

1. EC2 Setup

1.1 Create the EC2 Instance

Navigate to EC2 page and click Launch Instance. Select Ubuntu and the t2.micro instance type. All other settings such as storage are up to user discretion and will not impact performance.

Amazon Linux
aws


macOS
Mac

Ubuntu
ubuntu

Windows
Microsoft

Red Hat
Red Hat

SUSE Linux
SUS


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Amazon Machine Image (AMI)

Ubuntu Server 24.04 LTS (HVM), SSD Volume Type
ami-09040d770ffe2224f (64-bit (x86)) / ami-0acb327475c6fd498 (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible

Description

Canonical, Ubuntu, 24.04 LTS, amd64 noble image build on 2024-04-23

Architecture
64-bit (x86)

AMI ID
ami-09040d770ffe2224f

Verified provider

▼ Instance type Info | Get advice

Instance type

t2.micro
Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Linux base pricing: 0.0116 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand Windows base pricing: 0.0162 USD per Hour
On-Demand RHEL base pricing: 0.0716 USD per Hour

Free tier eligible

☐ All generations
[Compare instance types](#)

Additional costs apply for AMIs with pre-installed software

2. DynamoDB Setup

2.1 Create Dynamo table

Navigate to the DynamoDB page and click the create new table button. Name the table usertable and create a partition key. Note: The table must be named this. All other settings can be left as default. Click the create table button again to create the table.

Table details [Info](#)
DynamoDB is a schemaless database that requires only a table name and a primary key when you create the table.

Table name
This will be used to identify your table.

Between 3 and 255 characters, containing only letters, numbers, underscores (_), hyphens (-), and periods (.).

Partition key
The partition key is part of the table's primary key. It is a hash value that is used to retrieve items from your table and allocate data across hosts for scalability and availability.

1 to 255 characters and case sensitive.

Sort key - optional
You can use a sort key as the second part of a table's primary key. The sort key allows you to sort or search among all items sharing the same partition key.

1 to 255 characters and case sensitive.

2.2

Click on the table you just created and go to the rightmost tab, additional settings. Make sure autoscaling is turned on and set the provisioned reads and write maximum to the desired settings. Free tier is limited to 25 read and 25 write units.

3. YCSB Setup

3.1 install dependencies

SSH into the EC2 instance and run the following commands to install YCSB:

```
curl -O --location
https://github.com/brianfrankcooper/YCSB/releases/download/0.17.0/ycsb-0.17.0.t
ar.gz
tar xfvz ycsb-0.17.0.tar.gz
cd ycsb-0.17.0
```

You must make sure that python2 is installed since the ycsb script will not work on python3

```
sudo apt install python2.7
```

Additionally, edit ycsb-0.17.0/bin/ycsb and change the top line to make sure it uses the correct python version

Install Java using

```
sudo apt install default-jre
```

3.2 YCSB configurations for DynamoDB

Copy your AWS account security credentials to the \$DYNAMODB_HOME/conf/AWSCredentials.properties file from

<https://console.aws.amazon.com/iam/>

The file should be of the format:

```
accessKey =  
secretKey =
```

Also copy your \$DYNAMODB_HOME/conf/dynamodb.properties as follows

```
dynamodb.awsCredentialsFile = dynamodb-binding/conf/AWSCredentials.properties  
  
# Primarykey of table 'usertable'  
dynamodb.primaryKey = 6400  
  
dynamodb.region = us-east-2  
  
dynamodb.endpoint = http://dynamodb.us-east-2.amazonaws.com  
requestdistribution = uniform
```

3.3 Running a workload

Use the following commands to run a workload

```
bin/ycsb load dynamodb -P dynamodb-binding/conf/dynamodb.properties -P  
workloads/workloadf
```

```
bin/ycsb run dynamodb -P dynamodb-binding/conf/dynamodb.properties -P  
workloads/workloadf
```

Replace the last argument with the location of the desired workload.

4. Results

The results for the DynamoDB runs can be found here:

<https://github.com/ldyim/6400-temp/tree/main/dynamo>