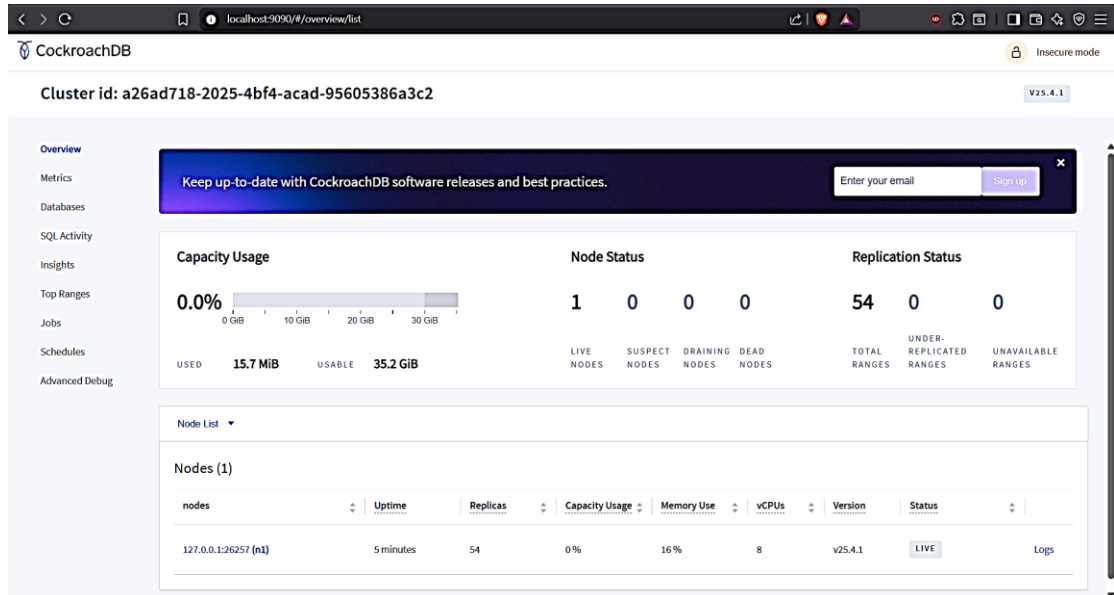


```
C:\Users\Sandesh Khatiwada>docker run -d --name Sandesh_Cockroachdb -p 26257:26257 -p 9090:8080
-v "D:\Github\Advanced-Database:/cockroach/cockroach-data" cockroachdb/cockroach:latest start-
single-node --insecure
2b3e282aa3bf90148a26a34afa0f42e0c0d751a419b8d9159968342c0a3c7b09

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:

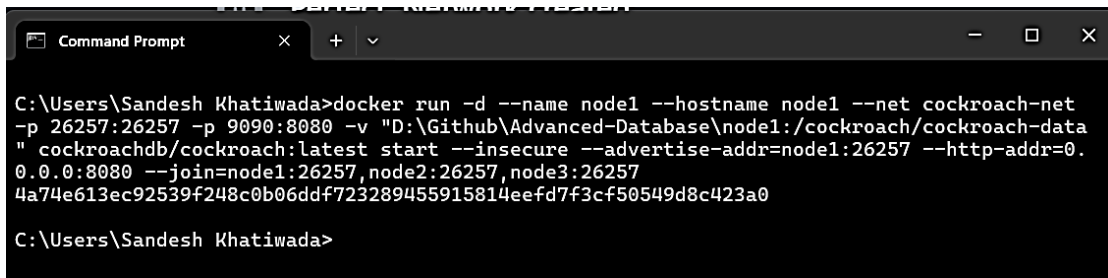
docker network create cockroach-net

```
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"
```

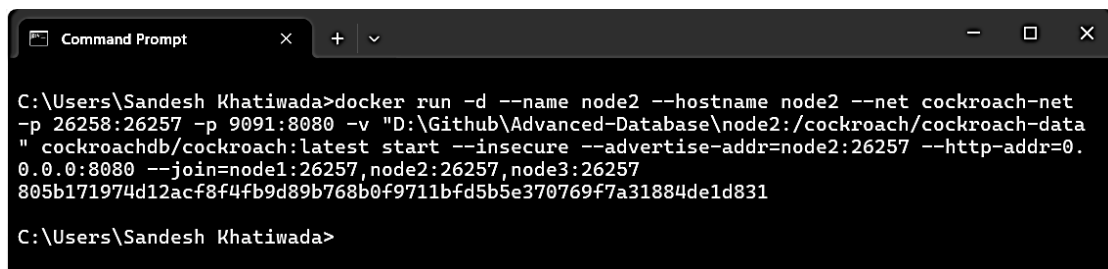
```
cockroachdb/cockroach:latest start --insecure --advertise-addr=node1:26257 --http-addr=0.0.0.0:8080 --join=node1:26257,node2:26257,node3:26257
```



```
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:

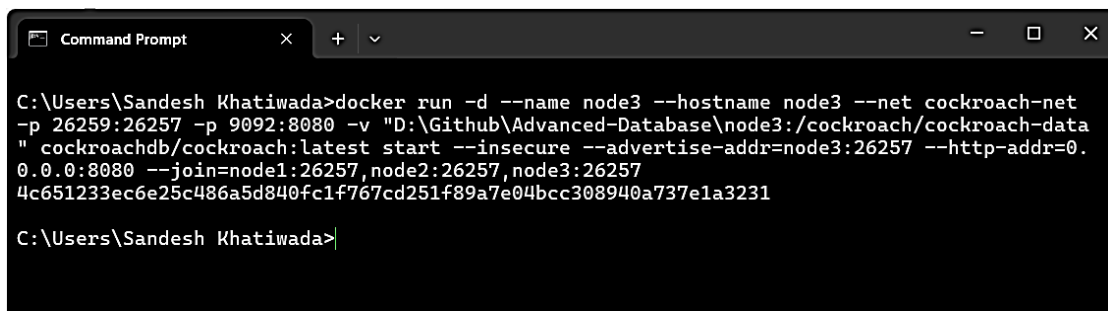
```
docker run -d --name node2 --hostname node2 --net cockroach-net -p 26258:26257 -p 9091:8080 -v "D:\Github\Advanced-Database\node2:/cockroach/cockroach-data" cockroachdb/cockroach:latest start --insecure --advertise-addr=node2:26257 --http-addr=0.0.0.0:8080 --join=node1:26257,node2:26257,node3:26257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



```
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
PORTS         NAMES
4c651233ec6e   cockroachdb/cockroach:latest       "/cockroach/cockroac... 8 hours ago   Up 8 h
0.0.0.0:9092->8080/tcp, [::]:9092->8080/tcp, 0.0.0.0:26259->26257/tcp, [::]:26259->26257/tcp   node3
805b171974d1   cockroachdb/cockroach:latest       "/cockroach/cockroac... 8 hours ago   Up 8 h
0.0.0.0:9091->8080/tcp, [::]:9091->8080/tcp, 0.0.0.0:26258->26257/tcp, [::]:26258->26257/tcp   node2
```

Name	Container ID	Image	Port(s)	CPU (%)	Memory usage	Actions
node3	4c651233ec6e	cockroachdb/cockroach:latest	26259:26257 Show all ports (2)	N/A	N/A	
node2	805b171974d1	cockroachdb/cockroach:latest	26258:26257 Show all ports (2)	N/A	N/A	
node1	4a74e613ec92	cockroachdb/cockroach:latest	26257:26257 Show all ports (2)	N/A	N/A	
Mongo_Auth_Sandesh	843a5c1f6f66	mongo:8.0	27018:27017	N/A	N/A	

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

Node 1:

CockroachDB Overview

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

V25.4.1

This cluster will require a license key by December 16th, 2025 or the cluster will be throttled. [Learn more](#)

Overview

Metrics

Databases

SQL Activity

Insights

Network

Top Ranges

Jobs

Schedules

Advanced Debug

Capacity Usage

0.2%

USED 149.3 MiB

USABLE 96.0 GiB

Node Status

3 LIVE NODES

0 SUSPECT NODES

0 DRAINING NODES

0 DEAD NODES

Replication Status

78 TOTAL RANGES

0 UNDER-REPLICATED RANGES

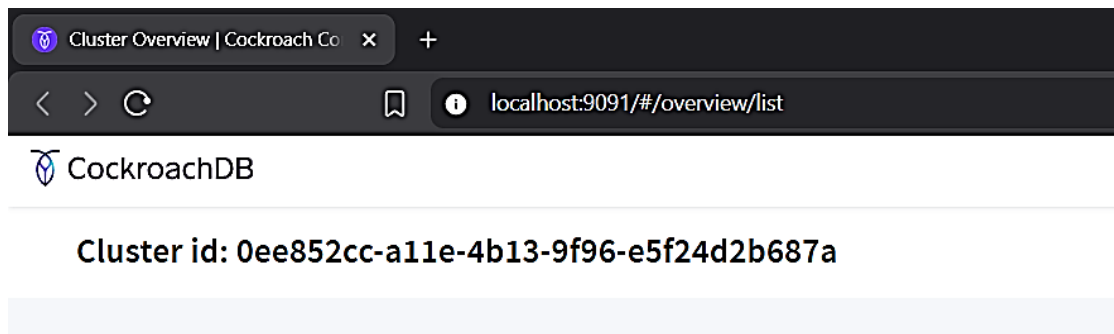
0 UNAVAILABLE RANGES

Node List

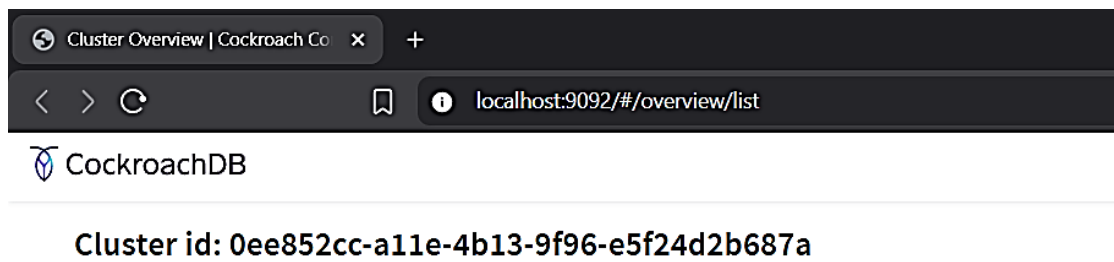
Nodes (3)

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

Node 2:



Node 3:



Create Database under node 1:

```
CREATE DATABASE oic;
```

```
USE oic;
```

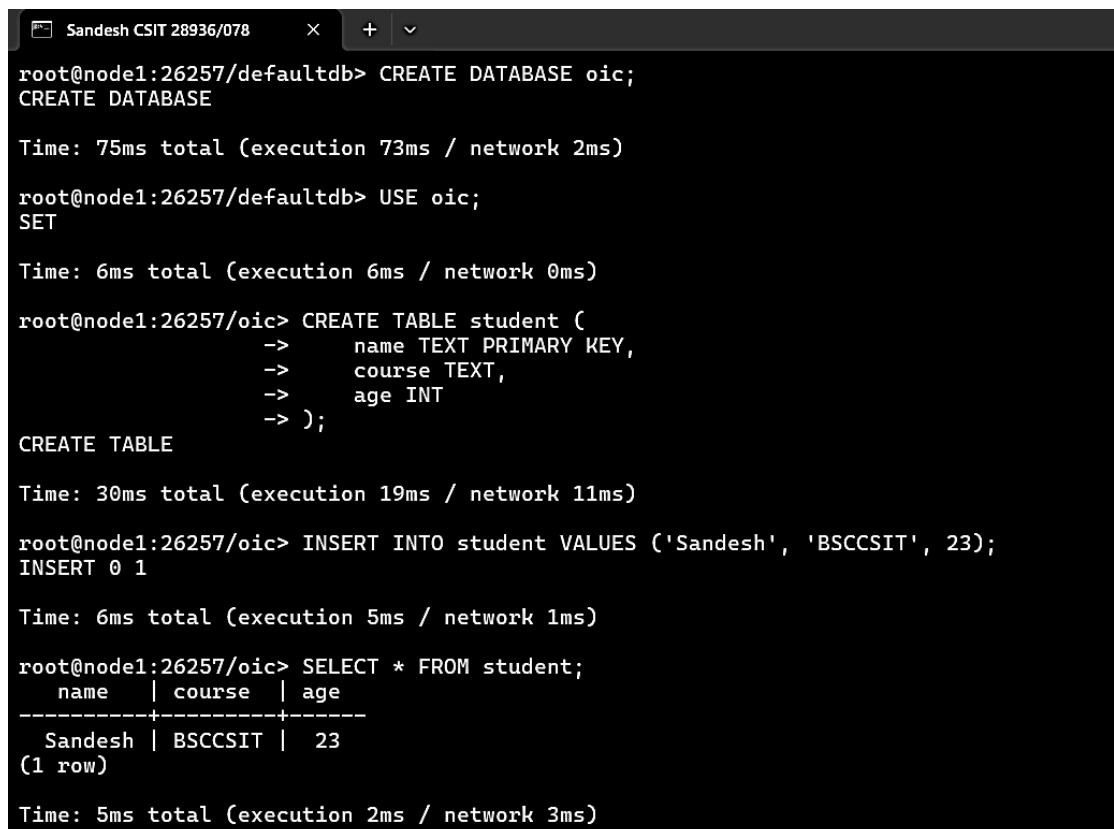
```
CREATE TABLE student (  
    name TEXT PRIMARY KEY,  
    course TEXT,  
    age INT  
);
```

Insert:

```
INSERT INTO student VALUES ('Sandesh', 'BSCCSIT', 23);
```

View in node 1:

```
SELECT * FROM student;
```



The screenshot shows a terminal window with the title 'Sandesh CSIT 28936/078'. The terminal displays the following commands and their outputs:

```
root@node1:26257/defaultdb> CREATE DATABASE oic;  
CREATE DATABASE  
  
Time: 75ms total (execution 73ms / network 2ms)  
  
root@node1:26257/defaultdb> USE oic;  
SET  
  
Time: 6ms total (execution 6ms / network 0ms)  
  
root@node1:26257/oic> CREATE TABLE student (  
->     name TEXT PRIMARY KEY,  
->     course TEXT,  
->     age INT  
-> );  
CREATE TABLE  
  
Time: 30ms total (execution 19ms / network 11ms)  
  
root@node1:26257/oic> INSERT INTO student VALUES ('Sandesh', 'BSCCSIT', 23);  
INSERT 0 1  
  
Time: 6ms total (execution 5ms / network 1ms)  
  
root@node1:26257/oic> SELECT * FROM student;  
  name | course | age  
-----+-----+-----  
 Sandesh | BSCCSIT | 23  
(1 row)  
  
Time: 5ms total (execution 2ms / network 3ms)
```

Verify the database from node 3:

```
docker exec -it node3 ./cockroach sql --insecure --host=node3:26257
```

USE oic;

```
SELECT * FROM student;
```

```
Sandesh CSIT Node 3
Microsoft Windows [Version 10.0.26200.7462]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Sandesh Khatiwada>docker exec -it node3 ./cockroach sql --insecure --host=node3:26257
#
# 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)
# Cluster ID: 0ee852cc-a11e-4b13-9f96-e5f24d2b687a
#
# Enter \? for a brief introduction.
#
root@node3:26257/defaultdb> USE oic;
SET

Time: 8ms total (execution 8ms / network 0ms)

root@node3:26257/oic> SELECT * FROM student;
  name | course | age
-----+-----+-----
 Sandesh | BSCCSIT | 23
(1 row)

Time: 35ms total (execution 34ms / network 0ms)
```