Claw Assignment By lekhraj jadon

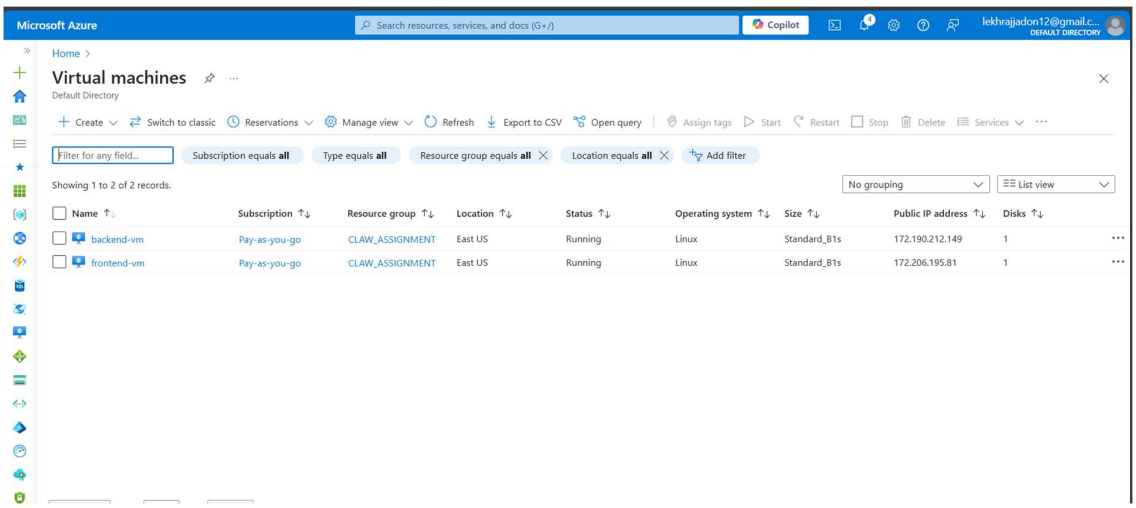
Set up Azure Virtual Machines to host the front-end and back-end services.

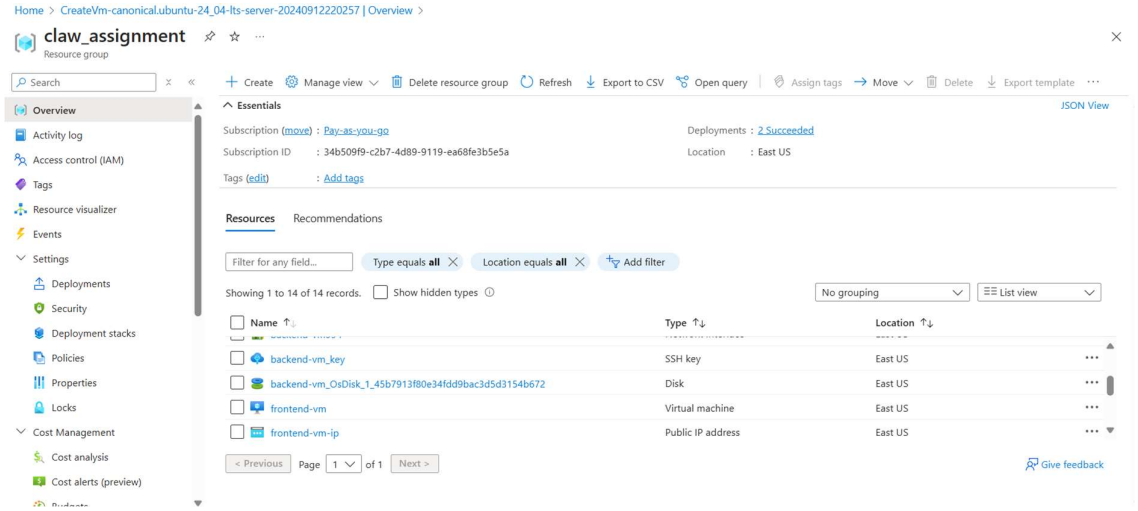
1.

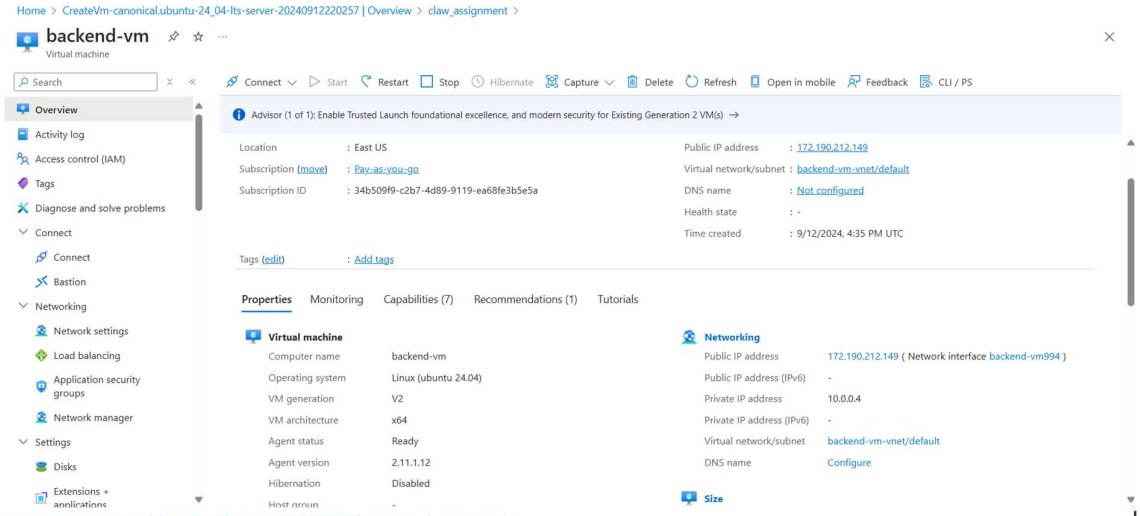
- Use two separate Linux VMs (one for the front end, one for the back end).

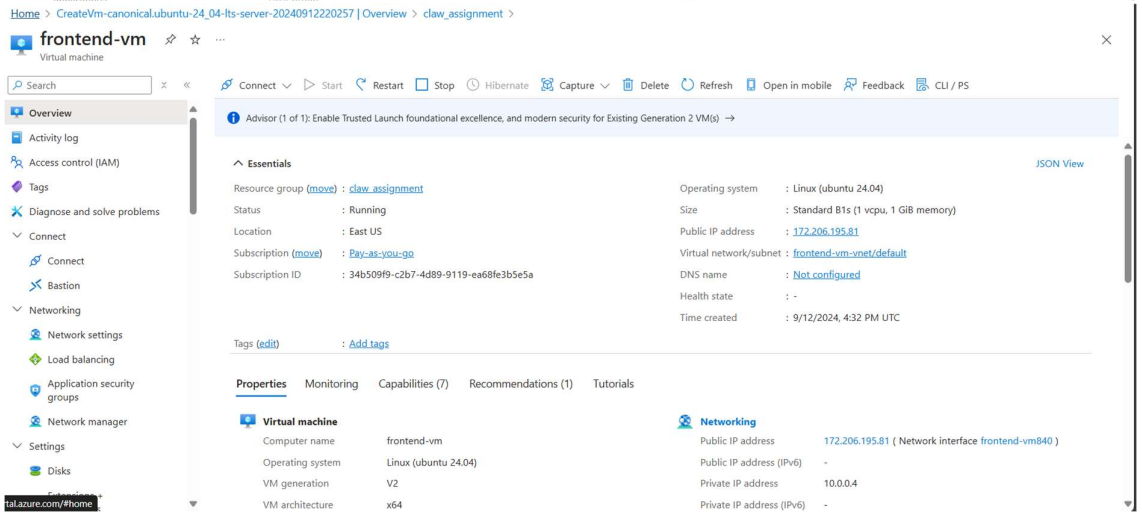
Set up Azure Virtual Machines to host the front-end and back-end services: Provision two Azure Virtual Machines (VMs) to separate front-end and back-end services. Utilize one VM for hosting the front-end, such as a web server, and another for the back-end, which handles business logic and data processing

ssh -i frontend_public_key.pem azureuser@52.149.234.232




Home > CreateVm-canonical.ubuntu-24_04-lts-server-20240912220257 | Overview >
claw_assignment
Resource group
Search
Overview
Activity log
Access control (IAM)
Tags
Resource visualizer
Events
Settings
Deployments
Security
Deployment stacks
Policies
Properties
Locks
Cost Management
Cost analysis
Cost alerts (preview)
Create
Manage view
Delete resource group
Refresh
Export to CSV
Open query
Assign tags
Move
Delete
Export template
Essentials
JSON View
Subscription (move) : Pay-as-you-go
Subscription ID : 34b509f9-c2b7-4d89-9119-ea68fe3b5e5a
Tags (edit) : Add tags
Deployments : 2 Succeeded
Location : East US
Resources
Recommendations
Filter for any field...
Type equals all
Location equals all
Add filter
Showing 1 to 14 of 14 records.
Show hidden types
No grouping
List view
Name
Type
Location
backend-vm_key
SSH key
East US
backend-vm_OsDisk_1_45b7913f80e34fdd9bac3d5d3154b672
Disk
East US
frontend-vm
Virtual machine
East US
frontend-vm-ip
Public IP address
East US
< Previous
Page 1 of 1
Next >
Give feedback


Home > CreateVm-canonical.ubuntu-24_04-lts-server-20240912220257 | Overview > claw_assignment >
backend-vm
Virtual machine
Search
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Connect
Connect
Bastion
Networking
Network settings
Load balancing
Application security groups
Network manager
Settings
Disks
Extensions + applications
Connect
Start
Restart
Stop
Hibernate
Capture
Delete
Refresh
Open in mobile
Feedback
CLI / PS
Advisor (1 of 1): Enable Trusted Launch foundational excellence, and modern security for Existing Generation 2 VM(s)
Location : East US
Subscription (move) : Pay-as-you-go
Subscription ID : 34b509f9-c2b7-4d89-9119-ea68fe3b5e5a
Tags (edit) : Add tags
Public IP address : 172.190.212.149
Virtual network/subnet : backend-vm-vnet/default
DNS name : Not configured
Health state : -
Time created : 9/12/2024, 4:35 PM UTC
Properties
Monitoring
Capabilities (7)
Recommendations (1)
Tutorials
Virtual machine
Computer name backend-vm
Operating system Linux (ubuntu 24.04)
VM generation V2
VM architecture x64
Agent status Ready
Agent version 2.11.1.12
Hibernation Disabled
Networking
Public IP address 172.190.212.149 (Network interface backend-vm994)
Public IP address (IPv6) -
Private IP address 10.0.0.4
Private IP address (IPv6) -
Virtual network/subnet backend-vm-vnet/default
DNS name Configure
Size


Home > CreateVm-canonical.ubuntu-24_04-lts-server-20240912220257 | Overview > claw_assignment >
frontend-vm
Virtual machine
Search
Overview
Activity log
Access control (IAM)
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Application security groups
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Hibernate
Capture
Delete
Refresh
Open in mobile
Feedback
CLI / PS
Advisor (1 of 1): Enable Trusted Launch foundational excellence, and modern security for Existing Generation 2 VM(s)
Essentials
JSON View
Resource group (move) : claw_assignment
Status : Running
Location : East US
Subscription (move) : Pay-as-you-go
Subscription ID : 34b509f9-c2b7-4d89-9119-ea68fe3b5e5a
Tags (edit) : Add tags
Operating system : Linux (ubuntu 24.04)
Size : Standard B1s (1 vcpu, 1 GiB memory)
Public IP address : 172.206.195.81
Virtual network/subnet : frontend-vm-vnet/default
DNS name : Not configured
Health state : -
Time created : 9/12/2024, 4:32 PM UTC
Properties
Monitoring
Capabilities (7)
Recommendations (1)
Tutorials
Virtual machine
Computer name frontend-vm
Operating system Linux (ubuntu 24.04)
VM generation V2
VM architecture x64
Networking
Public IP address 172.206.195.81 (Network interface frontend-vm840)
Public IP address (IPv6) -
Private IP address 10.0.0.4
Private IP address (IPv6) -

1. **Dockerize the front-end and back-end applications**.
2.
    - The front-end can be a simple NGINX server hosting a static HTML page.
    - The back-end can be a Node.js API.

Dockerize the front-end and back-end applications: Dockerizing applications involves encapsulating them into containers, which simplifies deployment and scaling. For the front-end, use an NGINX container to serve static HTML pages efficiently. For the back-end, deploy a Node.js container to manage API requests, ensuring that both services run in isolated environments with consistent configurations across different systems.

docker build -t frontend-image .

docker run -d -p 80:80 frontend-image

docker run -d -p 80:80 frontend-image

docker build -t backend-image .

docker run -d -p 8000:8000 backend-image

```
            June 2023 - August 2023<br>
            Software Engineer Intern, Jodhpur, Rajasthan<br>
            <ul>
                <li>Implemented microservices architecture using HTML, CSS, and JavaScript, improving API response times.</li>
            </ul></p>
        </div>

        <div class="projects">
            <h2>Projects</h2>
            <p><strong>Application Deploy On EKS | AWS, EKS, and VPC, FARGATE</strong><br>
            • Deploy a simple Application On EKS with the help of EKS Cluster, Fargate Profile, Creating Kubernetes Namespace, Service Configure, Use Ingres
s Resource and Controller, configuring ALB, IAM Roles and Policies, Monitoring and Logging, Testing and Validation.<br>
            • Use VPC, Subnets, EC2 Instance, Bastion host, Security Groups, Network NACLs, load balancer, NAT Gateway.</p>

            <p><strong>Weather App Application | React.js, HTML, CSS, JavaScript</strong><br>
            • Developed a weather application using HTML, CSS, JavaScript, and React.js.<br>
            • Integrated APIs to fetch real-time weather data and provide accurate forecasts to users.</p>
        </div>

        <div class="technical-skills">
            <h2>Technical Skills</h2>
            <p><strong>Languages:</strong> C, C++, HTML, CSS, JavaScript, YAML</p>
            <p><strong>Technologies:</strong> React.js, Tailwind, OOPs, CI/CD Pipelines, Docker for Automation, Kubernetes Orchestration, Data Structures an
d Algorithms, SQL, Linux, Shell Script, API, Database Management, Visual Studio, Git, GitHub Actions, AWS, Azure, AKS</p>
        </div>

        <div class="achievements">
            <h2>Achievements</h2>
            <ul>
                <li>Successfully solved 400 questions on GeeksforGeeks and 250 questions on LeetCode, demonstrating str
                <li>Attained the highest rank of 2821 in the CodeChef Starter 120-weekly contests, showcasing consistent
 Achieved 2* at CodeChef.</li>
                <li>Honored with two laptops by the Government of Rajasthan for securing the first position at the distr

            </ul>
        </div>
    </div>
</body>
</html>

azureuser@frontend-vm:~/frontend$
```

Snipping Tool

Screenshot copied to clipboard and saved
Select here to mark up and share.

```
veer@Lekhraj-jadon:/mnt/c/Users/hp/OneDrive/Desktop/claw$ ls
backend-vm_key.pem  frontend-vm_key.pem
veer@Lekhraj-jadon:/mnt/c/Users/hp/OneDrive/Desktop/claw$ mkdir -p ~/.ssh
veer@Lekhraj-jadon:/mnt/c/Users/hp/OneDrive/Desktop/claw$ cp /mnt/c/Users/hp/OneDrive/Desktop/claw/frontend-vm_key.pem ~/.ssh/
veer@Lekhraj-jadon:/mnt/c/Users/hp/OneDrive/Desktop/claw$ chmod 600 ~/.ssh/frontend-vm_key.pem
veer@Lekhraj-jadon:/mnt/c/Users/hp/OneDrive/Desktop/claw$ ssh -i ~/.ssh/frontend-vm_key.pem adminuser@172.206.195.81
adminuser@172.206.195.81: Permission denied (publickey).
veer@Lekhraj-jadon:/mnt/c/Users/hp/OneDrive/Desktop/claw$ ls -l ~/.ssh/frontend-vm_key.pem
-rw------- 1 veer veer 2494 Sep 12 22:27 /home/veer/.ssh/frontend-vm_key.pem
veer@Lekhraj-jadon:/mnt/c/Users/hp/OneDrive/Desktop/claw$ chown veer:veer ~/.ssh/frontend-vm_key.pem
veer@Lekhraj-jadon:/mnt/c/Users/hp/OneDrive/Desktop/claw$ ssh -i ~/.ssh/frontend-vm_key.pem adminuser@172.206.195.81
adminuser@172.206.195.81: Permission denied (publickey).
veer@Lekhraj-jadon:/mnt/c/Users/hp/OneDrive/Desktop/claw$ ssh -i ~/.ssh/frontend-vm_key.pem azureuser@172.206.195.81
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1013-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Thu Sep 12 17:04:33 UTC 2024

  System load:  0.0               Processes:             107
  Usage of /:   5.8% of 28.02GB   Users logged in:       0
  Memory usage: 29%               IPv4 address for eth0: 10.0.0.4
  Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

41 updates can be applied immediately.
24 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status



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

azureuser@frontend-vm: ~/fr | azureuser@backend-vm: ~/ba

```
 GNU nano 7.2                                                Dockerfile
FROM nginx:alpine
COPY index.html /usr/share/nginx/html/index.html
EXPOSE 80
```

[Read 3 lines]

```
^G Help          ^O Write Out     ^W Where Is      ^K Cut           ^T Execute       ^C Location      M-U Undo         M-A Set Mark     M-] To Bracket
^X Exit          ^R Read File     ^\ Replace       ^U Paste         ^J Justify       ^/ Go To Line    M-E Redo         M-6 Copy         ^Q Where Was
```

```
Expanded Security Maintenance for Applications is not enabled.

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Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status



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

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

azureuser@frontend-vm:~$ sudo apt-get update
Hit:1 http://azure.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://azure.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://azure.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://azure.archive.ubuntu.com/ubuntu noble-security InRelease
Hit:5 https://packages.microsoft.com/repos/microsoft-ubuntu-noble-prod noble InRelease
Reading package lists... Done
azureuser@frontend-vm:~$ sudo apt-get install -y docker.io
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  bridge-utils containerd dns-root-data dnsmasq-base pigz runc ubuntu-fan
Suggested packages:
  ifupdown aufs-tools cgroupfs-mount | cgroup-lite debootstrap docker-buildx docker-compose-v2 docker-doc rinse zfs-fuse | zfsutils
The following NEW packages will be installed:
  bridge-utils containerd dns-root-data dnsmasq-base docker.io pigz runc ubuntu-fan
0 upgraded, 8 newly installed, 0 to remove and 37 not upgraded.
Need to get 76.8 MB of archives.
After this operation, 289 MB of additional disk space will be used.
```

```
Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
azureuser@frontend-vm:~$ sudo systemctl start docker
azureuser@frontend-vm:~$ sudo systemctl enable docker
azureuser@frontend-vm:~$ vim index.html
azureuser@frontend-vm:~$ mkdir frontend
azureuser@frontend-vm:~$ cd frontend
azureuser@frontend-vm:~/frontend$ nano Dockerfile
azureuser@frontend-vm:~/frontend$ sudo docker build -t frontend-nginx .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
            Install the buildx component to build images with BuildKit:
            https://docs.docker.com/go/buildx/

Sending build context to Docker daemon  2.048kB
Step 1/3 : FROM nginx:alpine
alpine: Pulling from library/nginx
43c4264eed91: Pull complete
5b19511a843d: Pull complete
652d69a25e85: Pull complete
51676974aef5: Pull complete
bb16f69e8876: Pull complete
6fb07faa0055: Pull complete
c298c5a0cd21: Pull complete
0c02f601d0ee: Pull complete
Digest: sha256:a5127daff3d6f4606be3100a252419bfa84fd6ee5cd74d0feaca1a5068f97dcf
Status: Downloaded newer image for nginx:alpine
 ---> c7b4f26a7d93
Step 2/3 : COPY index.html /usr/share/nginx/html/index.html
COPY failed: file not found in build context or excluded by .dockerignore: stat index.html: file does not exist
azureuser@frontend-vm:~/frontend$ sudo docker run -d -p 80:80 frontend-nginx
Unable to find image 'frontend-nginx:latest' locally
docker: Error response from daemon: pull access denied for frontend-nginx, repository does not exist or may require 'docker login': denied: requested access
 to the resource is denied.
```

```
azureuser@frontend-vm:~$ cd frontend
azureuser@frontend-vm:~/frontend$ ls
Dockerfile  index.html
azureuser@frontend-vm:~/frontend$  sudo docker build -t frontend-nginx .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
            Install the buildx component to build images with BuildKit:
            https://docs.docker.com/go/buildx/

Sending build context to Docker daemon  3.072kB
Step 1/3 : FROM nginx:alpine
 ---> c7b4f26a7d93
Step 2/3 : COPY index.html /usr/share/nginx/html/index.html
 ---> 92639cb4c618
Step 3/3 : EXPOSE 80
 ---> Running in a44826ad7578
Removing intermediate container a44826ad7578
 ---> 0d49bac0e451
Successfully built 0d49bac0e451
Successfully tagged frontend-nginx:latest
azureuser@frontend-vm:~/frontend$ sudo docker run -d -p 80:80 frontend-nginx
65ed328f43061e696800fe4e12f2518ace6c7bb62d609bf4c940689ba53ed7f2
azureuser@frontend-vm:~/frontend$ curl http://localhost
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>E-Commerce Frontend</title>
</head>
<body>
    <h1>Welcome to the E-Commerce App!</h1>
</body>
</html>

azureuser@frontend-vm:~/frontend$ ls
Dockerfile  index.html
azureuser@frontend-vm:~/frontend$  curl http://localhost
<!DOCTYPE html>
<html lang="en">
<head>
```

```
azureuser@frontend-vm:~/frontend$ sudo docker run -d -p 80:80 frontend-nginx
65ed328f43061e696800fe4e12f2518ace6c7bb62d609bf4c940689ba53ed7f2
azureuser@frontend-vm:~/frontend$ curl http://localhost
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    <meta name="viewport" content="width=device-width, initial-scale=1.0">
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Dockerfile  index.html
azureuser@frontend-vm:~/frontend$  curl http://localhost
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    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>E-Commerce Frontend</title>
</head>
<body>
    <h1>Welcome to the E-Commerce App!</h1>
</body>
</html>

azureuser@frontend-vm:~/frontend$ ls
Dockerfile  index.html
azureuser@frontend-vm:~/frontend$
```
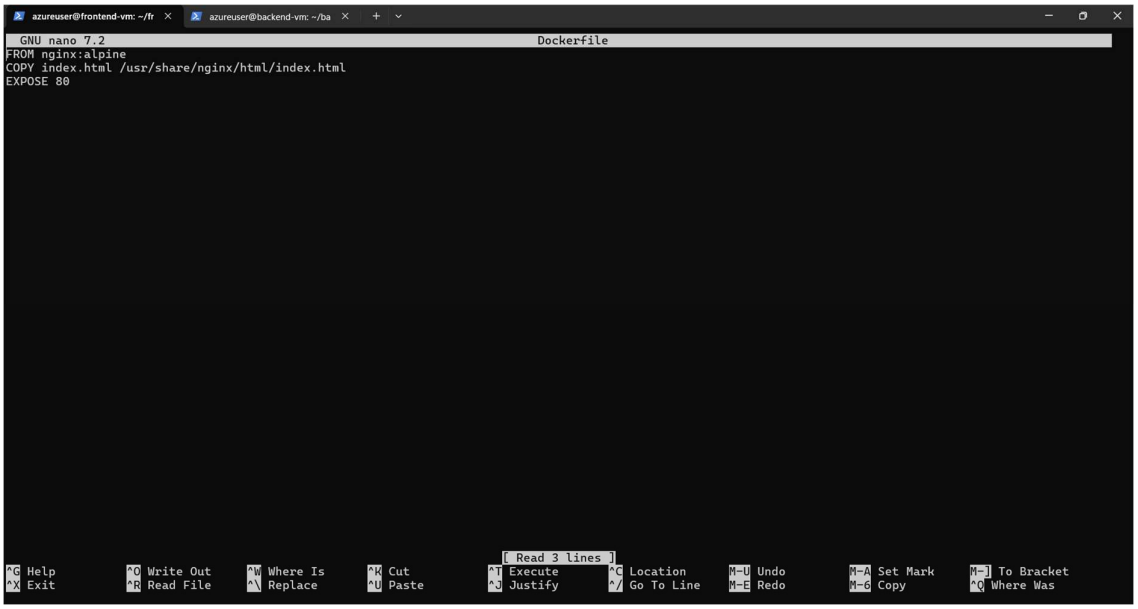

```
    <h1>Welcome to the E-Commerce App!</h1>
</body>
</html>

azureuser@frontend-vm:~/frontend$ sudo docker ps
CONTAINER ID   IMAGE            COMMAND                  CREATED       STATUS       PORTS                                   NAMES
65ed328f4306   0d49bac0e451   "/docker-entrypoint.…"   3 hours ago   Up 3 hours   0.0.0.0:80->80/tcp, :::80->80/tcp   pensive_kirch
azureuser@frontend-vm:~/frontend$ sudo docker stop 65ed328f4306
65ed328f4306
azureuser@frontend-vm:~/frontend$ sudo docker rm 65ed328f4306
65ed328f4306
azureuser@frontend-vm:~/frontend$ sudo docker run -d -p 80:80 frontend-nginx
4acb46b6c6cd36aa618a2826dc0c70553b8223775ebc306f37189d4579278cf0
azureuser@frontend-vm:~/frontend$ docker ps
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/json": dial unix /var/run/docker.sock: connect: permission denied
azureuser@frontend-vm:~/frontend$ curl http://localhost
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Lekhraj Jadon - Profile</title>
    <style>
        body {
            font-family: Arial, sans-serif;
            line-height: 1.6;
            margin: 0;
            padding: 0;
            background-color: #f4f4f4;
            color: #333;
        }
        .container {
            width: 80%;
            margin: auto;
            overflow: hidden;
        }
        header {
            background: #333;
            color: #fff;
            padding-top: 30px;
```

```
            <p><strong>Senior Secondary</strong><br>
            2020, RBSE<br>
            Vikas Bal Vidhyapeeth Sr Sec School Deeg, Bharatpur<br>
            Score: 93.80%</p>
        </div>

        <div class="experience">
            <h2>Experience</h2>
            <p><strong>Bm Infotrade Private Limited</strong><br>
            July 2024 - Present<br>
            Cloud Engineer Intern, Jaipur, Rajasthan<br>
            <ul>
                <li>Worked on Azure, AWS, AD-DS, DNS, IAM, ACS, OUs, GPO, Docker, AKS, EKS, Kubernetes, Cloud Storage (Blobs, File Share), App Services, VMs VMSS, Monitoring, Backup Recovery, and Automation.</li>
                <li>Utilized DevOps tools and technologies such as CI/CD pipelines, Jenkins, Git, GitLab, and Docker for automated deployments and integration.</li>
                <li>Provided technical support to employees and handled new cases via phone, email, and web.</li>
                <li>Maintained communication with remote and local teams.</li>
                <li>Managed cases per Service Level Agreements (SLA), ensuring high customer satisfaction.</li>
            </ul></p>

            <p><strong>Celebal Technology</strong><br>
            May 2024 - July 2024<br>
            Cloud and Infra Security Intern, Jaipur, Rajasthan<br>
            <ul>
                <li>Worked with Azure, AWS, VPC, EKS, CloudWatch, CloudFormation, EC2, S3, Fargate, LB, IAM, Lambda, SNS, and ECS.</li>
            </ul></p>

            <p><strong>Ingenious Teck Key</strong><br>
            June 2023 - August 2023<br>
            Software Engineer Intern, Jodhpur, Rajasthan<br>
            <ul>
                <li>Implemented microservices architecture using HTML, CSS, and JavaScript, improving API response times.</li>
            </ul></p>
        </div>

        <div class="projects">
            <h2>Projects</h2>
            <p><strong>Application Deploy On EKS | AWS, EKS, and VPC, FARGATE</strong><br>
            • Deploy a simple Application On EKS with the help of EKS Cluster, Fargate Profile, Creating Kubernetes Namespace, Service Configure, Use Ingress Resource and Controller, configuring ALB, IAM Roles and Policies, Monitoring and Logging, Testing and Validation.<br>
```

Docker File For INGINX



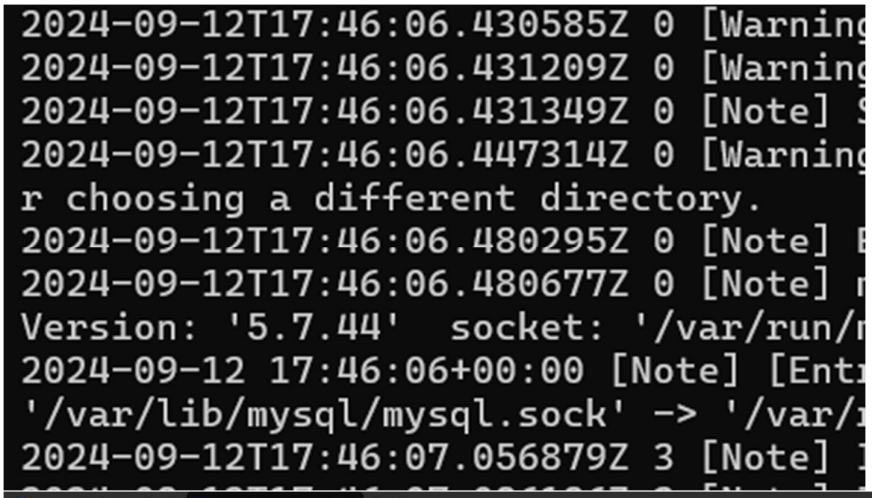
I believe I am a strong fit for the Cloud Engineer role due to my hands-on experience with Azure and AWS, where I've work on cloud environments and Active Directory. My internships have provided me with a deep understanding of cloud security and infrastructure management. Additionally, my commitment to continuous learning, evidenced by my pursuit of the Azure Administrator Associate certification

```
ca-cert.pem  ca-cert.srl  ca-key.pem  client-cert.pem  client-key.pem  client-req.pem  server-cert.pem  server-key.pem  server-req.pem
azureuser@backend-vm:~/ssl$ sudo docker exec -it mysql-db bash
bash-4.2#
bash-4.2#
bash-4.2#
bash-4.2#
bash-4.2#
bash-4.2# ^C
bash-4.2# ^C
bash-4.2# exit
exit
azureuser@backend-vm:~/ssl$ nano /etc/mysql/my.cnf
azureuser@backend-vm:~/ssl$
azureuser@backend-vm:~/ssl$ sudo docker restart mysql-db
mysql-db
azureuser@backend-vm:~/ssl$ sudo docker exec -it mysql-db mysql -u root -p
Enter password:
ERROR 1045 (28000): Access denied for user 'root'@'localhost' (using password: NO)
azureuser@backend-vm:~/ssl$ sudo docker exec -it mysql-db mysql -u root -p
Enter password:
ERROR 1045 (28000): Access denied for user 'root'@'localhost' (using password: YES)
azureuser@backend-vm:~/ssl$ sudo docker exec -it mysql-db mysql -u root -p
Enter password:
ERROR 1045 (28000): Access denied for user 'root'@'localhost' (using password: YES)
azureuser@backend-vm:~/ssl$ sudo docker exec -it mysql-db mysql -u root -p
Enter password:
ERROR 1045 (28000): Access denied for user 'root'@'localhost' (using password: YES)
azureuser@backend-vm:~/ssl$ sudo docker exec -it mysql-db mysql -u root -p
Enter password:
ERROR 1045 (28000): Access denied for user 'root'@'localhost' (using password: YES)
azureuser@backend-vm:~/ssl$ sudo docker ps
CONTAINER ID   IMAGE            COMMAND                  CREATED             STATUS              PORTS                                         NAMES
60af0d253538   backend-nodejs   "docker-entrypoint.s…"   About an hour ago   Up About an hour    0.0.0.0:3000->3000/tcp, :::3000->3000/tcp     backend-nodejs
a2a03ed5a635   mysql:5.7        "docker-entrypoint.s…"   2 hours ago         Up 3 minutes        3306/tcp, 33060/tcp                           mysql-db
azureuser@backend-vm:~/ssl$ sudo docker logs a2a03ed5a635
2024-09-12 17:45:56+00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 5.7.44-1.el7 started.
2024-09-12 17:45:57+00:00 [Note] [Entrypoint]: Switching to dedicated user 'mysql'
2024-09-12 17:45:57+00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 5.7.44-1.el7 started.
2024-09-12 17:45:57+00:00 [Note] [Entrypoint]: Initializing database files
```

```
2024-09-12T17:46:06.430585Z 0 [Warning] A deprecated TLS version TLSv1.1 is enabled. Please use TLSv1.2 or higher.
2024-09-12T17:46:06.431209Z 0 [Warning] CA certificate ca.pem is self signed.
2024-09-12T17:46:06.431349Z 0 [Note] Skipping generation of RSA key pair as key files are present in data directory.
2024-09-12T17:46:06.447314Z 0 [Warning] Insecure configuration for --pid-file: Location '/var/run/mysqld' in the path is accessible to all OS users. Conside
r choosing a different directory.
2024-09-12T17:46:06.480295Z 0 [Note] Event Scheduler: Loaded 0 events
2024-09-12T17:46:06.480677Z 0 [Note] mysqld: ready for connections.
Version: '5.7.44'  socket: '/var/run/mysqld/mysqld.sock'  port: 0  MySQL Community Server (GPL)
2024-09-12 17:46:06+00:00 [Note] [Entrypoint]: Temporary server started.
'/var/lib/mysql/mysql.sock' -> '/var/run/mysqld/mysqld.sock'
2024-09-12T17:46:07.056879Z 3 [Note] InnoDB: Stopping purge
2024-09-12T17:46:07.086196Z 3 [Note] InnoDB: Resuming purge
2024-09-12T17:46:07.099243Z 3 [Note] InnoDB: Stopping purge
2024-09-12T17:46:07.118790Z 3 [Note] InnoDB: Resuming purge
2024-09-12T17:46:07.129645Z 3 [Note] InnoDB: Stopping purge
2024-09-12T17:46:07.148682Z 3 [Note] InnoDB: Resuming purge
2024-09-12T17:46:07.156695Z 3 [Note] InnoDB: Stopping purge
2024-09-12T17:46:07.175819Z 3 [Note] InnoDB: Resuming purge
Warning: Unable to load '/usr/share/zoneinfo/iso3166.tab' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/leapseconds' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/tzdata.zi' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/zone.tab' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/zone1970.tab' as time zone. Skipping it.
2024-09-12 17:46:10+00:00 [Note] [Entrypoint]: Creating database ecommerce

2024-09-12 17:46:10+00:00 [Note] [Entrypoint]: Stopping temporary server
2024-09-12T17:46:10.731651Z 0 [Note] Giving 0 client threads a chance to die gracefully
2024-09-12T17:46:10.731782Z 0 [Note] Shutting down slave threads
2024-09-12T17:46:10.731838Z 0 [Note] Forcefully disconnecting 0 remaining clients
2024-09-12T17:46:10.731912Z 0 [Note] Event Scheduler: Purging the queue. 0 events
2024-09-12T17:46:10.732044Z 0 [Note] Binlog end
2024-09-12T17:46:10.732646Z 0 [Note] Shutting down plugin 'ngram'
2024-09-12T17:46:10.732737Z 0 [Note] Shutting down plugin 'partition'
2024-09-12T17:46:10.732744Z 0 [Note] Shutting down plugin 'BLACKHOLE'
2024-09-12T17:46:10.732748Z 0 [Note] Shutting down plugin 'ARCHIVE'
2024-09-12T17:46:10.732750Z 0 [Note] Shutting down plugin 'PERFORMANCE_SCHEMA'
2024-09-12T17:46:10.732783Z 0 [Note] Shutting down plugin 'MRG_MYISAM'
2024-09-12T17:46:10.732786Z 0 [Note] Shutting down plugin 'MyISAM'
2024-09-12T17:46:10.732906Z 0 [Note] Shutting down plugin 'INNODB_SYS_VIRTUAL'
2024-09-12T17:46:10.732926Z 0 [Note] Shutting down plugin 'INNODB_SYS_DATAFILES'
2024-09-12T17:46:10.732930Z 0 [Note] Shutting down plugin 'INNODB_SYS_TABLESPACES'
```

```
2024-09-12T17:46:06.430585Z 0 [Warning
2024-09-12T17:46:06.431209Z 0 [Warning
2024-09-12T17:46:06.431349Z 0 [Note]
2024-09-12T17:46:06.447314Z 0 [Warning
r choosing a different directory.
2024-09-12T17:46:06.480295Z 0 [Note]
2024-09-12T17:46:06.480677Z 0 [Note]
Version: '5.7.44'  socket: '/var/run/
2024-09-12 17:46:06+00:00 [Note] [Ent
'/var/lib/mysql/mysql.sock' -> '/var/
```

```
2024-09-12T17:46:13.250592Z 0 [Note] mysqld: ready for connections.
Version: '5.7.44'  socket: '/var/run/mysqld/mysqld.sock'  port: 3306  MySQL Community Server (GPL)
2024-09-12T19:15:10.698438Z 2 [Note] Access denied for user 'root'@'localhost' (using password: YES)
2024-09-12 19:18:48+00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 5.7.44-1.el7 started.
2024-09-12 19:18:49+00:00 [Note] [Entrypoint]: Switching to dedicated user 'mysql'
2024-09-12 19:18:49+00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 5.7.44-1.el7 started.
'/var/lib/mysql/mysql.sock' -> '/var/run/mysqld/mysqld.sock'
2024-09-12T19:18:49.617521Z 0 [Warning] TIMESTAMP with implicit DEFAULT value is deprecated. Please use --explicit_defaults_for_timestamp server option (see
 documentation for more details).
2024-09-12T19:18:49.618872Z 0 [Note] mysqld (mysqld 5.7.44) starting as process 1 ...
2024-09-12T19:18:49.624521Z 0 [Note] InnoDB: PUNCH HOLE support available
2024-09-12T19:18:49.624673Z 0 [Note] InnoDB: Mutexes and rw_locks use GCC atomic builtins
2024-09-12T19:18:49.624739Z 0 [Note] InnoDB: Uses event mutexes
2024-09-12T19:18:49.624788Z 0 [Note] InnoDB: GCC builtin __atomic_thread_fence() is used for memory barrier
2024-09-12T19:18:49.624852Z 0 [Note] InnoDB: Compressed tables use zlib 1.2.13
2024-09-12T19:18:49.624903Z 0 [Note] InnoDB: Using Linux native AIO
2024-09-12T19:18:49.626607Z 0 [Note] InnoDB: Number of pools: 1
2024-09-12T19:18:49.629189Z 0 [Note] InnoDB: Using CPU crc32 instructions
2024-09-12T19:18:49.631162Z 0 [Note] InnoDB: Initializing buffer pool, total size = 128M, instances = 1, chunk size = 128M
2024-09-12T19:18:49.646217Z 0 [Note] InnoDB: Completed initialization of buffer pool
2024-09-12T19:18:49.649214Z 0 [Note] InnoDB: If the mysqld execution user is authorized, page cleaner thread priority can be changed. See the man page of se
tpriority().
2024-09-12T19:18:49.669339Z 0 [Note] InnoDB: Highest supported file format is Barracuda.
2024-09-12T19:18:49.678255Z 0 [Note] InnoDB: Log scan progressed past the checkpoint lsn 12219438
2024-09-12T19:18:49.678275Z 0 [Note] InnoDB: Doing recovery: scanned up to log sequence number 12219447
2024-09-12T19:18:49.678279Z 0 [Note] InnoDB: Database was not shutdown normally!
2024-09-12T19:18:49.678282Z 0 [Note] InnoDB: Starting crash recovery.
2024-09-12T19:18:49.818394Z 0 [Note] InnoDB: Removed temporary tablespace data file: "ibtmp1"
2024-09-12T19:18:49.818430Z 0 [Note] InnoDB: Creating shared tablespace for temporary tables
2024-09-12T19:18:49.818477Z 0 [Note] InnoDB: Setting file './ibtmp1' size to 12 MB. Physically writing the file full; Please wait ...
2024-09-12T19:18:49.896822Z 0 [Note] InnoDB: File './ibtmp1' size is now 12 MB.
2024-09-12T19:18:49.897908Z 0 [Note] InnoDB: 96 redo rollback segment(s) found. 96 redo rollback segment(s) are active.
2024-09-12T19:18:49.898013Z 0 [Note] InnoDB: 32 non-redo rollback segment(s) are active.
2024-09-12T19:18:49.898767Z 0 [Note] InnoDB: 5.7.44 started; log sequence number 12219447
2024-09-12T19:18:49.899370Z 0 [Note] Plugin 'FEDERATED' is disabled.
2024-09-12T19:18:49.899595Z 0 [Note] InnoDB: Loading buffer pool(s) from /var/lib/mysql/ib_buffer_pool
2024-09-12T19:18:49.926595Z 0 [Note] InnoDB: Buffer pool(s) load completed at 240912 19:18:49
2024-09-12T19:18:49.936276Z 0 [Note] Found ca.pem, server-cert.pem and server-key.pem in data directory. Trying to enable SSL support using them.
2024-09-12T19:18:49.936470Z 0 [Note] Skipping generation of SSL certificates as certificate files are present in data directory.
2024-09-12T19:18:49.936517Z 0 [Warning] A deprecated TLS version TLSv1 is enabled. Please use TLSv1.2 or higher.
2024-09-12T19:18:49.936576Z 0 [Warning] A deprecated TLS version TLSv1.1 is enabled. Please use TLSv1.2 or higher.
```



azureuser@frontend-vm: ~/frc azureuser@backend-vm: ~/ba

```
FROM node:14

WORKDIR /app

COPY package*.json ./

RUN npm install --only=production

COPY . .

CMD [ "node", "app.js" ]
```

"Dockerfile" 12L, 122B 1,1 All

azureuser@frontend-vm: ~/frc azureuser@backend-vm: ~/ba

GNU nano 7.2 package.json

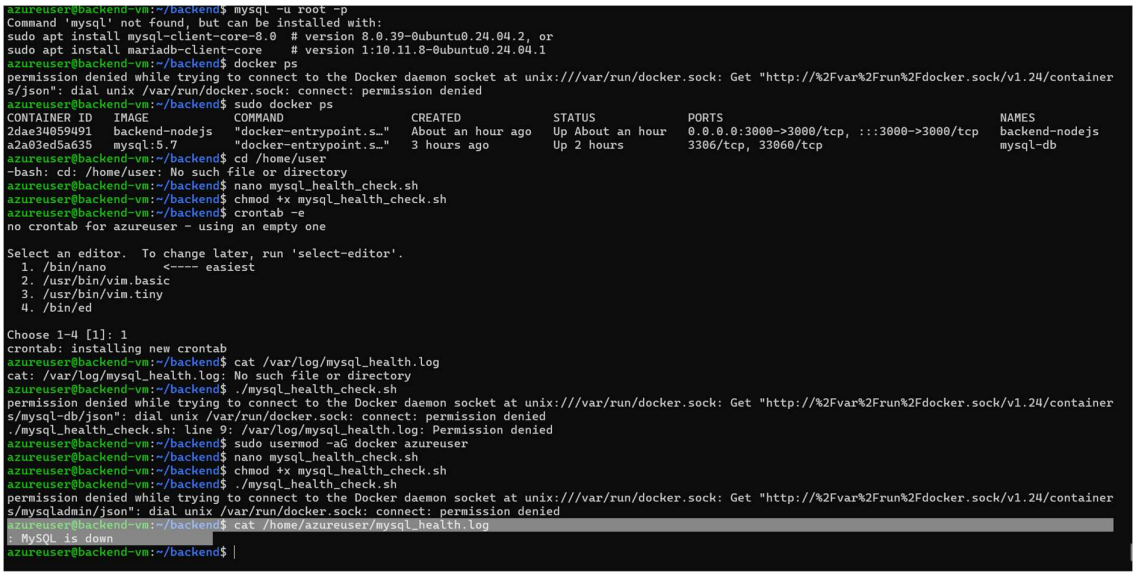
```
{
  "name": "backend",
  "version": "1.0.0",
  "description": "Backend for e-commerce app",
  "main": "app.js",
  "scripts": {
    "start": "node app.js"
  },
  "dependencies": {
    "express": "^4.17.1",
    "mysql": "^2.18.1"
  }
}
```

1. **Deploy a MySQL database** using Docker on the back-end VM.

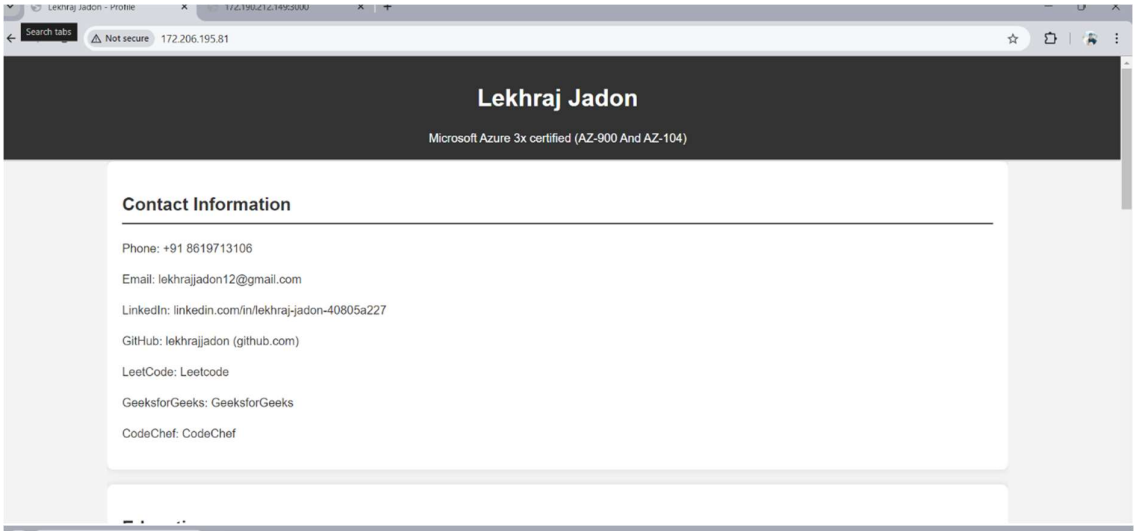
Deploy a MySQL database using Docker on the back-end VM: Deploying MySQL in a Docker container on the back-end VM isolates the database from the host environment, enhancing portability and ease of management. This approach allows for quick deployments and version control while maintaining a consistent database environment across development, testing, and production stages.

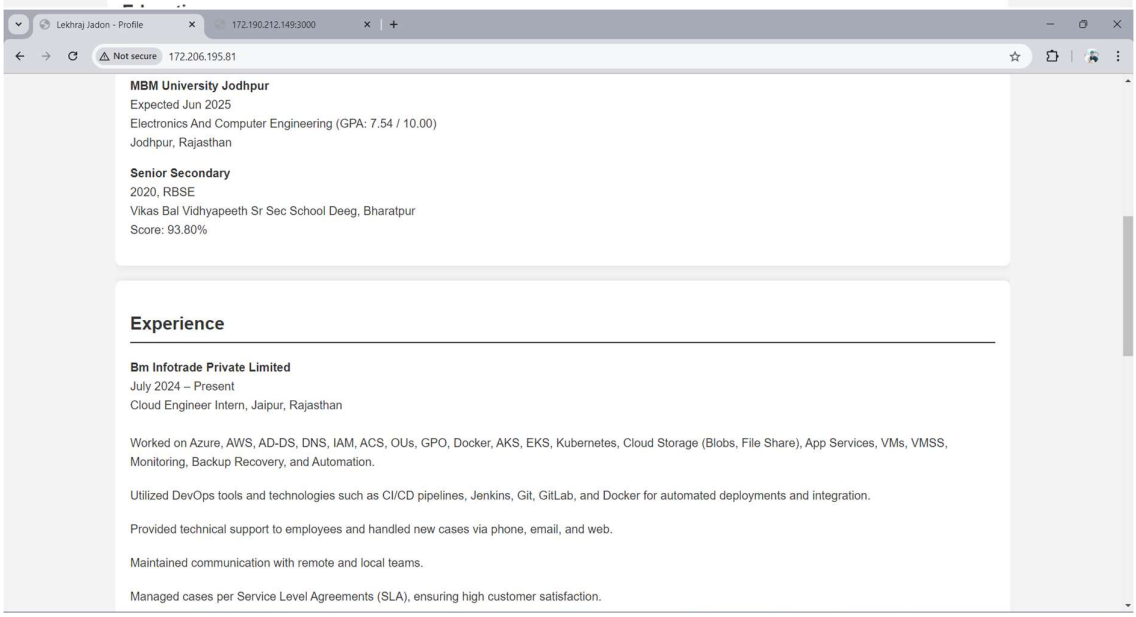
docker pull mysql:latest

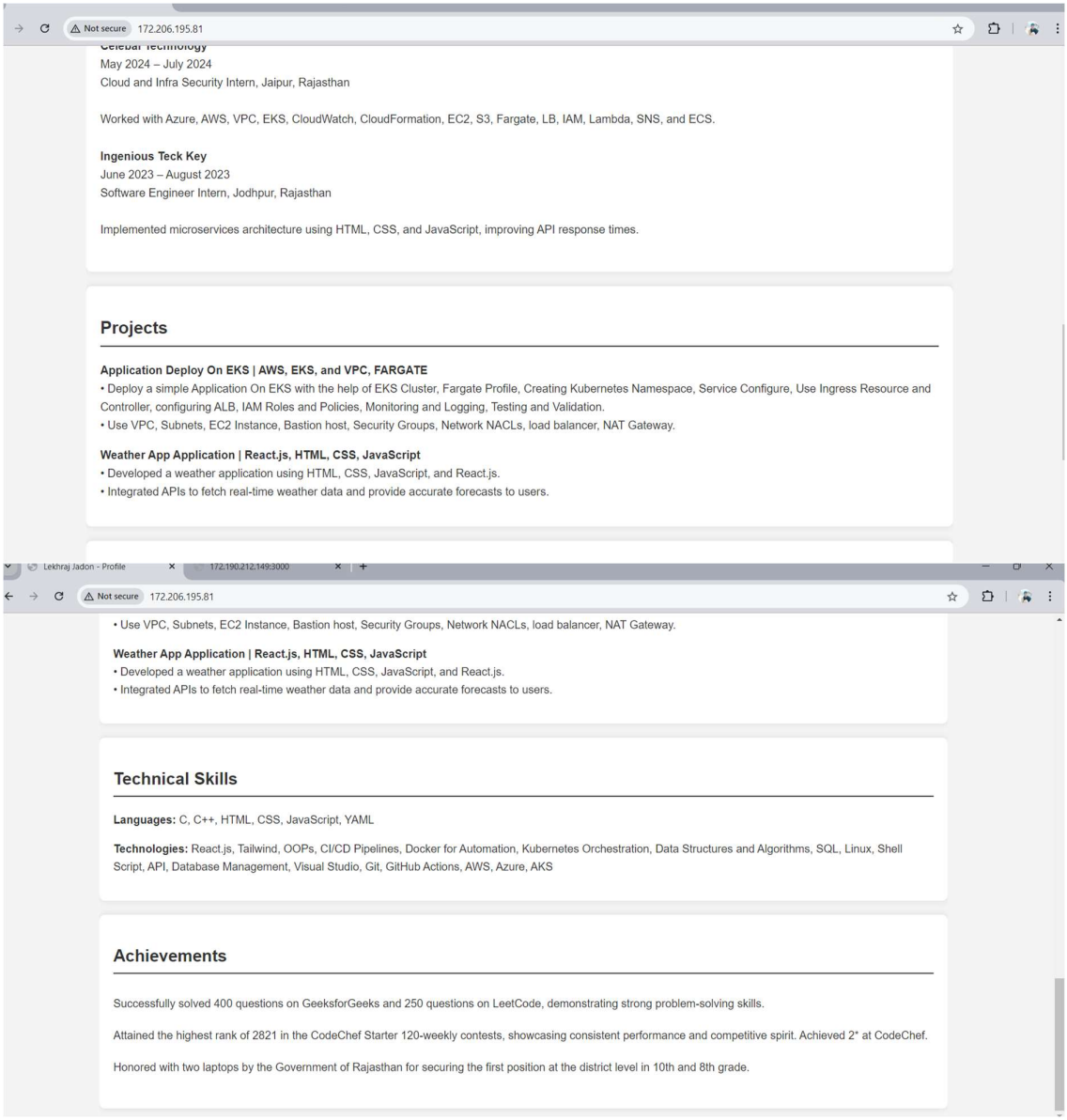
docker run -d -p 3306:3306 --name mysql-db -e MYSQL_ROOT_PASSWORD=<password> mysql:latest



```
azureuser@backend-vm:~/backend$ docker ps
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/json": dial unix /var/run/docker.sock: connect: permission denied
azureuser@backend-vm:~/backend$ sudo docker ps
CONTAINER ID   IMAGE           COMMAND                  CREATED             STATUS             PORTS                                                  NAMES
2dae34059491   backend-nodejs   "docker-entrypoint.s…"   About an hour ago   Up About an hour   0.0.0.0:3000->3000/tcp, :::3000->3000/tcp              backend-nodejs
a2a03ed5a635   mysql:5.7        "docker-entrypoint.s…"   3 hours ago         Up 2 hours         3306/tcp, 33060/tcp                                    mysql-db
azureuser@backend-vm:~/backend$ cd /home/user
-bash: cd: /home/user: No such file or directory
azureuser@backend-vm:~/backend$ nano mysql_health_check.sh
azureuser@backend-vm:~/backend$ chmod +x mysql_health_check.sh
azureuser@backend-vm:~/backend$ crontab -e
no crontab for azureuser - using an empty one

Select an editor.  To change later, run 'select-editor'.
  1. /bin/nano        <---- easiest
  2. /usr/bin/vim.basic
  3. /usr/bin/vim.tiny
  4. /bin/ed

Choose 1-4 [1]: 1
crontab: installing new crontab
azureuser@backend-vm:~/backend$ cat /var/log/mysql_health.log
cat: /var/log/mysql_health.log: No such file or directory
azureuser@backend-vm:~/backend$ ./mysql_health_check.sh
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/mysql-db/json": dial unix /var/run/docker.sock: connect: permission denied
./mysql_health_check.sh: line 9: /var/log/mysql_health.log: Permission denied
azureuser@backend-vm:~/backend$ sudo usermod -aG docker azureuser
azureuser@backend-vm:~/backend$ nano mysql_health_check.sh
azureuser@backend-vm:~/backend$ chmod +x mysql_health_check.sh
azureuser@backend-vm:~/backend$ ./mysql_health_check.sh
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/mysqladmin/json": dial unix /var/run/docker.sock: connect: permission denied
azureuser@backend-vm:~/backend$ cat /home/azureuser/mysql_health.log
: MySQL is down
azureuser@backend-vm:~/backend$ crontab -e
crontab: installing new crontab
azureuser@backend-vm:~/backend$ cat /home/azureuser/mysql_health.log
: MySQL is down
azureuser@backend-vm:~/backend$
```


Search tabs
Not secure
172.206.195.81
Lekhraj Jadon
Microsoft Azure 3x certified (AZ-900 And AZ-104)
Contact Information
Phone: +91 8619713106
Email: lekhrajjadon12@gmail.com
LinkedIn: linkedin.com/in/lekhraj-jadon-40805a227
GitHub: lekhrajjadon (github.com)
LeetCode: Leetcode
GeeksforGeeks: GeeksforGeeks
CodeChef: CodeChef


Lekhraj Jadon - Profile
172.190.212.149:3000
Not secure
172.206.195.81
MBM University Jodhpur
Expected Jun 2025
Electronics And Computer Engineering (GPA: 7.54 / 10.00)
Jodhpur, Rajasthan
Senior Secondary
2020, RBSE
Vikas Bal Vidhyapeeth Sr Sec School Deeg, Bharatpur
Score: 93.80%
Experience
Bm Infotrade Private Limited
July 2024 – Present
Cloud Engineer Intern, Jaipur, Rajasthan
Worked on Azure, AWS, AD-DS, DNS, IAM, ACS, OUs, GPO, Docker, AKS, EKS, Kubernetes, Cloud Storage (Blobs, File Share), App Services, VMs, VMSS, Monitoring, Backup Recovery, and Automation.
Utilized DevOps tools and technologies such as CI/CD pipelines, Jenkins, Git, GitLab, and Docker for automated deployments and integration.
Provided technical support to employees and handled new cases via phone, email, and web.
Maintained communication with remote and local teams.
Managed cases per Service Level Agreements (SLA), ensuring high customer satisfaction.

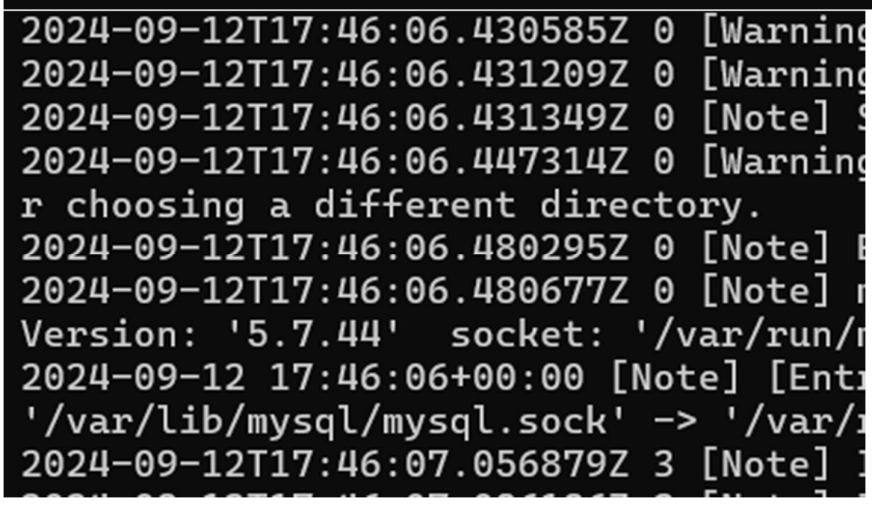


1. **Ensure database integration** between the back-end API and the MySQL database, securing communication using SSL.

2. • **Ensure database integration between the back-end API and the MySQL database, securing communication using SSL:** Integrate the Node.js API with the MySQL database by configuring the database connection within the API code. Implement SSL/TLS to encrypt data transmitted between the API and the database, ensuring secure data communication and protecting sensitive information from interception and tampering.

   Mkdir my.cnf
   [mysqld]

```
ssl-ca=/path/to/ca-cert.pem
ssl-cert=/path/to/server-cert.pem
ssl-key=/path/to/server-key.pem

update node.js
const mysql = require('mysql');
const connection = mysql.createConnection({
  host: 'localhost',
  user: 'root',
  password: '<password>',
  database: '<database>',
  ssl: {
    ca: fs.readFileSync('/path/to/ca-cert.pem')
  }
});
```



```
ca-cert.pem  ca-cert.srl  ca-key.pem  client-cert.pem  client-key.pem  client-req.pem  server-cert.pem  server-key.pem  server-req.pem
azureuser@backend-vm:~/ssl$ sudo docker exec -it mysql-db bash
bash-4.2#
bash-4.2#
bash-4.2#
bash-4.2#
bash-4.2#
bash-4.2# ^C
bash-4.2# ^C
bash-4.2# exit
exit
azureuser@backend-vm:~/ssl$ nano /etc/mysql/my.cnf
azureuser@backend-vm:~/ssl$
azureuser@backend-vm:~/ssl$ sudo docker restart mysql-db
mysql-db
azureuser@backend-vm:~/ssl$ sudo docker exec -it mysql-db mysql -u root -p
Enter password:
ERROR 1045 (28000): Access denied for user 'root'@'localhost' (using password: NO)
azureuser@backend-vm:~/ssl$ sudo docker exec -it mysql-db mysql -u root -p
Enter password:
ERROR 1045 (28000): Access denied for user 'root'@'localhost' (using password: YES)
azureuser@backend-vm:~/ssl$ sudo docker exec -it mysql-db mysql -u root -p
Enter password:
ERROR 1045 (28000): Access denied for user 'root'@'localhost' (using password: YES)
azureuser@backend-vm:~/ssl$ sudo docker exec -it mysql-db mysql -u root -p
Enter password:
ERROR 1045 (28000): Access denied for user 'root'@'localhost' (using password: YES)
azureuser@backend-vm:~/ssl$ sudo docker exec -it mysql-db mysql -u root -p
Enter password:
ERROR 1045 (28000): Access denied for user 'root'@'localhost' (using password: YES)
azureuser@backend-vm:~/ssl$ sudo docker ps
CONTAINER ID   IMAGE            COMMAND                  CREATED             STATUS             PORTS                                       NAMES
60af0d253538   backend-nodejs   "docker-entrypoint.s…"   About an hour ago   Up About an hour   0.0.0.0:3000->3000/tcp, :::3000->3000/tcp   backend-nodejs
a2a03ed5a635   mysql:5.7        "docker-entrypoint.s…"   2 hours ago         Up 3 minutes       3306/tcp, 33060/tcp                         mysql-db
azureuser@backend-vm:~/ssl$ sudo docker logs a2a03ed5a635
2024-09-12 17:45:56+00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 5.7.44-1.el7 started.
2024-09-12 17:45:57+00:00 [Note] [Entrypoint]: Switching to dedicated user 'mysql'
2024-09-12 17:45:57+00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 5.7.44-1.el7 started.
2024-09-12 17:45:57+00:00 [Note] [Entrypoint]: Initializing database files
```

```
azureuser@backend-vm:~/ssl$ sudo docker logs a2a03ed5a635
2024-09-12 17:45:56+00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 5.7.44-1.el7 started.
2024-09-12 17:45:57+00:00 [Note] [Entrypoint]: Switching to dedicated user 'mysql'
2024-09-12 17:45:57+00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 5.7.44-1.el7 started.
2024-09-12 17:45:57+00:00 [Note] [Entrypoint]: Initializing database files
2024-09-12T17:45:57.429348Z 0 [Warning] TIMESTAMP with implicit DEFAULT value is deprecated. Please use --explicit_defaults_for_timestamp server option (see
 documentation for more details).
2024-09-12T17:45:59.429846Z 0 [Warning] InnoDB: New log files created, LSN=45790
2024-09-12T17:45:59.643881Z 0 [Warning] InnoDB: Creating foreign key constraint system tables.
2024-09-12T17:45:59.728439Z 0 [Warning] No existing UUID has been found, so we assume that this is the first time that this server has been started. Generat
ing a new UUID: df1acbaa-712e-11ef-af81-0242ac110002.
2024-09-12T17:45:59.745982Z 0 [Warning] Gtid table is not ready to be used. Table 'mysql.gtid_executed' cannot be opened.
2024-09-12T17:45:59.972740Z 0 [Warning] A deprecated TLS version TLSv1 is enabled. Please use TLSv1.2 or higher.
2024-09-12T17:45:59.972901Z 0 [Warning] A deprecated TLS version TLSv1.1 is enabled. Please use TLSv1.2 or higher.
2024-09-12T17:45:59.973575Z 0 [Warning] CA certificate ca.pem is self signed.
2024-09-12T17:46:00.134253Z 1 [Warning] root@localhost is created with an empty password ! Please consider switching off the --initialize-insecure option.
2024-09-12 17:46:05+00:00 [Note] [Entrypoint]: Database files initialized
2024-09-12 17:46:05+00:00 [Note] [Entrypoint]: Starting temporary server
2024-09-12 17:46:05+00:00 [Note] [Entrypoint]: Waiting for server startup
2024-09-12T17:46:06.186848Z 0 [Warning] TIMESTAMP with implicit DEFAULT value is deprecated. Please use --explicit_defaults_for_timestamp server option (see
 documentation for more details).
2024-09-12T17:46:06.188984Z 0 [Note] mysqld (mysqld 5.7.44) starting as process 123 ...
2024-09-12T17:46:06.192991Z 0 [Note] InnoDB: PUNCH HOLE support available
2024-09-12T17:46:06.193110Z 0 [Note] InnoDB: Mutexes and rw_locks use GCC atomic builtins
2024-09-12T17:46:06.193133Z 0 [Note] InnoDB: Uses event mutexes
2024-09-12T17:46:06.193137Z 0 [Note] InnoDB: GCC builtin __atomic_thread_fence() is used for memory barrier
2024-09-12T17:46:06.193139Z 0 [Note] InnoDB: Compressed tables use zlib 1.2.13
2024-09-12T17:46:06.193142Z 0 [Note] InnoDB: Using Linux native AIO
2024-09-12T17:46:06.193547Z 0 [Note] InnoDB: Number of pools: 1
2024-09-12T17:46:06.193735Z 0 [Note] InnoDB: Using CPU crc32 instructions
2024-09-12T17:46:06.195662Z 0 [Note] InnoDB: Initializing buffer pool, total size = 128M, instances = 1, chunk size = 128M
2024-09-12T17:46:06.204761Z 0 [Note] InnoDB: Completed initialization of buffer pool
2024-09-12T17:46:06.207543Z 0 [Note] InnoDB: If the mysqld execution user is authorized, page cleaner thread priority can be changed. See the man page of se
tpriority().
2024-09-12T17:46:06.222182Z 0 [Note] InnoDB: Highest supported file format is Barracuda.
2024-09-12T17:46:06.241629Z 0 [Note] InnoDB: Creating shared tablespace for temporary tables
2024-09-12T17:46:06.241989Z 0 [Note] InnoDB: Setting file './ibtmp1' size to 12 MB. Physically writing the file full; Please wait ...
2024-09-12T17:46:06.365784Z 0 [Note] InnoDB: File './ibtmp1' size is now 12 MB.
2024-09-12T17:46:06.366679Z 0 [Note] InnoDB: 96 redo rollback segment(s) found. 96 redo rollback segment(s) are active.
```

```
2024-09-12T17:46:06.430585Z 0 [Warning
2024-09-12T17:46:06.431209Z 0 [Warning
2024-09-12T17:46:06.431349Z 0 [Note]
2024-09-12T17:46:06.447314Z 0 [Warning
r choosing a different directory.
2024-09-12T17:46:06.480295Z 0 [Note]
2024-09-12T17:46:06.480677Z 0 [Note]
Version: '5.7.44'  socket: '/var/run/
2024-09-12 17:46:06+00:00 [Note] [Ent
'/var/lib/mysql/mysql.sock' -> '/var/
2024-09-12T17:46:07.056879Z 3 [Note]
```

```
2024-09-12T17:46:06.430585Z 0 [Warning] A deprecated TLS version TLSv1.1 is enabled. Please use TLSv1.2 or higher.
2024-09-12T17:46:06.431209Z 0 [Warning] CA certificate ca.pem is self signed.
2024-09-12T17:46:06.431349Z 0 [Note] Skipping generation of RSA key pair as key files are present in data directory.
2024-09-12T17:46:06.447314Z 0 [Warning] Insecure configuration for --pid-file: Location '/var/run/mysqld' in the path is accessible to all OS users. Conside
r choosing a different directory.
2024-09-12T17:46:06.480295Z 0 [Note] Event Scheduler: Loaded 0 events
2024-09-12T17:46:06.480677Z 0 [Note] mysqld: ready for connections.
Version: '5.7.44'  socket: '/var/run/mysqld/mysqld.sock'  port: 0  MySQL Community Server (GPL)
2024-09-12 17:46:06+00:00 [Note] [Entrypoint]: Temporary server started.
'/var/lib/mysql/mysql.sock' -> '/var/run/mysqld/mysqld.sock'
2024-09-12T17:46:07.056879Z 3 [Note] InnoDB: Stopping purge
2024-09-12T17:46:07.086196Z 3 [Note] InnoDB: Resuming purge
2024-09-12T17:46:07.099243Z 3 [Note] InnoDB: Stopping purge
2024-09-12T17:46:07.118790Z 3 [Note] InnoDB: Resuming purge
2024-09-12T17:46:07.129645Z 3 [Note] InnoDB: Stopping purge
2024-09-12T17:46:07.148682Z 3 [Note] InnoDB: Resuming purge
2024-09-12T17:46:07.156695Z 3 [Note] InnoDB: Stopping purge
2024-09-12T17:46:07.175819Z 3 [Note] InnoDB: Resuming purge
Warning: Unable to load '/usr/share/zoneinfo/iso3166.tab' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/leapseconds' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/tzdata.zi' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/zone.tab' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/zone1970.tab' as time zone. Skipping it.
2024-09-12 17:46:10+00:00 [Note] [Entrypoint]: Creating database ecommerce

2024-09-12 17:46:10+00:00 [Note] [Entrypoint]: Stopping temporary server
2024-09-12T17:46:10.731651Z 0 [Note] Giving 0 client threads a chance to die gracefully
2024-09-12T17:46:10.731782Z 0 [Note] Shutting down slave threads
2024-09-12T17:46:10.731838Z 0 [Note] Forcefully disconnecting 0 remaining clients
2024-09-12T17:46:10.731912Z 0 [Note] Event Scheduler: Purging the queue. 0 events
2024-09-12T17:46:10.732044Z 0 [Note] Binlog end
2024-09-12T17:46:10.732646Z 0 [Note] Shutting down plugin 'ngram'
2024-09-12T17:46:10.732737Z 0 [Note] Shutting down plugin 'partition'
2024-09-12T17:46:10.732744Z 0 [Note] Shutting down plugin 'BLACKHOLE'
2024-09-12T17:46:10.732748Z 0 [Note] Shutting down plugin 'ARCHIVE'
2024-09-12T17:46:10.732750Z 0 [Note] Shutting down plugin 'PERFORMANCE_SCHEMA'
2024-09-12T17:46:10.732783Z 0 [Note] Shutting down plugin 'MRG_MYISAM'
2024-09-12T17:46:10.732786Z 0 [Note] Shutting down plugin 'MyISAM'
2024-09-12T17:46:10.732906Z 0 [Note] Shutting down plugin 'INNODB_SYS_VIRTUAL'
2024-09-12T17:46:10.732926Z 0 [Note] Shutting down plugin 'INNODB_SYS_DATAFILES'
2024-09-12T17:46:10.732930Z 0 [Note] Shutting down plugin 'INNODB_SYS_TABLESPACES'
```


```
2024-09-12T17:46:06.430585Z 0 [Warning
2024-09-12T17:46:06.431209Z 0 [Warning
2024-09-12T17:46:06.431349Z 0 [Note] S
2024-09-12T17:46:06.447314Z 0 [Warning
r choosing a different directory.
2024-09-12T17:46:06.480295Z 0 [Note] E
2024-09-12T17:46:06.480677Z 0 [Note] r
Version: '5.7.44'  socket: '/var/run/r
2024-09-12 17:46:06+00:00 [Note] [Ent
'/var/lib/mysql/mysql.sock' -> '/var/r
```


Snipping Tool

Screenshot copied to clipboard and saved
Select here to mark up and share.

```
2024-09-12T17:46:13.250592Z 0 [Note] mysqld: ready for connections.
Version: '5.7.44'  socket: '/var/run/mysqld/mysqld.sock'  port: 3306  MySQL Community Server (GPL)
2024-09-12T19:15:10.698438Z 2 [Note] Access denied for user 'root'@'localhost' (using password: YES)
2024-09-12 19:18:48+00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 5.7.44-1.el7 started.
2024-09-12 19:18:49+00:00 [Note] [Entrypoint]: Switching to dedicated user 'mysql'
2024-09-12 19:18:49+00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 5.7.44-1.el7 started.
'/var/lib/mysql/mysql.sock' -> '/var/run/mysqld/mysqld.sock'
2024-09-12T19:18:49.617521Z 0 [Warning] TIMESTAMP with implicit DEFAULT value is deprecated. Please use --explicit_defaults_for_timestamp server option (see
 documentation for more details).
2024-09-12T19:18:49.618872Z 0 [Note] mysqld (mysqld 5.7.44) starting as process 1 ...
2024-09-12T19:18:49.624521Z 0 [Note] InnoDB: PUNCH HOLE support available
2024-09-12T19:18:49.624673Z 0 [Note] InnoDB: Mutexes and rw_locks use GCC atomic builtins
2024-09-12T19:18:49.624739Z 0 [Note] InnoDB: Uses event mutexes
2024-09-12T19:18:49.624788Z 0 [Note] InnoDB: GCC builtin __atomic_thread_fence() is used for memory barrier
2024-09-12T19:18:49.624852Z 0 [Note] InnoDB: Compressed tables use zlib 1.2.13
2024-09-12T19:18:49.624903Z 0 [Note] InnoDB: Using Linux native AIO
2024-09-12T19:18:49.626607Z 0 [Note] InnoDB: Number of pools: 1
2024-09-12T19:18:49.629189Z 0 [Note] InnoDB: Using CPU crc32 instructions
2024-09-12T19:18:49.631162Z 0 [Note] InnoDB: Initializing buffer pool, total size = 128M, instances = 1, chunk size = 128M
2024-09-12T19:18:49.646217Z 0 [Note] InnoDB: Completed initialization of buffer pool
2024-09-12T19:18:49.649214Z 0 [Note] InnoDB: If the mysqld execution user is authorized, page cleaner thread priority can be changed. See the man page of se
tpriority().
2024-09-12T19:18:49.669339Z 0 [Note] InnoDB: Highest supported file format is Barracuda.
2024-09-12T19:18:49.678255Z 0 [Note] InnoDB: Log scan progressed past the checkpoint lsn 12219438
2024-09-12T19:18:49.678275Z 0 [Note] InnoDB: Doing recovery: scanned up to log sequence number 12219447
2024-09-12T19:18:49.678279Z 0 [Note] InnoDB: Database was not shutdown normally!
2024-09-12T19:18:49.678282Z 0 [Note] InnoDB: Starting crash recovery.
2024-09-12T19:18:49.818394Z 0 [Note] InnoDB: Removed temporary tablespace data file: "ibtmp1"
2024-09-12T19:18:49.818430Z 0 [Note] InnoDB: Creating shared tablespace for temporary tables
2024-09-12T19:18:49.818477Z 0 [Note] InnoDB: Setting file './ibtmp1' size to 12 MB. Physically writing the file full; Please wait ...
2024-09-12T19:18:49.896822Z 0 [Note] InnoDB: File './ibtmp1' size is now 12 MB.
2024-09-12T19:18:49.897908Z 0 [Note] InnoDB: 96 redo rollback segment(s) found. 96 redo rollback segment(s) are active.
2024-09-12T19:18:49.898013Z 0 [Note] InnoDB: 32 non-redo rollback segment(s) are active.
2024-09-12T19:18:49.898767Z 0 [Note] InnoDB: 5.7.44 started; log sequence number 12219447
2024-09-12T19:18:49.899370Z 0 [Note] Plugin 'FEDERATED' is disabled.
2024-09-12T19:18:49.899595Z 0 [Note] InnoDB: Loading buffer pool(s) from /var/lib/mysql/ib_buffer_pool
2024-09-12T19:18:49.926595Z 0 [Note] InnoDB: Buffer pool(s) load completed at 240912 19:18:49
2024-09-12T19:18:49.936276Z 0 [Note] Found ca.pem, server-cert.pem and server-key.pem in data directory. Trying to enable SSL support using them.
2024-09-12T19:18:49.936470Z 0 [Note] Skipping generation of SSL certificates as certificate files are present in data directory.
2024-09-12T19:18:49.936517Z 0 [Warning] A deprecated TLS version TLSv1 is enabled. Please use TLSv1.2 or higher.
2024-09-12T19:18:49.936576Z 0 [Warning] A deprecated TLS version TLSv1.1 is enabled. Please use TLSv1.2 or higher.
```

```
azureuser@backend-vm:~/ssl$ sudo docker run -d -p 3000:3000 --name backend-nodejs --link mysql-db backend-nodejs
docker: Error response from daemon: Conflict. The container name "/backend-nodejs" is already in use by container "60af0d253538bacedd0fbc514865caed0436e1db9
babb5b83dcdb958a46e412d". You have to remove (or rename) that container to be able to reuse that name.
See 'docker run --help'.
azureuser@backend-vm:~/ssl$ sudo docker ps
CONTAINER ID   IMAGE            COMMAND                  CREATED              STATUS              PORTS                                       NAMES
60af0d253538   backend-nodejs   "docker-entrypoint.s…"   About an hour ago    Up About an hour    0.0.0.0:3000->3000/tcp, :::3000->3000/tcp   backend-nodejs
a2a03ed5a635   mysql:5.7        "docker-entrypoint.s…"   2 hours ago          Up 5 minutes        3306/tcp, 33060/tcp                         mysql-db
azureuser@backend-vm:~/ssl$ curl http://localhost:3000
Hello World!azureuser@backend-vm:~/ssl$ ls
ca-cert.pem  ca-cert.srl  ca-key.pem  client-cert.pem  client-key.pem  client-req.pem  server-cert.pem  server-key.pem  server-req.pem
azureuser@backend-vm:~/ssl$ openssl genrsa 2048 > ca-key.pem
azureuser@backend-vm:~/ssl$ openssl req -new -x509 -nodes -days 365 -key ca-key.pem -out ca-cert.pem
You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name (2 letter code) [AU]:.
State or Province Name (full name) [Some-State]:.
Locality Name (eg, city) []:.
Organization Name (eg, company) [Internet Widgits Pty Ltd]:.
Organizational Unit Name (eg, section) []:.
Common Name (e.g. server FQDN or YOUR name) []:.
Email Address []:veer@1234
azureuser@backend-vm:~/ssl$ openssl req -newkey rsa:2048 -days 365 -nodes -keyout server-key.pem -out server-req.pem
Ignoring -days without -x509; not generating a certificate
.............+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++*....+..+......+.......+.........+......+..+......+.+...++++++++++++++++++++
+++++++++++++++++++++++++++++++++++++++++*.....+.........+......+......+...+...+.+...+.........................+.......+..+............+....+........
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+++++++++++++++++++++++++++
-----
You are about to be asked to enter information that will be incorporated
```
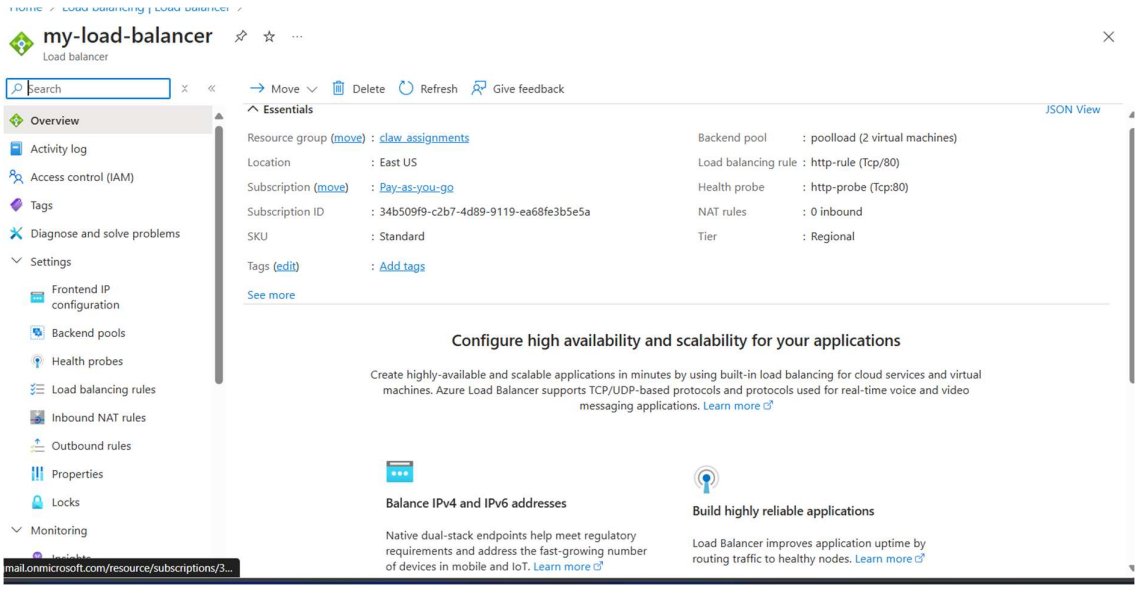

```
60af0d253538   backend-nodejs   "docker-entrypoint.s…"   About an hour ago   Up About an hour   0.0.0.0:3000->3000/tcp, :::3000->3000/tcp   backend-nodejs
a2a03ed5a635   mysql:5.7        "docker-entrypoint.s…"   2 hours ago         Up 24 minutes      3306/tcp, 33060/tcp                         mysql-db
azureuser@backend-vm:~/backend$  curl http://localhost:3000
Hello World!azureuser@backend-vmsudo docker build -t backend-nodejs .end-nodejs .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
            Install the buildx component to build images with BuildKit:
            https://docs.docker.com/go/buildx/

Sending build context to Docker daemon  3.951MB
Step 1/6 : FROM node:13
13: Pulling from library/node
1c6172af85ee: Pull complete
b194b0e3c928: Pull complete
1f5ec00f35d5: Pull complete
93b1353672b6: Pull complete
3d7f38db3cca: Pull complete
21e102f9fe89: Pull complete
d5431b24825a: Pull complete
f780e3352c18: Pull complete
4d28937582d0: Pull complete
Digest: sha256:70d4fffcab39a1f9f7161d58e674ddcc56c7f0724196b68d52a87bab15cb4a04
Status: Downloaded newer image for node:13
 ---> 2b9604a36e49
Step 2/6 : WORKDIR /app
 ---> Running in f2e9f374c7d3
Removing intermediate container f2e9f374c7d3
 ---> bc1a3fe0482f
Step 3/6 : COPY package*.json ./
 ---> 7afdc4100e82
Step 4/6 : RUN npm install --only=production
 ---> Running in 4ac19a23fd62
npm WARN read-shrinkwrap This version of npm is compatible with lockfileVersion@1, but package-lock.json was generated for lockfileVersion@3. I'll try to do
 my best with it!
npm WARN backend@1.0.0 No repository field.
npm WARN backend@1.0.0 No license field.

added 77 packages from 52 contributors and audited 77 packages in 3.188s

13 packages are looking for funding
  run `npm fund` for details
```

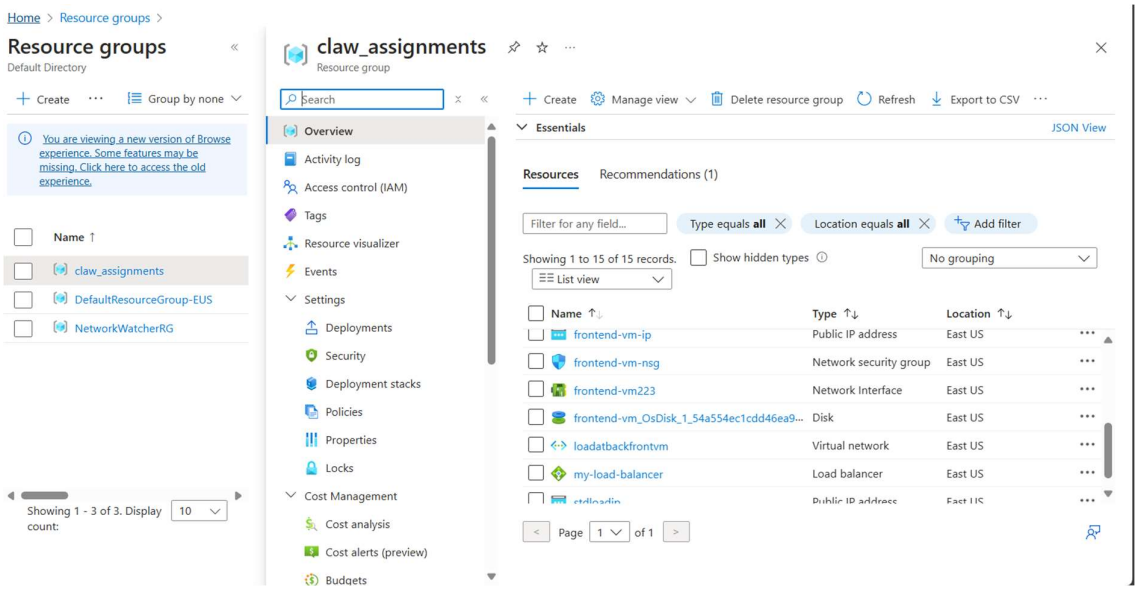
```
b194b0e3c928: Pull complete
1f5ec00f35d5: Pull complete
93b1353672b6: Pull complete
3d7f38db3cca: Pull complete
21e102f9fe89: Pull complete
d5431b24825a: Pull complete
f780e3352c18: Pull complete
4d28937582d0: Pull complete
Digest: sha256:70d4fffcab39a1f9f7161d58e674ddcc56c7f0724196b68d52a87bab15cb4a04
Status: Downloaded newer image for node:13
 ---> 2b9604a36e49
Step 2/6 : WORKDIR /app
 ---> Running in f2e9f374c7d3
Removing intermediate container f2e9f374c7d3
 ---> bc1a3fe0482f
Step 3/6 : COPY package*.json ./
 ---> 7afdc4100e82
Step 4/6 : RUN npm install --only=production
 ---> Running in 4ac19a23fd62
npm WARN read-shrinkwrap This version of npm is compatible with lockfileVersion@1, but package-lock.json was generated for lockfileVersion@3. I'll try to do
 my best with it!
npm WARN backend@1.0.0 No repository field.
npm WARN backend@1.0.0 No license field.

added 77 packages from 52 contributors and audited 77 packages in 3.188s

13 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities

Removing intermediate container 4ac19a23fd62
 ---> 389fd60e5bfd
Step 5/6 : COPY . .
 ---> bf273d0843d8
Step 6/6 : CMD [ "node", "app.js" ]
 ---> Running in bdd7e9cfe70c
Removing intermediate container bdd7e9cfe70c
 ---> 67a5c5c65500
Successfully built 67a5c5c65500
Successfully tagged backend-nodejs:latest
```

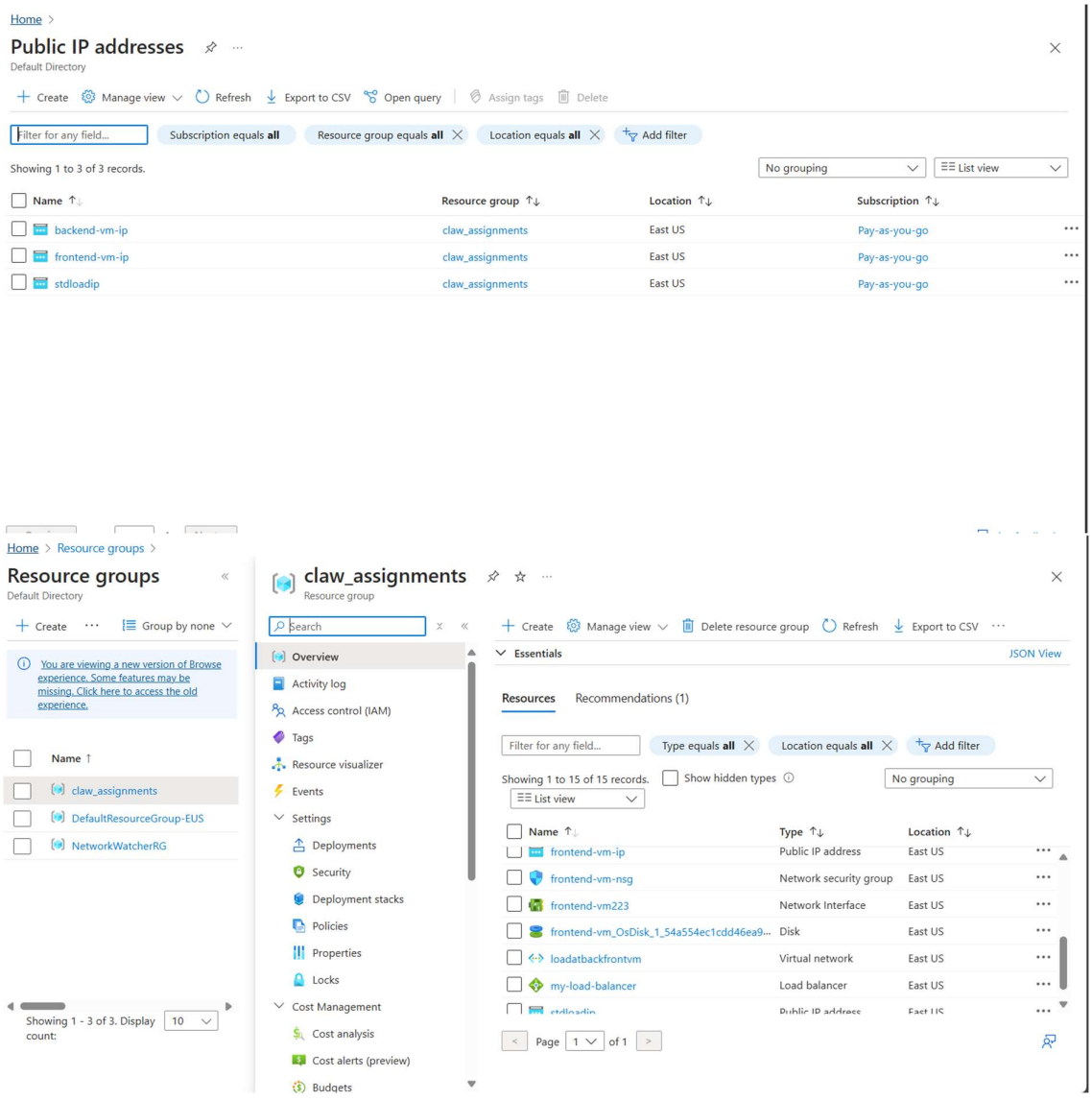
```
backend-nodejs
azureuser@backend-vm:~/backend$ sudo docker rm backend-nodejs
backend-nodejs
azureuser@backend-vm:~/backend$ sudo docker run -d -p 3000:3000 --name backend-nodejs --link mysql-db backend-nodejs
2dae34059491c1642109937f9848bc89a402c772685e19f9b8121f56c93d6701
azureuser@backend-vm:~/backend$ curl http://localhost:3000
I believe I am a strong fit for the Cloud Engineer role due to my hands-on experience with Azure and AWS, where I've work on  cloud environments and Active
Directory. My internships have provided me with a deep understanding of cloud security and infrastructure management. Additionally, my commitment to continu
ous learning, evidenced by my pursuit of the Azure Administrator Associate certificationazureuser@backend-vm:~/backend$
```

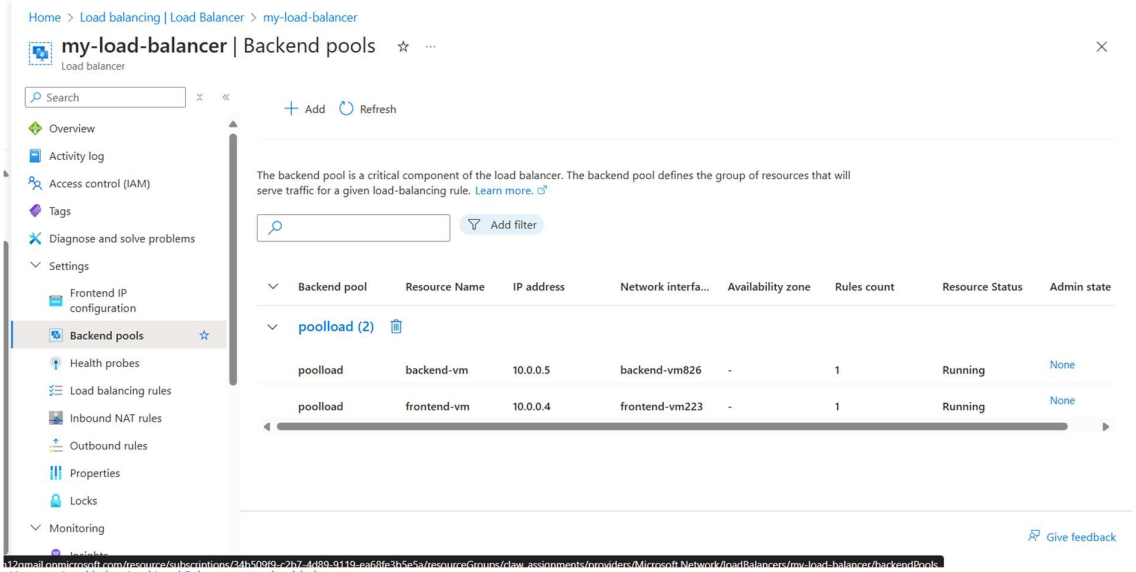
1. Set up **Azure Load Balancer** to distribute traffic between the front-end and back-end VMs for high availability.

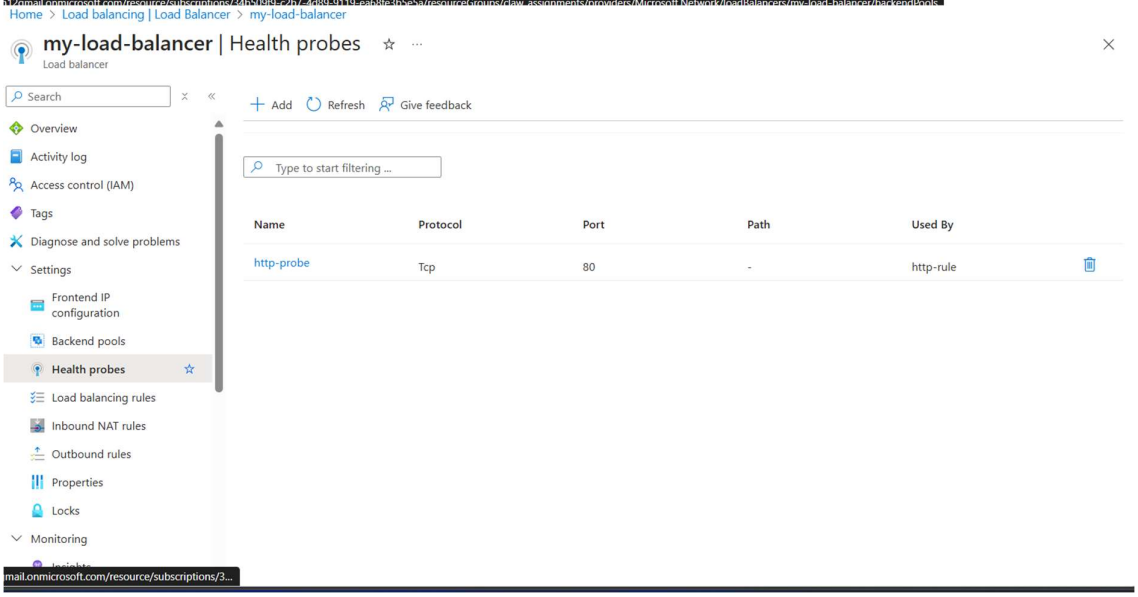
Set up Azure Load Balancer to distribute traffic between the front-end and back-end VMs for high availability: Configure Azure Load Balancer to distribute incoming traffic evenly between the front-end and back-end VMs. This setup enhances application availability and reliability by balancing the load, preventing any single VM from becoming a bottleneck, and ensuring uninterrupted service in case of VM failures.

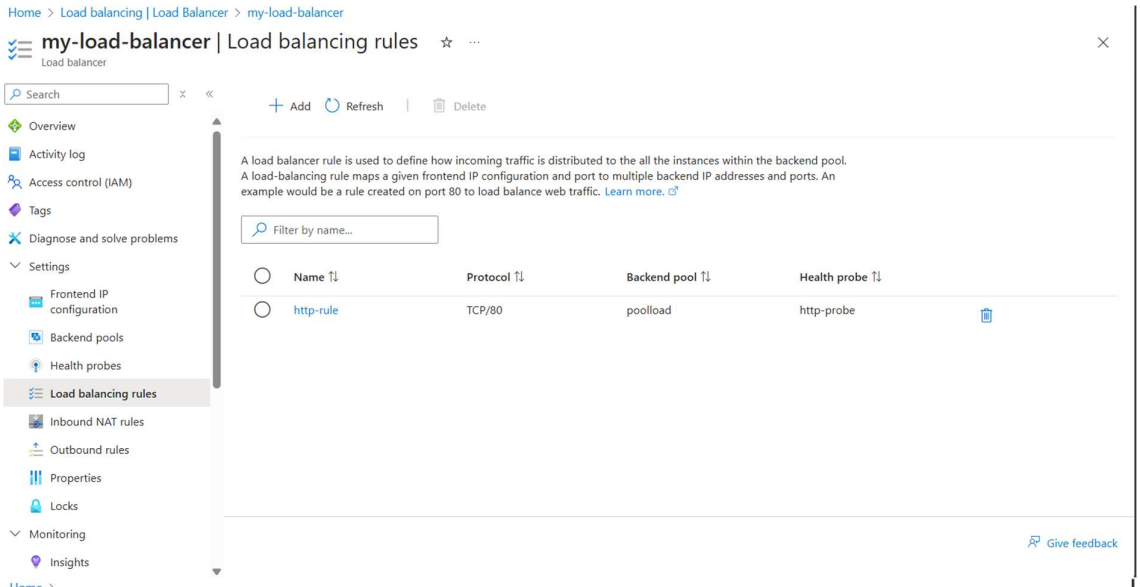


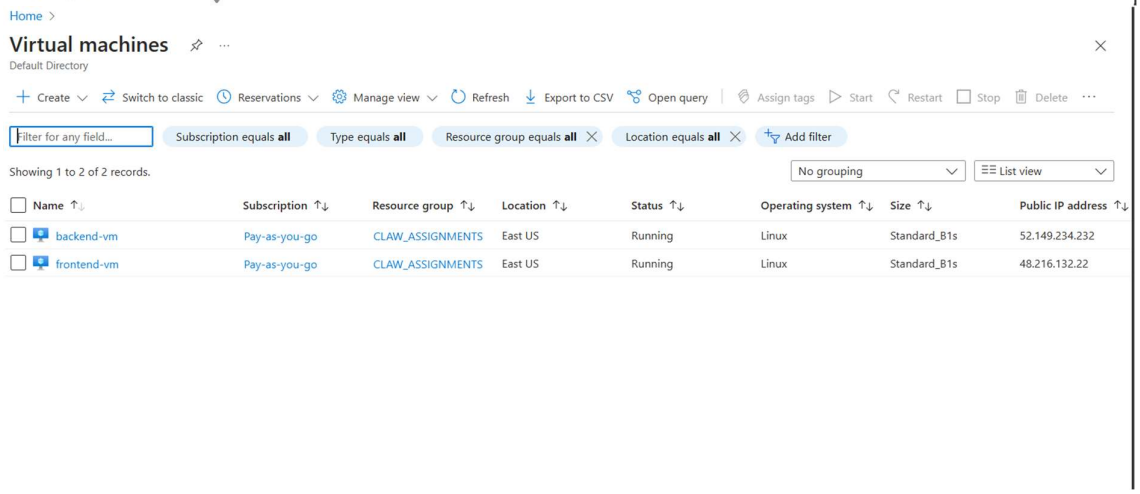


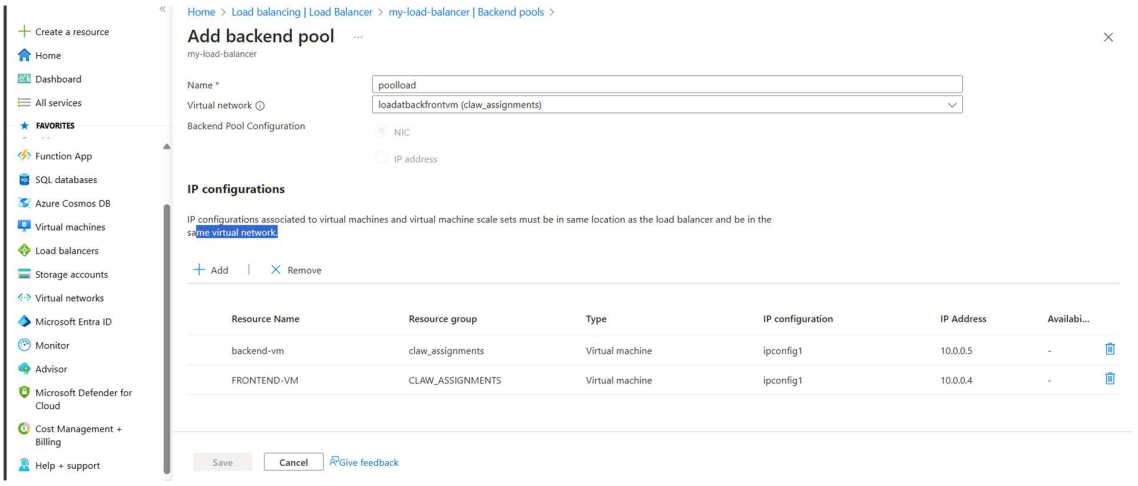

Home
Public IP addresses
Default Directory
Create
Manage view
Refresh
Export to CSV
Open query
Assign tags
Delete
Filter for any field...
Subscription equals all
Resource group equals all
Location equals all
Add filter
Showing 1 to 3 of 3 records.
No grouping
List view
Name
Resource group
Location
Subscription
backend-vm-ip
frontend-vm-ip
stdloadip
claw_assignments
East US
Pay-as-you-go
Home > Resource groups
Resource groups
Default Directory
Create
Group by none
You are viewing a new version of Browse experience. Some features may be missing. Click here to access the old experience.
Name
claw_assignments
DefaultResourceGroup-EUS
NetworkWatcherRG
Showing 1 - 3 of 3. Display count:
10
claw_assignments
Resource group
Search
Overview
Activity log
Access control (IAM)
Tags
Resource visualizer
Events
Settings
Deployments
Security
Deployment stacks
Policies
Properties
Locks
Cost Management
Cost analysis
Cost alerts (preview)
Budgets
Create
Manage view
Delete resource group
Refresh
Export to CSV
Essentials
JSON View
Resources
Recommendations (1)
Filter for any field...
Type equals all
Location equals all
Add filter
Showing 1 to 15 of 15 records.
Show hidden types
No grouping
List view
Name
Type
Location
frontend-vm-ip
Public IP address
East US
frontend-vm-nsg
Network security group
East US
frontend-vm223
Network Interface
East US
frontend-vm_OsDisk_1_54a554ec1cdd46ea9...
Disk
East US
loadatbackfrontvm
Virtual network
East US
my-load-balancer
Load balancer
East US
Page
1
of 1

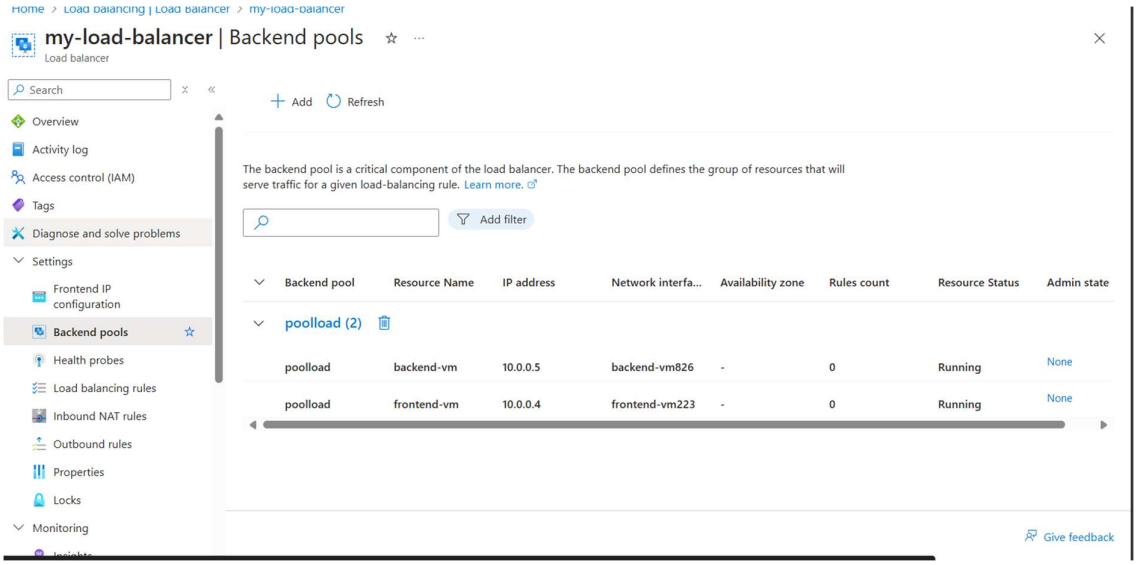

Home > Load balancing | Load Balancer > my-load-balancer
my-load-balancer | Backend pools
Load balancer
Search
Add
Refresh
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Frontend IP configuration
Backend pools
Health probes
Load balancing rules
Inbound NAT rules
Outbound rules
Properties
Locks
Monitoring
The backend pool is a critical component of the load balancer. The backend pool defines the group of resources that will serve traffic for a given load-balancing rule. Learn more.
Add filter
Backend pool
Resource Name
IP address
Network interfa...
Availability zone
Rules count
Resource Status
Admin state
poolload (2)
poolload backend-vm 10.0.0.5 backend-vm826 - 1 Running None
poolload frontend-vm 10.0.0.4 frontend-vm223 - 1 Running None
Give feedback


Home > Load balancing | Load Balancer > my-load-balancer
my-load-balancer | Health probes
Load balancer
Search
Add
Refresh
Give feedback
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Frontend IP configuration
Backend pools
Health probes
Load balancing rules
Inbound NAT rules
Outbound rules
Properties
Locks
Monitoring
Type to start filtering ...
Name
Protocol
Port
Path
Used By
http-probe Tcp 80 - http-rule


Home > Load balancing | Load Balancer > my-load-balancer
my-load-balancer | Load balancing rules
Load balancer
Search
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Frontend IP configuration
Backend pools
Health probes
Load balancing rules
Inbound NAT rules
Outbound rules
Properties
Locks
Monitoring
Insights
Add
Refresh
Delete
A load balancer rule is used to define how incoming traffic is distributed to the all the instances within the backend pool.
A load-balancing rule maps a given frontend IP configuration and port to multiple backend IP addresses and ports. An example would be a rule created on port 80 to load balance web traffic. Learn more.
Filter by name...
Name
Protocol
Backend pool
Health probe
http-rule
TCP/80
poolload
http-probe
Give feedback

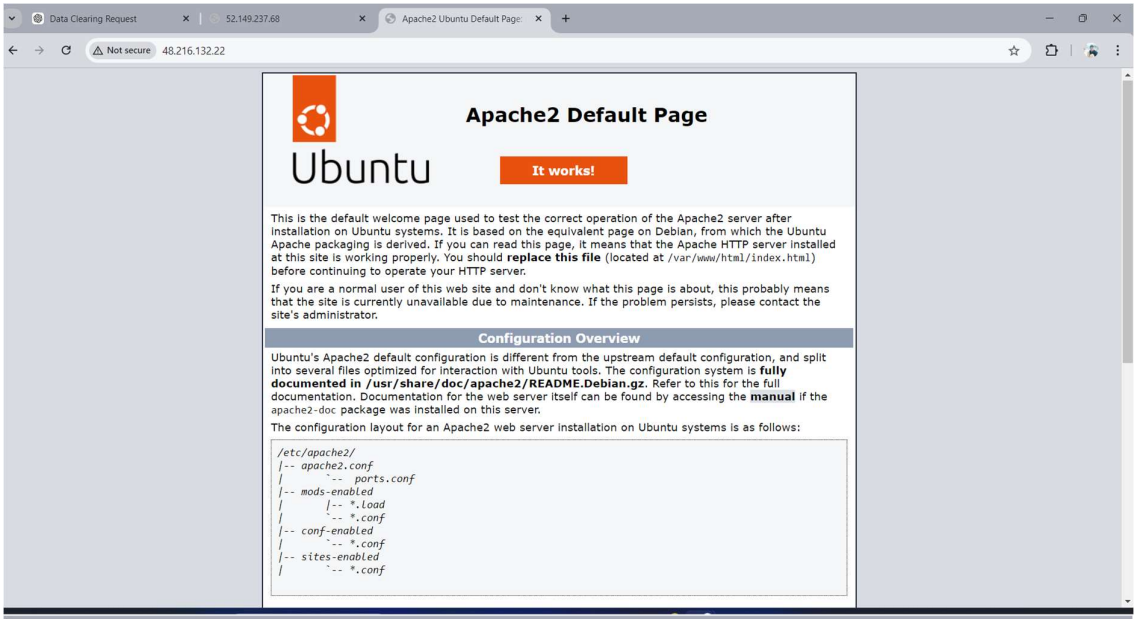

Home >
Virtual machines
Default Directory
Create
Switch to classic
Reservations
Manage view
Refresh
Export to CSV
Open query
Assign tags
Start
Restart
Stop
Delete
Filter for any field...
Subscription equals all
Type equals all
Resource group equals all
Location equals all
Add filter
Showing 1 to 2 of 2 records.
No grouping
List view
Name
Subscription
Resource group
Location
Status
Operating system
Size
Public IP address
backend-vm
Pay-as-you-go
CLAW_ASSIGNMENTS
East US
Running
Linux
Standard_B1s
52.149.234.232
frontend-vm
Pay-as-you-go
CLAW_ASSIGNMENTS
East US
Running
Linux
Standard_B1s
48.216.132.22


Create a resource
Home
Dashboard
All services
FAVORITES
Function App
SQL databases
Azure Cosmos DB
Virtual machines
Load balancers
Storage accounts
Virtual networks
Microsoft Entra ID
Monitor
Advisor
Microsoft Defender for Cloud
Cost Management + Billing
Help + support
Home > Load balancing | Load Balancer > my-load-balancer | Backend pools >
Add backend pool
my-load-balancer
Name *
poolload
Virtual network
loadatbackfrontvm (claw_assignments)
Backend Pool Configuration
NIC
IP address
IP configurations
IP configurations associated to virtual machines and virtual machine scale sets must be in same location as the load balancer and be in the same virtual network
Add
Remove
Resource Name
Resource group
Type
IP configuration
IP Address
Availabi...
backend-vm
claw_assignments
Virtual machine
ipconfig1
10.0.0.5
FRONTEND-VM
CLAW_ASSIGNMENTS
Virtual machine
ipconfig1
10.0.0.4
Save
Cancel
Give feedback


Home > Load Balancing | Load Balancer > my-load-balancer
my-load-balancer | Backend pools
Load balancer
Search
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Frontend IP configuration
Backend pools
Health probes
Load balancing rules
Inbound NAT rules
Outbound rules
Properties
Locks
Monitoring
Add
Refresh
The backend pool is a critical component of the load balancer. The backend pool defines the group of resources that will serve traffic for a given load-balancing rule. Learn more.
Add filter
Backend pool
Resource Name
IP address
Network interfa...
Availability zone
Rules count
Resource Status
Admin state
poolload (2)
poolload backend-vm 10.0.0.5 backend-vm826 - 0 Running None
poolload frontend-vm 10.0.0.4 frontend-vm223 - 0 Running None
Give feedback

Directory listing for /

- .bash_logout
- .bashrc
- .cache/
- .local/
- .profile
- .ssh/
- .sudo_as_admin_successful
- simple_server.py
- test_backend_connectivity.py


Data Clearing Request
52.149.237.68
Apache2 Ubuntu Default Page:
Not secure
48.216.132.22
Apache2 Default Page
Ubuntu
It works!
This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should replace this file (located at /var/www/html/index.html) before continuing to operate your HTTP server.
If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.
Configuration Overview
Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is fully documented in /usr/share/doc/apache2/README.Debian.gz. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the manual if the apache2-doc package was installed on this server.
The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:
/etc/apache2/
|-- apache2.conf
| `-- ports.conf
|-- mods-enabled
| |-- *.load
| `-- *.conf
|-- conf-enabled
| `-- *.conf
|-- sites-enabled
| `-- *.conf


Data Clearing Request
Apache2 Ubuntu Default Page:
Apache2 Ubuntu Default Page:
Not secure
52.149.237.68
Apache2 Default Page
Ubuntu
It works!
This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should replace this file (located at /var/www/html/index.html) before continuing to operate your HTTP server.
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Configuration Overview
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/etc/apache2/
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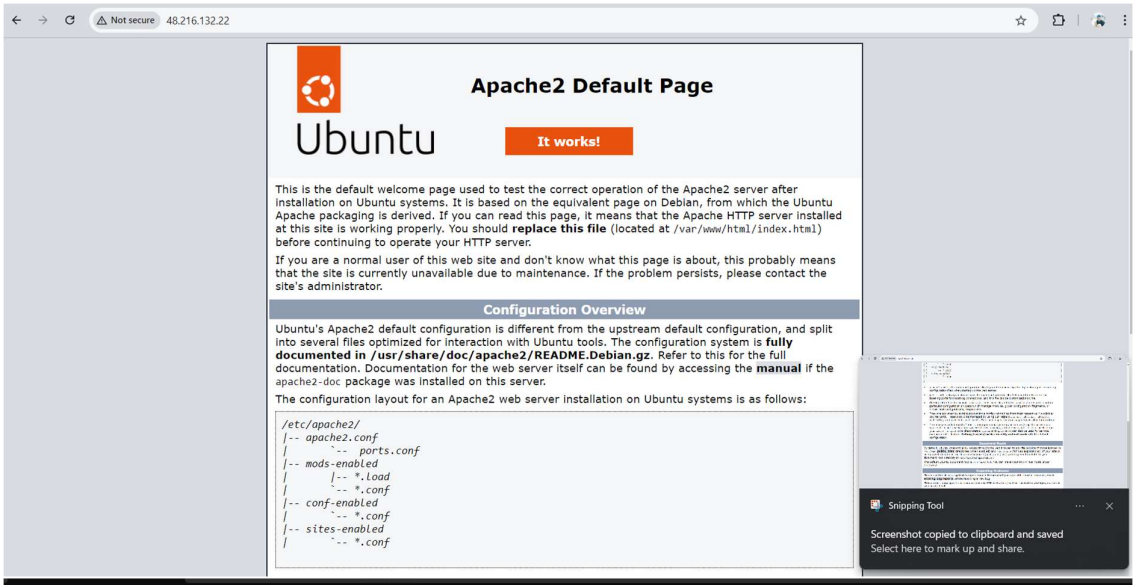
| `-- *.conf
|-- conf-enabled
| `-- *.conf
|-- sites-enabled
| `-- *.conf




```
azureuser@frontend-vm:~$ sudo systemctl status apache2
Unit apache2.service could not be found.
azureuser@frontend-vm:~$ sudo apt update
Hit:1 http://azure.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://azure.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://azure.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://azure.archive.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:5 http://azure.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:6 http://azure.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:7 http://azure.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
Get:8 http://azure.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
Get:9 http://azure.archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
Get:10 http://azure.archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
Get:11 http://azure.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:12 http://azure.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8328 B]
Get:13 http://azure.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [502 kB]
Get:14 http://azure.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [123 kB]
Get:15 http://azure.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [8264 B]
Get:16 http://azure.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [366 kB]
Get:17 http://azure.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [150 kB]
Get:18 http://azure.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [45.0 kB]
Get:19 http://azure.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [14.3 kB]
Get:20 http://azure.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [317 kB]
Get:21 http://azure.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [61.5 kB]
Get:22 http://azure.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [14.4 kB]
Get:23 http://azure.archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [3608 B]
Get:24 http://azure.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [212 B]
Get:25 http://azure.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata [532 B]
Get:26 http://azure.archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]
Get:27 http://azure.archive.ubuntu.com/ubuntu noble-backports/main amd64 c-n-f Metadata [112 B]
Get:28 http://azure.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [10.3 kB]
Get:29 http://azure.archive.ubuntu.com/ubuntu noble-backports/universe Translation-en [10.5 kB]
Get:30 http://azure.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [17.6 kB]
Get:31 http://azure.archive.ubuntu.com/ubuntu noble-backports/universe amd64 c-n-f Metadata [1012 B]
Get:32 http://azure.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
Get:33 http://azure.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 c-n-f Metadata [116 B]
Get:34 http://azure.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]
Get:35 http://azure.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 c-n-f Metadata [116 B]
Get:36 http://azure.archive.ubuntu.com/ubuntu noble-security/main amd64 Packages [351 kB]
Get:37 http://azure.archive.ubuntu.com/ubuntu noble-security/main Translation-en [77.3 kB]
Get:38 http://azure.archive.ubuntu.com/ubuntu noble-security/main amd64 c-n-f Metadata [4416 B]
```

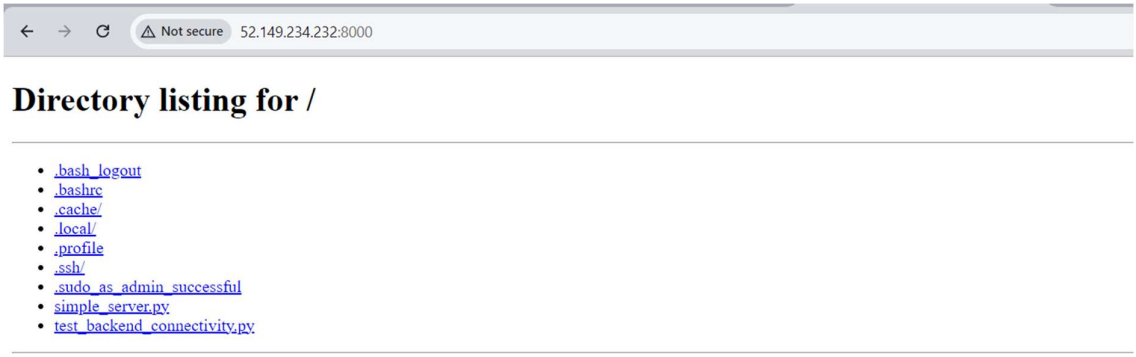
```
     Memory: 5.7M (peak: 6.0M)
        CPU: 38ms
     CGroup: /system.slice/apache2.service
             ├─2893 /usr/sbin/apache2 -k start
             ├─2896 /usr/sbin/apache2 -k start
             └─2897 /usr/sbin/apache2 -k start

Sep 13 05:33:50 frontend-vm systemd[1]: Starting apache2.service - The Apache HTTP Server...
Sep 13 05:33:50 frontend-vm systemd[1]: Started apache2.service - The Apache HTTP Server.
azureuser@frontend-vm:~$ sudo ufw allow 'Apache'
Rules updated
Rules updated (v6)
azureuser@frontend-vm:~$ sudo ufw status
Status: inactive
azureuser@frontend-vm:~$ curl http://localhost
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
  <!--
    Modified from the Debian original for Ubuntu
    Last updated: 2022-03-22
    See: https://launchpad.net/bugs/1966004
  -->
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
    <title>Apache2 Ubuntu Default Page: It works</title>
    <style type="text/css" media="screen">
  * {
    margin: 0px 0px 0px 0px;
    padding: 0px 0px 0px 0px;
  }

  body, html {
    padding: 3px 3px 3px 3px;

    background-color: #D8DBE2;

    font-family: Ubuntu, Verdana, sans-serif;
    font-size: 11pt;
    text-align: center;
  }
```


Not secure
52.149.234.232:8000
Directory listing for /
.bash_logout
.bashrc
.cache/
.local/
.profile
.ssh/
.sudo_as_admin_successful
simple_server.py
test_backend_connectivity.py


Not secure
52.149.237.68
Apache2 Default Page
Ubuntu
It works!
This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should replace this file (located at /var/www/html/index.html) before continuing to operate your HTTP server.
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Configuration Overview
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The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:
/etc/apache2/
|-- apache2.conf
| `-- ports.conf
|-- mods-enabled
| |-- *.load
| `-- *.conf
|-- conf-enabled
| `-- *.conf
|-- sites-enabled
| `-- *.conf

```
  File "/usr/lib/python3.12/selectors.py", line 415, in select
    fd_event_list = self._selector.poll(timeout)
                    ^^^^^^^^^^^^^^^^^^^^^^^^^^^^
KeyboardInterrupt

azureuser@backend-vm:~$ curl http://localhost:8000
curl: (7) Failed to connect to localhost port 8000 after 0 ms: Couldn't connect to server
azureuser@backend-vm:~$ ps aux | grep simple_server.py
azureus+    5308  0.0  0.2   7088  2176 pts/0    S+   05:52   0:00 grep --color=auto simple_server.py
azureuser@backend-vm:~$ python3 simple_server.py
Serving on port 8000...
^CTraceback (most recent call last):
  File "/home/azureuser/simple_server.py", line 9, in <module>
    httpd.serve_forever()
  File "/usr/lib/python3.12/socketserver.py", line 235, in serve_forever
    ready = selector.select(poll_interval)
            ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "/usr/lib/python3.12/selectors.py", line 415, in select
    fd_event_list = self._selector.poll(timeout)
                    ^^^^^^^^^^^^^^^^^^^^^^^^^^^^
KeyboardInterrupt

azureuser@backend-vm:~$ sudo ufw status
Status: inactive
azureuser@backend-vm:~$ sudo ufw allow 8000/tcp
Rules updated
Rules updated (v6)
azureuser@backend-vm:~$ sudo ufw allow 8000/tcp
Skipping adding existing rule
Skipping adding existing rule (v6)
azureuser@backend-vm:~$ sudo ufw reload
Firewall not enabled (skipping reload)
azureuser@backend-vm:~$ curl http://localhost:8000
curl: (7) Failed to connect to localhost port 8000 after 0 ms: Couldn't connect to server
azureuser@backend-vm:~$ nano simple_server.py
azureuser@backend-vm:~$ python3 simple_server.py
Serving on port 8000...
103.212.145.128 - - [13/Sep/2024 05:55:57] "GET / HTTP/1.1" 200 -
103.212.145.128 - - [13/Sep/2024 05:55:58] code 404, message File not found
103.212.145.128 - - [13/Sep/2024 05:55:58] "GET /favicon.ico HTTP/1.1" 404 -
```

```
Service restarts being deferred:
 /etc/needrestart/restart.d/dbus.service
 systemctl restart networkd-dispatcher.service
 systemctl restart unattended-upgrades.service

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
azureuser@backend-vm:~$ sudo systemctl start apache2
azureuser@backend-vm:~$ sudo systemctl enable apache2
Synchronizing state of apache2.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable apache2
azureuser@backend-vm:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
     Active: active (running) since Fri 2024-09-13 05:45:27 UTC; 26s ago
       Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 4827 (apache2)
      Tasks: 55 (limit: 1064)
     Memory: 5.6M (peak: 5.8M)
        CPU: 37ms
     CGroup: /system.slice/apache2.service
             ├─4827 /usr/sbin/apache2 -k start
             ├─4830 /usr/sbin/apache2 -k start
             └─4831 /usr/sbin/apache2 -k start

Sep 13 05:45:27 backend-vm systemd[1]: Starting apache2.service - The Apache HTTP Server...
Sep 13 05:45:27 backend-vm systemd[1]: Started apache2.service - The Apache HTTP Server.
azureuser@backend-vm:~$ sudo ufw allow 'Apache'
Rules updated
Rules updated (v6)
azureuser@backend-vm:~$ sudo ufw status
Status: inactive
azureuser@backend-vm:~$ curl http://localhost
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
  <!--
    Modified from the Debian original for Ubuntu
```

```
azureuser@backend-vm:~$ pip install requests
Command 'pip' not found, but can be installed with:
sudo apt install python3-pip
azureuser@backend-vm:~$ sudo apt update
Hit:1 http://azure.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://azure.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://azure.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://azure.archive.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:5 http://azure.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:6 http://azure.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:7 http://azure.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
Get:8 http://azure.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
Get:9 http://azure.archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
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Get:12 http://azure.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8328 B]
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Get:24 http://azure.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [212 B]
Get:25 http://azure.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata [532 B]
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Get:30 http://azure.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [17.6 kB]
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Get:36 http://azure.archive.ubuntu.com/ubuntu noble-security/main amd64 Packages [351 kB]
Get:37 http://azure.archive.ubuntu.com/ubuntu noble-security/main Translation-en [77.3 kB]
```

```
     Tasks: 55 (limit: 1064)
     Memory: 5.7M (peak: 6.0M)
        CPU: 38ms
     CGroup: /system.slice/apache2.service
             ├─2893 /usr/sbin/apache2 -k start
             ├─2896 /usr/sbin/apache2 -k start
             └─2897 /usr/sbin/apache2 -k start

Sep 13 05:33:50 frontend-vm systemd[1]: Starting apache2.service - The Apache HTTP Server...
Sep 13 05:33:50 frontend-vm systemd[1]: Started apache2.service - The Apache HTTP Server.
azureuser@frontend-vm:~$ sudo ufw allow 'Apache'
Rules updated
Rules updated (v6)
azureuser@frontend-vm:~$ sudo ufw status
Status: inactive
azureuser@frontend-vm:~$ curl http://localhost
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
  <!--
    Modified from the Debian original for Ubuntu
    Last updated: 2022-03-22
    See: https://launchpad.net/bugs/1966004
  -->
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
    <title>Apache2 Ubuntu Default Page: It works</title>
    <style type="text/css" media="screen">
  * {
    margin: 0px 0px 0px 0px;
    padding: 0px 0px 0px 0px;
  }

  body, html {
    padding: 3px 3px 3px 3px;

    background-color: #D8DBE2;

    font-family: Ubuntu, Verdana, sans-serif;
    font-size: 11pt;
    text-align: center;
  }
```

```
No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
azureuser@frontend-vm:~$ sudo systemctl start apache2
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Synchronizing state of apache2.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable apache2
azureuser@frontend-vm:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
     Active: active (running) since Fri 2024-09-13 05:33:50 UTC; 42s ago
       Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 2893 (apache2)
      Tasks: 55 (limit: 1064)
     Memory: 5.7M (peak: 6.0M)
        CPU: 38ms
     CGroup: /system.slice/apache2.service
             ├─2893 /usr/sbin/apache2 -k start
             ├─2896 /usr/sbin/apache2 -k start
             └─2897 /usr/sbin/apache2 -k start

Sep 13 05:33:50 frontend-vm systemd[1]: Starting apache2.service - The Apache HTTP Server...
Sep 13 05:33:50 frontend-vm systemd[1]: Started apache2.service - The Apache HTTP Server.
azureuser@frontend-vm:~$ sudo ufw allow 'Apache'
Rules updated
Rules updated (v6)
azureuser@frontend-vm:~$ sudo ufw status
Status: inactive
azureuser@frontend-vm:~$ curl http://localhost
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
  <!--
    Modified from the Debian original for Ubuntu
    Last updated: 2022-03-22
    See: https://launchpad.net/bugs/1966004
  -->
```

Not secure 52.149.237.68

Ubuntu

Apache2 Default Page

It works!

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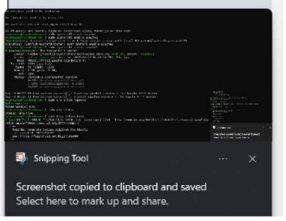
If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

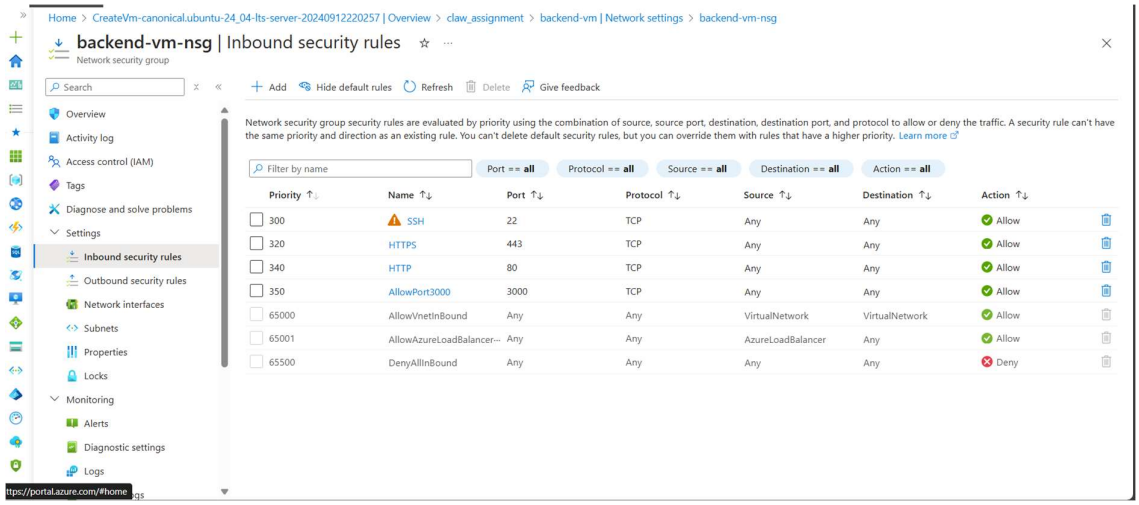
Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is **fully documented in /usr/share/doc/apache2/README.Debian.gz**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the **manual** if the `apache2-doc` package was installed on this server.

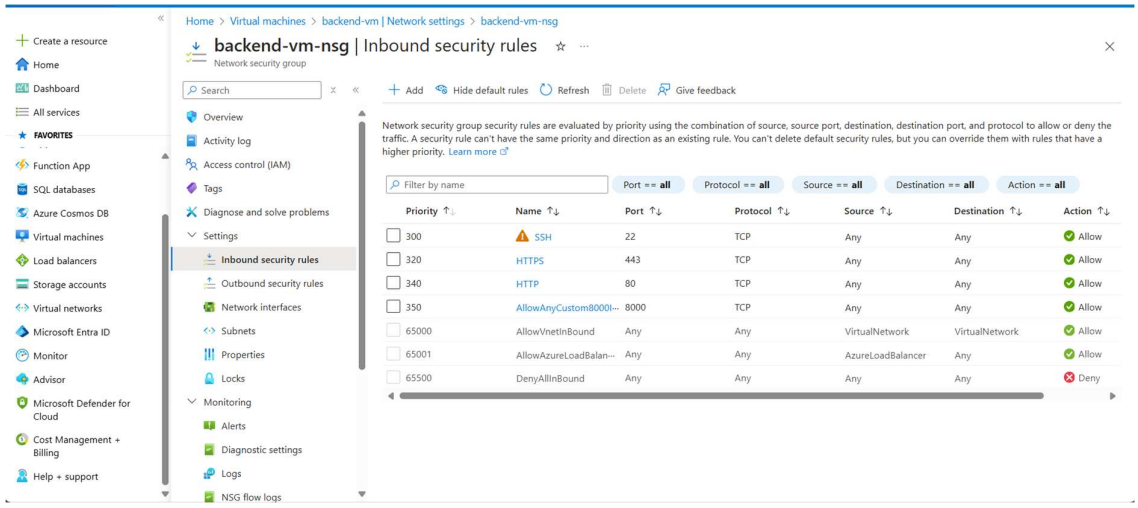
The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:

```
/etc/apache2/
|-- apache2.conf
|       `--  ports.conf
|-- mods-enabled
|       |-- *.load
|       `-- *.conf
|-- conf-enabled
|       `-- *.conf
|-- sites-enabled
|       `-- *.conf
```



1. Implement **Azure Security Center and Network Security Groups** (NSGs) to protect against external threats. Ensure only necessary ports (e.g., 80/443) are open to the public.





1. Configure a **cron job** on the back-end VM to perform a health check on the database and log the status every 10 minutes.

onfigure a cron job on the back-end VM to perform a health check on the database and log the status every 10 minutes: Set up a cron job on the back-end VM to periodically execute a script that performs health checks on the MySQL database. This job logs the database status every 10 minutes, helping detect and address issues promptly, ensuring database availability, and maintaining application performance.

crontab -e

*/10 * * * * /usr/bin/python3 /path/to/health_check_script.py >> /path/to/health_check.log 2>&1

```
azureuser@backend-vm:~/backend$ ^C
azureuser@backend-vm:~/backend$ vmstat 1
procs -----------memory---------- ---swap-- -----io---- -system-- --------cpu--------
 r  b   swpd   free   buff  cache   si   so    bi    bo   in   cs us sy id wa st gu
 0  0      0 109708   6536 225696    0    0   411   473  103    3  1  1 96  2  0  0
 0  0      0 109708   6536 225700    0    0     0     0  159  418  0  1 99  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  134  381  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     4  147  417  1  0 99  0  0  0
 0  0      0 109708   6536 225700    0    0     0     8  180  453  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  151  475  1  0 99  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  148  497  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  148  535  1  0 99  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  137  473  0  1 99  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  138  478  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     4  178  523  1  0 99  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  142  505  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  141  503  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  138  478  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  138  396  0  1 99  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  135  469  1  0 99  0  0  0
 0  0      0 109708   6536 225700    0    0     0     4  176  520  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  135  499  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  163  535  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     8  150  512  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  175  629  1  2 97  0  0  0
 0  0      0 109456   6536 225700    0    0     0     0  250  824  2  4 94  0  0  0
 0  0      0 109456   6544 225692    0    0     0    56  178  495  1  0 97  2  0  0
 0  0      0 109456   6544 225700    0    0     0     0  137  494  0  0 100  0  0  0
 0  0      0 109456   6544 225700    0    0     0     0  143  510  0  1 99  0  0  0
 0  0      0 109456   6544 225700    0    0     0     0  131  496  0  0 100  0  0  0
 0  0      0 109456   6544 225700    0    0     0     0  140  468  0  0 100  0  0  0
 0  0      0 109456   6544 225700    0    0     0     0  139  445  0  0 100  0  0  0
 0  0      0 109456   6544 225720    0    0     0     4  180  553  1  0 99  0  0  0
 0  0      0 101580   6544 225720    0    0     0    32  587 1975  3  4 93  0  0  0
 0  0      0  99752   6584 225720    0    0     0   184  199  633  0  0 95  5  0  0
 0  0      0  99752   6584 225720    0    0     0     0  150  494  0  0 100  0  0  0
 0  0      0  99752   6584 225720    0    0     0     0  138  381  0  0 100  0  0  0
 0  0      0  99752   6584 225720    0    0     0     0  142  503  1  0 99  0  0  0
 0  0      0  99752   6584 225720    0    0     0     8  181  550  0  1 99  0  0  0
^C
azureuser@backend-vm:~/backend$
```

```
azureuser@frontend-vm: ~/frc   azureuser@backend-vm: ~/ba

 GNU nano 7.2                                  /tmp/crontab.hTOQ34/crontab *
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').
#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h  dom mon dow   command
*/10 * * * * /home/azureuser/backend/mysql_health_check.sh

^G Help          ^O Write Out     ^W Where Is      ^K Cut           ^T Execute       ^C Location      M-U Undo         M-A Set Mark     M-] To Bracket
^X Exit          ^R Read File     ^\ Replace       ^U Paste         ^J Justify       ^/ Go To Line    M-E Redo         M-6 Copy         ^Q Where Was
```

```
azureuser@backend-vm:~/backend$ mysql -u root -p
Command 'mysql' not found, but can be installed with:
sudo apt install mysql-client-core-8.0  # version 8.0.39-0ubuntu0.24.04.2, or
sudo apt install mariadb-client-core    # version 1:10.11.8-0ubuntu0.24.04.1
azureuser@backend-vm:~/backend$ docker ps
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/json": dial unix /var/run/docker.sock: connect: permission denied
azureuser@backend-vm:~/backend$ sudo docker ps
CONTAINER ID   IMAGE             COMMAND                  CREATED             STATUS             PORTS                                       NAMES
2dae34059491   backend-nodejs    "docker-entrypoint.s…"   About an hour ago   Up About an hour   0.0.0.0:3000->3000/tcp, :::3000->3000/tcp   backend-nodejs
a2a03ed5a635   mysql:5.7         "docker-entrypoint.s…"   3 hours ago         Up 2 hours         3306/tcp, 33060/tcp                         mysql-db
azureuser@backend-vm:~/backend$ cd /home/user
-bash: cd: /home/user: No such file or directory
azureuser@backend-vm:~/backend$ nano mysql_health_check.sh
azureuser@backend-vm:~/backend$ chmod +x mysql_health_check.sh
azureuser@backend-vm:~/backend$ crontab -e
no crontab for azureuser - using an empty one

Select an editor.  To change later, run 'select-editor'.
  1. /bin/nano        <---- easiest
  2. /usr/bin/vim.basic
  3. /usr/bin/vim.tiny
  4. /bin/ed

Choose 1-4 [1]: 1
crontab: installing new crontab
azureuser@backend-vm:~/backend$ cat /var/log/mysql_health.log
cat: /var/log/mysql_health.log: No such file or directory
azureuser@backend-vm:~/backend$ ./mysql_health_check.sh
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/mysql-db/json": dial unix /var/run/docker.sock: connect: permission denied
./mysql_health_check.sh: line 9: /var/log/mysql_health.log: Permission denied
azureuser@backend-vm:~/backend$ sudo usermod -aG docker azureuser
azureuser@backend-vm:~/backend$ nano mysql_health_check.sh
azureuser@backend-vm:~/backend$ chmod +x mysql_health_check.sh
azureuser@backend-vm:~/backend$ ./mysql_health_check.sh
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/mysqladmin/json": dial unix /var/run/docker.sock: connect: permission denied
azureuser@backend-vm:~/backend$ cat /home/azureuser/mysql_health.log
: MySQL is down
azureuser@backend-vm:~/backend$
```

```
azureuser@backend-vm:~/backend$ docker ps
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/json": dial unix /var/run/docker.sock: connect: permission denied
azureuser@backend-vm:~/backend$ sudo docker ps
CONTAINER ID   IMAGE             COMMAND                  CREATED             STATUS             PORTS                                       NAMES
2dae34059491   backend-nodejs    "docker-entrypoint.s…"   About an hour ago   Up About an hour   0.0.0.0:3000->3000/tcp, :::3000->3000/tcp   backend-nodejs
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azureuser@backend-vm:~/backend$ crontab -e
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crontab: installing new crontab
azureuser@backend-vm:~/backend$ cat /var/log/mysql_health.log
cat: /var/log/mysql_health.log: No such file or directory
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permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/mysql-db/json": dial unix /var/run/docker.sock: connect: permission denied
./mysql_health_check.sh: line 9: /var/log/mysql_health.log: Permission denied
azureuser@backend-vm:~/backend$ sudo usermod -aG docker azureuser
azureuser@backend-vm:~/backend$ nano mysql_health_check.sh
azureuser@backend-vm:~/backend$ chmod +x mysql_health_check.sh
azureuser@backend-vm:~/backend$ ./mysql_health_check.sh
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/mysqladmin/json": dial unix /var/run/docker.sock: connect: permission denied
azureuser@backend-vm:~/backend$ cat /home/azureuser/mysql_health.log
: MySQL is down
azureuser@backend-vm:~/backend$ crontab -e
crontab: installing new crontab
azureuser@backend-vm:~/backend$ cat /home/azureuser/mysql_health.log
: MySQL is down
azureuser@backend-vm:~/backend$
```
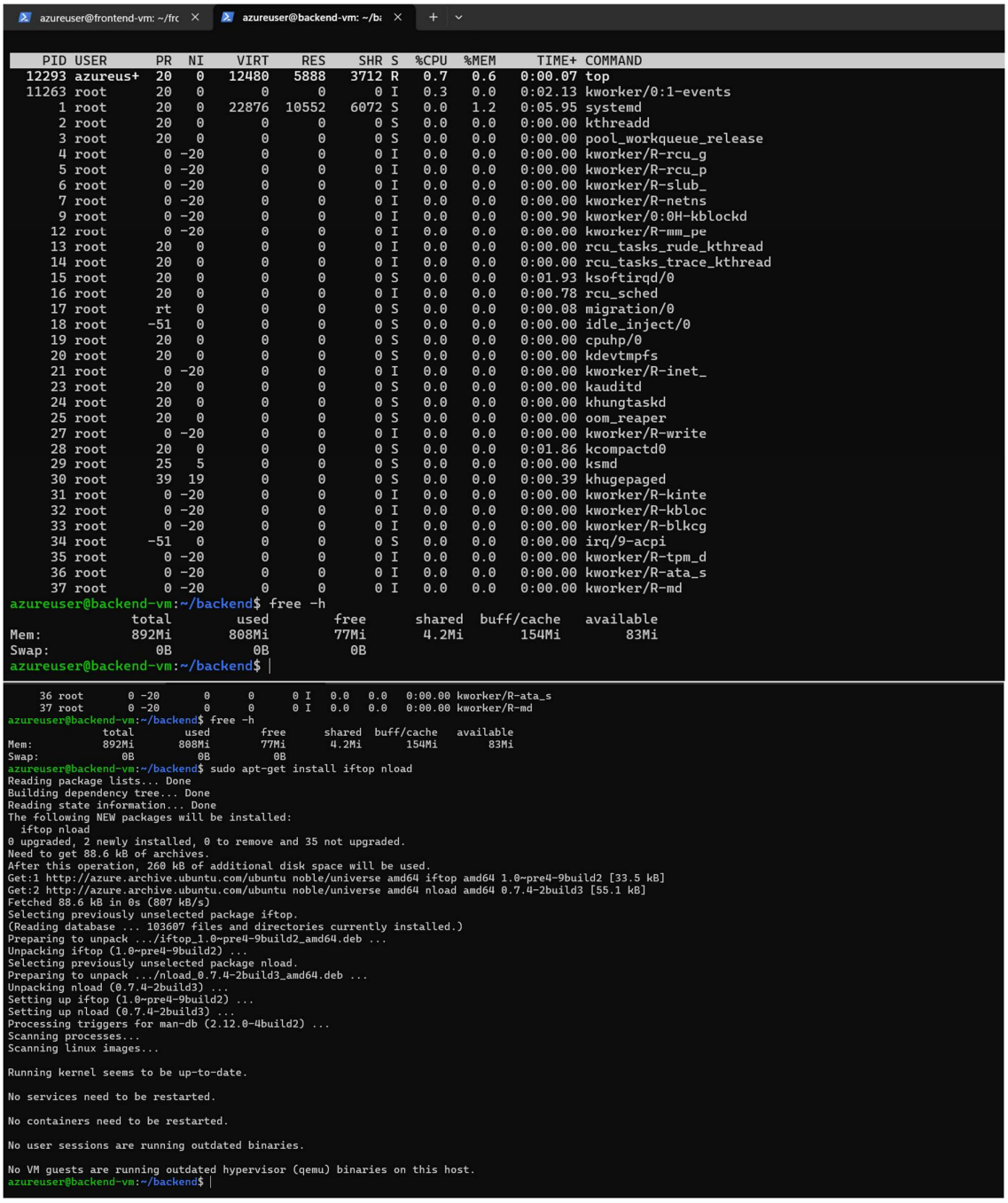
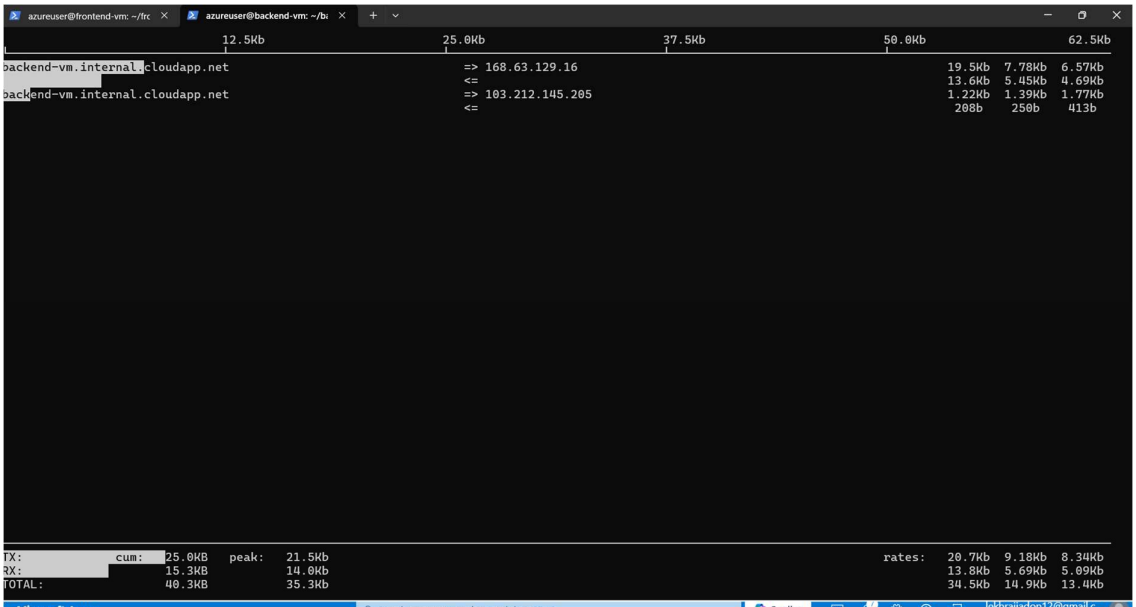
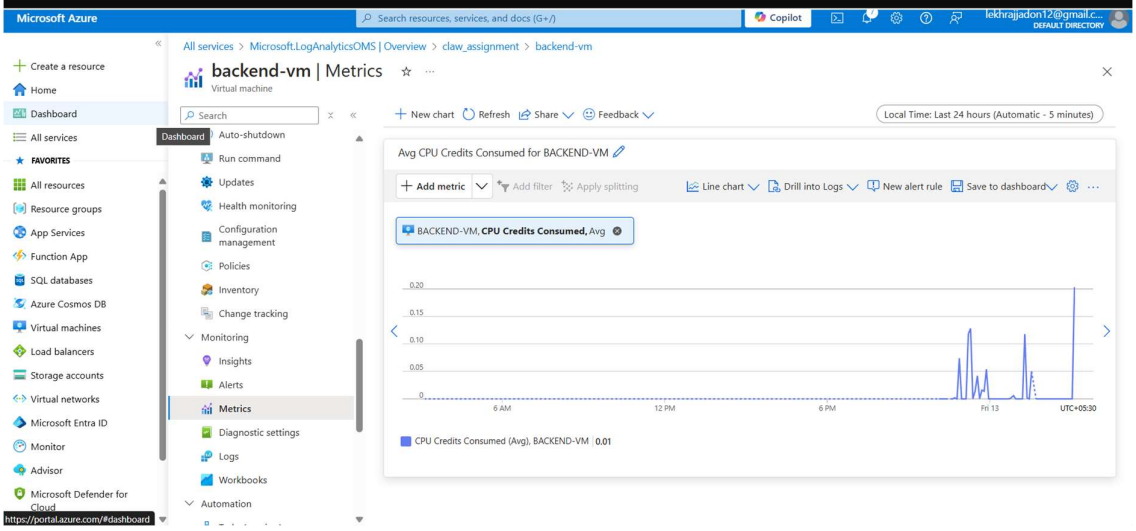

```
azureuser@backend-vm:~/backend$ top
top - 21:33:02 up  4:56,  1 user,  load average: 0.01, 0.01, 0.00
Tasks: 117 total,   1 running, 116 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.7 us,  1.0 sy,  0.0 ni, 98.3 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :    892.9 total,     97.6 free,    779.1 used,    163.6 buff/cache
MiB Swap:      0.0 total,      0.0 free,      0.0 used.    113.8 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   8881 root      20   0    3836   2816   1920 S   0.3   0.3   0:03.68 hv_kvp_daemon
      1 root      20   0   22876  10552   6072 S   0.0   1.2   0:05.95 systemd
      2 root      20   0       0      0      0 S   0.0   0.0   0:00.00 kthreadd
      3 root      20   0       0      0      0 S   0.0   0.0   0:00.00 pool_workqueue_release
      4 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-rcu_g
      5 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-rcu_p
      6 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-slub_
      7 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-netns
      9 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/0:0H-kblockd
     12 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-mm_pe
     13 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_rude_kthread
     14 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_trace_kthread
     15 root      20   0       0      0      0 S   0.0   0.0   0:01.93 ksoftirqd/0
     16 root      20   0       0      0      0 I   0.0   0.0   0:00.78 rcu_sched
     17 root      rt   0       0      0      0 S   0.0   0.0   0:00.08 migration/0
     18 root     -51   0       0      0      0 S   0.0   0.0   0:00.00 idle_inject/0
     19 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/0
     20 root      20   0       0      0      0 S   0.0   0.0   0:00.00 kdevtmpfs
     21 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-inet_
     23 root      20   0       0      0      0 S   0.0   0.0   0:00.00 kauditd
     24 root      20   0       0      0      0 S   0.0   0.0   0:00.00 khungtaskd
     25 root      20   0       0      0      0 S   0.0   0.0   0:00.00 oom_reaper
     27 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-write
     28 root      20   0       0      0      0 S   0.0   0.0   0:01.86 kcompactd0
     29 root      25   5       0      0      0 S   0.0   0.0   0:00.00 ksmd
     30 root      39  19       0      0      0 S   0.0   0.0   0:00.39 khugepaged
     31 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-kinte
     32 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-kbloc
     33 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-blkcg
     34 root     -51   0       0      0      0 S   0.0   0.0   0:00.00 irq/9-acpi
     35 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-tpm_d
     36 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-ata_s
```


azureuser@frontend-vm: ~/frc
azureuser@backend-vm: ~/ba
PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
12293 azureus+ 20 0 12480 5888 3712 R 0.7 0.6 0:00.07 top
11263 root 20 0 0 0 0 I 0.3 0.0 0:02.13 kworker/0:1-events
1 root 20 0 22876 10552 6072 S 0.0 1.2 0:05.95 systemd
2 root 20 0 0 0 0 S 0.0 0.0 0:00.00 kthreadd
3 root 20 0 0 0 0 S 0.0 0.0 0:00.00 pool_workqueue_release
4 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-rcu_g
5 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-rcu_p
6 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-slub_
7 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-netns
9 root 0 -20 0 0 0 I 0.0 0.0 0:00.90 kworker/0:0H-kblockd
12 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-mm_pe
13 root 20 0 0 0 0 I 0.0 0.0 0:00.00 rcu_tasks_rude_kthread
14 root 20 0 0 0 0 I 0.0 0.0 0:00.00 rcu_tasks_trace_kthread
15 root 20 0 0 0 0 S 0.0 0.0 0:01.93 ksoftirqd/0
16 root 20 0 0 0 0 I 0.0 0.0 0:00.78 rcu_sched
17 root rt 0 0 0 0 S 0.0 0.0 0:00.08 migration/0
18 root -51 0 0 0 0 S 0.0 0.0 0:00.00 idle_inject/0
19 root 20 0 0 0 0 S 0.0 0.0 0:00.00 cpuhp/0
20 root 20 0 0 0 0 S 0.0 0.0 0:00.00 kdevtmpfs
21 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-inet_
23 root 20 0 0 0 0 S 0.0 0.0 0:00.00 kauditd
24 root 20 0 0 0 0 S 0.0 0.0 0:00.00 khungtaskd
25 root 20 0 0 0 0 S 0.0 0.0 0:00.00 oom_reaper
27 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-write
28 root 20 0 0 0 0 S 0.0 0.0 0:01.86 kcompactd0
29 root 25 5 0 0 0 S 0.0 0.0 0:00.00 ksmd
30 root 39 19 0 0 0 S 0.0 0.0 0:00.39 khugepaged
31 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-kinte
32 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-kbloc
33 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-blkcg
34 root -51 0 0 0 0 S 0.0 0.0 0:00.00 irq/9-acpi
35 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-tpm_d
36 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-ata_s
37 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-md
azureuser@backend-vm:~/backend$ free -h
total used free shared buff/cache available
Mem: 892Mi 808Mi 77Mi 4.2Mi 154Mi 83Mi
Swap: 0B 0B 0B
azureuser@backend-vm:~/backend$
36 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-ata_s
37 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/R-md
azureuser@backend-vm:~/backend$ free -h
total used free shared buff/cache available
Mem: 892Mi 808Mi 77Mi 4.2Mi 154Mi 83Mi
Swap: 0B 0B 0B
azureuser@backend-vm:~/backend$ sudo apt-get install iftop nload
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
iftop nload
0 upgraded, 2 newly installed, 0 to remove and 35 not upgraded.
Need to get 88.6 kB of archives.
After this operation, 260 kB of additional disk space will be used.
Get:1 http://azure.archive.ubuntu.com/ubuntu noble/universe amd64 iftop amd64 1.0~pre4-9build2 [33.5 kB]
Get:2 http://azure.archive.ubuntu.com/ubuntu noble/universe amd64 nload amd64 0.7.4-2build3 [55.1 kB]
Fetched 88.6 kB in 0s (807 kB/s)
Selecting previously unselected package iftop.
(Reading database ... 103607 files and directories currently installed.)
Preparing to unpack .../iftop_1.0~pre4-9build2_amd64.deb ...
Unpacking iftop (1.0~pre4-9build2) ...
Selecting previously unselected package nload.
Preparing to unpack .../nload_0.7.4-2build3_amd64.deb ...
Unpacking nload (0.7.4-2build3) ...
Setting up iftop (1.0~pre4-9build2) ...
Setting up nload (0.7.4-2build3) ...
Processing triggers for man-db (2.12.0-4build2) ...
Scanning processes...
Scanning linux images...
Running kernel seems to be up-to-date.
No services need to be restarted.
No containers need to be restarted.
No user sessions are running outdated binaries.
No VM guests are running outdated hypervisor (qemu) binaries on this host.
azureuser@backend-vm:~/backend$


azureuser@frontend-vm: ~/frc
azureuser@backend-vm: ~/ba
12.5Kb
25.0Kb
37.5Kb
50.0Kb
62.5Kb
backend-vm.internal.cloudapp.net => 168.63.129.16 19.5Kb 7.78Kb 6.57Kb
<= 13.6Kb 5.45Kb 4.69Kb
backend-vm.internal.cloudapp.net => 103.212.145.205 1.22Kb 1.39Kb 1.77Kb
<= 208b 250b 413b
TX: cum: 25.0KB peak: 21.5Kb rates: 20.7Kb 9.18Kb 8.34Kb
RX: 15.3KB 14.0Kb 13.8Kb 5.69Kb 5.09Kb
TOTAL: 40.3KB 35.3Kb 34.5Kb 14.9Kb 13.4Kb


Microsoft Azure
Search resources, services, and docs (G+/)
Copilot
lekhrajadon12@gmail.c...
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New chart
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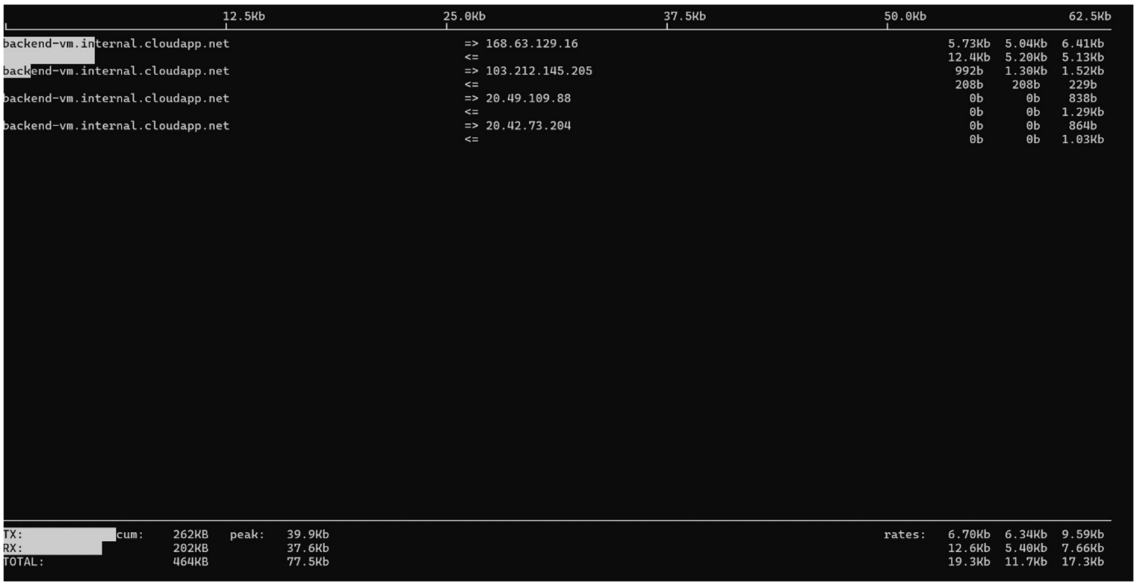
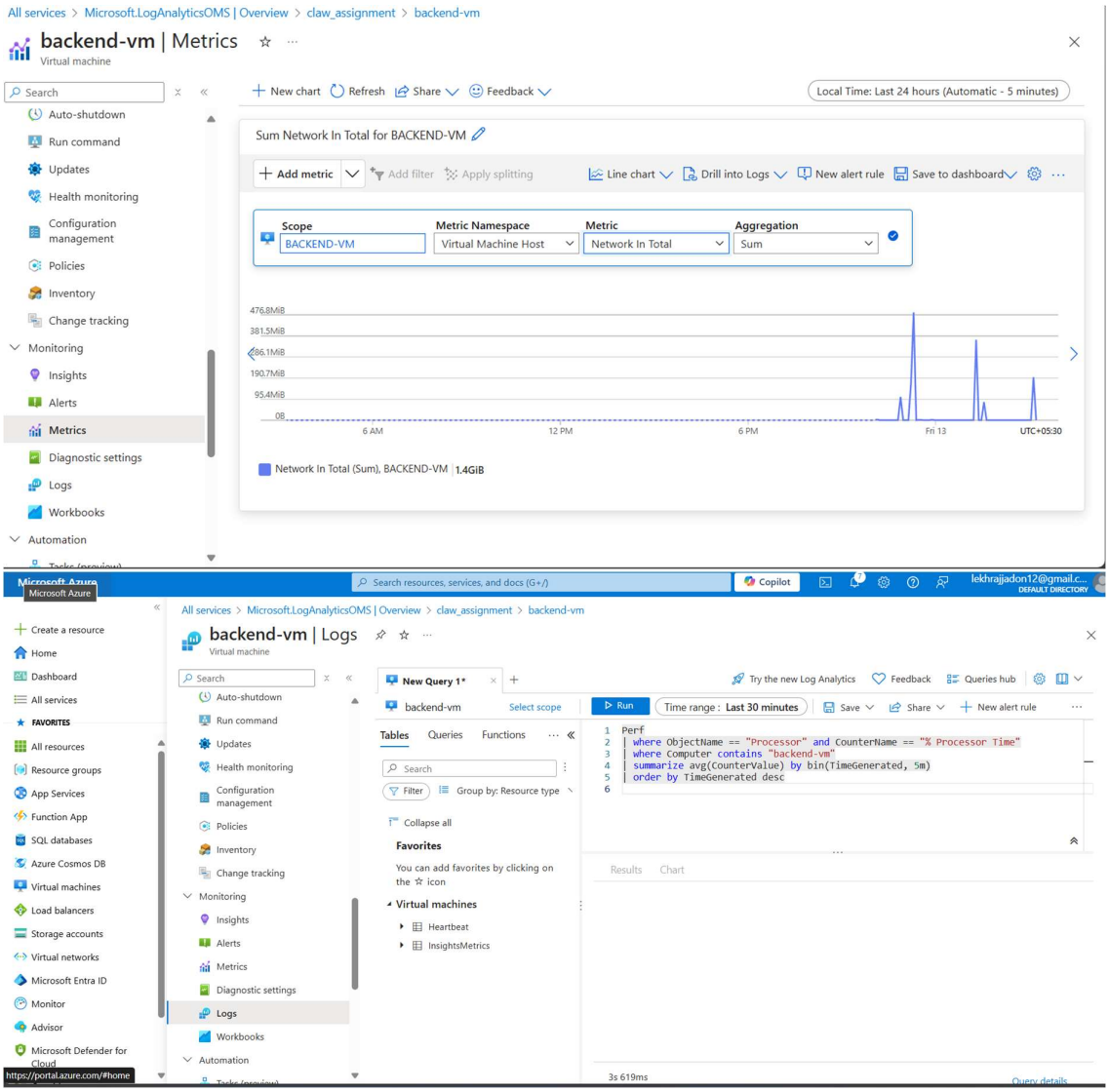
Local Time: Last 24 hours (Automatic - 5 minutes)
Avg CPU Credits Consumed for BACKEND-VM
Add metric
Add filter
Apply splitting
Line chart
Drill into Logs
New alert rule
Save to dashboard
BACKEND-VM, CPU Credits Consumed, Avg
0.20
0.15
0.10
0.05
0
6 AM
12 PM
6 PM
Fri 13
UTC+05:30
CPU Credits Consumed (Avg), BACKEND-VM 0.01

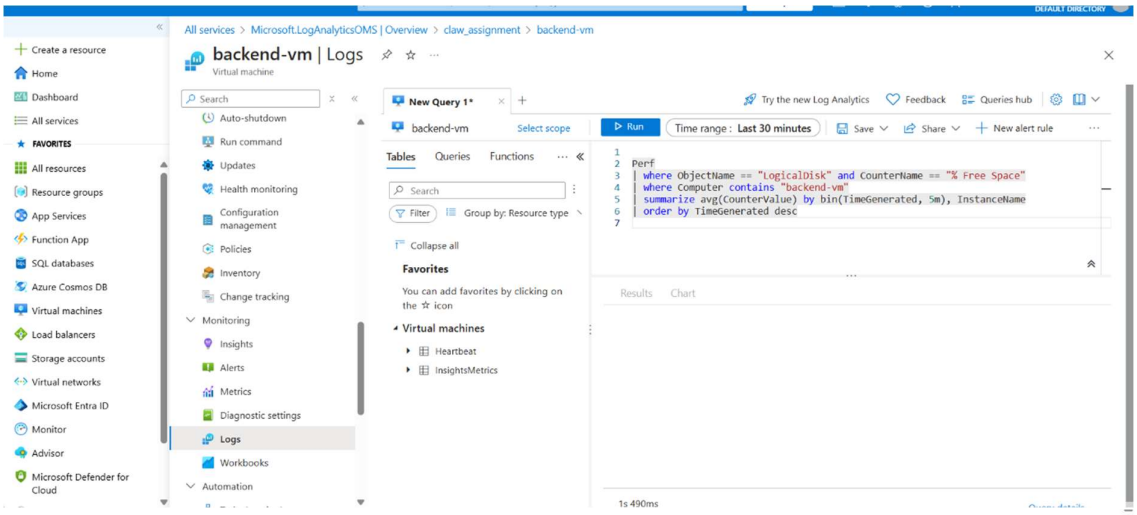

12.5Kb
25.0Kb
37.5Kb
50.0Kb
62.5Kb
backend-vm.internal.cloudapp.net => 168.63.129.16 5.73Kb 5.04Kb 6.41Kb
<= 12.4Kb 5.20Kb 5.13Kb
backend-vm.internal.cloudapp.net => 103.212.145.205 992b 1.30Kb 1.52Kb
<= 208b 208b 229b
backend-vm.internal.cloudapp.net => 20.49.109.88 0b 0b 838b
<= 0b 0b 1.29Kb
backend-vm.internal.cloudapp.net => 20.42.73.204 0b 0b 864b
<= 0b 0b 1.03Kb
TX: cum: 262KB peak: 39.9Kb rates: 6.70Kb 6.34Kb 9.59Kb
RX: 202KB 37.6Kb 12.6Kb 5.40Kb 7.66Kb
TOTAL: 464KB 77.5Kb 19.3Kb 11.7Kb 17.3Kb

```
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  iftop nload
0 upgraded, 2 newly installed, 0 to remove and 35 not upgr
Need to get 88.6 kB of archives.
After this operation, 260 kB of additional disk space will
Get:1 http://azure.archive.ubuntu.com/ubuntu noble/univers
Get:2 http://azure.archive.ubuntu.com/ubuntu noble/univers
Fetched 88.6 kB in 0s (807 kB/s)
Selecting previously unselected package iftop.
(Reading database ... 103607 files and directories current
Preparing to unpack .../iftop_1.0~pre4-9build2_amd64.deb .
Unpacking iftop (1.0~pre4-9build2) ...
Selecting previously unselected package nload.
Preparing to unpack .../nload_0.7.4-2build3_amd64.deb ...
Unpacking nload (0.7.4-2build3) ...
Setting up iftop (1.0~pre4-9build2) ...
Setting up nload (0.7.4-2build3) ...
Processing triggers for man-db (2.12.0-4build2) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binari
azureuser@backend-vm:~/backend$ sudo iftop
interface: eth0
IP address is: 10.0.0.4
MAC address is: 7c:1e:52:47:f2:b2
azureuser@backend-vm:~/backend$ sudo nload
azureuser@backend-vm:~/backend$ ^C
azureuser@backend-vm:~/backend$ ^C
azureuser@backend-vm:~/backend$
```

1. **Optimize VM sizing** for cost-effectiveness and performance by evaluating CPU, memory, and network usage.

Optimize VM sizing for cost-effectiveness and performance by evaluating CPU, memory, and network usage: Regularly review the resource utilization of your VMs to balance performance and cost. Analyze CPU, memory, and network usage to determine if the current VM sizes are appropriate. Adjust the VM sizes based on the actual workload to optimize both cost and performance, ensuring efficient use of resources while keeping operational costs manageable.





Azure services

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Resources

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Name	Type	Last Viewed
backend-vm	Virtual machine	an hour ago
claw_assignment	Resource group	an hour ago
cron-db	Log Analytics workspace	an hour ago
claw_assignments	Resource group	an hour ago
frontend-vm-vnet	Virtual network	an hour ago
frontend-vm840	Network interface	an hour ago
frontend-vm	Virtual machine	2 hours ago
backend-vm-nsg	Network security group	3 hours ago
Pay-as-you-go	Subscription	a day ago

See all

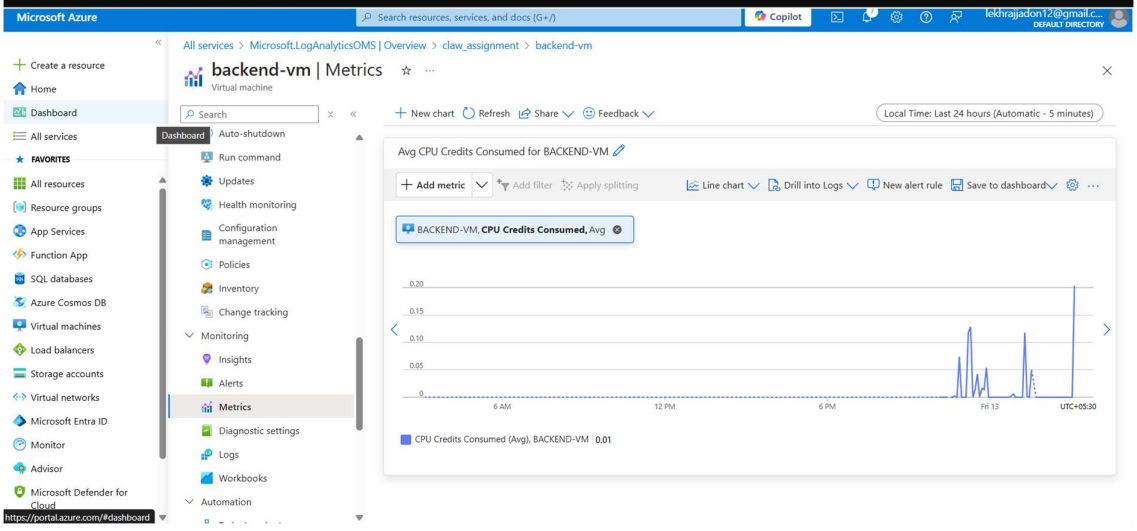
```
azureuser@backend-vm:~/backend$ ^C
azureuser@backend-vm:~/backend$ vmstat 1
procs -----------memory---------- ---swap-- -----io---- -system-- -------cpu-------
 r  b   swpd   free   buff  cache   si   so    bi    bo   in   cs us sy id wa st gu
 0  0      0 109708   6536 225696    0    0   411   473  103    3  1  1 96  2  0  0
 0  0      0 109708   6536 225700    0    0     0     0  159  418  0  1 99  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  134  381  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     4  147  417  1  0 99  0  0  0
 0  0      0 109708   6536 225700    0    0     0     8  180  453  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  151  475  1  0 99  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  148  497  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  148  535  1  0 99  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  137  473  0  1 99  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  138  478  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     4  178  523  1  0 99  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  142  505  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  141  503  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  138  478  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  138  396  0  1 99  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  135  469  1  0 99  0  0  0
 0  0      0 109708   6536 225700    0    0     0     4  176  520  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  135  499  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  163  535  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     8  150  512  0  0 100  0  0  0
 0  0      0 109708   6536 225700    0    0     0     0  175  629  1  2 97  0  0  0
 0  0      0 109456   6536 225700    0    0     0     0  250  824  2  4 94  0  0  0
 0  0      0 109456   6544 225692    0    0     0    56  178  495  1  0 97  2  0  0
 0  0      0 109456   6544 225700    0    0     0     0  137  494  0  0 100  0  0  0
 0  0      0 109456   6544 225700    0    0     0     0  143  510  0  1 99  0  0  0
 0  0      0 109456   6544 225700    0    0     0     0  131  496  0  0 100  0  0  0
 0  0      0 109456   6544 225700    0    0     0     0  140  468  0  0 100  0  0  0
 0  0      0 109456   6544 225700    0    0     0     0  139  445  0  0 100  0  0  0
 0  0      0 109456   6544 225720    0    0     0     4  180  553  1  0 99  0  0  0
 0  0      0 101580   6544 225720    0    0     0    32  587 1975  3  4 93  0  0  0
 0  0      0  99752   6584 225720    0    0     0   184  199  633  0  0 95  5  0  0
 0  0      0  99752   6584 225720    0    0     0     0  150  494  0  0 100  0  0  0
 0  0      0  99752   6584 225720    0    0     0     0  138  381  0  0 100  0  0  0
 0  0      0  99752   6584 225720    0    0     0     0  142  503  1  0 99  0  0  0
 0  0      0  99752   6584 225720    0    0     0     8  181  550  0  1 99  0  0  0
^C
azureuser@backend-vm:~/backend$
```

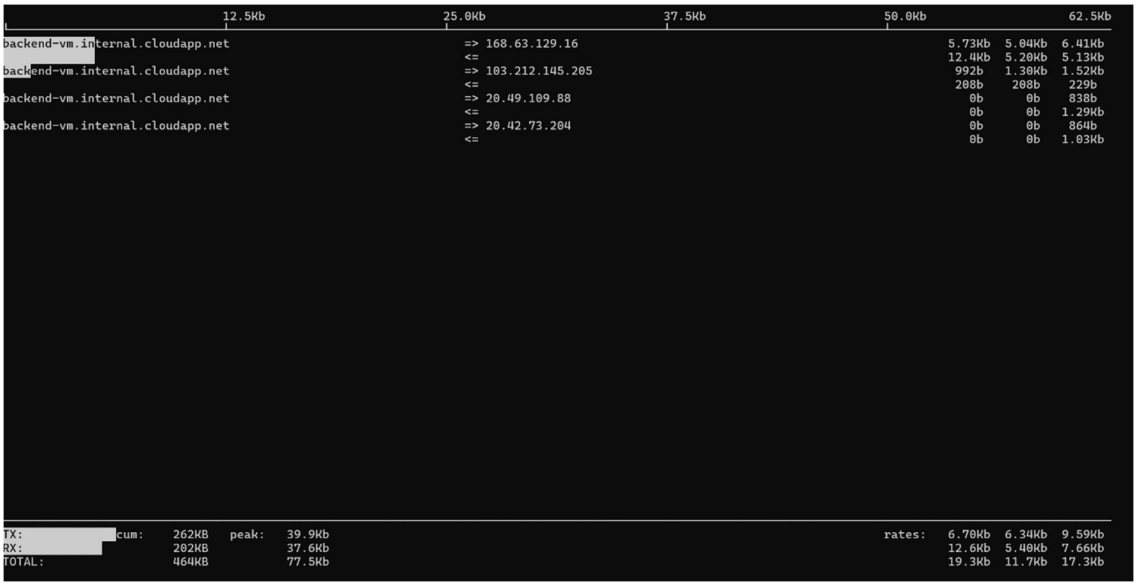
```
azureuser@backend-vm:~/backend$ top
top - 21:33:02 up  4:56,  1 user,  load average: 0.01, 0.01, 0.00
Tasks: 117 total,   1 running, 116 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.7 us,  1.0 sy,  0.0 ni, 98.3 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :    892.9 total,     97.6 free,    779.1 used,    163.6 buff/cache
MiB Swap:      0.0 total,      0.0 free,      0.0 used.    113.8 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   8881 root      20   0    3836   2816   1920 S   0.3   0.3   0:03.68 hv_kvp_daemon
      1 root      20   0   22876  10552   6072 S   0.0   1.2   0:05.95 systemd
      2 root      20   0       0      0      0 S   0.0   0.0   0:00.00 kthreadd
      3 root      20   0       0      0      0 S   0.0   0.0   0:00.00 pool_workqueue_release
      4 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-rcu_g
      5 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-rcu_p
      6 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-slub_
      7 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-netns
      9 root       0 -20       0      0      0 I   0.0   0.0   0:00.90 kworker/0:0H-kblockd
     12 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-mm_pe
     13 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_rude_kthread
     14 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_trace_kthread
     15 root      20   0       0      0      0 S   0.0   0.0   0:01.93 ksoftirqd/0
     16 root      20   0       0      0      0 I   0.0   0.0   0:00.78 rcu_sched
     17 root      rt   0       0      0      0 S   0.0   0.0   0:00.08 migration/0
     18 root     -51   0       0      0      0 S   0.0   0.0   0:00.00 idle_inject/0
     19 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/0
     20 root      20   0       0      0      0 S   0.0   0.0   0:00.00 kdevtmpfs
     21 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-inet_
     23 root      20   0       0      0      0 S   0.0   0.0   0:00.00 kauditd
     24 root      20   0       0      0      0 S   0.0   0.0   0:00.00 khungtaskd
     25 root      20   0       0      0      0 S   0.0   0.0   0:00.00 oom_reaper
     27 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-write
     28 root      20   0       0      0      0 S   0.0   0.0   0:01.86 kcompactd0
     29 root      25   5       0      0      0 S   0.0   0.0   0:00.00 ksmd
     30 root      39  19       0      0      0 S   0.0   0.0   0:00.39 khugepaged
     31 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-kinte
     32 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-kbloc
     33 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-blkcg
     34 root     -51   0       0      0      0 S   0.0   0.0   0:00.00 irq/9-acpi
     35 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-tpm_d
     36 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-ata_s
```

azureuser@frontend-vm: ~/frc | azureuser@backend-vm: ~/b

```
    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
  12293 azureus+  20   0   12480   5888   3712 R   0.7   0.6   0:00.07 top
  11263 root      20   0       0      0      0 I   0.3   0.0   0:02.13 kworker/0:1-events
      1 root      20   0   22876  10552   6072 S   0.0   1.2   0:05.95 systemd
      2 root      20   0       0      0      0 S   0.0   0.0   0:00.00 kthreadd
      3 root      20   0       0      0      0 S   0.0   0.0   0:00.00 pool_workqueue_release
      4 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-rcu_g
      5 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-rcu_p
      6 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-slub_
      7 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-netns
      9 root       0 -20       0      0      0 I   0.0   0.0   0:00.90 kworker/0:0H-kblockd
     12 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-mm_pe
     13 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_rude_kthread
     14 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_trace_kthread
     15 root      20   0       0      0      0 S   0.0   0.0   0:01.93 ksoftirqd/0
     16 root      20   0       0      0      0 I   0.0   0.0   0:00.78 rcu_sched
     17 root      rt   0       0      0      0 S   0.0   0.0   0:00.08 migration/0
     18 root     -51   0       0      0      0 S   0.0   0.0   0:00.00 idle_inject/0
     19 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/0
     20 root      20   0       0      0      0 S   0.0   0.0   0:00.00 kdevtmpfs
     21 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-inet_
     23 root      20   0       0      0      0 S   0.0   0.0   0:00.00 kauditd
     24 root      20   0       0      0      0 S   0.0   0.0   0:00.00 khungtaskd
     25 root      20   0       0      0      0 S   0.0   0.0   0:00.00 oom_reaper
     27 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-write
     28 root      20   0       0      0      0 S   0.0   0.0   0:01.86 kcompactd0
     29 root      25   5       0      0      0 S   0.0   0.0   0:00.00 ksmd
     30 root      39  19       0      0      0 S   0.0   0.0   0:00.39 khugepaged
     31 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-kinte
     32 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-kbloc
     33 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-blkcg
     34 root     -51   0       0      0      0 S   0.0   0.0   0:00.00 irq/9-acpi
     35 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-tpm_d
     36 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-ata_s
     37 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/R-md
azureuser@backend-vm:~/backend$ free -h
               total        used        free      shared  buff/cache   available
Mem:           892Mi       808Mi        77Mi       4.2Mi       154Mi        83Mi
Swap:             0B          0B          0B
azureuser@backend-vm:~/backend$
```

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<= 12.4Kb 5.20Kb 5.13Kb
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<= 208b 208b 229b
backend-vm.internal.cloudapp.net => 20.49.109.88 0b 0b 838b
<= 0b 0b 1.29Kb
backend-vm.internal.cloudapp.net => 20.42.73.204 0b 0b 864b
<= 0b 0b 1.03Kb
TX: cum: 262KB peak: 39.9Kb rates: 6.70Kb 6.34Kb 9.59Kb
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