

Sandbox Project: Two-tier VPC with Public EC2 and Private RDS (MySQL)

Prerequisites

- An AWS sandbox/lab account with permission to create VPC, EC2, RDS, IAM key pairs, and security groups
- A **key pair** to SSH into EC2 (create one during EC2 launch if you don't have it)
- Choose a **Region** (e.g., `us-east-1`) and stick to it throughout
- Your **public IP address** (for the EC2 SSH rule) — you can find it via an IP-check site if needed



Cost guardrail: This build avoids a NAT Gateway (often the biggest surprise cost). Because your EC2 is in the public subnet (with an IGW) and RDS doesn't need outbound internet, a NAT GW is not required.

Step 1 — Create the VPC

Create VPC Info

A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances.

VPC settings

Resources to create Info

Create only the VPC resource or the VPC and other networking resources.

VPC only

VPC and more

Name tag - *optional*

Creates a tag with a key of 'Name' and a value that you specify.

LabVPC

IPv4 CIDR block Info

IPv4 CIDR manual input

IPAM-allocated IPv4 CIDR block

IPv4 CIDR

10.0.0.0/16

CIDR block size must be between /16 and /28.

IPv6 CIDR block Info

No IPv6 CIDR block

IPAM-allocated IPv6 CIDR block

Amazon-provided IPv6 CIDR block

IPv6 CIDR owned by me

Tenancy Info

Default



Edit VPC settings [Info](#)

VPC details

VPC ID

vpc-0fe7b90b25c91169a

Name

LabVPC

DHCP settings

DHCP option set [Info](#)

dopt-041ae3cfbfc5f5028

DNS settings

Enable DNS resolution [Info](#)

Enable DNS hostnames [Info](#)

Network Address Usage metrics settings

Enable Network Address Usage metrics [Info](#)

Step 2: Creating Subnets

Create **one public** and **two private** subnets (the second private is needed for the RDS subnet group).

Public Subnet

Create subnet Info

VPC

VPC ID

Create subnets in this VPC.

vpc-0fe7b90b25c91169a (LabVPC)

Associated VPC CIDRs

IPv4 CIDRs

10.0.0.0/16

Subnet settings

Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1

Subnet name

Create a tag with a key of 'Name' and a value that you specify.

PublicSubnet-a

The name can be up to 256 characters long.

Availability Zone Info

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

United States (N. Virginia) / use1-az1 (us-east-1a)

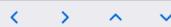
IPv4 VPC CIDR block Info

Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

10.0.0.0/16

IPv4 subnet CIDR block

10.0.1.0/24



▼ Tags - optional

Key

Name

Value - optional

PublicSubnet-a

Add new tag

You can add 49 more tags.

Remove

Add new subnet

Edit subnet settings [Info](#)

Subnet

Subnet ID

subnet-026b562d8f4930b47

Auto-assign IP settings [Info](#)

Enable AWS to automatically assign a public IPv4 or IPv6 address to a new primary network interface.

Enable auto-assign public IPv4 address [Info](#)

Enable auto-assign customer-owned IPv4 address [Info](#)

Option disabled because no customer owned pools found.

Resource-based name (RBN) settings [Info](#)

Specify the hostname type for EC2 instances in this subnet and optional RBN DNS query settings

Enable resource name DNS A record on launch [Info](#)

Enable resource name DNS AAAA record on launch [Info](#)

Hostname type [Info](#)

Resource name

IP name

DNS64 settings

Enable DNS64 to allow IPv6-only services in Amazon VPC to communicate with IPv4-only service

Enable DNS64 [Info](#)

Private Subnet -a

Create subnet Info

VPC

VPC ID

Create subnets in this VPC.

vpc-0fe7b90b25c91169a (LabVPC)

Associated VPC CIDRs

IPv4 CIDRs

10.0.0.0/16

Subnet settings

Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1

Subnet name

Create a tag with a key of 'Name' and a value that you specify.

PrivateSubnet-a

The name can be up to 256 characters long.

Availability Zone Info

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

United States (N. Virginia) / us-east-1a (us-east-1a)

IPv4 VPC CIDR block Info

Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

10.0.0.0/16

IPv4 subnet CIDR block

10.0.2.0/24



▼ Tags - optional

Key

Name

Value - optional

PrivateSubnet-a

Add new tag

You can add 49 more tags.

Remove

Add new subnet

Private Subnet -b

AZ is different than private subnet -a

The screenshot shows the 'Create subnet' step in the AWS VPC wizard. At the top, the navigation path is 'VPC > Subnets > Create subnet'. The main section is titled 'VPC'.

VPC ID: vpc-0fe7b90b25c91169a (LabVPC)

Associated VPC CIDRs: 10.0.0.0/16

Subnet settings: Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1:

Subnet name: PrivateSubnet-b
The name can be up to 256 characters long.

Availability Zone: United States (N. Virginia) / us-east-1b

IPv4 VPC CIDR block [Info](#)
Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

10.0.0.0/16

IPv4 subnet CIDR block

10.0.3.0/24

< > ^ v

▼ Tags - optional

Key	Value - optional
<input type="text"/> Name	<input type="text"/> PrivateSubnet-b

[Add new tag](#)

You can add 49 more tags.

[Remove](#)

[Add new subnet](#)

Step 3 — Internet Gateway (IGW)

The IGW provides internet egress/ingress for the public subnet.

Create internet gateway Info

An internet gateway is a virtual router that connects a VPC to the internet. To create a new internet gateway, enter the required information.

Internet gateway settings

Name tag

Creates a tag with a key of 'Name' and a value that you specify.

LabIGW

Tags - optional

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can add up to 50 tags to a single resource.

Key

Name



LabIGW

Add new tag

You can add 49 more tags.

Attach to VPC

VPC > Internet gateways > igw-0cfcb7f3ba0e2012b

igw-0cfcb7f3ba0e2012b / LabIGW

Details Info

Internet gateway ID igw-0cfcb7f3ba0e2012b	State Detached	VPC ID -	Owner 729286129486
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Actions ▾

- Attach to VPC
- Detach from VPC
- Manage tags
- Delete

Tags

Key	Value
Name	LabIGW

Manage tags

Attach to VPC (igw-0cfcb7f3ba0e2012b) [Info](#)

VPC

Attach an internet gateway to a VPC to enable the VPC to communicate with the internet. Specify the VPC to attach to.

Available VPCs

Attach the internet gateway to this VPC.

`vpc-0fe7b90b25c91169a`

▶ AWS Command Line Interface command

Step 4 — Route Tables

Create two route tables: one public (with IGW default route) and one private (local only).

Public Route Table

Create route table [Info](#)

A route table specifies how packets are forwarded between the subnets within your VPC, the internet, and your VPN connection.

Route table settings

Name - *optional*

Create a tag with a key of 'Name' and a value that you specify.

PublicRT

VPC

The VPC to use for this route table.

`vpc-0fe7b90b25c91169a (LabVPC)`

Tags

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter resources.

Key

`Name`

Value - *optional*

`PublicRT`

[Add new tag](#)

You can add 49 more tags.

Edit routes.

The screenshot shows the 'Edit routes' section of the AWS VPC Route Tables interface. It lists two routes:

Destination	Target	Status	Propagated	Route Origin
10.0.0.0/16	local	Active	No	CreateRouteTable
0.0.0.0/0	Internet Gateway	-	No	CreateRoute

Below the table is an 'Add route' button. At the bottom right are 'Cancel' and a circular 'Save' button.

Associate the route table with public subnet

The screenshot shows the 'Edit subnet associations' section of the AWS VPC Route Tables interface. It lists available subnets and selected subnets.

Available subnets (1/3)

<input type="checkbox"/>	Name	Subnet ID	IPv4 CIDR
<input checked="" type="checkbox"/>	PublicSubnet-a	subnet-026b562d8f4930b47	10.0.1.0/24
<input type="checkbox"/>	PrivateSubnet-a	subnet-05bea5268369580e4	10.0.2.0/24
<input type="checkbox"/>	PrivateSubnet-b	subnet-02c791a07309583a2	10.0.3.0/24

Selected subnets

[subnet-026b562d8f4930b47 / PublicSubnet-a](#)

Private Route Table

☰ VPC > Route tables > Create route table

Create route table Info

A route table specifies how packets are forwarded between the subnets within your VPC, the internet, and your VPN connection.

Route table settings

Name - optional
Create a tag with a key of 'Name' and a value that you specify.

PrivateRT

VPC
The VPC to use for this route table.

vpc-0fe7b90b25c91169a (LabVPC)

Tags

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to identify resources in your account.

Key	Value - optional
<input type="text"/> Name	<input type="text"/> PrivateRT

Add new tag

You can add 49 more tags.

Associate the route table with both private subnet a and b

☰ VPC > Route tables > rtb-0ca01ec750e89e14e > Edit subnet associations

Edit subnet associations

Change which subnets are associated with this route table.

Available subnets (2/3)

Filter subnet associations

Name	Subnet ID	IPv4 CIDR
<input type="checkbox"/> PublicSubnet-a	subnet-026b562d8f4930b47	10.0.1.0/24
<input checked="" type="checkbox"/> PrivateSubnet-a	subnet-05bea5268369580e4	10.0.2.0/24
<input checked="" type="checkbox"/> PrivateSubnet-b	subnet-02c791a07309583a2	10.0.3.0/24

Selected subnets

subnet-05bea5268369580e4 / PrivateSubnet-a subnet-02c791a07309583a2 / PrivateSubnet-b

!
Note: **Do not** add a NAT Gateway route. We don't need NAT because our EC2 is public and RDS doesn't need outbound internet.

Step 5 — Security Groups

Create two groups: one for EC2, one for RDS. Keep Network ACLs at default (stateless changes often cause confusion in labs).

EC2-SG

The screenshot shows the 'Create security group' wizard. In the 'Basic details' section, the security group name is 'EC2-SG' and the description is 'Security Group for ec2'. The VPC selected is 'vpc-0fe7b90b25c91169a (LabVPC)'. In the 'Inbound rules' section, there is one rule: Type: SSH, Protocol: TCP, Port range: 22, Source: Anywhere, Description: All SSH from anywhere. An 'Add rule' button is visible.

VPC > Security Groups > Create security group

Create security group Info

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

Basic details

Security group name Info
EC2-SG

Name cannot be edited after creation.

Description Info
Security Group for ec2

VPC Info
vpc-0fe7b90b25c91169a (LabVPC)

Inbound rules Info

Type <small>Info</small>	Protocol <small>Info</small>	Port range <small>Info</small>	Source <small>Info</small>	Description - optional <small>Info</small>
SSH	TCP	22	Anywhere	All SSH from anywhere.

0.0.0.0/0 X

Add rule

RDS-SG

Create security group Info

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

Basic details

Security group name Info

RDS-SG

Name cannot be edited after creation.

Description Info

Allows ec2 to talk to RDS

VPC Info

vpc-0fe7b90b25c91169a (LabVPC)



Inbound rules Info

Type Info

MySQL/Aurora

Protocol Info

TCP

Port range Info

3306

Source Info

Custom

sg-0117a7c4bbadd081 X

Description - opt

sg-0117a7c4bbadd08fd X

Add rule



Using **SG-to-SG** rules is best practice. Only the EC2 instances in **EC2-SG** can talk to MySQL on the RDS instance.

Step 6 — DB Subnet Group (for RDS)

RDS needs a subnet group covering **at least two subnets in different AZs** in your VPC.

Create DB subnet group

To create a new subnet group, give it a name and a description, and choose an existing VPC. You will then be able to add subnets related to that VPC.

Subnet group details

Name

You won't be able to modify the name after your subnet group has been created.

Lab-DB-SubnetGroup

Must contain from 1 to 255 characters. Alphanumeric characters, spaces, hyphens, underscores, and periods are allowed.

Description

Lab-DB-SubnetGroup

VPC

Choose a VPC identifier that corresponds to the subnets you want to use for your DB subnet group. You won't be able to choose a different VPC identifier after your subnet group is created.

LabVPC (vpc-0fe7b90b25c91169a)

3 Subnets, 2 Availability Zones



Add subnets

Availability Zones
Choose the Availability Zones that include the subnets you want to add.

Choose an availability zone ▾

us-east-1a X us-east-1b X

Subnets
Choose the subnets that you want to add. The list includes the subnets in the selected Availability Zones.

Select subnets ▾

PrivateSubnet-a X PrivateSubnet-b X

Subnet ID: subnet-05bea5268369580e4 CIDR: 10.0.2.0/24 Subnet ID: subnet-02c791a07309583a2 CIDR: 10.0.3.0/24

ⓘ For Multi-AZ DB clusters, you must select 3 subnets in 3 different Availability Zones.

Subnets selected (2)

Availability zone	Subnet name	Subnet ID	CIDR block
us-east-1a	PrivateSubnet-a	subnet-05bea5268369580e4	10.0.2.0/24
us-east-1b	PrivateSubnet-b	subnet-02c791a07309583a2	10.0.3.0/24

Cancel Create

Step 7 — Create the RDS MySQL Instance (Private)

Create database Info**Choose a database creation method** Standard create

You set all of the configuration options, including ones for availability, security, backups, and maintenance.

 Easy create

Use recommended best-practice configurations. Some configuration options can be changed after the database is created.

Engine optionsEngine type Info Aurora (MySQL Compatible) Aurora (PostgreSQL Compatible) MySQL PostgreSQL MariaDB Oracle Microsoft SQL Server IBM Db2**Edition** MySQL Community**Engine version** Info

View the engine versions that support the following database features.

▼ Hide filters Show only versions that support the Multi-AZ DB cluster Info

Create a Multi-AZ DB cluster with one primary DB instance and two readable standby DB instances. Multi-AZ DB clusters provide up to 2x faster transaction commit latency and automatic failover in typically under 35 seconds.

 Show only versions that support the Amazon RDS Optimized Writes Info

Amazon RDS Optimized Writes improves write throughput by up to 2x at no additional cost.

Engine version

MySQL 8.0.42

 Enable RDS Extended Support InfoAmazon RDS Extended Support is a paid offering. By selecting this option, you consent to being charged for this offering if you are running your database major version past the RDS end of standard support date for that version. Check the end of standard support date for your major version in the [RDS for MySQL documentation](#).**Templates**

Choose a sample template to meet your use case.

 Production

Use defaults for high availability and fast, consistent performance.

 Dev/Test

This instance is intended for development use outside of a production environment.

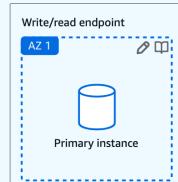
 Sandbox

To develop new applications, test existing applications, or gain hands-on experience with Amazon RDS.

Availability and durability**Deployment options** InfoChoose the deployment option that provides the availability and durability needed for your use case. AWS is committed to a certain level of uptime depending on the deployment option you choose. Learn more in the [Amazon RDS service level agreement \(SLA\)](#). Single-AZ DB instance deployment (1 instance)

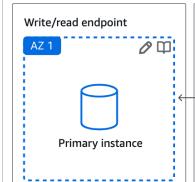
Creates a single DB instance without standby instances. This setup provides:

- 99.5% uptime
- No data redundancy

 Multi-AZ DB instance deployment (2 instances)

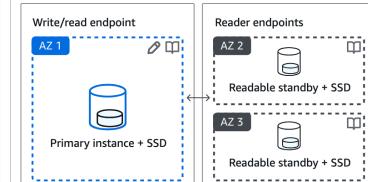
Creates a primary DB instance with a non-readable standby instance in a separate Availability Zone. This setup provides:

- 99.95% uptime
- Redundancy across Availability Zones

 Multi-AZ DB cluster deployment (3 instances)

Creates a primary DB instance with two readable standbys in separate Availability Zones. This setup provides:

- 99.99% uptime
- Redundancy across Availability Zones
- Increased read capacity
- Reduced write latency

**Settings**

Settings

DB instance identifier [Info](#)
 Type a name for your DB instance. The name must be unique across all DB instances owned by your AWS account in the current AWS Region.
 The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 63 alphanumeric characters or hyphens. First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.

Credentials Settings

Master username [Info](#)
 Type a login ID for the master user of your DB instance.
 1 to 16 alphanumeric characters. The first character must be a letter.

Credentials management
 You can use AWS Secrets Manager or manage your master user credentials.

Managed in AWS Secrets Manager - most secure
 RDS generates a password for you and manages it throughout its lifecycle using AWS Secrets Manager.

Self managed
 Create your own password or have RDS create a password that you manage.

Auto generate password
 Amazon RDS can generate a password for you, or you can specify your own password.

Master password [Info](#)
 Password strength Very weak
 Minimum constraints: At least 8 printable ASCII characters. Can't contain any of the following symbols: / " @

Confirm master password [Info](#)

Instance configuration

The DB instance configuration options below are limited to those supported by the engine that you selected above.

DB instance class [Info](#)

▼ Hide filters

- Show instance classes that support Amazon RDS Optimized Writes** [Info](#)
 Amazon RDS Optimized Writes improves write throughput by up to 2x at no additional cost.

- Include previous generation classes**

- Standard classes (includes m classes)**
 Memory optimized classes (includes r and x classes)
 Burstable classes (includes t classes)

db.t3.micro

2 vCPUs 1 GiB RAM Network: Up to 2,085 Mbps

Storage

Storage type [Info](#)

Provisioned IOPS SSD (io2) storage volumes are now available.

General Purpose SSD (gp2)

Baseline performance determined by volume size

Allocated storage [Info](#)

10

GiB

Allocated storage value must be 20 GiB to 6,144 GiB

▼ Additional storage configuration

Storage autoscaling [Info](#)
 Provides dynamic scaling support for your database's storage based on your application's needs.
 Enable storage autoscaling
 Enabling this feature will allow the storage to increase after the specified threshold is exceeded.

Connectivity [Info](#)

Compute resource
 Choose whether to set up a connection to a compute resource for this database. Setting up a connection will automatically change connectivity settings so that the compute resource can connect to this database.

Don't connect to an EC2 compute resource
 Don't set up a connection to a compute resource for this database. You can manually set up a connection to a compute resource later.

Connect to an EC2 compute resource
 Set up a connection to an EC2 compute resource for this database.

Network type [Info](#)
 To use dual-stack mode, make sure that you associate an IPv6 CIDR block with a subnet in the VPC you specify.

IPv4
 Your resources can communicate only over the IPv4 addressing protocol.

Dual-stack mode
 Your resources can communicate over IPv4, IPv6, or both.

Virtual private cloud (VPC) [Info](#)
 Choose the VPC. The VPC defines the virtual networking environment for this DB instance.

LabVPC (vpc-0fe7b90b25c91169a)
 3 Subnets, 2 Availability Zones

Only VPCs with a corresponding DB subnet group are listed.

ⓘ After a database is created, you can't change its VPC.

DB subnet group [Info](#)
 Choose the DB subnet group. The DB subnet group defines which subnets and IP ranges the DB instance can use in the VPC that you selected.

lab-db-subnetgroup
 2 Subnets, 2 Availability Zones

Public access [Info](#)
 Yes
 RDS assigns a public IP address to the database. Amazon EC2 instances and other resources outside of the VPC can connect to your database. Resources inside the VPC can also connect to which resources can connect to the database.

No
 RDS doesn't assign a public IP address to the database. Only Amazon EC2 instances and other resources inside the VPC can connect to your database. Choose one or more VPC security groups to allow access to your database.

VPC security group (firewall) [Info](#)
 Choose one or more VPC security groups to allow access to your database. Make sure that the security group rules allow the appropriate incoming traffic.

Choose existing
 Choose existing VPC security groups

Create new
 Create new VPC security group

Existing VPC security groups
 Choose one or more options

RDS-SG X

Availability Zone [Info](#)
 No preference

▼ Additional monitoring settings
 Enhanced Monitoring, CloudWatch Logs and DevOps Guru

Enhanced Monitoring
 Enable Enhanced monitoring
 Enabling Enhanced Monitoring metrics are useful when you want to see how different processes or threads use the CPU.

Log exports
 Select the log types to publish to Amazon CloudWatch Logs

Audit log
 Error log
 General log
 iam-db-auth-error log
 Slow query log

IAM role
 The following service-linked role is used for publishing logs to CloudWatch Logs.

RDS service-linked role

▼ Additional configuration

Database options

Initial database name [Info](#)
appdb

If you do not specify a database name, Amazon RDS does not create a database.

DB parameter group [Info](#)
default.mysql8.0

Option group [Info](#)
default:mysql-8-0

Backup

Enable automated backups
Creates a point-in-time snapshot of your database

⚠ Please note that automated backups are currently supported for InnoDB storage engine only. If you are using MyISAM, refer to details [here](#).

Backup retention period [Info](#)

Step 8 — Launch the EC2 Instance (Public Subnet)

EC2 > Instances > Launch an instance

Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags [Info](#)

Name
PublicBastion [Add additional tags](#)

▼ Application and OS Images (Amazon Machine Image) [Info](#)

An AMI contains the operating system, application server, and applications for your instance. If you don't see a suitable AMI below, use the search field or choose **Browse more AMIs**.

Quick Start

Amazon Linux	macOS	Ubuntu	Windows	Red Hat	SUSE Linux	Debian

Browse more AMIs
Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Amazon Linux 2023 kernel-6.1 AMI ami-00ca32bbc84273381 (64-bit (x86), uefi-preferred) / ami-0aa7db6294d00216f (64-bit (Arm), uefi) Virtualization: hvm ENA enabled: true Root device type: ebs	Free tier eligible
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Instance type [Info](#) | [Get advice](#)

Instance type

t3.micro	Free tier eligible		
Family: t3	2 vCPU	1 GiB Memory	Current generation: true
On-Demand Ubuntu Pro base pricing:	0.0139 USD per Hour		
On-Demand SUSE base pricing:	0.0104 USD per Hour		
On-Demand Linux base pricing:	0.0104 USD per Hour		
On-Demand RHEL base pricing:	0.0392 USD per Hour		
On-Demand Windows base pricing:	0.0196 USD per Hour		

Additional costs apply for AMIs with pre-installed software

Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required

[Create new key pair](#)

Network settings [Info](#)

VPC - required [Info](#)

vpc-0fe7b90b25c91169a (LabVPC)	10.0.0.0/16	Create new VPC
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Subnet [Info](#)

subnet-026b562d8f4930b47	PublicSubnet-a
VPC: vpc-0fe7b90b25c91169a	Owner: 729286129486
Availability Zone: us-east-1a (use1-az1)	Zone type: Availability Zone
IP addresses available: 251	CIDR: 10.0.1.0/24

Create new subnet

Auto-assign public IP [Info](#)

Enable

Firewall (security groups) [Info](#)

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group

Select existing security group

Common security groups [Info](#)

Select security groups

EC2-SG sg-0117a7c4bbadd08fd [X](#)

VPC: vpc-0fe7b90b25c91169a

Compare security group rules

Security groups that you add or remove here will be added to or removed from all your network interfaces.

Advanced network configuration

User Data automates setup.

- `dnf update -y`
- `dnf install -y mariadb105`

```
#!/bin/bash
# Update system packages
dnf update -y

# Install MySQL client only
dnf install -y mariadb105
```



Step 9 — Connect to EC2 and Test MySQL Connectivity

SSH to EC2

```
chmod 400 <.pemfile>  
ssh -i <.pemfile> ec2-user@<public-ec2-ip>
```

```
(base) karim@Shahids-MacBook-Air ~ % chmod 400 Downloads/sandboc.pem
(base) karim@Shahids-MacBook-Air ~ % ssh -i Downloads/sandboc.pem ec2-user@44.223.101.16
The authenticity of host '44.223.101.16 (44.223.101.16)' can't be established.
ED25519 key fingerprint is SHA256:tYnq6oxNl88SZUVEAQd+q36v1vz+gXeGlaXcYij6Ku4.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '44.223.101.16' (ED25519) to the list of known hosts.

      #_
  ~\_\_ #####_          Amazon Linux 2023
~~  ~\_\#####\
~~    \###|
~~      \#/  ___ https://aws.amazon.com/linux/amazon-linux-2023
~~      \~`-'>
~~~   /
~~-. /_
  _/_/
```

Connect from EC2 to RDS

```
mysql -h <RDS-endpoint> -P 3306 -u <db-username> -p
```

```
[ec2-user@ip-10-0-1-222 ~]$ mysql -h lab-mysql.cxi8w882k9xj.us-east-1.rds.amazonaws.com -P 3306 -u admin -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 32
Server version: 8.0.42 Source distribution

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Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MySQL [(none)]>
MySQL [(none)]>
MySQL [(none)]>
```

Using the Database

```
MySQL [(none)]> show databases;
+-----+
| Database |
+-----+
| appdb    |
| information_schema |
| mysql    |
| performance_schema |
| sys      |
+-----+
5 rows in set (0.005 sec)

MySQL [(none)]> use appdb;
Database changed
MySQL [appdb]> show tables;
Empty set (0.002 sec)
```

```
[MySQL [appdb]> CREATE TABLE messages (
->     id INT AUTO_INCREMENT PRIMARY KEY,
->     msg VARCHAR(100)
[ -> );
Query OK, 0 rows affected (0.039 sec)

MySQL [appdb]> show tables;
+-----+
| Tables_in_appdb |
+-----+
| messages       |
+-----+
[1 row in set (0.002 sec)

MySQL [appdb]> INSERT INTO messages (msg) VALUES ('Hello World');
Query OK, 1 row affected (0.008 sec)

MySQL [appdb]> INSERT INTO messages (msg) VALUES ('AWS RDS Test');
Query OK, 1 row affected (0.005 sec)

MySQL [appdb]> INSERT INTO messages (msg) VALUES ('Connected via EC2');
Query OK, 1 row affected (0.005 sec)

MySQL [appdb]>
MySQL [appdb]> select * from messages;
+---+-----+
| id | msg      |
+---+-----+
| 1  | Hello World |
| 2  | AWS RDS Test |
| 3  | Connected via EC2 |
+---+-----+
3 rows in set (0.001 sec)
```