images

Disk

Snapshots

Images

TPUs

Migrate for Compute Engine

Marketplace

RECENT ALL

Name	ID
My First Project	groovy-ward-287313
My First Project	lunar-campaign-287313

CANCEL OPEN

two projects one for developer team and other for the production team

New Project - Google Cloud Platform

You have 10 projects remaining in your quota. Request an increase or delete projects. [Learn more](#)

[MANAGE QUOTAS](#)

Project name *

Project ID: fluted-union-287318. It cannot be changed later. [EDIT](#)

Location * [BROWSE](#)

Parent organization or folder

[CREATE](#) [CANCEL](#)

Type here to search

Cloud Shell

Incognito

New Tab Search | Inbox (157) - 2019p... | Inbox (1,144) - vish... | Inbox (252) - 2019p... | Gmail | YouTube | Maps | 29th APRIL - Googl... | YAMLint - The YAM... | Untitled document...

ENG IN 12:17 AM 8/24/2020

New Project - Google Cloud Platform

You have 10 projects remaining in your quota. Request an increase or delete projects. [Learn more](#)

[MANAGE QUOTAS](#)

Project name *

Project ID * [C](#)

Project ID can have lowercase letters, digits, or hyphens. It must start with a lowercase letter and end with a letter or number.

Location * [BROWSE](#)

Parent organization or folder

[CREATE](#) [CANCEL](#)

Type here to search

Cloud Shell

Incognito

New Tab Search | Inbox (157) - 2019p... | Inbox (1,144) - vish... | Inbox (252) - 2019p... | Gmail | YouTube | Maps | 29th APRIL - Googl... | YAMLint - The YAM... | Untitled document...

ENG IN 12:18 AM 8/24/2020

The screenshot shows two windows side-by-side. The left window is the Google Cloud Platform Compute Engine VM instances page, displaying a sidebar with options like VM instances, Instance groups, Instance templates, Sole-tenant nodes, Machine images, Disks, Snapshots, and Images. The right window is a Cloud Shell terminal titled 'Cloud Shell' with the tab 'cloudshell'. The terminal displays the following text:

```
Command name argument expected.

Available command groups for gcloud:

AI and Machine Learning
ai-platform          Manage AI Platform jobs and models.
ml                   Use Google Cloud machine learning capabilities.
ml-engine            Manage AI Platform jobs and models.

API Platform and Ecosystems
endpoints           Create, enable and manage API services.
recommender          Manage Cloud recommendations and recommendation rules.
services             List, enable and disable APIs and services.

Anthos CLI
:
```

```
Home - DevProject - Google Cloud Shell Cloud Shell
ssh.cloud.google.com/cloudshell/editor?hl=en_US&fromcloudshell=true&shellonly=true#id=I0_1598207919719&_gid=I0_1598207919719&parent=https://... Incognito
New Tab Search Gmail YouTube Maps 29th APRIL - Google Sheets YAMLint - The YAM... Untitled document...
Cloud Shell
cloudshell + x
To set your Cloud Platform project in this session use "gcloud config set project [PROJECT_ID]"
g96aayu@cloudshell:~$ gcloud
ERROR: (gcloud) Command name argument expected.
g96aayu@cloudshell:~$ gcloud
ERROR: (gcloud) Command name argument expected.
g96aayu@cloudshell:~$ 
```



```
Home - DevProject - Google Cloud Shell Cloud Shell
ssh.cloud.google.com/cloudshell/editor?hl=en_US&fromcloudshell=true&shellonly=true#id=I0_1598207919719&_gid=I0_1598207919719&parent=https://... Incognito
New Tab Search Gmail YouTube Maps 29th APRIL - Google Sheets YAMLint - The YAM... Untitled document...
Cloud Shell
cloudshell + x
To set your Cloud Platform project in this session use "gcloud config set project [PROJECT_ID]"
g96aayu@cloudshell:~$ gcloud
ERROR: (gcloud) Command name argument expected.
g96aayu@cloudshell:~$ gcloud
ERROR: (gcloud) Command name argument expected.
g96aayu@cloudshell:~$ gcloud projects list
PROJECT_ID          NAME        PROJECT_NUMBER
devproject-287318   DevProject  38190864413
groovy-ward-287313 My First Project 497392490371
lunar-campaign-287313 My First Project 212014526950
g96aayu@cloudshell:~$ 
```

The screenshot shows a Google Cloud Shell window titled "Cloud Shell". The main content area displays the help documentation for the "gcloud projects" command. The documentation is organized into sections:

- COMMANDS**: A section header.
- COMMAND** is one of the following:
 - add-iam-policy-binding**: Add IAM policy binding for a project.
 - create**: Create a new project.
 - delete**: Delete a project.
 - describe**: Show metadata for a project.
 - get-ancestors**

At the bottom of the window, there is a search bar with placeholder text "Type here to search" and a taskbar with various icons. The status bar at the bottom right shows "ENG 12:28 AM IN 8/24/2020".

```
gcloud projects --help
```

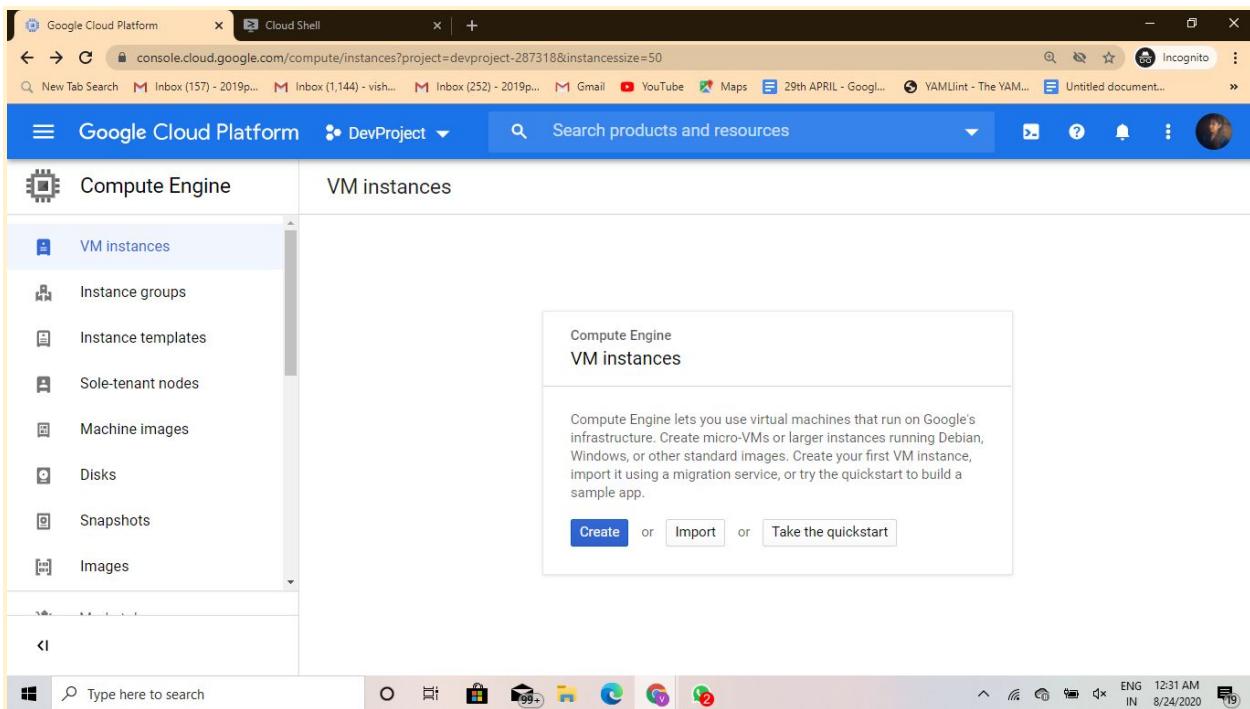
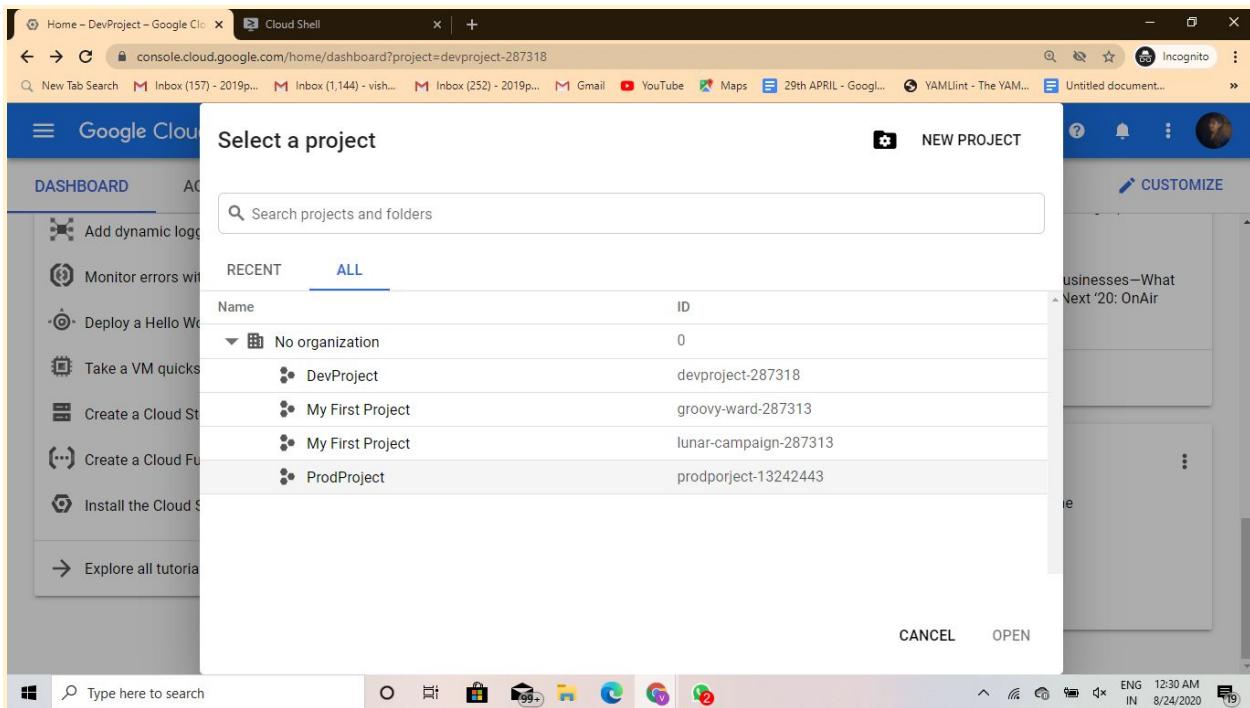
```
g96aayu@cloudshell:~$ gcloud projects create --help
```

```
Waiting for ssh.cloud.google.com...
```

```
g96aayu@cloudshell:~$ gcloud projects create prodporject-13242443 --name=ProdProject
Create in progress for [https://clouddesourcemanager.googleapis.com/v1/projects/prodporject-13242443].
Waiting for [operations/cp.5406887230002961125] to finish...done.
Enabling service [cloudapis.googleapis.com] on project [prodporject-13242443]...
Operation "operations/acf.c499373b-61e0-49d2-8336-6b7823d78b92" finished successfully.
g96aayu@cloudshell:~$ gcloud projects list
```

PROJECT_ID	NAME	PROJECT_NUMBER
devproject-287318	DevProject	381790864413
groovy-ward-287313	My First Project	40782490371
lunar-campaign-287313	My First Project	212014526950
prodporject-13242443	ProdProject	170726174900

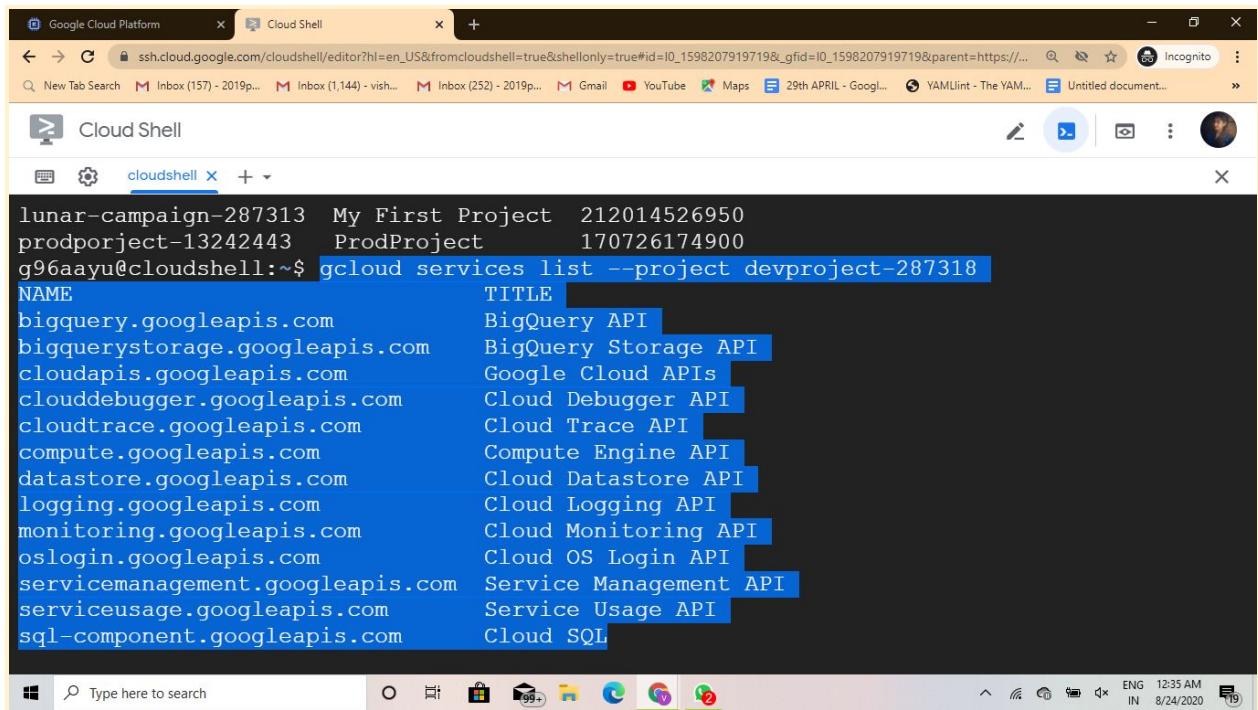
```
g96aayu@cloudshell:~$
```



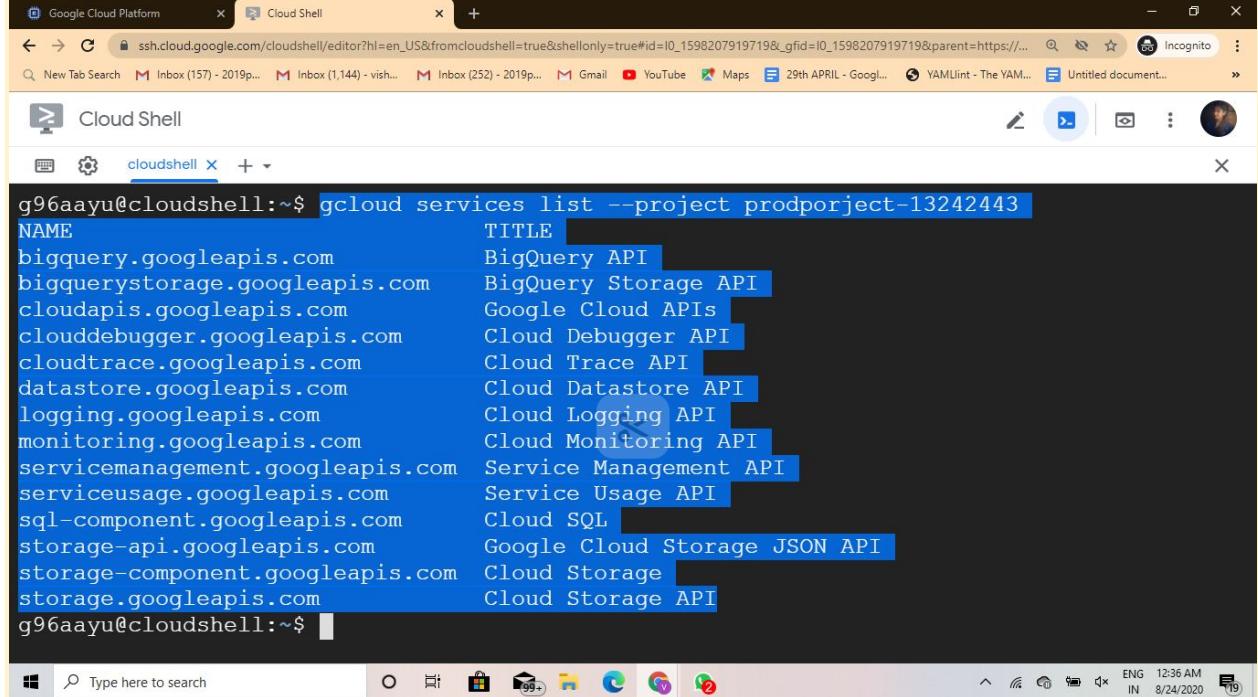
u have to enable the api first

The screenshot shows the Google Cloud Platform Billing Overview page. The left sidebar is titled 'Billing' and contains links for Overview, Reports, Cost table, Cost breakdown, Commitments, Budgets & alerts, Billing export, Pricing, and Documents. The main content area is divided into 'BILLING ACCOUNT OVERVIEW' and 'PAYMENT OVERVIEW'. Under 'BILLING ACCOUNT OVERVIEW', it shows the 'Current month' (August 1 – 24, 2020) with a 'Month-to-date total cost' of ₹0.00 and an 'End-of-month total cost (forecasted)' of ₹0.00. A note states 'Not enough historical data to project cost'. Below this is a 'View report' button. To the right, there's a section for 'Billing account' (Manage), 'Organization' (No organization), and 'Enabled Google service' (Google Cloud Platform). At the bottom, there's a 'Billing health checks' section with a note about account health results. The browser address bar shows the URL: https://console.cloud.google.com/billing/0182F7-E5BF61-5DE78C/manage?project=devproject-287318.

click on manage



```
lunar-campaign-287313  My First Project  212014526950
prodporject-13242443  ProdProject      170726174900
g96aayu@cloudshell:~$ gcloud services list --project devproject-287318
NAME                      TITLE
bigquery.googleapis.com    BigQuery API
bigquerystorage.googleapis.com  BigQuery Storage API
cloudapis.googleapis.com   Google Cloud APIs
clouddebugger.googleapis.com  Cloud Debugger API
cloudtrace.googleapis.com   Cloud Trace API
compute.googleapis.com     Compute Engine API
datastore.googleapis.com   Cloud Datastore API
logging.googleapis.com    Cloud Logging API
monitoring.googleapis.com  Cloud Monitoring API
oslogin.googleapis.com    Cloud OS Login API
servicemanagement.googleapis.com  Service Management API
serviceusage.googleapis.com  Service Usage API
sql-component.googleapis.com  Cloud SQL
```



```
g96aayu@cloudshell:~$ gcloud services list --project prodporject-13242443
NAME                      TITLE
bigquery.googleapis.com    BigQuery API
bigquerystorage.googleapis.com  BigQuery Storage API
cloudapis.googleapis.com   Google Cloud APIs
clouddebugger.googleapis.com  Cloud Debugger API
cloudtrace.googleapis.com   Cloud Trace API
datastore.googleapis.com   Cloud Datastore API
logging.googleapis.com    Cloud Logging API
monitoring.googleapis.com  Cloud Monitoring API
servicemanagement.googleapis.com  Service Management API
serviceusage.googleapis.com  Service Usage API
sql-component.googleapis.com  Cloud SQL
storage-api.googleapis.com  Google Cloud Storage JSON API
storage-component.googleapis.com  Cloud Storage
storage.googleapis.com     Cloud Storage API
g96aayu@cloudshell:~$
```

The screenshot shows two windows side-by-side. The left window is the Google Cloud Platform Compute Engine VM instances page, which displays a sidebar with options like VM instances, Instance groups, Instance templates, Sole-tenant nodes, Machine images, Disks, Snapshots, and Images. A message indicates that Compute Engine can be used after enabling billing, with a blue 'Enable billing' button. The right window is a Cloud Shell terminal window titled 'Cloud Shell' with a tab labeled 'cloudshell'. The terminal output shows the user attempting to list available services and enable the Compute Engine API, but failing due to a missing billing account.

```
compute@scanning.googleapis.com          Compute Scanning API
g96aayu@cloudshell:~$ gcloud services list --available --project prodporject-13242443 | grep compute
compute.googleapis.com                   Compute Engine API
compute@scanning.googleapis.com         Compute Scanning API
g96aayu@cloudshell:~$ gcloud services enable compute.googleapis.com --project prodporject-13242443
ERROR: (gcloud.services.enable) FAILED_PRECONDITION: Billing must be enabled for activation of service '[compute.googleapis.com, compute.googleapis.com, compute.googleapis.com]' in project '170726174900' to proceed.
- '@type': type.googleapis.com/google.rpc.PreconditionFailure
  violations:
    - description: "billing-enabled: Project's billing account is not found. https://console.developers.google.com/project/170726174900/settings"
      subject: '170726174900'
      type: serviceusage/billing-enabled
g96aayu@cloudshell:~$
```

Overview – Billing – DevProject – Cloud Shell

console.cloud.google.com/billing/0182F7-E5BF61-5DE78C?folder=&organizationId=&project=devproject-287318

New Tab Search Gmail YouTube Maps 29th APRIL - Google Calendar YAMLLint - The YAM... Untitled document...

Google Cloud Platform

Search products and resources

Billing Overview

All billing accounts My Billing Account

MANAGE BILLING ACCOUNTS

Current month August 1 – 24, 2020

Month-to-date total cost ₹0.00 End-of-month total cost (forecasted) ₹0.00

Not enough historical data to project cost

View recent costs →

Now viewing project "DevProject" in organization "No organization"

Cost trend

Billing account Manage My Billing Account, 0182F7-E5BF61-5DE78C

Organization No organization

Enabled Google service Google Cloud Platform

Billing health checks

Check out your account health results to avoid common billing-related issues and

Type here to search

Cloud Shell

Projects by billing account – Google Cloud Shell

console.cloud.google.com/billing/projects?folder&organizationId=0

New Tab Search Gmail YouTube Maps 29th APRIL - Google Calendar YAMLLint - The YAM... Untitled document...

Google Cloud Platform

Search products and resources

Billing

My billing accounts My projects

Name	ID	Billing account	Billing account ID	Actions
My First Project	groovy-ward-287313	My Billing Account	0182F7-E5BF61-5DE78C	⋮
My First Project	lunar-campaign-287313	My Billing Account	018476-C54842-9E2CCA	⋮
DevProject	devproject-287318	My Billing Account	0182F7-E5BF61-5DE78C	⋮
ProdProject	prodproj-13242443	Billing is disabled	–	⋮

⋮

Disable billing

Change billing

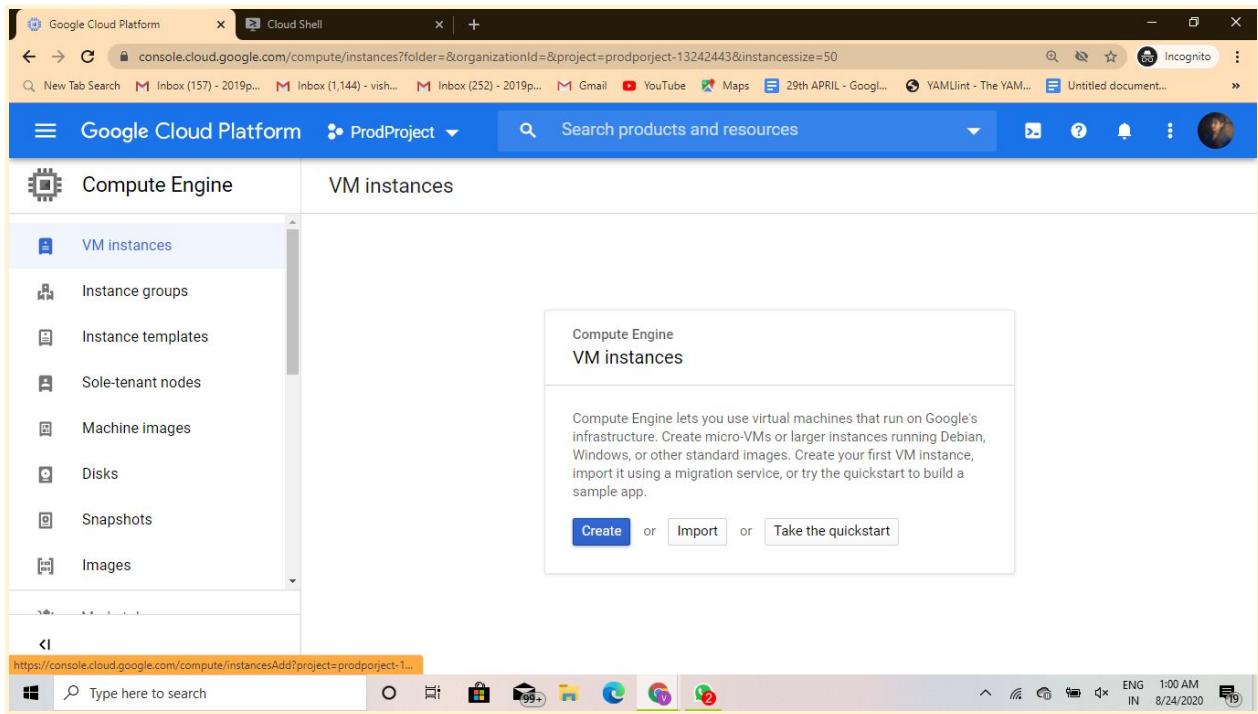
Type here to search

Cloud Shell

The image shows two side-by-side browser windows. The left window is the 'Google Cloud Platform' Billing Overview page, showing a sidebar with options like Overview, Reports, Cost table, Cost breakdown, Commitments, Budgets & alerts, Billing export, Pricing, and Documents. The main area displays the Billing account ID (0182F7-E5BF61-5DE78C) and lists projects linked to it: ProdProject (prodporject-13242443), DevProject (devproject-287318), and My First Project (groovy-ward-287313). The right window is a 'Cloud Shell' session titled 'Cloud Shell'. It shows a terminal window with the following command and error output:

```
g96aayu@cloudshell:~$ gcloud services enable compute.googleapis.com --project prodporject-13242443
ERROR: (gcloud.services.enable) FAILED_PRECONDITION: Billing must be enabled for activation of service '[compute.googleapis.com, compute.googleapis.com, compute.googleapis.com]' in project '170726174900' to proceed.
- '@type': type.googleapis.com/google.rpc.PreconditionFailure
  violations:
  - description: "billing-enabled: Project's billing account is not found. https://console.developers.google.com/project/170726174900/settings"
    subject: '170726174900'
    type: serviceusage/billing-enabled
g96aayu@cloudshell:~$ gcloud services enable compute.googleapis.com --project prodporject-13242443

Operation "operations/acf.80172728-49f6-42f3-a44e-6cd9d08289b4" finished successfully.
```



click create

Google Cloud Platform - Cloud Shell

console.cloud.google.com/compute/instancesAdd?project=prodporject-13242443&folder&organizationId

New Tab Search Gmail YouTube Maps 29th APRIL - Google Sheets YAMLLint - The YAM... Untitled document...

Google Cloud Platform ProdProject Search products and resources

Create an instance

New VM instance from machine image

Create a single VM instance from an existing machine image

Marketplace

Deploy a ready-to-go solution onto a VM instance

Custom
Select vCPU cores and memory

Shared core

- f1-micro
1 vCPU, 614 MB memory
- g1-small
1 vCPU, 1.7 GB memory

Standard

- n1-standard-1
1 vCPU, 3.75 GB memory
- n1-standard-2
2 vCPU, 7.5 GB memory
- n1-standard-4
4 vCPU, 15 GB memory
- n1-standard-8
8 vCPU, 30 GB memory

Type here to search

Cloud Shell

1:03 AM IN 8/24/2020

Google Cloud Platform - Cloud Shell

console.cloud.google.com/compute/instancesAdd?project=prodporject-13242443&folder&organizationId

New Tab Search Gmail YouTube Maps 29th APRIL - Google Sheets YAMLLint - The YAM... Untitled document...

Google Cloud Platform ProdProject Search products and resources

Create an instance

To create a VM instance, select one of the options:

- New VM instance**
Create a single VM instance from scratch
- New VM instance from template**
Create a single VM instance from an existing template
- New VM instance from machine image**
Create a single VM instance from an existing machine image

Marketplace

Name (Optional)
Name is permanent

Labels (Optional)

+ Add label

Region (Optional)
Region is permanent

Zone (Optional)
Zone is permanent

You have ₹21,406.50 free trial credit

\$29.61 monthly estimate
That's about \$0.041 hourly
Pay for what you use: No upfront costs

Details

Machine configuration

Machine family
 General-purpose Memory-optimized Compute-optimized

Machine types for common workloads, optimized for cost and flexibility

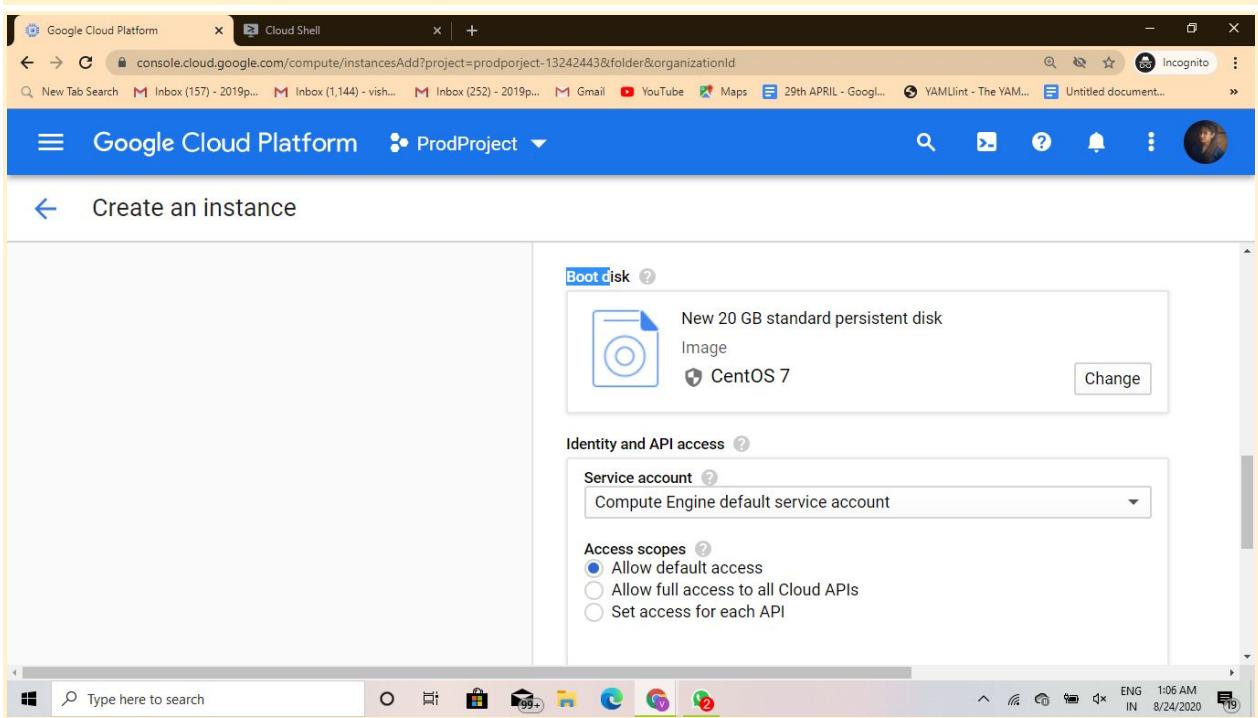
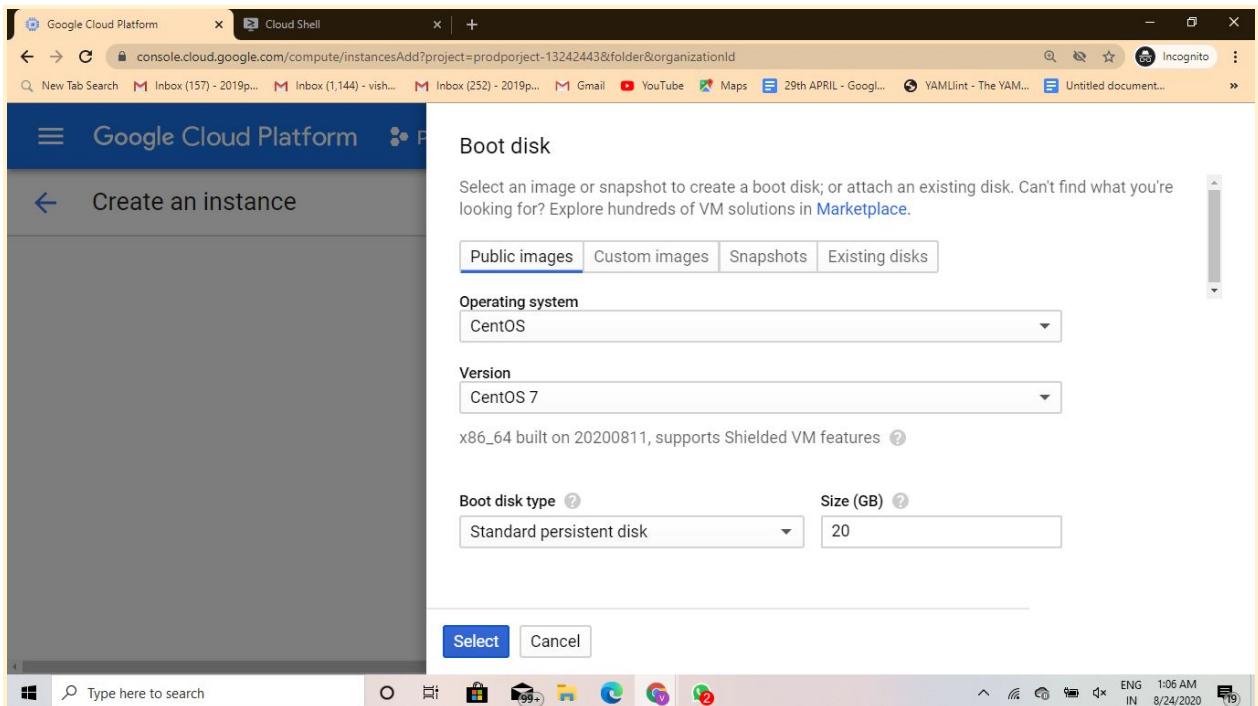
Series

Powered by Intel Skylake CPU platform or one of its predecessors

Type here to search

Cloud Shell

1:03 AM IN 8/24/2020



The screenshot shows a Windows desktop environment with a taskbar at the bottom. An application window titled "Cloud Shell" is open, displaying the "gcloud command line" interface. The command entered is:

```
gcloud beta compute --project=prodporject-13242443 instances create instance-1 --zone=asia-south1-a --machine-type=n1-standard-1 --subnet=default --network-tier=PREMIUM --maintenance-policy=MIGRATE --service-account=170726174900-compute@developer.gserviceaccount.com --scopes=https://www.googleapis.com/auth/devstorage.read_only,https://www.googleapis.com/auth/logging.write,https://www.googleapis.com/auth/monitoring.write,https://www.googleapis.com/auth/servicecontrol,https://www.googleapis.com/auth/service.management.readonly,https://www.googleapis.com/auth/trace.append --image=centos-7-v20200811 --image-project=centos-cloud --boot-disk-size=20GB --boot-disk-type=pd-standard --boot-disk-device-name=instance-1 --no-shielded-secure-boot --shielded-vtpm --shielded-integrity-monitoring --reservation-affinity=any
```

```
gcloud beta compute --project=prodporject-13242443 instances create instance-1
--zone=asia-south1-a --machine-type=n1-standard-1 --subnet=default
--network-tier=PREMIUM --maintenance-policy=MIGRATE
--service-account=170726174900-compute@developer.gserviceaccount.com
--scopes=https://www.googleapis.com/auth/devstorage.read_only,https://www.googleapis.com/auth/logging.write,https://www.googleapis.com/auth/monitoring.write,https://www.googleapis.com/auth/servicecontrol,https://www.googleapis.com/auth/service.management.readonly,https://www.googleapis.com/auth/trace.append
--image=centos-7-v20200811 --image-project=centos-cloud --boot-disk-size=20GB
--boot-disk-type=pd-standard --boot-disk-device-name=instance-1
--no-shielded-secure-boot --shielded-vtpm --shielded-integrity-monitoring
--reservation-affinity=any
```

The screenshot shows the Google Cloud Platform Compute Engine VM instances page. On the left, a sidebar lists options: VM instances (selected), Instance groups, Instance templates, Sole-tenant nodes, Machine images, and Disks. The main area displays a table of VM instances:

Name	Zone	Recommendation	In use by	Internal IP	External IP
instance-1					None

Below the table, a 'Related Actions' section includes a 'Dismiss' button. A notification overlay is visible on the right, titled 'Notifications'. It contains three entries:

- A red warning message: "Create VM instance "instance-1" and its boot disk "instance-1" Just now ProdProject The zone 'projects/prodprojetc-13242443/zones/asia-south1-a' does not have enough resources available to fulfill the request. Try a different zone, or try again later." with a 'RETRY' link.
- A green success message: "Initializing Compute Engine for project DevProject 48 minutes ago DevProject"
- A green success message: "Create Project: DevProject 50 minutes ago"

Google Cloud Platform

Cloud Shell

console.cloud.google.com/compute/instancesAdd?project=prodporject-13242443&folder&organizationId

New Tab Search | Gmail | YouTube | Maps | 29th APRIL - Google | YAMLLint - The YAM...

Incognito

Google Cloud Platform ProdProject

Create an instance

To create a VM instance, select one of the options:

- New VM instance** Create a single VM instance from scratch
- New VM instance from template** Create a single VM instance from an existing template
- New VM instance from machine image** Create a single VM instance from

Name: os1

Labels: (Optional) + Add label

Region: asia-southeast1 (Singapore) Zone: asia-southeast1-b

Machine configuration: Machine family: General-purpose

Google Cloud Platform

Cloud Shell

console.cloud.google.com/compute/instances?project=prodporject-13242443&folder&organizationId&instanceSize=50

New Tab Search | Gmail | YouTube | Maps | 29th APRIL - Google | YAMLLint - The YAM...

Incognito

Google Cloud Platform ProdProject

VM instances

Name	Zone	Recommendation	In use by	Internal IP	External IP	Connect
os1	asia-southeast1-b			10.148.0.2 (nic0)	34.87.116.62	SSH

Related Actions

Dismiss

Google Cloud Platform

Cloud Shell

console.cloud.google.com/compute/instances?project=prodproj-13242443&folder&organizationId&instancesSize=50

New Tab Search | Inbox (157) - 2019p... | Inbox (1,144) - vish... | Inbox (252) - 2019p... | Gmail | YouTube | Maps | 29th APRIL - Googl... | YAMLLint - The YAM... | Untitled document...

Google Cloud Platform ProdProject

VM instances

Filter VM instances

Name Zone Recommendation In use by Internal IP External IP Connect

os1 asia-southeast1-b 10.148.0.2 (nic0) 34.87.116.62 SSH

Open in browser window
Open in browser window on custom port
Open in browser window using provided private SSH key
View gcloud command
Use another SSH client

Related Actions

Type here to search

SSH: os1 @ prodproj-13242443 - Google Chrome

ssh.cloud.google.com/projects/prodproj-13242443/zones/asia-southeast1-b/instances/os1?useAdminProxy=true&authUser=0&...

Connecting... Transferring SSH keys to the VM.

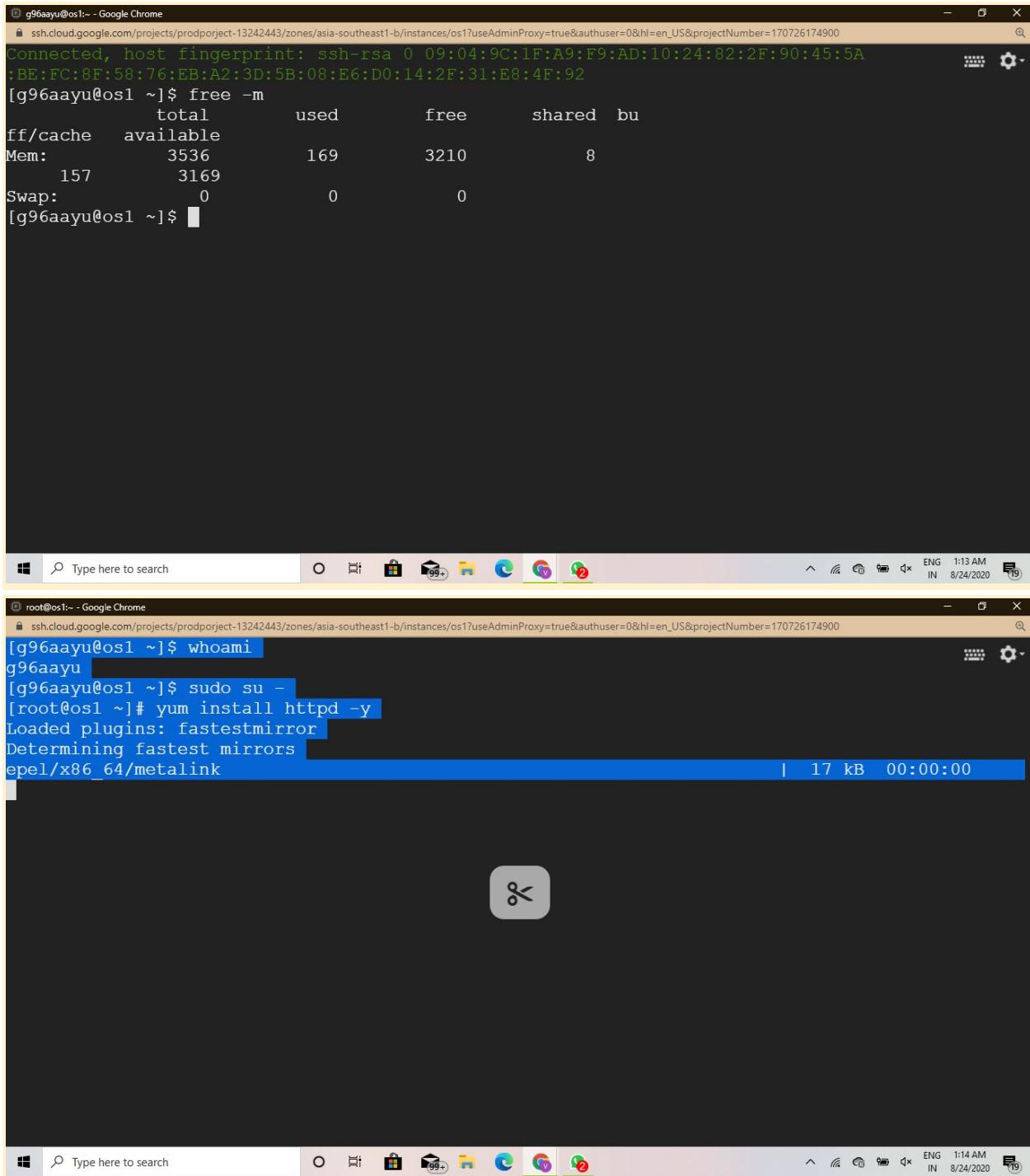
External IP Connect

34.87.116.62 SSH

SHOW INFO PANEL

Dismiss

Type here to search



g96aayu@os1:~ - Google Chrome
ssh.cloud.google.com/projects/prodproject-13242443/zones/asia-southeast1-b/instances/os1?useAdminProxy=true&authUser=0&hl=en_US&projectNumber=170726174900

```
Connected, host fingerprint: ssh-rsa 0 09:04:9C:1F:A9:F9:AD:10:24:82:2F:90:45:5A  
:BE:FC:8F:58:76:EB:A2:3D:5B:08:E6:D0:14:2F:31:E8:4F:92  
[g96aayu@os1 ~]$ free -m  
total used free shared bu  
ff/cache available  
Mem: 3536 169 3210 8  
157 3169  
Swap: 0 0 0  
[g96aayu@os1 ~]$ █
```

root@os1:~ - Google Chrome
ssh.cloud.google.com/projects/prodproject-13242443/zones/asia-southeast1-b/instances/os1?useAdminProxy=true&authUser=0&hl=en_US&projectNumber=170726174900

```
[g96aayu@os1 ~]$ whoami  
g96aayu  
[g96aayu@os1 ~]$ sudo su -  
[root@os1 ~]# yum install httpd -y  
Loaded plugins: fastestmirror  
Determining fastest mirrors  
epel/x86_64/metalink | 17 kB 00:00:00
```

Windows Taskbar: Type here to search, Start button, File Explorer, File History, Task View, Edge, Google Photos, Google Sheets, Google Slides, 19 notifications.

```
root@os1:~ - Google Chrome
ssh.cloud.google.com/projects/prodporject-13242443/zones/asia-southeast1-b/instances/os1?useAdminProxy=true&authuser=0&hl=en_US&projectNumber=170726174900
Complete!
[root@os1 ~]# systemctl start httpd
[root@os1 ~]# systemctl enable httpd
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.service.
[root@os1 ~]# systemctl status httpd
● httpd.service - The Apache HTTP Server
    Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor preset: disabled)
      Active: active (running) since Sun 2020-08-23 19:45:05 UTC; 20s ago
        Docs: man:httpd(8)
               man:apachectl(8)
    Main PID: 1463 (httpd)
      Status: "Total requests: 0; Current requests/sec: 0; Current traffic: 0 B/sec"
   CGroup: /system.slice/httpd.service
           ├─1463 /usr/sbin/httpd -DFOREGROUND
           ├─1464 /usr/sbin/httpd -DFOREGROUND
           ├─1465 /usr/sbin/httpd -DFOREGROUND
           ├─1466 /usr/sbin/httpd -DFOREGROUND
           ├─1467 /usr/sbin/httpd -DFOREGROUND
           └─1468 /usr/sbin/httpd -DFOREGROUND

Aug 23 19:45:05 os1 systemd[1]: Starting The Apache HTTP Server...
Aug 23 19:45:05 os1 systemd[1]: Started The Apache HTTP Server.
[root@os1 ~]# 

root@os1:/var/www/html - Google Chrome
ssh.cloud.google.com/projects/prodporject-13242443/zones/asia-southeast1-b/instances/os1?useAdminProxy=true&authuser=0&hl=en_US&projectNumber=170726174900
[root@os1 ~]# cd /var/www/html
[root@os1 html]# ls
[root@os1 html]# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1460
      inet 10.148.0.2 netmask 255.255.255 broadcast 10.148.0.2
      inet6 fe80::4001:aff:fe94:2 prefixlen 64 scopeid 0x20<link>
        ether 42:01:0a:94:00:02 txqueuelen 1000 (Ethernet)
          RX packets 3791 bytes 22802671 (21.7 MiB)
          RX errors 0 dropped 0 overruns 0 frame 0
          TX packets 3423 bytes 309675 (302.4 KiB)
          TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
      inet 127.0.0.1 netmask 255.0.0.0
      inet6 ::1 prefixlen 128 scopeid 0x10<host>
        loop txqueuelen 1000 (Local Loopback)
          RX packets 0 bytes 0 (0.0 B)
          RX errors 0 dropped 0 overruns 0 frame 0
          TX packets 0 bytes 0 (0.0 B)
          TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[root@os1 html]# 
```

```
root@os1:/var/www/html - Google Chrome
ssh.cloud.google.com/projects/prodproject-13242443/zones/asia-southeast1-b/instances/os1?useAdminProxy=true&authUser=0&hl=en_US&projectNumber=170726174900
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1460
    inet 10.148.0.2 netmask 255.255.255 broadcast 10.148.0.2
    inet6 fe80::4001:aff:fe94:2 prefixlen 64 scopeid 0x20<link>
        ether 42:01:0a:94:00:02 txqueuelen 1000 (Ethernet)
        RX packets 3791 bytes 22802671 (21.7 MiB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 3423 bytes 309675 (302.4 KiB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
        loop txqueuelen 1000 (Local Loopback)
        RX packets 0 bytes 0 (0.0 B)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 0 bytes 0 (0.0 B)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[root@os1 html]# cat > index.html
my website vishesh garg
[root@os1 html]# cat index.html
my website vishesh garg
[root@os1 html]# ls
index.html
[root@os1 html]#
```

```
C:\Windows\system32\cmd.exe - ping 34.87.116.62
Microsoft Windows [Version 10.0.18362.959]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\user>ping 34.87.116.62

Pinging 34.87.116.62 with 32 bytes of data:
Reply from 34.87.116.62: bytes=32 time=117ms TTL=56
Reply from 34.87.116.62: bytes=32 time=117ms TTL=56
Reply from 34.87.116.62: bytes=32 time=98ms TTL=56
```

The screenshot displays two windows from the Google Cloud Platform interface.

Top Window: VM Instances

The title bar shows "Google Cloud Platform" and "ProdProject". The main area is titled "VM instances". It includes a toolbar with icons for creating, deleting, and managing VMs. Below the toolbar is a "Related Actions" section with five items:

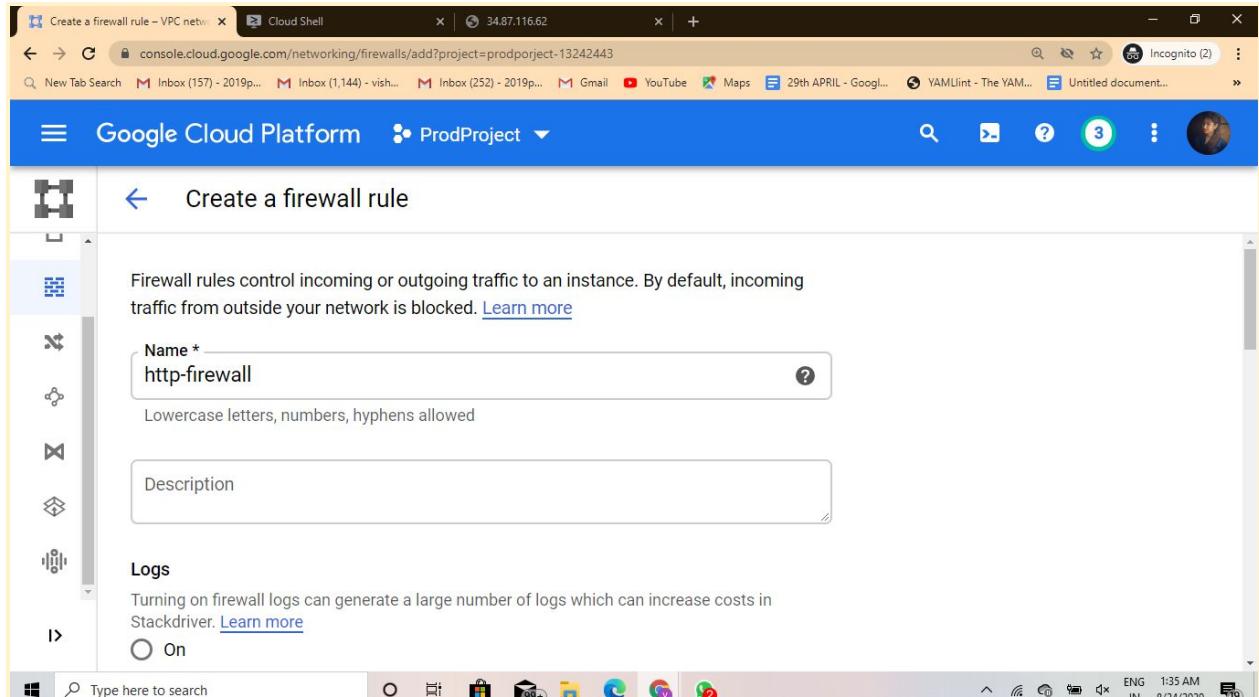
- View Billing Report**: View and manage your Compute Engine billing.
- Monitor VMs**: View outlier VMs across metrics like CPU and Network.
- Explore VM Logs**: View, search, analyze, and download VM instance logs.
- Setup Firewall Rules**: Control traffic to and from a VM instance.
- Patch Management**: Schedule patch updates and view patch compliance on VM instances.

Bottom Window: Firewall

The title bar shows "Firewall - VPC network - ProdProject". The main area is titled "Firewall". It includes a "CREATE FIREWALL RULE" button and a "REFRESH" button. A note states: "Firewall rules control incoming or outgoing traffic to an instance. By default, incoming traffic from outside your network is blocked." It also notes: "Note: App Engine firewalls are managed [here](#)".

A table lists existing firewall rules:

Name	Type	Targets	Filters	Protocols / ports	Action	Priority	N
default-allow-icmp	Ingress	Apply to all	IP ranges: 0.0.0.0/0	icmp	Allow	65534	d
default-allow-internal	Ingress	Apply to all	IP ranges: 10.0.0.0/16	tcp:0-65535 udp:0-65535 icmp	Allow	65534	d



The screenshot shows the 'Create a firewall rule' page in the Google Cloud Platform. The 'Name' field is set to 'http-firewall'. The 'Logs' section has the 'On' radio button selected. The browser taskbar at the bottom shows various open tabs and the system clock.

Create a firewall rule

Firewall rules control incoming or outgoing traffic to an instance. By default, incoming traffic from outside your network is blocked. [Learn more](#)

Name *
http-firewall

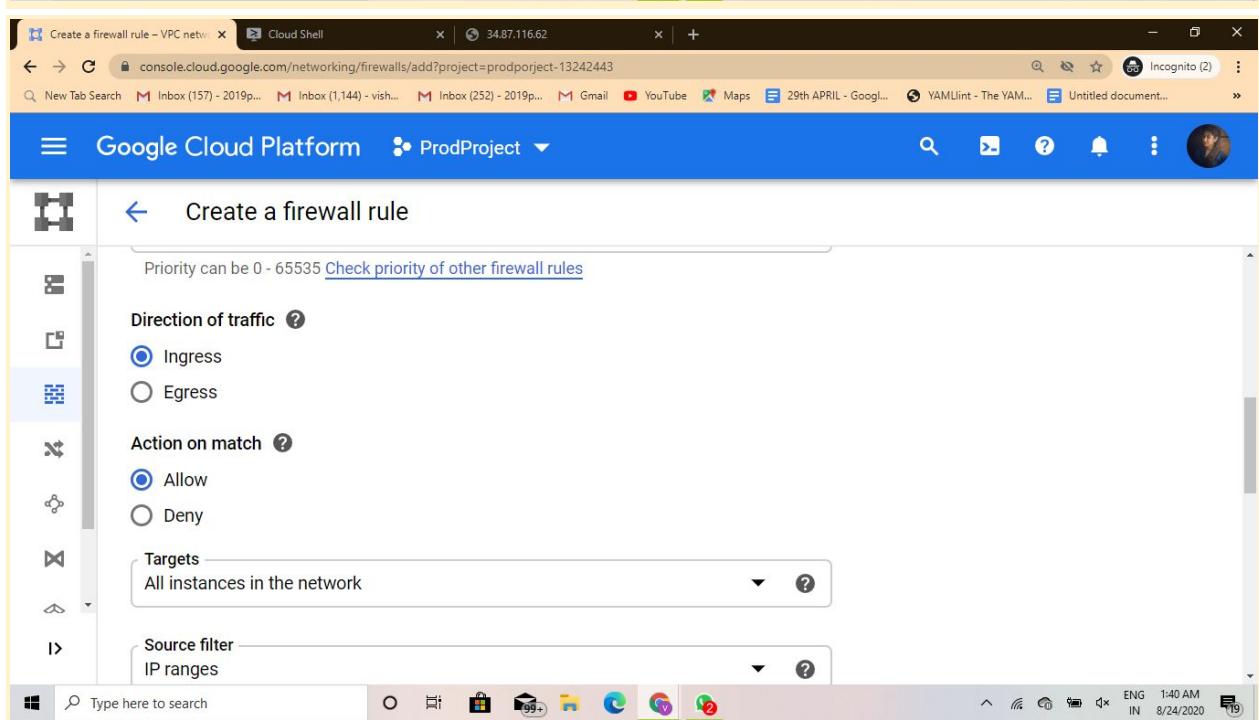
Lowercase letters, numbers, hyphens allowed

Description

Logs
Turning on firewall logs can generate a large number of logs which can increase costs in Stackdriver. [Learn more](#)

On

Type here to search



The screenshot shows the 'Create a firewall rule' page with advanced settings. The 'Direction of traffic' is set to 'Ingress', and the 'Action on match' is set to 'Allow'. The 'Targets' dropdown is set to 'All instances in the network'. The 'Source filter' dropdown is set to 'IP ranges'. The browser taskbar at the bottom shows various open tabs and the system clock.

Create a firewall rule

Priority can be 0 - 65535 [Check priority of other firewall rules](#)

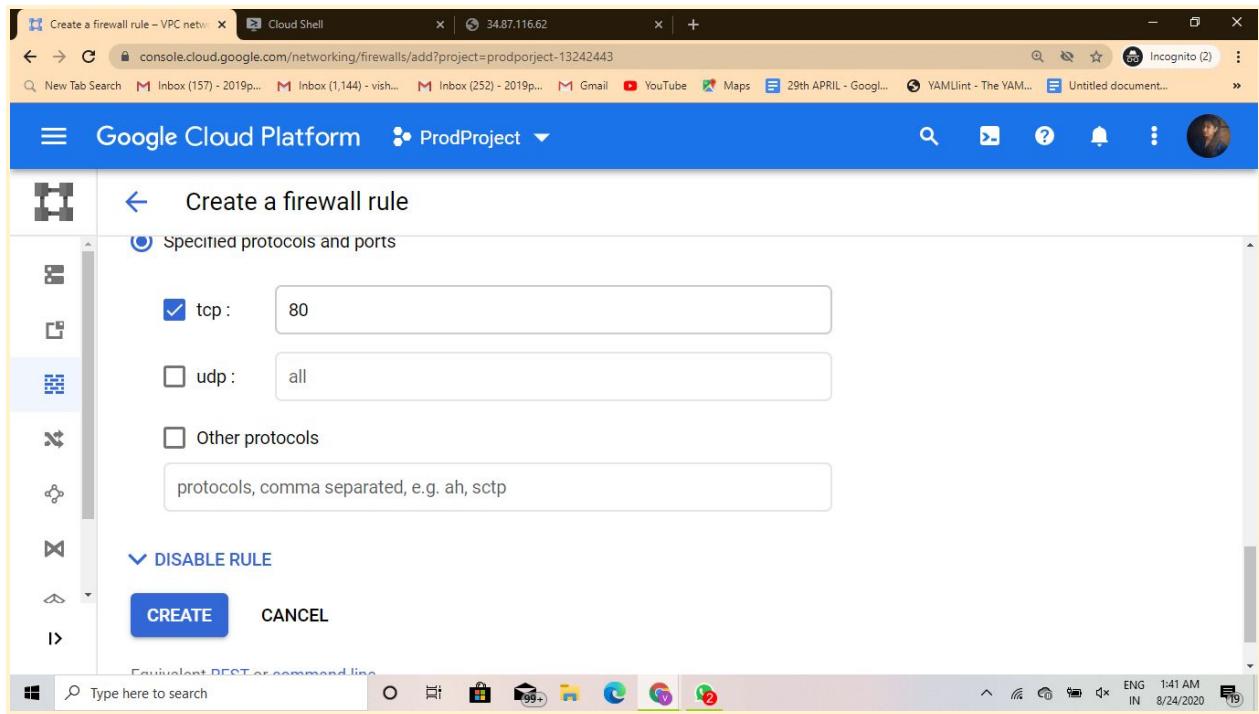
Direction of traffic [?](#)
 Ingress
 Egress

Action on match [?](#)
 Allow
 Deny

Targets
All instances in the network

Source filter
IP ranges

Type here to search



The screenshot shows two stacked windows from the Google Cloud Platform interface.

Top Window: Firewall

The title bar says "Firewall - VPC network - ProdProject". The URL is "console.cloud.google.com/networking/firewalls/list?project=prodprojetc-13242443". The page header includes "Cloud Shell", "34.87.116.62", and a refresh button. The main navigation bar has "Google Cloud Platform" and "ProdProject". The sidebar icons include a gear, a wrench, a magnifying glass, and a list icon.

The main content area is titled "Firewall" with sub-titles "+ CREATE FIREWALL RULE", "REFRESH", "CONFIGURE LOGS", and "DELETE". A note states: "Firewall rules control incoming or outgoing traffic to an instance. By default, incoming traffic from outside your network is blocked." It links to "Learn more" and notes "Note: App Engine firewalls are managed here." Below is a table:

Name	Type	Targets	Filters	Protocols / ports	Action	Priority	N
http-firewall	Egress	Apply to all	IP ranges: 0.0.0.0/0	tcp:80	Allow	1000	down
default-allow-icmp	Ingress	Apply to all	IP ranges: 0.0.0.0/0	icmp	Allow	65534	down

Bottom Window: VM instances

The title bar says "VM instances - ProdProject". The URL is "console.cloud.google.com/compute/instances?project=prodprojetc-13242443&instancessize=50". The page header includes "Cloud Shell", "34.87.116.62", and a refresh button. The main content area is titled "VM instances" with sub-titles "+", "SHOW INFO PANEL", and a graduation cap icon. The sidebar icons include a gear, a wrench, a magnifying glass, and a list icon.

The main content area shows a table of VM instances:

Name	Zone	Recommendation	In use by	Internal IP	External IP	Connect
os1	asia-southeast1-b			10.148.0.2 (nic0)	34.87.116.62	SSH

A "Related Actions" section at the bottom right includes a "Dismiss" button. The status bar at the bottom shows the URL "https://console.cloud.google.com/networking/networkinterfaces/zones/asia-southeast1-b/instances/os1?networkInterface=nic0&project=prodprojetc-13242443" and the time "1:38 AM 8/24/2020".

The screenshot shows a Windows desktop environment with two windows open:

- Browser Window:** A Google Chrome window titled "Cloud Shell" is open at the URL "34.87.116.62". The page content reads "my website vishesh garg".
- Terminal Window:** A terminal window titled "ssh.cloud.google.com/projects/prodporject-13242443/zones/asia-southeast1-b/instances/os1?useAdminProxy=true&authuser=0&hl=en_US&projectNumber=170726174900" is running as root. It displays the output of the "ifconfig" command and several "cat" commands for creating and displaying the "index.html" file. It also shows the execution of the "yum install docker" command.

vpc-peering

Google Cloud Platform

Cloud Shell

34.87.116.62

console.cloud.google.com/compute/instancesDetail/zones/asia-southeast1-b/instances/os1?project=prodporject-13242443

New Tab Search | Gmail | YouTube | Maps | YAMLLint - The YAM...

Incognito (2)

Google Cloud Platform ProdProject

VM instance details

os1

Remote access

Enable connecting to serial ports

Instance Id

18936470038345932

Machine type

You must stop the VM instance to edit its machine type
n1-standard-1 (1 vCPU, 3.75 GB memory)

Reservation

Automatically choose

CPU platform

Intel Broadwell

Type here to search

Google Cloud Platform

Cloud Shell

34.87.116.62

console.cloud.google.com/compute/instancesDetail/zones/asia-southeast1-b/instances/os1?project=prodporject-13242443

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Incognito (2)

Google Cloud Platform ProdProject

VM instance details

Creation time

Aug 24, 2020, 1:10:19 AM

Network interfaces

Network interface

Network default

Subnetwork default

Internal IP 10.148.0.2

Internal IP type Ephemeral

Type here to search

The screenshot shows the Google Cloud Platform Network Security interface. A dropdown menu is open under the 'VPC networks' section, listing options: External IP addresses, Firewall, Routes, VPC network peering, Shared VPC, Serverless VPC access, and Packet mirroring. To the right, a table displays network details:

	Internal IP	External IP	Connect
	10.148.0.2 (nic0)	34.87.116.62	SSH

Below this, a 'Create a VPC network - VPC net...' dialog is open, showing the 'Name' field set to 'vpcproduction'. The 'Description' field is empty. A sidebar on the left lists icons for VPC network, Network services, Hybrid Connectivity, Network Service Tiers, and Network Security.

Create a VPC network – VPC net

Cloud Shell

34.87.116.62

console.cloud.google.com/networking/networks/add?project=prodprojetc-13242443

New Tab Search | Inbox (157) - 2019p... | Inbox (1,144) - vish... | Inbox (252) - 2019p... | Gmail | YouTube | Maps | 29th APRIL - Googl... | YAMLLint - The YAM... | Untitled document...

Incognito (2)

Google Cloud Platform ProdProject

Create a VPC network

New subnet

Name * lab1

Lowercase letters, numbers, hyphens allowed

Add a description

Region * asia-southeast1

IP address range *

Create secondary IP range

Type here to search

Windows taskbar: Type here to search, File Explorer, Microsoft Edge, Google Chrome, File Manager, Task View, Taskbar icons, ENG IN 2:00 AM 8/24/2020

Create a VPC network – VPC net

Cloud Shell

34.87.116.62

console.cloud.google.com/networking/networks/add?project=prodprojetc-13242443

New Tab Search | Inbox (157) - 2019p... | Inbox (1,144) - vish... | Inbox (252) - 2019p... | Gmail | YouTube | Maps | 29th APRIL - Googl... | YAMLLint - The YAM... | Untitled document...

Incognito (2)

Google Cloud Platform ProdProject

Create a VPC network

Add a description

Region * asia-southeast1

IP address range * 10.0.1.0/24

Create secondary IP range

Private Google access ?

On

Off

Flow logs

Turning on VPC flow logs doesn't affect performance, but some systems generate a large number of logs, which can increase costs in

Type here to search

Windows taskbar: Type here to search, File Explorer, Microsoft Edge, Google Chrome, File Manager, Task View, Taskbar icons, ENG IN 2:01 AM 8/24/2020

The screenshot shows the 'Create a VPC network' page in the Google Cloud Platform. The 'Name' field is filled with 'vpcdev'. Below it, a note says 'Lowercase letters, numbers, hyphens allowed'. There is a 'Description' field which is currently empty. A section titled 'Subnets' contains a note about creating private cloud topology. It offers two options: 'Automatic' (which creates a subnet in each region) or 'Custom' (which allows manual definition). A link to 'Learn more' is provided.

This screenshot shows the same 'Create a VPC network' page with more detailed configuration options. The 'Name' field now contains 'lab1'. The 'Region' dropdown is set to 'us-east1'. The 'IP address range' field is set to '10.0.2.0/24'. There are sections for 'Create secondary IP range' and 'Private Google access' with 'On' selected. The Windows taskbar at the bottom shows various open applications like Cloud Shell, Google Sheets, and Google Slides.

The image displays two screenshots of the Google Cloud Platform interface.

Screenshot 1: VPC networks

This screenshot shows the "VPC networks" page. The table lists various VPC networks:

Region	Name	Type	IP Range	Default Router IP
europe-west6	default		10.172.0.0/20	10.172.0.1
asia-northeast2	default		10.174.0.0/20	10.174.0.1
asia-northeast3	default		10.178.0.0/20	10.178.0.1
us-west3	default		10.180.0.0/20	10.180.0.1
us-west4	default		10.182.0.0/20	10.182.0.1
asia-southeast2	default		10.184.0.0/20	10.184.0.1
vpcdev	1	Custom		0 Off
us-east1	lab1		10.0.2.0/24	10.0.2.1

Screenshot 2: Create an instance

This screenshot shows the "Create an instance" wizard. The left sidebar lists options:

- New VM instance**: Create a single VM instance from scratch.
- New VM instance from template**: Create a single VM instance from an existing template.
- New VM instance from machine image**: Create a single VM instance from a machine image.

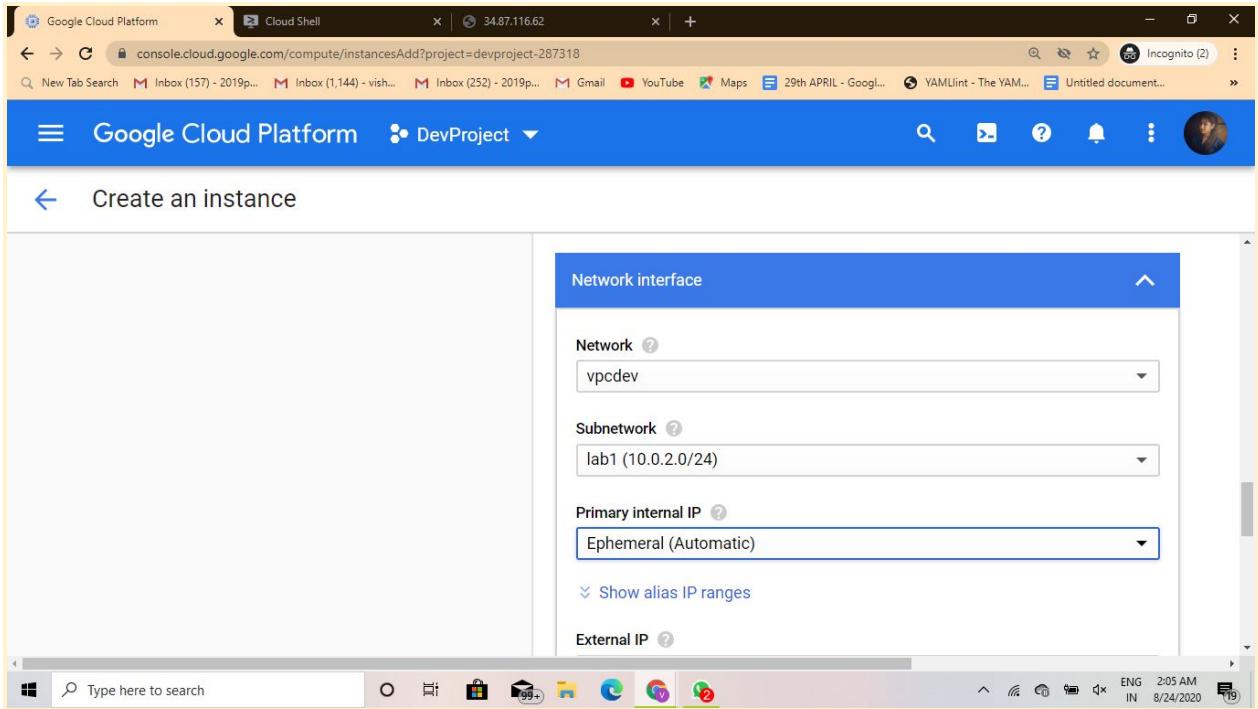
The right panel shows the configuration for a "New VM instance".

- Name**: dev-instance
- Labels**: (Optional) Add label
- Region**: us-east1 (South Carolina)
- Zone**: us-east1-b

A message box indicates: "You have a draft that wasn't submitted, click Restore to keep working on it" with a "Restore" button.

The screenshot shows the 'Create an instance' page in the Google Cloud Platform Compute Engine interface. The top section is titled 'Boot disk' and shows a 'New 20 GB standard persistent disk' with an 'Image' of 'CentOS 7'. A 'Change' button is available. Below this is the 'Identity and API access' section, which includes a 'Service account' dropdown set to 'Compute Engine default service account' and 'Access scopes' options: 'Allow default access' (selected), 'Allow full access to all Cloud APIs', and 'Set access for each API'.

The bottom section is titled 'Networking' and includes fields for 'Network tags' (optional), 'Hostname' (set to 'dev-instance.us-east1-b.c.devproject-287318.internal'), and 'Network interfaces' (set to 'default default (10.142.0.0/20)'). A 'Add network interface' button is also present.



click edit

The image shows two screenshots of the Google Cloud Platform interface.

Top Screenshot: The user is viewing the "VM instances" page under the "DevProject" project. A table lists one instance:

Name	Zone	Recommendation	In use by	Internal IP	External IP	Connect
dev-instance	us-east1-b			10.0.2.2 (nic0)	104.196.174.100	SSH

Bottom Screenshot: The user is creating a new VM instance under the "ProdProject" project. The "Create an instance" dialog is open, showing options for creating a new instance from scratch, from a template, or from a machine image. The "New VM instance" option is selected, and the configuration form is filled out:

- Name:** prod-instance
- Labels:** (Optional) Add label
- Region:** asia-southeast1 (Singapore)
- Zone:** asia-southeast1-b

The status bar at the bottom of both screenshots indicates the date and time as 8/24/2020 and 2:06 AM/2:07 AM respectively.

Google Cloud Platform

Cloud Shell

34.87.116.62

console.cloud.google.com/compute/instancesAdd?project=prodporject-13242443

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Incognito

Boot disk

Select an image or snapshot to create a boot disk; or attach an existing disk. Can't find what you're looking for? Explore hundreds of VM solutions in Marketplace.

Public images | Custom images | Snapshots | Existing disks

Operating system: CentOS

Version: CentOS 7

x86_64 built on 20200811, supports Shielded VM features

Boot disk type: Standard persistent disk

Size (GB): 20

Select | Cancel

Type here to search

Google Cloud Platform

Cloud Shell

34.87.116.62

console.cloud.google.com/compute/instancesAdd?project=prodporject-13242443

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ProdProject

Create an instance

Hostname: prod-instance.asia-southeast1-b.c.prodporject-13242443.internal

Network interfaces: default default (10.148.0.0/20)

Add network interface

Less

Type here to search

The screenshot displays two windows from the Google Cloud Platform interface.

Top Window: Create an instance

This window shows the configuration for creating a new VM instance. The "Network interface" panel is open, displaying the following settings:

- Network:** vpcproduction
- Subnetwork:** lab1 (10.0.1.0/24)
- Primary internal IP:** Ephemeral (Automatic)
- Show alias IP ranges:** (checkbox)
- External IP:** (checkbox)

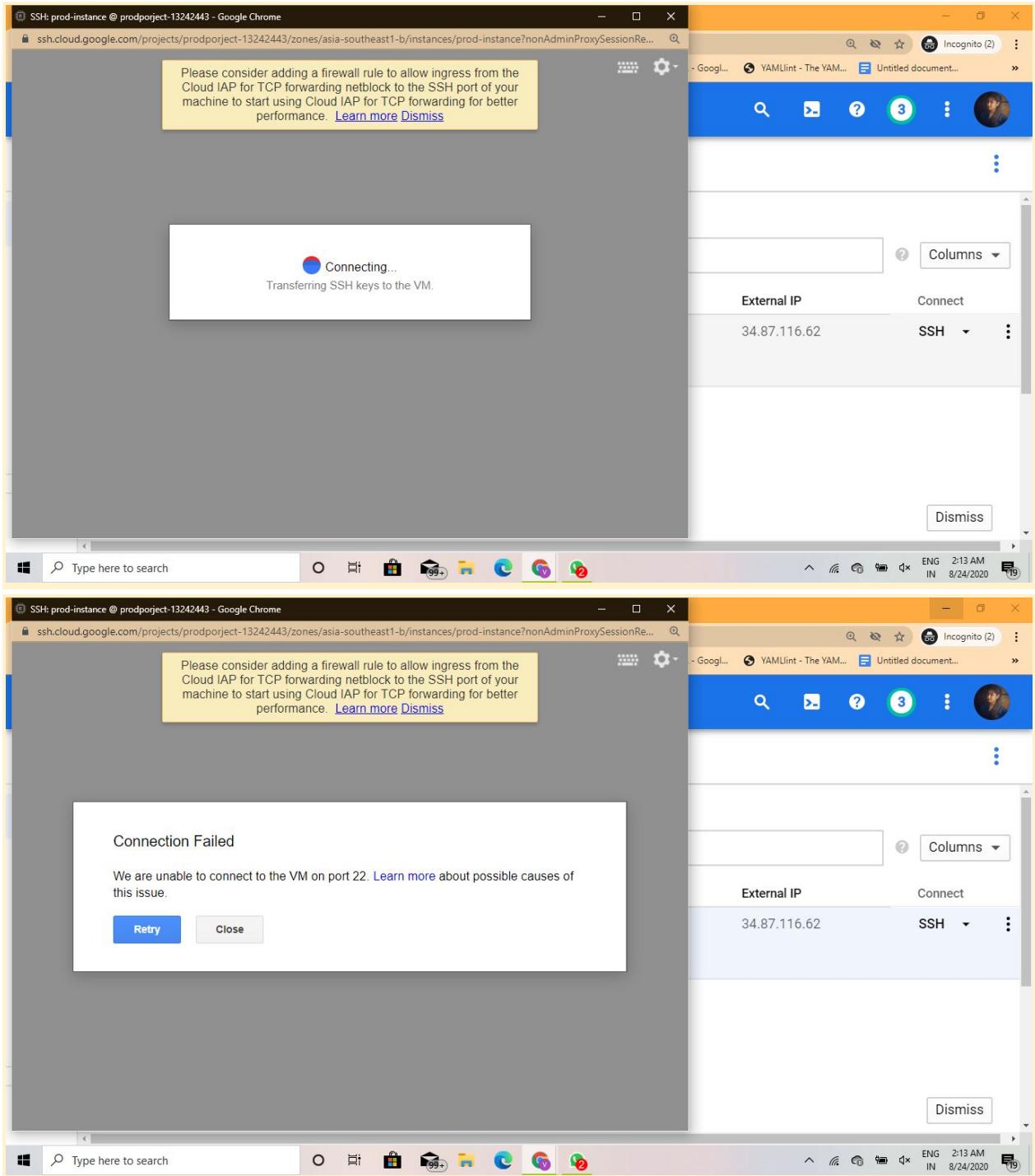
Bottom Window: VM instances

This window lists existing VM instances. The table includes columns for Name, Zone, Recommendation, In use by, Internal IP, External IP, and Connect (SSH).

Name	Zone	Recommendation	In use by	Internal IP	External IP	Connect
prod-instance	asia-southeast1-b			10.0.1.2 (nic0)	34.87.116.62	SSH

Related Actions

A "Dismiss" button is visible in the bottom right corner of the related actions area.



The screenshot shows two windows side-by-side, both from the Google Cloud Platform interface.

Top Window: This window displays the "VPC network details" page for a specific VPC network. The "Firewall rules" tab is selected. At the top, there is an "EDIT" button and a "DELETE VPC NETWORK" button. Below the tabs, there are buttons for "Add firewall rule" and "Delete". A "Filter resources" input field is present. A table below shows columns for Name, Type, Targets, Filters, Protocols / ports, Action, Priority, Logs, Hit count, and Last hit. The message "No matching results" is displayed.

Bottom Window: This window shows the "Create a firewall rule" dialog. It includes fields for "Direction of traffic" (Ingress is selected), "Action on match" (Allow is selected), and "Targets" (set to "All instances in the network"). There is also a "Source filter" section for "IP ranges".

The image shows two side-by-side screenshots of the Google Cloud Platform interface.

Top Window: Create a firewall rule

- Targets:** All instances in the network
- Source filter:** IP ranges
- Source IP ranges ***: 0.0.0.0/0 (example: 0.0.0.0/0, 192.168.2.0/24)
- Second source filter:** None
- Protocols and ports**: Allow all

Bottom Window: VPC network details

- DNS server policy:** None
- Firewall rules** tab is selected.
- Add firewall rule** button
- Filter resources** input field
- Columns** dropdown
- Table Headers:** Name, Type, Targets, Filters, Protocols / ports, Action, Priority, Logs, Hit count, Last hit
- No matching results**

The image shows a dual-monitor setup. The top monitor displays the Google Cloud Platform interface, specifically the 'Create a firewall rule' page. The configuration includes:

- Targets:** All instances in the network
- Source filter:** IP ranges
- Source IP ranges ***: 0.0.0.0/0 (example: 0.0.0.0/0, 192.168.2.0/24)
- Second source filter:** None
- Protocols and ports**: Allow all

The bottom monitor displays a Windows Command Prompt window (cmd.exe) running on version 10.0.18362.959. The user has run the command:

```
C:\Users\user>ping 104.196.174.100
```

Ping statistics for 104.196.174.100:

```
Pinging 104.196.174.100 with 32 bytes of data:  
Reply from 104.196.174.100: bytes=32 time=511ms TTL=47  
Reply from 104.196.174.100: bytes=32 time=392ms TTL=47  
  
Ping statistics for 104.196.174.100:  
Packets: Sent = 2, Received = 2, Lost = 0 (0% loss),  
Approximate round trip times in milli-seconds:  
Minimum = 392ms, Maximum = 511ms, Average = 451ms  
Control-C  
^C
```

```
[g96aayu@prod-instance ~]$ ping 104.196.174.100
PING 104.196.174.100 (104.196.174.100) 56(84) bytes of data.
64 bytes from 104.196.174.100: icmp_seq=1 ttl=55 time=220 ms
64 bytes from 104.196.174.100: icmp_seq=2 ttl=55 time=220 ms
64 bytes from 104.196.174.100: icmp_seq=3 ttl=55 time=220 ms
64 bytes from 104.196.174.100: icmp_seq=4 ttl=55 time=220 ms
^C
--- 104.196.174.100 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3001ms
rtt min/avg/max/mdev = 220.430/220.571/220.728/0.585 ms
[g96aayu@prod-instance ~]$ 
```



```
[g96aayu@prod-instance ~]$ ping 104.196.174.100
PING 104.196.174.100 (104.196.174.100) 56(84) bytes of data.
64 bytes from 104.196.174.100: icmp_seq=1 ttl=55 time=220 ms
64 bytes from 104.196.174.100: icmp_seq=2 ttl=55 time=220 ms
64 bytes from 104.196.174.100: icmp_seq=3 ttl=55 time=220 ms
64 bytes from 104.196.174.100: icmp_seq=4 ttl=55 time=220 ms
^C
--- 104.196.174.100 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3001ms
rtt min/avg/max/mdev = 220.430/220.571/220.728/0.585 ms
[g96aayu@prod-instance ~]$ ping 10.0.2.2
PING 10.0.2.2 (10.0.2.2) 56(84) bytes of data.
```

```
g96aayu@prod-instance:~ - Google Chrome
ssh.cloud.google.com/projects/prodproject-13242443/zones/asia-southeast1-b/instances/prod-instance?useAdminProxy=true&authuser=0&hl=en_US&projectNumber=170726174900
^C
--- 10.0.2.2 ping statistics ---
18 packets transmitted, 0 received, 100% packet loss, time 16999ms

[g96aayu@prod-instance ~]$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1460
    inet 10.0.1.2 netmask 255.255.255.255 broadcast 10.0.1.2
        inet6 fe80::4001:aff:fe00:102 prefixlen 64 scopeid 0x20<link>
            ether 42:01:0a:00:01:02 txqueuelen 1000 (Ethernet)
            RX packets 1003 bytes 195051 (190.4 KiB)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 837 bytes 93201 (91.0 KiB)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
        inet6 ::1 prefixlen 128 scopeid 0x10<host>
            loop txqueuelen 1000 (Local Loopback)
            RX packets 0 bytes 0 (0.0 B)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 0 bytes 0 (0.0 B)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[g96aayu@prod-instance ~]$ ping 10.0.1.2
PING 10.0.1.2 (10.0.1.2) 56(84) bytes of data.
64 bytes from 10.0.1.2: icmp_seq=1 ttl=64 time=0.035 ms
64 bytes from 10.0.1.2: icmp_seq=2 ttl=64 time=0.051 ms
64 bytes from 10.0.1.2: icmp_seq=3 ttl=64 time=0.055 ms
64 bytes from 10.0.1.2: icmp_seq=4 ttl=64 time=0.092 ms
^C
--- 10.0.1.2 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 2999ms
rtt min/avg/max/mdev = 0.035/0.058/0.092/0.021 ms
[g96aayu@prod-instance ~]$ ping 10.0.2.2
PING 10.0.2.2 (10.0.2.2) 56(84) bytes of data.
^C
--- 10.0.2.2 ping statistics ---
15 packets transmitted, 0 received, 100% packet loss, time 13999ms

[g96aayu@prod-instance ~]$
```

Google Cloud Platform - Cloud Shell - 34.87.116.62 - Incognito (2) -

console.cloud.google.com/networking/networks/details/vpcdev?project=devproject-287318&pageTab=SUBNETS&networkDetailsFirewallTablesize=20&n...

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5

Google Cloud Platform DevProject

VPC network details

EDIT DELETE VPC NETWORK SHOW INFO PANEL

Custom subnets

Dynamic routing mode: Regional

DNS server policy: None

Subnets Static internal IP addresses Firewall rules Routes VPC Network Peering Private service connection

Add subnet Flow logs

Name	Region	IP address ranges	Gateway	Private Google access	Flow logs
lab1	us-east1	10.0.2.0/24	10.0.2.1	Off	Off

Reserved subnets for internal HTTP(S) load balancers

Name	Region	IP address ranges	Gateway	Role

Type here to search

Google Cloud Platform - Cloud Shell - 34.87.116.62 - Incognito (2) -

console.cloud.google.com/networking/networks/details/vpcdev?project=devproject-287318&pageTab=PEERINGS&networkDetailsFirewallTablesize=20&n...

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5

Google Cloud Platform DevProject

VPC network

tails EDIT DELETE VPC NETWORK

External IP addresses

Firewall

Routes

VPC network peering

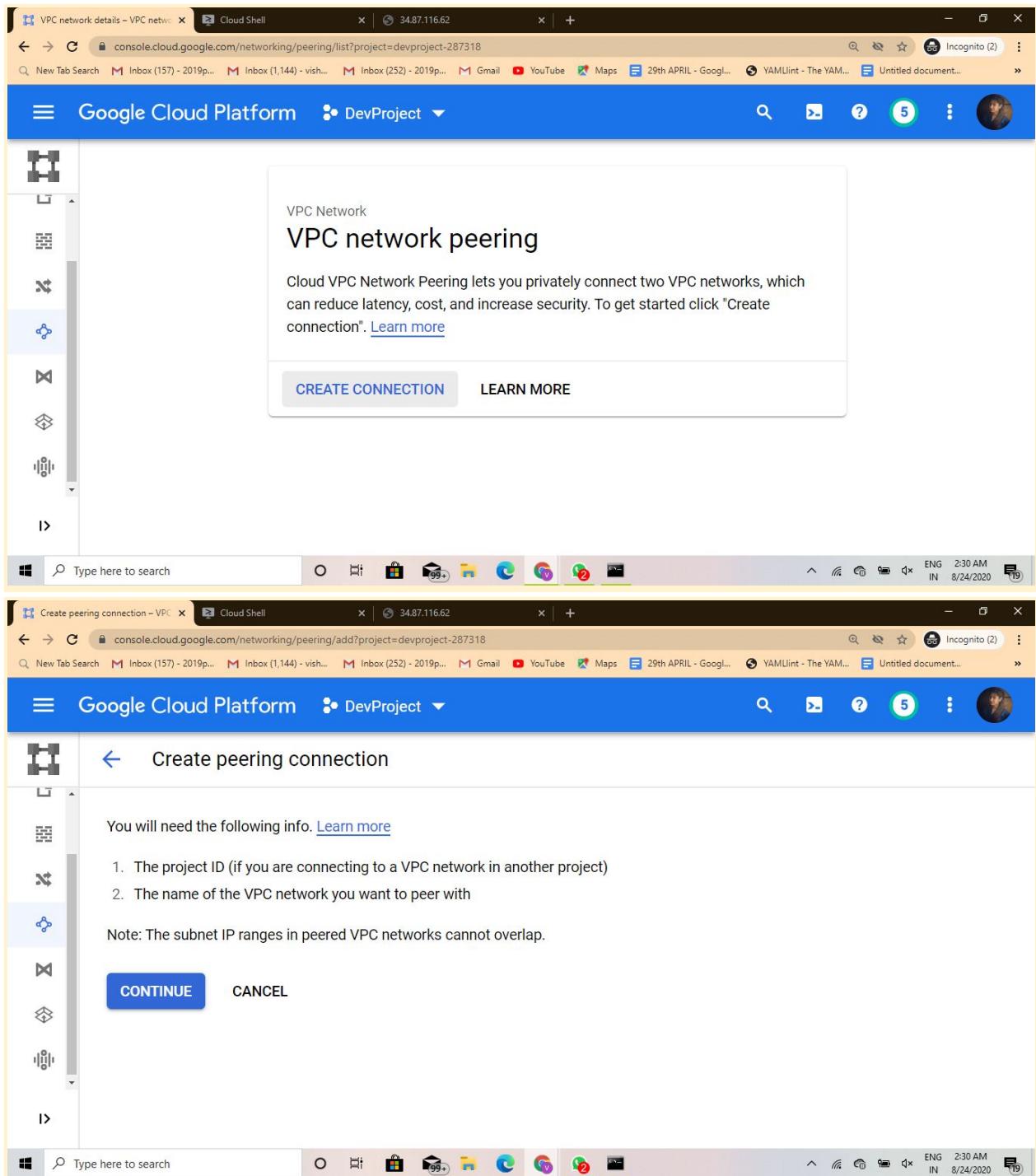
Shared VPC

Serverless VPC access

Packet mirroring

Peered project ID Status Exchange custom routes

Type here to search



The screenshot shows two stacked windows from the Google Cloud Platform interface, both titled "Cloud Shell".

The top window displays the "VPC network peering" section under "VPC Network". It includes a brief description of VPC Network Peering, a "CREATE CONNECTION" button, and a "LEARN MORE" link. The URL is <https://console.cloud.google.com/networking/peering/list?project=devproject-287318>.

The bottom window shows the "Create peering connection" step. It asks for project ID and VPC network details, noting that subnet IP ranges must not overlap. It features "CONTINUE" and "CANCEL" buttons. The URL is <https://console.cloud.google.com/networking/peering/add?project=devproject-287318>.

Create peering connection – VPC

Cloud Shell

34.87.116.62

console.cloud.google.com/networking/peering/add?project=devproject-287318

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Incognito (2)

Google Cloud Platform DevProject

Create peering connection

automatically created.

Name * dev-peering

Lowercase letters, numbers, hyphens allowed

Your VPC network * vpcdev

Peered VPC network

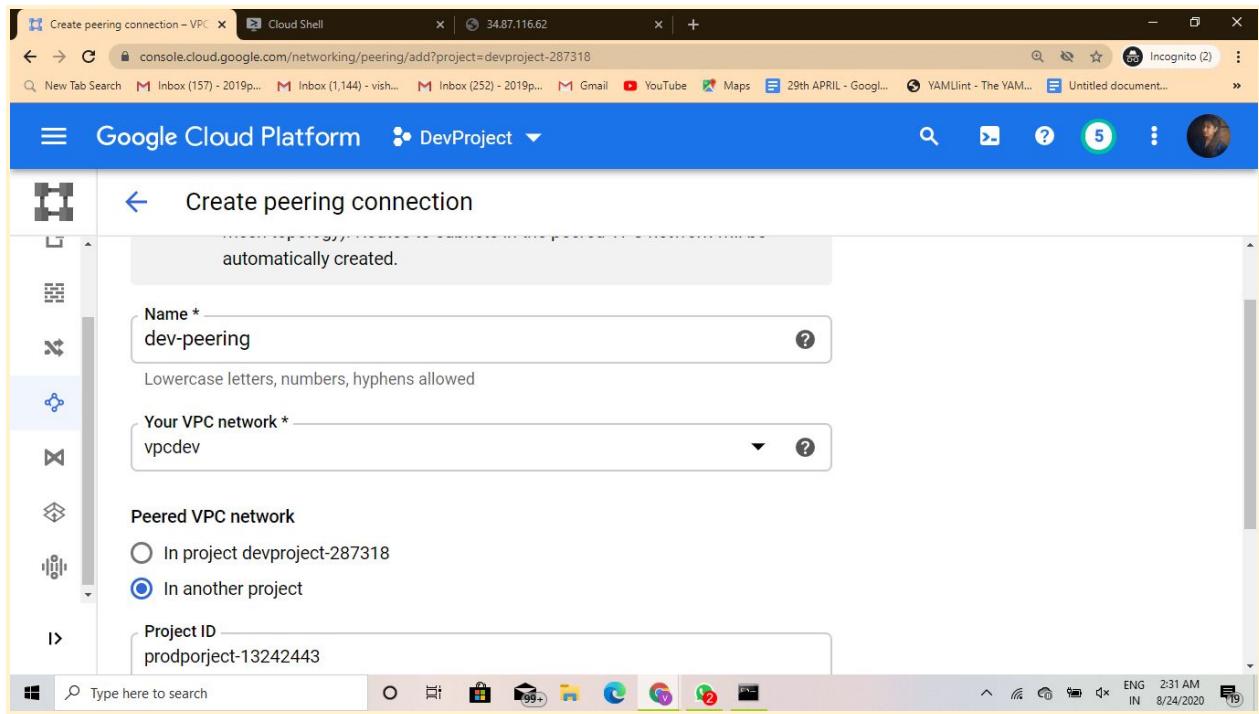
In project devproject-287318

In another project

Project ID prodporject-13242443

Type here to search

2:31 AM IN 8/24/2020



Create peering connection – VPC

Cloud Shell

34.87.116.62

console.cloud.google.com/networking/peering/add?project=devproject-287318

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Incognito (2)

Google Cloud Platform DevProject

Create peering connection

Peered VPC network

In project devproject-287318

In another project

Project ID prodporject-13242443

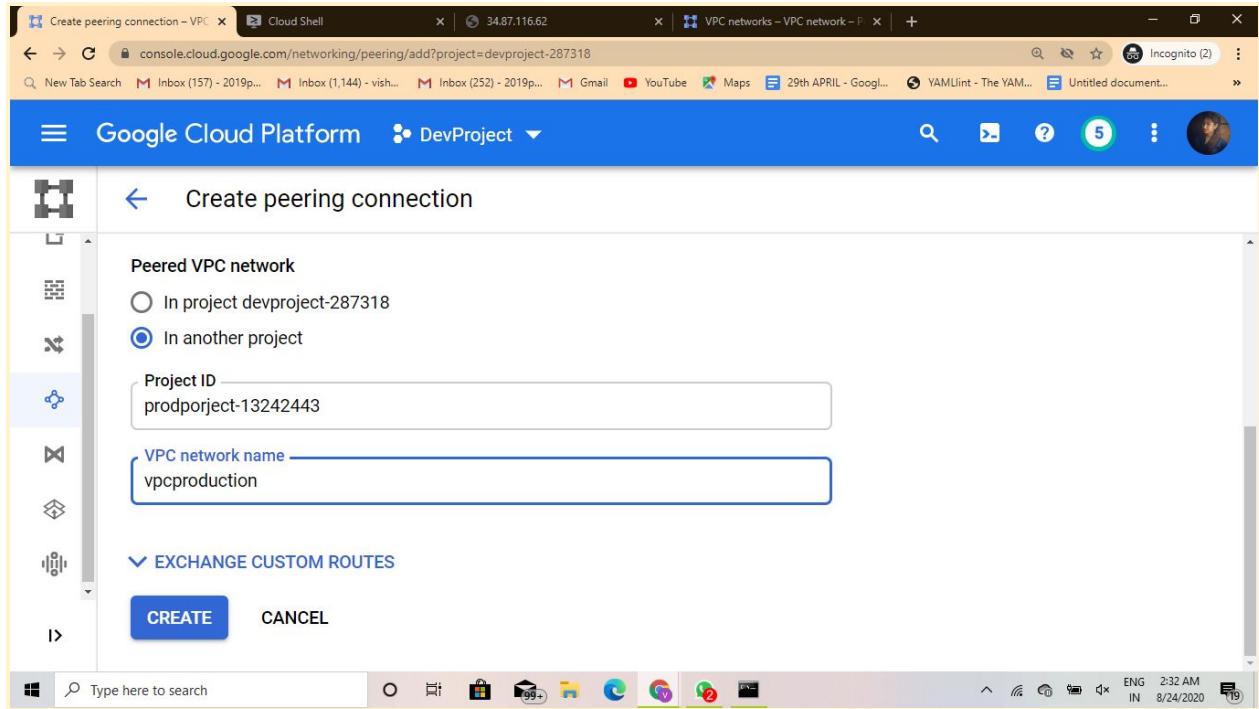
VPC network name vpcproduction

EXCHANGE CUSTOM ROUTES

CREATE CANCEL

Type here to search

2:32 AM IN 8/24/2020



The image displays two screenshots of the Google Cloud Platform interface, one for the 'DevProject' and one for the 'ProdProject', both showing the 'VPC network peering' section.

DevProject (Top Screenshot):

- Project:** DevProject
- VPC network peering table:**

Name	Your VPC network	Peered VPC network	Peered project ID	Status	Exchange custom routes
dev-peering	vpcdev	vpcproduction	prodporject-13242443	Inactive	

ProdProject (Bottom Screenshot):

- Project:** ProdProject
- VPC network peering table:**

Name	Your VPC network	Peered VPC network	Peered project ID	Status	Exchange custom routes
prodpeering	vpcproduction	vpcdev	devproject-287318	Active	

The screenshot shows a Windows desktop environment. At the top, there is a taskbar with several icons. Two browser windows are open: one titled "g96aayu@prod-instance~ - Google Chrome" showing terminal output, and another titled "VPC network peering - VPC net..." showing the Google Cloud Platform interface. The terminal window displays ping results between 10.0.2.2 and 10.0.2.2, and a list of 14 ICMP sequence numbers with their times. The Google Cloud Platform window shows a table of VPC network peering connections, with one entry for "dev-peering" between "vpcdev" and "vpcproduction".

```
[g96aayu@prod-instance ~]$ ping 10.0.2.2
PING 10.0.2.2 (10.0.2.2) 56(84) bytes of data.
^C
--- 10.0.2.2 ping statistics ---
15 packets transmitted, 0 received, 100% packet loss, time 13999ms

[g96aayu@prod-instance ~]$ ping 10.0.2.2
PING 10.0.2.2 (10.0.2.2) 56(84) bytes of data.
64 bytes from 10.0.2.2: icmp_seq=1 ttl=64 time=222 ms
64 bytes from 10.0.2.2: icmp_seq=2 ttl=64 time=221 ms
64 bytes from 10.0.2.2: icmp_seq=3 ttl=64 time=221 ms
64 bytes from 10.0.2.2: icmp_seq=4 ttl=64 time=221 ms
64 bytes from 10.0.2.2: icmp_seq=5 ttl=64 time=221 ms
64 bytes from 10.0.2.2: icmp_seq=6 ttl=64 time=221 ms
64 bytes from 10.0.2.2: icmp_seq=7 ttl=64 time=221 ms
64 bytes from 10.0.2.2: icmp_seq=8 ttl=64 time=221 ms
64 bytes from 10.0.2.2: icmp_seq=9 ttl=64 time=221 ms
64 bytes from 10.0.2.2: icmp_seq=10 ttl=64 time=221 ms
64 bytes from 10.0.2.2: icmp_seq=11 ttl=64 time=221 ms
64 bytes from 10.0.2.2: icmp_seq=12 ttl=64 time=221 ms
64 bytes from 10.0.2.2: icmp_seq=13 ttl=64 time=221 ms
64 bytes from 10.0.2.2: icmp_seq=14 ttl=64 time=221 ms
```

Name	Your VPC network	Peered VPC network	Peered project ID	Status	Exchange custom routes
dev-peering	vpcdev	vpcproduction	prodproject-13242443	Active	None