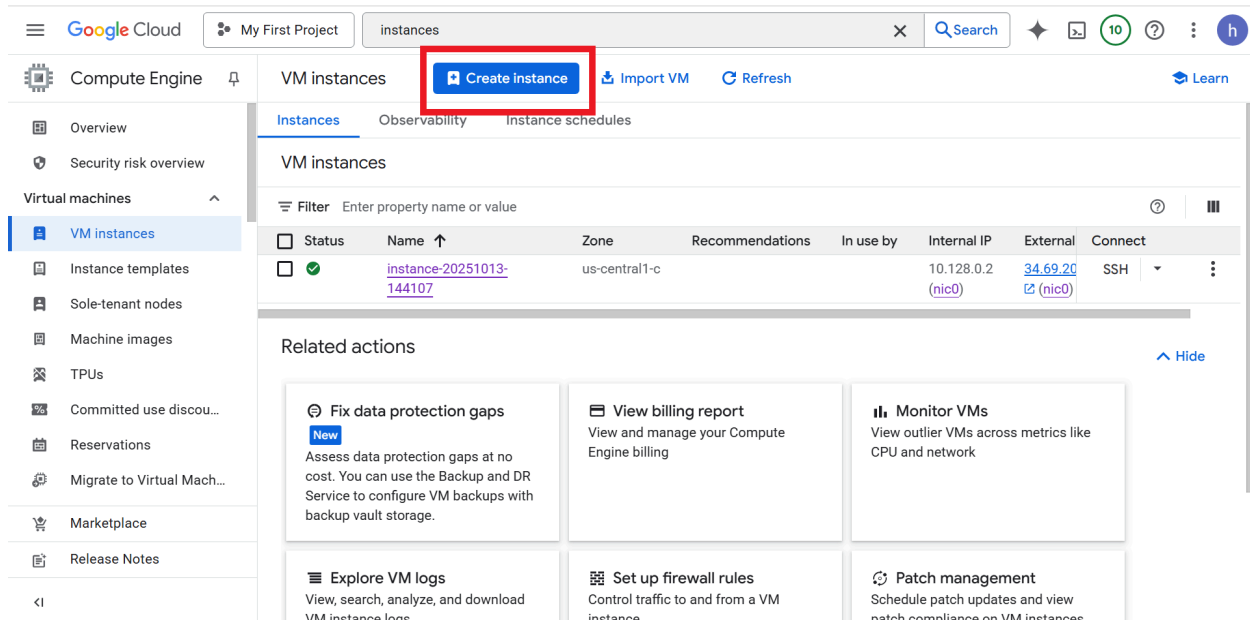


DotNet App Deployment and Database Setup:

Step1: Create Vm on GCP

Click on Create Instance Button



Google Cloud My First Project instances

Compute Engine VM instances **Create instance** Import VM Refresh

Instances Observability Instance schedules

VM instances

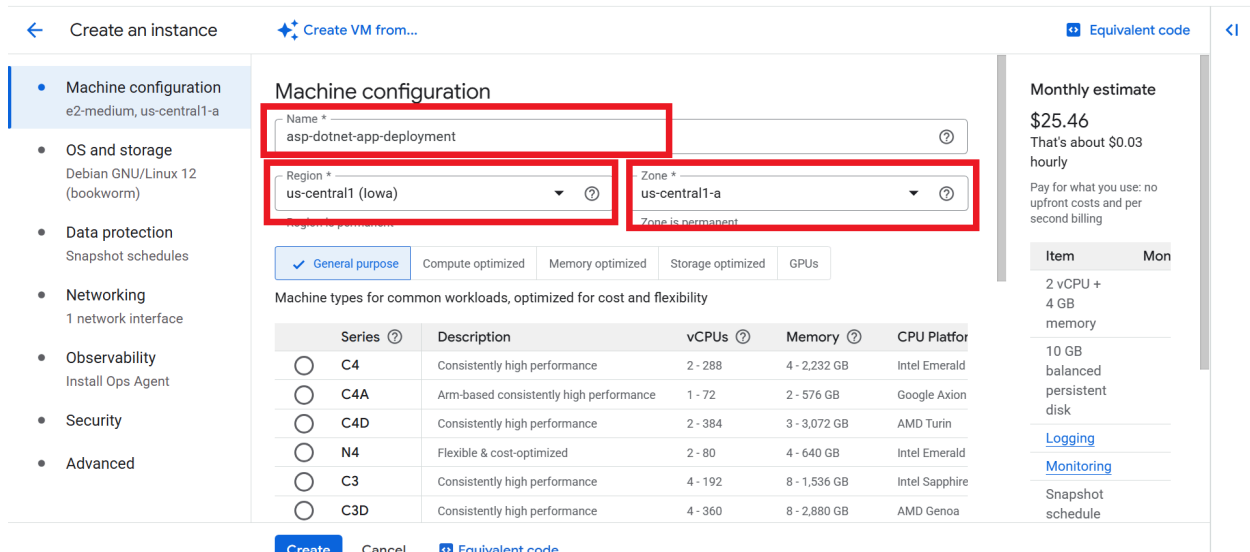
Filter Enter property name or value

Status	Name	Zone	Recommendations	In use by	Internal IP	External	Connect
<input type="checkbox"/>	<input checked="" type="checkbox"/>	instance-20251013-144107	us-central1-c		10.128.0.2 (nic0)	34.69.20 (nic0)	SSH

Related actions

- Fix data protection gaps**
Assess data protection gaps at no cost. You can use the Backup and DR Service to configure VM backups with backup vault storage.
- 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
- Set up firewall rules**
Control traffic to and from a VM instance
- Patch management**
Schedule patch updates and view patch compliance on VM instances

Add the Region and Zone detail:



Create an instance Create VM from... Equivalent code

Machine configuration

Name *
asp-dotnet-app-deployment

Region *
us-central1 (Iowa)

Zone *
us-central1-a

General purpose Compute optimized Memory optimized Storage optimized GPUs

Machine types for common workloads, optimized for cost and flexibility

Series	Description	vCPUs	Memory	CPU Platform
<input type="radio"/> C4	Consistently high performance	2 - 288	4 - 2,232 GB	Intel Emerald
<input type="radio"/> C4A	Arm-based consistently high performance	1 - 72	2 - 576 GB	Google Axion
<input type="radio"/> C4D	Consistently high performance	2 - 384	3 - 3,072 GB	AMD Turin
<input type="radio"/> N4	Flexible & cost-optimized	2 - 80	4 - 640 GB	Intel Emerald
<input type="radio"/> C3	Consistently high performance	4 - 192	8 - 1,536 GB	Intel Sapphire
<input type="radio"/> C3D	Consistently high performance	4 - 360	8 - 2,880 GB	AMD Genoa

Create Cancel Equivalent code

Monthly estimate
\$25.46
That's about \$0.03 hourly

Pay for what you use: no upfront costs and per second billing

Item	Mon
2 vCPU + 4 GB memory	
10 GB balanced persistent disk	
Logging	
Monitoring	
Snapshot schedule	

Select the Instance Type and Appropriate Cpu and memory limit
For further customization click on the advanced configurations link


← Create an instance [Create VM from...](#) [Equivalent code](#) <

- Machine configuration
e2-medium, us-central1-a
- OS and storage
Debian GNU/Linux 12 (bookworm)
- Data protection
Snapshot schedules
- Networking
1 network interface
- Observability
Install Ops Agent
- Security
- Advanced

Machine type	Consistent high performance	4 - 300	8 - 2,880 GB	AMD Genoa
<input checked="" type="radio"/> E2	Low cost, day-to-day computing	0.25 - 32	1 - 128 GB	Intel Broadwell
<input type="radio"/> N2	Balanced price & performance	2 - 128	2 - 864 GB	Intel Cascade Lake
<input type="radio"/> N2D	Balanced price & performance	2 - 224	2 - 896 GB	AMD Milan
<input type="radio"/> T2A	Scale-out workloads	1 - 48	4 - 192 GB	Ampere Altra
<input type="radio"/> T2D	Scale-out workloads	1 - 60	4 - 240 GB	AMD Milan
<input type="radio"/> N1	Balanced price & performance	0.25 - 96	0.6 - 624 GB	Intel Haswell

Machine type
Choose a machine type with preset amounts of vCPUs and memory that suit most workloads. Or, you can create a custom machine for your workload's particular needs. [Learn more](#)

e2-medium (2 vCPU, 1 core, 4 GB memory)

 **vCPU**
1-2 vCPU (1 shared core)

Memory
4 GB

▼ Advanced configurations

[Equivalent code](#)

Monthly estimate
\$25.46
That's about \$0.03 hourly
Pay for what you use: no upfront costs and per second billing

Item	Mon
2 vCPU + 4 GB memory	
10 GB balanced persistent disk	
Logging	
Monitoring	
Snapshot schedule	

Default Os type is Debian

If you want to change OS Type than click on Change Button

← Create an instance [Create VM from...](#) [Equivalent code](#) <

- Machine configuration
e2-medium, us-central1-a
- OS and storage
Debian GNU/Linux 12 (bookworm)
- Data protection
Snapshot schedules
- Networking
1 network interface
- Observability
Install Ops Agent
- Security
- Advanced

Operating system and storage

Name	asp-dotnet-app-deployment
Type	New balanced persistent disk
Size	10 GB
Snapshot schedule	default-schedule-1
License type	Free
Image	Debian GNU/Linux 12 (bookworm)

Additional disks

Container Deprecated [?](#)

Deploy a container image to this VM instance

[Equivalent code](#)

Monthly estimate
\$25.46
That's about \$0.03 hourly
Pay for what you use: no upfront costs and per second billing

Item	Monthly estimate
2 vCPU + 4 GB memory	\$24.46
10 GB balanced persistent disk	\$1.00
Logging	Cost varies
Monitoring	Cost varies
Snapshot schedule	Cost varies
Total	\$25.46

[Compute Engine pricing](#) [Cloud Operations pricing](#)

Select Desired Operation System

Select Operating System Version

Select the Disk Size and then click on select button to save setting

Google Cloud

My First Instance

Create an instance

Machine configuration

e2-medium, us-central1-a

OS and storage

Debian GNU/Linux 12 (bookworm)

Data protection

Snapshot schedules

Networking

1 network interface

Observability

Install Ops Agent

Security

Advanced

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

Archive Snapshots

Existing Disks

Operating system

Debian

Version *

Debian GNU/Linux 12 (bookworm)

x86_64, amd64 built on 20250910

Boot disk type *

Balanced persistent disk

Compare disk types

Size (GB) *

20

Provision between 10 and 65536 GB

Show advanced configuration

Select

Cancel

Allow firewall rules

Create an instance

Create VM from...

Equivalent code

Machine configuration

e2-medium, us-central1-a

OS and storage

Debian GNU/Linux 12 (bookworm)

Data protection

Snapshot schedules

Networking

3 firewall rules, 1 network interface

Observability

Install Ops Agent

Security

Advanced

Networking

Select firewall rules to allow specific network traffic from the Internet. Firewall rules will only be applied when an instance is created

☒ Allow HTTP traffic

☒ Allow HTTPS traffic

☒ Allow Load Balancer Health Checks

Network tags

Network tags

http-server x https-server x lb-health-check x

Hostname

Hostname

Set a custom hostname for this instance or leave it default. Choice is permanent

IP forwarding

Create

Cancel

Equivalent code

Monthly estimate

\$28.46

That's about \$0.04 hourly

Pay for what you use: no upfront costs and per second billing

Item	Monthly estimate
2 vCPU + 4 GB memory	\$24.46
40 GB balanced persistent disk	\$4.00
Logging	Cost varies
Monitoring	Cost varies
Snapshot schedule	Cost varies
Total	\$28.46

Compute Engine pricing

Cloud Operations pricing

Use Default VPC Network:

Networking

3 firewall rules, 1 network interface

Observability

Install Ops Agent

Security

Advanced

Maximum outbound network bandwidth: 2Gbps

VM to Public IP: 2Gbps

Network interfaces

Network interface is permanent

default default IPv4 (10.128.0.0/20)

Add a network interface

Add custom (ssh key)

- Networking
3 firewall rules, 1 network interface
- Observability
Install Ops Agent
- Security**
- Advanced

When checked, project-wide SSH keys cannot access this instance. [Learn more](#)

Add manually generated SSH keys
Add your own keys for VM access through a 3rd-party tool. You cannot use these keys when IAM-based access (using OS Login) is enabled. [Learn more](#)

[+ Add item](#)

[Manage access](#)

40 GB balanced persistent disk	\$4.00
Logging	Cost varies
Monitoring	Cost varies
Snapshot schedule	Cost varies
Total	\$28.46

[Compute Engine pricing](#)

[Cloud Operations pricing](#)

Copy your Pc key and paste in this field:

- Networking
3 firewall rules, 1 network interface
- Observability
Install Ops Agent
- Security**
- Advanced

When checked, project-wide SSH keys cannot access this instance. [Learn more](#)

SSH key 1 *
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCo34YTiaKxM91s03dznrw
Enter public SSH key

[+ Add item](#)

[Manage access](#)

40 GB balanced persistent disk	\$4.00
Logging	Cost varies
Monitoring	Cost varies
Snapshot schedule	Cost varies
Total	\$28.46

[Compute Engine pricing](#)

[Cloud Operations pricing](#)

[Create](#) [Cancel](#) [Equivalent code](#)

Click on the Create Button to create Vm

Google Cloud

My First Project

instances

Search

10

h

[←](#) Create an instance

Create VM from...

[Equivalent code](#)

[<](#)

- Machine configuration
e2-medium, us-central1-a
- OS and storage
Debian GNU/Linux 12 (bookworm)
- Data protection
Snapshot schedules
- Networking
3 firewall rules, 1 network interface
- Observability
Install Ops Agent
- Security
- Advanced**

Provisioning model

VM provisioning model
Standard

Determines how long your VMs will run. Choice is permanent

[VM provisioning model advanced settings](#)

Customer Managed Encryption Key (CMEK) revocation policy
You can configure this VM to shut down when the key associated with any attached disk is revoked. [Learn more](#)

☐ Shut down (recommended)
☒ Do nothing

Sole-tenancy

Selected machine type is not compatible with Sole-tenancy.

Monthly estimate

\$28.46
That's about \$0.04 hourly

Pay for what you use: no upfront costs and per second billing

Item	Monthly estimate
2 vCPU + 4 GB memory	\$24.46
40 GB balanced persistent disk	\$4.00
Logging	Cost varies
Monitoring	Cost varies
Snapshot schedule	Cost varies
Total	\$28.46

[Compute Engine pricing](#)

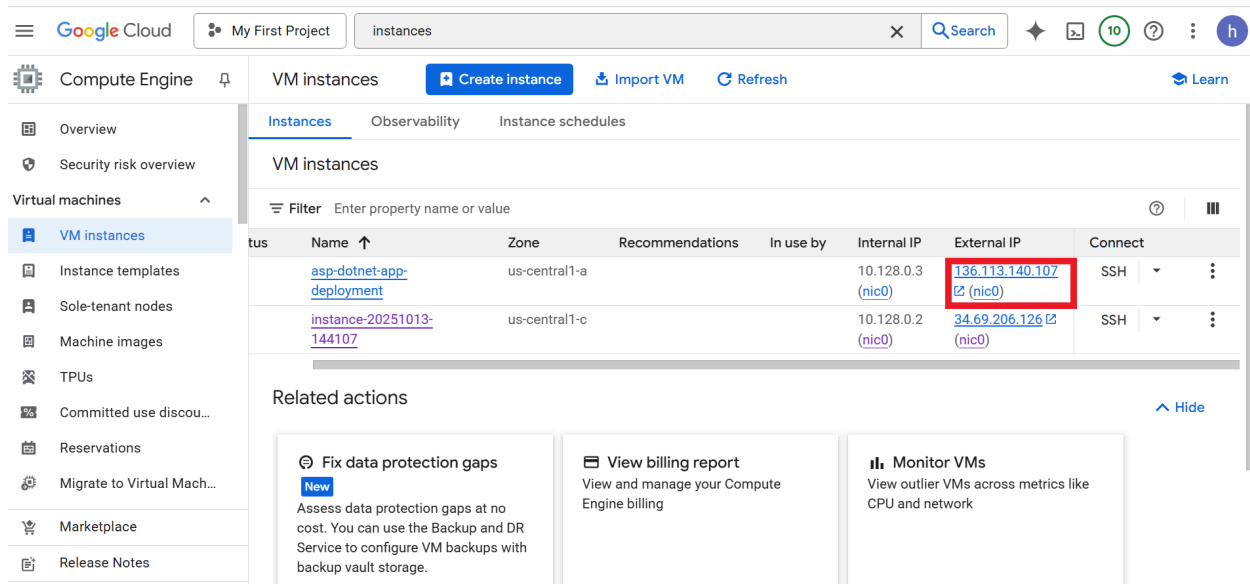
[Cloud Operations pricing](#)

[Create](#)

[Cancel](#)

[Equivalent code](#)

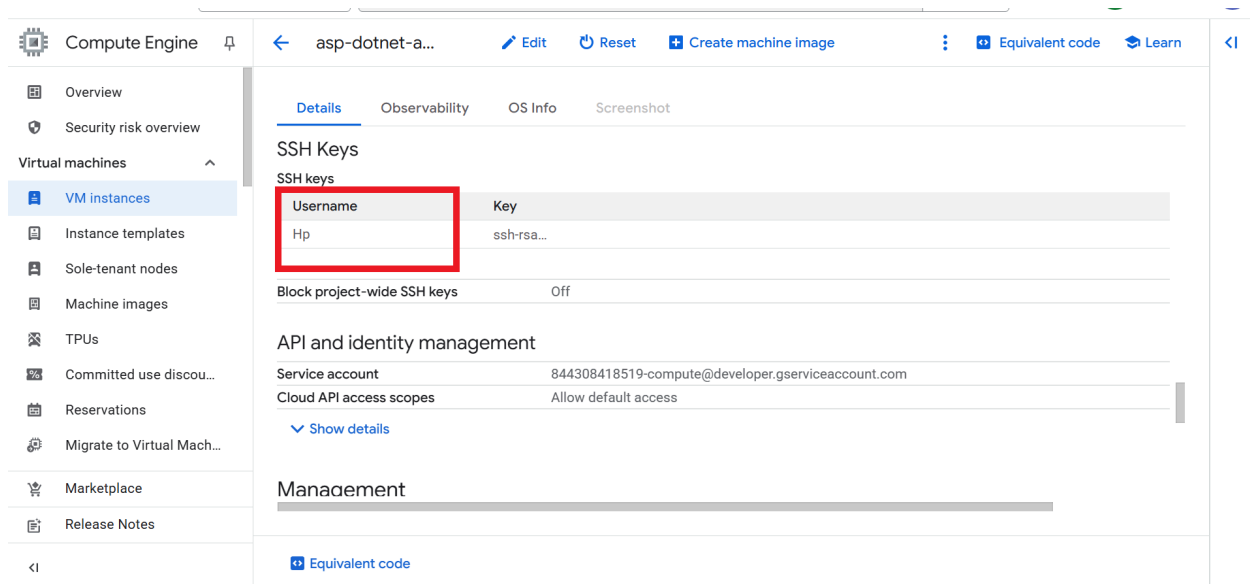
Access Vm: Copy Public IP



The screenshot shows the Google Cloud console interface for VM instances. The left sidebar contains navigation options like Overview, Security risk overview, and Virtual machines. The main panel displays a table of VM instances. The first instance, 'asp-dotnet-app-deployment', has its external IP '136.113.140.107' highlighted with a red box. Below the table, there are related actions such as 'Fix data protection gaps', 'View billing report', and 'Monitor VMs'.

Name	Zone	Internal IP	External IP	Connect
asp-dotnet-app-deployment	us-central1-a	10.128.0.3 (nic0)	136.113.140.107 (nic0)	SSH
instance-20251013-144107	us-central1-c	10.128.0.2 (nic0)	34.69.206.126 (nic0)	SSH

Find Username:



The screenshot shows the details page for a VM instance named 'asp-dotnet-a...'. The 'SSH Keys' section is expanded, showing a table with columns 'Username' and 'Key'. The 'Username' 'Hp' is highlighted with a red box. Below this, there are sections for 'API and identity management' and 'Management'.

Username	Key
Hp	ssh-rsa...

Download MobaXterm and
Add public Ip
Add username
Add your private key (because you have added your public key in custom ssh setting)
Click Ok to login

Session settings

SSH Telnet Rsh Xdmcp RDP VNC FTP SFTP Serial File Shell Browser Mosh Aws S3 WSL

Basic SSH settings

Remote host: 136.113.140.107

☒ Specify username: Hp

Port: 22

Advanced SSH settings

☒ X11-Forwarding ☒ Compression Remote environment: Interactive shell

Execute command:

SSH-browser type: SFTP protocol

☒ Use private key: C:\Users\Hp\.ssh\id_rsa

☐ Do not exit after command ends

☒ Try to follow SSH path in browser

Execute macro at session start: <none>

OK Cancel

Step2: Download and Configure Microsoft SQL Server:

Goto this website [Website Link](#) and configure apt repository

Download the key

```
Hp@asp-dotnet-app-deployment:~$ curl https://packages.microsoft.com/keys/microsoft.asc | sudo tee /etc/apt/trusted.gpg.d/microsoft.asc
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
Dload  Upload   Total   Spent    Left    Speed
100  975  100  975    0    0  8163      0  0 --:--:-- --:--:-- --:--:-- 8193
-----BEGIN PGP PUBLIC KEY BLOCK-----
Version: BSN Pgp v1.1.0.0

mQENBFYxWIwBCADAKoZhZ1JxGNGWzqV+10G1xiQeoowKhssGAKvd+buXCGISZJwT
LXZqIcIiLP7pqdcZwtE9bSc7yBY2Ma1Dp9Liu0KekywQ6VVX1T72NPf5Ev6x6DLV
7aVWsCzUAF+eb7DC9fPuFLEdxmOEYoPjzr07cCnSV4JQxAgH4T60jvRazGL3ag
0eizPXmRljMtUUtH0ZnRhtLzkmwIruivbfFPD+fEoHJ1+uIdf0zZX8/okHKL2j
H632kvsNzJf1ROVvGLYAk2WRcLu+RjjggixhwiB+Mu/A8Tf4V6b+YppS44q8EvVr
M+QvY7LNS0ffs06Slsy9oIsGTdfE39nc7pVRABEBAAG0N01pY3Jvc29mdCAoUmVs
ZWZzZSBzaWduZW50SAs8Z3Bnc2VjZDxpdmhLaWwlcjcm9zb2Z0LmNvbT6JATQEEwEI
AB4FALYxWIwCGwMGcwKIBwMCAxUIAwMwAgECHgECF4AAcGkQ6z6Urb4SKc+P9gf/
diY2900wvWEgV7iMgtrGzx79W/PbwWiOkKoD9sdzhARXWiP8Q5teL/t5TUH6T23B
ENboDjwr705jLLPwEDtPI9jz4kvdT86JwwG6N8gnWM8Ldi56SdJEtXrzwTLB/Fe
6tyfMT1E/PrJfgALUG9MMTIJkc0GhRJoyPpGZ6YWSLGNk4c0H1tYKDFR7q4wtI8
4cBu4mjZHZbxIO6r8CcixxuJkp0TIpr4pdpQKpECM6x5SaT2gVnscbN0PE19KK9
nPsBxyK4w0AvAhed2qldBPTipgzPhqB2gu0jSryl95bKrSmLYJd1Y1XfNHno5D
xfn5JwgySBIwWvtOI05gw==
=zPfd
-----END PGP PUBLIC KEY BLOCK-----
Hp@asp-dotnet-app-deployment:~$
```

Configure Repository

```
-----END PGP PUBLIC KEY BLOCK-----
Hp@asp-dotnet-app-deployment:~$ curl -fsSL https://packages.microsoft.com/config/ubuntu/22.04/mssql-server-2022.list | sudo tee /etc/apt/sources.list.d/mssql-server-2022.list
deb [arch=amd64,arm64,armhf] https://packages.microsoft.com/ubuntu/22.04/mssql-server-2022 jammy main
Hp@asp-dotnet-app-deployment:~$
```

Update Packages

```
Hp@asp-dotnet-app-deployment:~$ sudo apt-get update
Get:1 file:/etc/apt/mirrors/debian.list Mirrorlist [30 B]
Get:5 file:/etc/apt/mirrors/debian-security.list Mirrorlist [39 B]
Hit:7 https://packages.cloud.google.com/apt google-compute-engine-bookworm-stable InRelease
Hit:2 https://deb.debian.org/debian bookworm InRelease
Hit:8 https://packages.cloud.google.com/apt cloud-sdk-bookworm InRelease
Hit:3 https://deb.debian.org/debian bookworm-updates InRelease
Hit:4 https://deb.debian.org/debian bookworm-backports InRelease
Hit:9 https://packages.cloud.google.com/apt google-cloud-ops-agent-bookworm-2 InRelease
Hit:6 https://deb.debian.org/debian-security bookworm-security InRelease
Get:10 https://packages.microsoft.com/ubuntu/22.04/mssql-server-2022 jammy InRelease [3624 B]
Get:11 https://packages.microsoft.com/ubuntu/22.04/mssql-server-2022 jammy/main amd64 Packages [8492 B]
Fetched 12.1 kB in 1s (10.8 kB/s)
Reading package lists... Done
Hp@asp-dotnet-app-deployment:~$
```

Install mssql server:

```
Hp@asp-dotnet-app-deployment:~$ sudo apt-get install -y mssql-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  gawk gdb libatomic1 libbabeltrace1 libboost-regex1.74.0 libc++1 libc++1-14 libc++abi1-14 libc6-dbg libdebuginfod-common
  libdebuginfod1 libdw1 libipt2 libmpfr6 libnuma1 libpython3.11 libsasl2-modules-gssapi-mit libsigsegv2
  libsource-highlight-common libsource-highlight4v5 libsss-nss-idmap0 libunwind-14 libunwind8 lsof
Suggested packages:
  gawk-doc gdb-doc gdbserver clang
The following NEW packages will be installed:
  gawk gdb libatomic1 libbabeltrace1 libboost-regex1.74.0 libc++1 libc++1-14 libc++abi1-14 libc6-dbg libdebuginfod-common
  libdebuginfod1 libdw1 libipt2 libmpfr6 libnuma1 libpython3.11 libsasl2-modules-gssapi-mit libsigsegv2
  libsource-highlight-common libsource-highlight4v5 libsss-nss-idmap0 libunwind-14 libunwind8 lsof mssql-server
0 upgraded, 25 newly installed, 0 to remove and 7 not upgraded.
Need to get 303 MB of archives.
After this operation, 1387 MB of additional disk space will be used.
Get:1 file:/etc/apt/mirrors/debian.list Mirrorlist [30 B]
Get:2 https://deb.debian.org/debian bookworm/main amd64 libmpfr6 amd64 4.2.0-1 [701 kB]
Get:3 https://deb.debian.org/debian bookworm/main amd64 libsigsegv2 amd64 2.14-1 [37.2 kB]
Get:4 https://deb.debian.org/debian bookworm/main amd64 gawk amd64 1:5.2.1-2 [673 kB]
Get:5 https://deb.debian.org/debian bookworm/main amd64 libdebuginfod-common all 0.188-2.1 [21.5 kB]
Get:6 https://deb.debian.org/debian bookworm/main amd64 lsof amd64 4.95.0-1 [318 kB]
Get:7 https://deb.debian.org/debian bookworm/main amd64 libdw1 amd64 0.188-2.1 [235 kB]
Get:8 https://deb.debian.org/debian bookworm/main amd64 libbabeltrace1 amd64 1.5.11-1+b2 [172 kB]
Get:9 https://deb.debian.org/debian bookworm/main amd64 libdebuginfod1 amd64 0.188-2.1 [27.3 kB]
Get:10 https://deb.debian.org/debian bookworm/main amd64 libipt2 amd64 2.0.5-1 [43.9 kB]
Get:11 https://deb.debian.org/debian bookworm/main amd64 libpython3.11 amd64 3.11.2-6+deb12u6 [1987 kB]
Get:12 https://deb.debian.org/debian bookworm/main amd64 libsource-highlight-common all 3.1.9-4.2 [77.4 kB]
Get:13 https://deb.debian.org/debian bookworm/main amd64 libboost-regex1.74.0 amd64 1.74.0+ds1-21 [487 kB]
Get:14 https://deb.debian.org/debian bookworm/main amd64 libsource-highlight4v5 amd64 3.1.9-4.2+b3 [257 kB]
Get:15 https://deb.debian.org/debian bookworm/main amd64 gdb amd64 13.1-3 [3962 kB]
Get:16 https://deb.debian.org/debian bookworm/main amd64 libatomic1 amd64 12.2.0-14+deb12u1 [9376 B]
Get:17 https://deb.debian.org/debian bookworm/main amd64 libunwind-14 amd64 1:14.0.6-12 [44.4 kB]
```

Configure mssql:

```
Hp@asp-dotnet-app-deployment:~$ sudo /opt/mssql/bin/mssql-conf setup
Choose an edition of SQL Server:
1) Evaluation (free, no production use rights, 180-day limit)
2) Developer (free, no production use rights)
3) Express (free)
4) Web (PAID)
5) Standard (PAID)
6) Enterprise (PAID) - CPU core utilization restricted to 20 physical/40 hyperthreaded
7) Enterprise Core (PAID) - CPU core utilization up to Operating System Maximum
8) I bought a license through a retail sales channel and have a product key to enter.
9) Standard (Billed through Azure) - Use pay-as-you-go billing through Azure.
10) Enterprise Core (Billed through Azure) - Use pay-as-you-go billing through Azure.
```

```
Details about editions can be found at
https://aka.ms/mssql-editions
```

Configure License and Super User Password:

```
Enter your edition(1-10): 3
The license terms for this product can be found in
/usr/share/doc/mssql-server or downloaded from: https://aka.ms/useterms

The privacy statement can be viewed at:
https://go.microsoft.com/fwlink/?LinkId=853010&clcid=0x409

Do you accept the license terms? [Yes/No]:Yes

Enter the SQL Server system administrator password:
Confirm the SQL Server system administrator password:
Configuring SQL Server...

The licensing PID was successfully processed. The new edition is [Express Edition].
ForceFlush is enabled for this instance.
ForceFlush feature is enabled for log durability.
Created symlink /etc/systemd/system/multi-user.target.wants/mssql-server.service → /lib/systemd/system/mssql-server.service.
Setup has completed successfully. SQL Server is now starting.
Hp@asp-dotnet-app-deployment:~$
```

Check mssql status:

```
Hp@asp-dotnet-app-deployment:~$ systemctl status mssql-server --no-pager
● mssql-server.service - Microsoft SQL Server Database Engine
   Loaded: loaded (/lib/systemd/system/mssql-server.service; enabled; preset: enabled)
   Active: active (running) since Tue 2025-10-14 15:08:20 UTC; 2min 33s ago
     Docs: https://docs.microsoft.com/en-us/sql/linux
  Main PID: 8531 (sqlservr)
    Tasks: 142
   Memory: 640.9M
      CPU: 14.992s
   CGroup: /system.slice/mssql-server.service
           └─8531 /opt/mssql/bin/sqlservr
             └─8550 /opt/mssql/bin/sqlservr

Oct 14 15:08:28 asp-dotnet-app-deployment sqlservr[8550]: [104B blob data]
Oct 14 15:08:28 asp-dotnet-app-deployment sqlservr[8550]: [97B blob data]
Oct 14 15:08:28 asp-dotnet-app-deployment sqlservr[8550]: [97B blob data]
Oct 14 15:08:28 asp-dotnet-app-deployment sqlservr[8550]: [318B blob data]
Oct 14 15:08:28 asp-dotnet-app-deployment sqlservr[8550]: [95B blob data]
Oct 14 15:08:28 asp-dotnet-app-deployment sqlservr[8550]: [101B blob data]
Oct 14 15:08:28 asp-dotnet-app-deployment sqlservr[8550]: [124B blob data]
Oct 14 15:08:28 asp-dotnet-app-deployment sqlservr[8550]: [145B blob data]
Oct 14 15:08:30 asp-dotnet-app-deployment sqlservr[8550]: [73B blob data]
Oct 14 15:08:30 asp-dotnet-app-deployment sqlservr[8550]: [81B blob data]
Hp@asp-dotnet-app-deployment:~$
```

Enable Port In Firewall:

Select default Network

The screenshot shows the Google Cloud Platform console for a VM instance named 'asp-dotnet-a...'. The 'Network interfaces' section displays a table with the following data:

Name	Network	Subnetwork	NIC type	Primary internal IP address	Alias IP ranges	IP stack
nic0	default	default		10.128.0.3		IPv4

The 'Storage' section displays a table with the following data:

Name	Size (GB)	Type	Data protection	Mode	When deleting instance
asp-dotnet-app-deployment (Boot Disk)	40	Balanced persistent disk	default-schedule-1 Every day, starts between 10:00 PM and 11:00 PM	Read/write	Delete disk

Click on Firewall

The screenshot shows the Google Cloud console interface. The top navigation bar includes the Google Cloud logo, the project name 'My First Project', and a search bar. The breadcrumb trail indicates the current location: 'VPC Network / VPC networks / Network: default'. On the left sidebar, the 'VPC networks' menu is expanded, and the 'Firewall' option is highlighted with a red rectangle. The main content area displays the 'VPC network details' for the 'default' network. The 'Overview' tab is selected, showing a description of the default network, the maximum transmission unit (1460), and the VPC network ULA internal IPv6 range (Disabled). A red rectangle highlights the 'Firewall' tab in the sub-navigation bar.

Select Add Firewall rule

This screenshot shows the 'Firewalls' tab selected in the VPC network details page. The 'Add firewall rule' button is highlighted with a red rectangle. Below the button, there is a table listing existing firewall rules. The table has columns for Name, Enforcement order, Type, Deployment scope, Rule priority, Targets, and Source. A single rule named 'vpc-firewall-rules' is listed with an enforcement order of 1 and a deployment scope of Global. A red rectangle also highlights the 'Firewalls' tab in the sub-navigation bar.

Name	Enforcement order	Type	Deployment scope	Rule priority	Targets	Source
vpc-firewall-rules	1	VPC firewall rules	Global			

Add name and description for rule

The screenshot shows the 'Add firewall rule' form. The 'Name' field is highlighted with a red rectangle and contains the text 'mssql-allow-rule'. The 'Description' field is also highlighted with a red rectangle and contains the text 'Allow Microsoft SQL Server'. The form includes a 'Name' label, a 'Description' label, and a 'Create' button. A red rectangle highlights the 'Name' and 'Description' fields.

Add Tag , Ip range and Port and then click on create button

Network Security

Create a firewall rule

Target tags *

mssql-allow-rule X

Source filter

IPv4 ranges

Source IPv4 ranges *

0.0.0.0/0 X for example, 0.0.0.0/0, 192.168.2.0/24

Second source filter

None

Destination filter

None

Protocols and ports

Allow all

Specified protocols and ports

TCP

Ports

1433

Edit the Instance setting

Compute Engine

asp-dotnet-a...

Edit

Reset

Create machine image

Equivalent code

asp-dotnet-app-deployment

Details

Observability

OS Info

Screenshot

SSH

Connect to serial console

Connecting to serial ports is disabled

Logs

Logging

Serial port 1 (asppola)

Add rule in Network Tags:

Network tags

http-server X

https-server X

lb-health-check X

mssql-allow-rule X

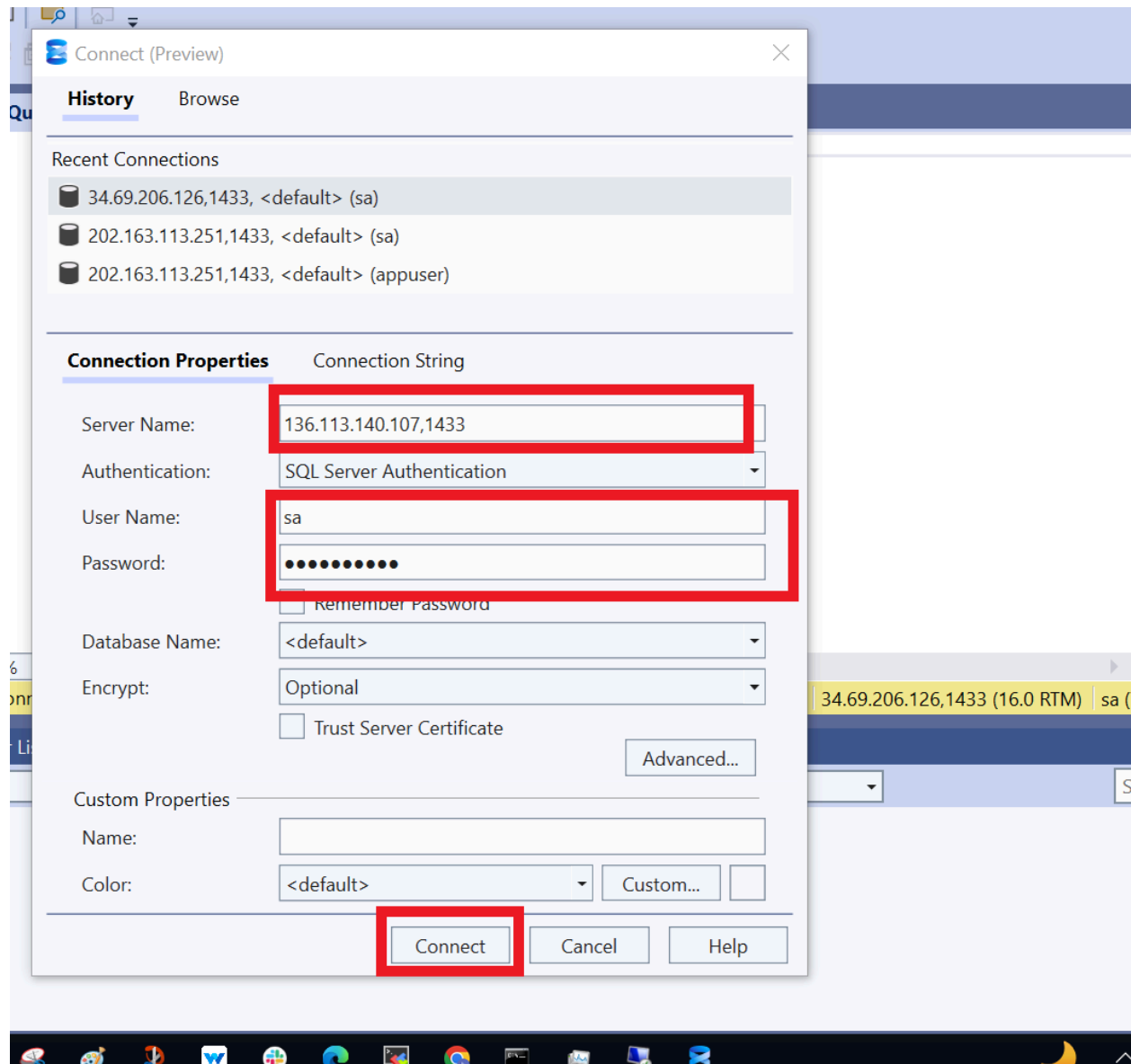
Step 3:

Download SQL Server Management Studio

Link on this link to download 2021 version

[SQL Server Management Studio](#)

Open SQL Server Management Studio and configure connection like this:
Add public ip, username and password



Step 4: Connect Database To App:

Server=136.113.140.107,1433;Database=CentralizedDashboardDb; User
Id=sa;Password=potter@123;Encrypt=False;TrustServerCertificate=True;

```
    "AllowedHosts": "*",  
    "ConnectionStrings": {  
      "DefaultConnection": "Server=136.113.140.107,1433;Database=CentralizedDashboardDb; User Id=sa;Password=potter@123;Encrypt=False;TrustServerCertificate=True;"  
    }  
  }  
}
```

Step 5: Create Dockerfile for App (I've publish folder and I only need dotnet runtime)
Sudo nano Dockerfile:

```
GNU nano 7.2 Dockerfile *
FROM mcr.microsoft.com/dotnet/aspnet:8.0

ENV ASPNETCORE_HTTP_PORTS=5000
EXPOSE 5000
WORKDIR /app
COPY publish/ .

ENTRYPOINT ["dotnet", "CentralizedDashboard.Api.dll"]

^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location   ^U Undo       ^A Set Mark
```

Place it with the Publish folder

```
Hp@asp-dotnet-app-deployment:~/dotnet$ ls
Dockerfile  publish
Hp@asp-dotnet-app-deployment:~/dotnet$
```

Create Test Image:

```
Hp@asp-dotnet-app-deployment:~/dotnet$ sudo docker build -t test-app .
Sending build context to Docker daemon 22.41MB
Step 1/6 : FROM mcr.microsoft.com/dotnet/aspnet:8.0
8.0: Pulling from dotnet/aspnet
5c32499ab806: Pull complete
9b953db70968: Pull complete
b62dec7df672: Pull complete
6ee0adbaa5e4: Pull complete
a26ff57f2412: Pull complete
143a454013fd: Pull complete
Digest: sha256:53f73fbc620361e5116f68752bf42958dfcda8699a94a785dcb4657bc571c8f3
Status: Downloaded newer image for mcr.microsoft.com/dotnet/aspnet:8.0
--> bdb4fc31a598
Step 2/6 : ENV ASPNETCORE_HTTP_PORTS=5000
--> Running in 84fac3e186be
Removing intermediate container 84fac3e186be
--> df787e099b0cf
Step 3/6 : EXPOSE 5000
--> Running in 8b3eaacbbfe8
Removing intermediate container 8b3eaacbbfe8
--> 110bee22af13
Step 4/6 : WORKDIR /app
--> Running in 7f04e8fb86e7
Removing intermediate container 7f04e8fb86e7
--> 4e2666919ae9
Step 5/6 : COPY publish/ .
--> 971cdaf13b74
Step 6/6 : ENTRYPOINT ["dotnet", "CentralizedDashboard.Api.dll"]
--> Running in 083075925e76
Removing intermediate container 083075925e76
--> d8b96841e40c
Successfully built d8b96841e40c
Successfully tagged test-app:latest
Hp@asp-dotnet-app-deployment:~/dotnet$
```

Run container:

```
Hp@asp-dotnet-app-deployment:~/dotnet$ sudo docker run -dp 80:5000 test-app  
8aa5269777f467f3b8fda5323680b350e694d23ddd1fda8887d5129cd4baa8c
```

Test the Endpoints:

Swagger
Supported by SMARTBEAR

Select a definition CentralizedDashboard.Api v1

Centralized Dashboard API v1 OAS 3.0

<http://136.113.140.107/swagger/v1/swagger.json>

Authorize

Auth

- POST /api/auth/register
- POST /api/auth/login

Dashboard

- GET /api/dashboard/metrics