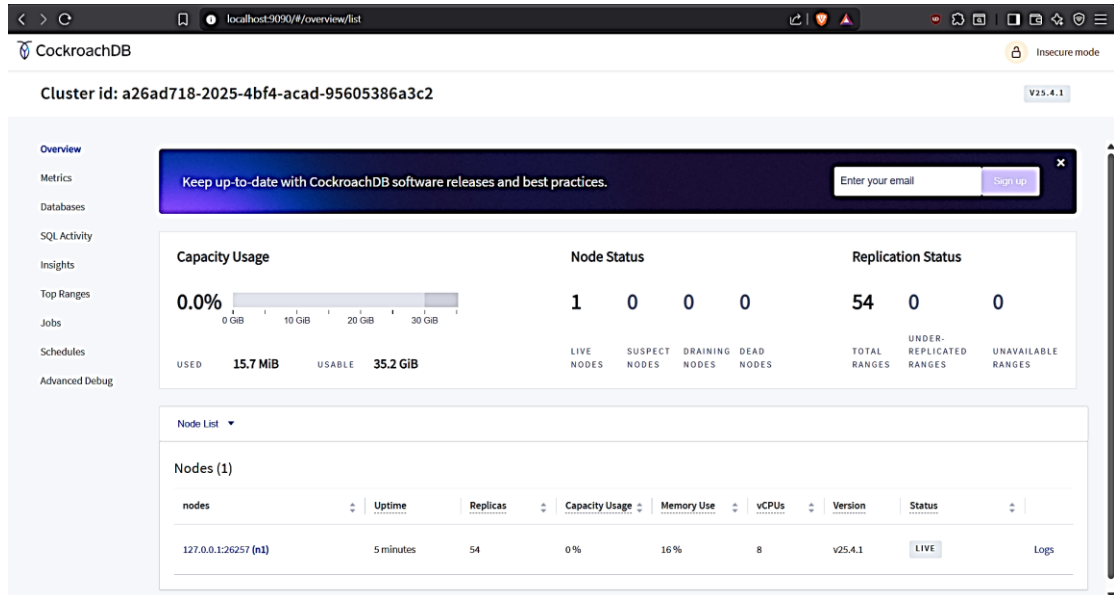


```
C:\Users\Sandesh Khatiwada>docker run -d --name Sandesh_Cockroachdb -p 26257:26257 -p 9090:8080
-v "D:\Github\Advanced-Database:/cockroach/cockroach-data" cockroachdb/cockroach:latest start-
single-node --insecure
2b3e282aa3bf90148a26a34afa0f42e0c0d751a419b8d9159968342c0a3c7b09

C:\Users\Sandesh Khatiwada>
```

Localhost:9090



SQL Shell:

```
Command Prompt - docker e x + v
C:\Users\Sandesh Khatiwada>docker exec -it Sandesh_Cockroachdb ./cockroach sql --insecure --host=localhost:26257
#
# Welcome to the CockroachDB SQL shell.
# All statements must be terminated by a semicolon.
# To exit, type: \q.
#
# Server version: CockroachDB CCL v25.4.1 (x86_64-pc-linux-gnu, built 2025/11/26 12:08:42, go1.23.12 X:nocoverageredesig
n) (same version as client)
# Cluster ID: a26ad718-2025-4bf4-acad-95605386a3c2
#
# Enter \? for a brief introduction.
#
root@localhost:26257/defaultdb>
M-? toggle key help • C-d erase/stop • C-c clear/cancel • M-. hide/show prompt
```

Create a database:

```
#
root@localhost:26257/defaultdb> CREATE DATABASE oic;
CREATE DATABASE

Time: 62ms total (execution 61ms / network 1ms)

root@localhost:26257/defaultdb>
M-? toggle key help • C-d erase/stop • C-c clear/cancel • C-r search hist • M-. hide/show prompt
```

Use oic :

```
root@localhost:26257/defaultdb> USE oic;
SET

Time: 20ms total (execution 19ms / network 0ms)

root@localhost:26257/oic> 
M-? toggle key help • C-d erase/stop • C-c clear/cancel • C-r search hist • M-. hide/show prompt
```

Table creation:

```
root@localhost:26257/oic> CREATE TABLE oic.students (id INT PRIMARY KEY, marks DECIMAL);
CREATE TABLE

Time: 41ms total (execution 30ms / network 10ms)

root@localhost:26257/oic> 
M-? toggle key help • C-d erase/stop • C-c clear/cancel • C-r search hist • M-. hide/show prompt
```

View table:

```
root@localhost:26257/oic> CREATE TABLE oic.students (id INT PRIMARY KEY, marks DECIMAL);
CREATE TABLE

Time: 41ms total (execution 30ms / network 10ms)

root@localhost:26257/oic> SHOW TABLES;
  schema_name | table_name | type  | owner | estimated_row_count | locality
-----+-----+-----+-----+-----+-----
  public      | students  | table | root  |          0          | NULL
(1 row)

Time: 61ms total (execution 60ms / network 1ms)

root@localhost:26257/oic> 
M-? toggle key help • C-d erase/stop • C-c clear/cancel • C-r search hist • M-. hide/show prompt
```

Insert and view database:

```
root@localhost:26257/oic> INSERT INTO oic. students VALUES (1, 55.45);
INSERT 0 1

Time: 16ms total (execution 15ms / network 0ms)

root@localhost:26257/oic> SELECT * FROM oic.students;
  id | marks
-----+-----
   1 | 55.45
(1 row)

Time: 3ms total (execution 2ms / network 1ms)

root@localhost:26257/oic> 
M-? toggle key help • C-d erase/stop • C-c clear/cancel • C-r search hist • M-. hide/show prompt
```

PART 2: Scale to 3-Node Cluster

Exit SQL shell

Type: \q

```
root@localhost:26257/oic> \q  
C:\Users\Sandesh Khatiwada>
```

Stop single node container:

```
Command Prompt  
C:\Users\Sandesh Khatiwada>docker stop Sandesh_Cockroachdb  
Sandesh_Cockroachdb  
C:\Users\Sandesh Khatiwada>
```

Remove single-node container:

docker rm Sandesh\_Cockroachdb

```
C:\Users\Sandesh Khatiwada>docker rm Sandesh_Cockroachdb  
Sandesh_Cockroachdb  
C:\Users\Sandesh Khatiwada>
```

Create docker network for 3-node cluster:

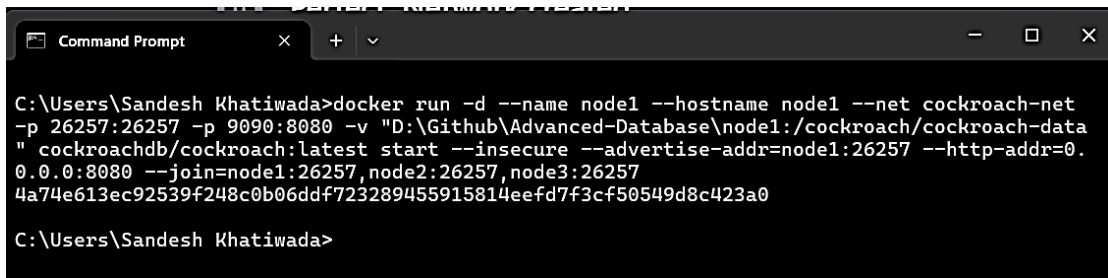
docker network create cockroach-net

```
Command Prompt  
C:\Users\Sandesh Khatiwada>docker network create cockroach-net  
53eb4b11a601362d7420111092a127072da97b9b0aab8c611f00151f5182e1b3  
C:\Users\Sandesh Khatiwada>
```

Start node1:

```
docker run -d --name node1 --hostname node1 --net cockroach-net -p 26257:26257 -p  
9090:8080 -v "D:\Github\Advanced-Database\node1:/cockroach/cockroach-data"
```

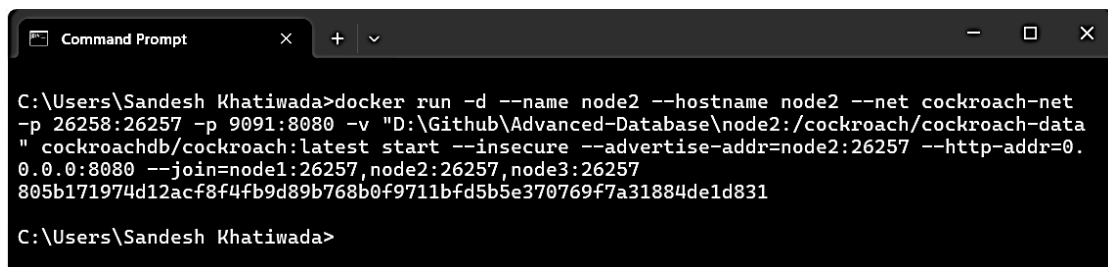
```
cockroachdb/cockroach:latest start --insecure --advertise-addr=node1:26257 --http-addr=0.0.0.0:8080 --join=node1:26257,node2:26257,node3:26257
```



```
Command Prompt
C:\Users\Sandesh Khatiwada>docker run -d --name node1 --hostname node1 --net cockroach-net -p 26257:26257 -p 9090:8080 -v "D:\Github\Advanced-Database\node1:/cockroach/cockroach-data" cockroachdb/cockroach:latest start --insecure --advertise-addr=node1:26257 --http-addr=0.0.0.0:8080 --join=node1:26257,node2:26257,node3:26257
4a74e613ec92539f248c0b06ddf723289455915814eefd7f3cf50549d8c423a0
C:\Users\Sandesh Khatiwada>
```

Start node 2:

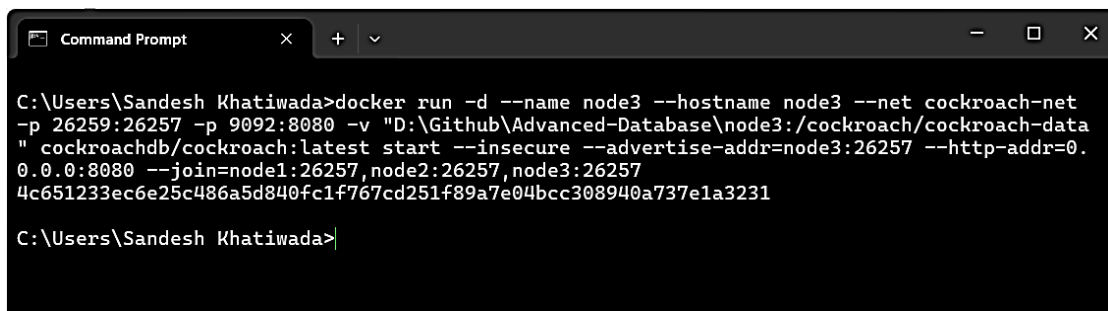
```
docker run -d --name node2 --hostname node2 --net cockroach-net -p 26258:26257 -p 9091:8080 -v "D:\Github\Advanced-Database\node2:/cockroach/cockroach-data" cockroachdb/cockroach:latest start --insecure --advertise-addr=node2:26257 --http-addr=0.0.0.0:8080 --join=node1:26257,node2:26257,node3:26257
```



```
Command Prompt
C:\Users\Sandesh Khatiwada>docker run -d --name node2 --hostname node2 --net cockroach-net -p 26258:26257 -p 9091:8080 -v "D:\Github\Advanced-Database\node2:/cockroach/cockroach-data" cockroachdb/cockroach:latest start --insecure --advertise-addr=node2:26257 --http-addr=0.0.0.0:8080 --join=node1:26257,node2:26257,node3:26257
805b171974d12ac8f4fb9d89b768b0f9711bfd5b5e370769f7a31884de1d831
C:\Users\Sandesh Khatiwada>
```

Start node3:

```
docker run -d --name node3 --hostname node3 --net cockroach-net -p 26259:26257 -p 9092:8080 -v "D:\Github\Advanced-Database\node3:/cockroach/cockroach-data" cockroachdb/cockroach:latest start --insecure --advertise-addr=node3:26257 --http-addr=0.0.0.0:8080 --join=node1:26257,node2:26257,node3:26257
```



```
Command Prompt
C:\Users\Sandesh Khatiwada>docker run -d --name node3 --hostname node3 --net cockroach-net -p 26259:26257 -p 9092:8080 -v "D:\Github\Advanced-Database\node3:/cockroach/cockroach-data" cockroachdb/cockroach:latest start --insecure --advertise-addr=node3:26257 --http-addr=0.0.0.0:8080 --join=node1:26257,node2:26257,node3:26257
4c651233ec6e25c486a5d840fc1f767cd251f89a7e04bcc308940a737e1a3231
C:\Users\Sandesh Khatiwada>
```

Initialize the server:

```
docker exec -it node1 ./cockroach init --insecure
```

```
Command Prompt

C:\Users\Sandesh Khatiwada>docker exec -it node1 ./cockroach init --insecure
Cluster successfully initialized

C:\Users\Sandesh Khatiwada>
```

Checking if cluster is working:

```
C:\Users\Sandesh Khatiwada>docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS
4c651233ec6e	cockroachdb/cockroach:latest	"/cockroach/cockroach..."	8 hours ago	Up 8 h
805b171974d1	cockroachdb/cockroach:latest	"/cockroach/cockroach..."	8 hours ago	Up 8 h

Name	Container ID	Image	Port(s)	CPU (%)	Memory usage	Actions
node3	4c651233ec6e	cockroachdb/cockroach:latest	26259:26257	N/A	N/A	[Stop] [Refresh] [Delete]
node2	805b171974d1	cockroachdb/cockroach:latest	26258:26257	N/A	N/A	[Stop] [Refresh] [Delete]
node1	4a74e613ec92	cockroachdb/cockroach:latest	26257:26257	N/A	N/A	[Stop] [Refresh] [Delete]
Mongo_Auth_Sandesh	843a5c1f6f66	mongo:8.0	27018:27017	N/A	N/A	[Stop] [Refresh] [Delete]

To confirm all 3 nodes are up and have same cluster:

Node 1:

CockroachDB Overview

Cluster id: 0ee852cc-a11e-4b13-9f96-e5f24d2b687a

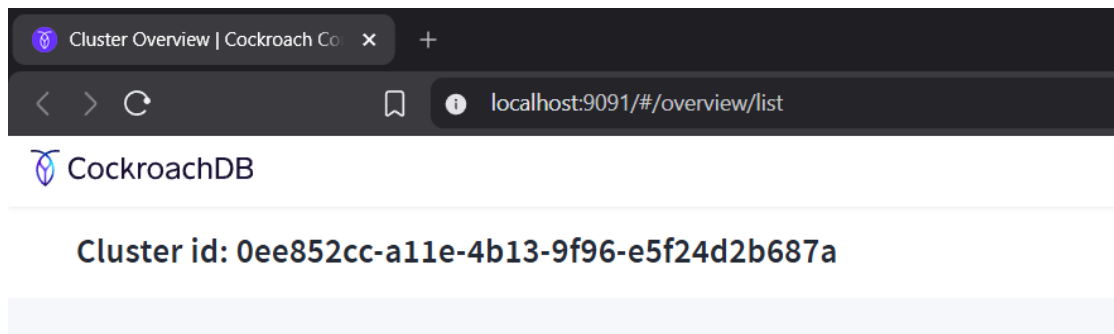
Capacity Usage: 0.2% (149.3 MiB used, 96.0 GiB usable)

Node Status: 3 LIVE, 0 SUSPECT, 0 DRAINING, 0 DEAD

Replication Status: 78 TOTAL, 0 UNDER-REPLICATED, 0 UNAVAILABLE

Nodes (3)	nodes	Uptime	Replicas	Capacity Usage	Memory Use	vCPUs	Version	Status
node1:26257 (n1)	node1:26257 (n1)	3 minutes	78	0%	19%	8	v25.4.1	LIVE
node2:26257 (n2)	node2:26257 (n2)	3 minutes	78	0%	18%	8	v25.4.1	LIVE
node3:26257 (n3)	node3:26257 (n3)	3 minutes	78	0%	17%	8	v25.4.1	LIVE

Node 2:



Node 3:

