

CCNP ROUTING AND SWITCHING



AWS RDS

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Task 1: Create a Security Group for the RDS DB Instance

Choose **VPC** in the **AWS Management Console**

Choose **Security Groups** in the left navigation pane

Choose Create security group and then configure:

- **Security group name:** DB Security Group
- **Description:** Permit access from Web Security Group
- **VPC:** Lab VPC

Choose **Add rule** in the **Inbound rules** pane

-Add a rule to permit access from the **Web Security Group**

Configure the following settings:

- **Type:** MySQL/Aurora (3306)
- **CIDR, IP, Security Group or Prefix List:** Type sg and then select Web Security Group.

Choose **Create security group**

Task 2: Create a DB Subnet Group

Choose **RDS** from the **Services** menu

Choose **Subnet groups** from the left navigation pane

Choose Create DB **Subnet Group** then configure:

11. Choose Create DB Subnet Group then configure:

- **Name:** DB-Subnet-Group
- **Description:** DB Subnet Group
- **VPC:** Lab VPC

RDS > Subnet groups > Create DB subnet group

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.

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

Description

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 has been created.

Add subnets

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

☒ us-east-1a
☒ us-east-1b
☐ us-east-1c
☐ us-east-1d
☐ us-east-1e
☐ us-east-1f

Subnets Selected (0)

Availability zone	Subnet ID	CIDR block
No subnets added to this group		

Cancel Create

Scroll down to the **Add Subnets** section

Select the first two zones; us-east-1a and us-east-1b from the values under Availability Zones

Select the subnets of 10.0.1.0/24 and 10.0.3.0/24 under subnets then create the group

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

Select subnets

subnet-0447bed5724816cf7 (10.0.3.0/24) X

subnet-0037aae272c7391cb (10.0.1.0/24) X

Subnets selected (2)

Availability zone	Subnet ID	CIDR block
us-east-1b	subnet-0447bed5724816cf7	10.0.3.0/24
us-east-1a	subnet-0037aae272c7391cb	10.0.1.0/24

Cancel Create

Task 3: Create an Amazon RDS DB Instance

Select **Databases** in the left navigation pane

Create **database** or **switch to the new database creation flow**

Select **MySQL**

Under Settings, configure:

18.

- **DB instance identifier:** lab-db
- **Master username:** main
- **Master password:** lab-password
- **Confirm password:** lab-password

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.

lab-db

The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 60 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.

main

1 to 16 alphanumeric characters. First character must be a letter.

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

Master password [Info](#)

Constraints: At least 8 printable ASCII characters. Can't contain any of the following: / (slash), ' (single quote), " (double quote) and @ (at sign).

Confirm password [Info](#)

19. Under **DB instance class**, configure:
- Select **Burstable classes (includes t classes)**.
 - Select **db.t3.micro**

DB instance class

DB instance class [Info](#)

☐ 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: 2,085 Mbps ▼

☐ Include previous generation classes

20. _____
21. Under **Storage**, configure:
- **Storage type:** *General Purpose (SSD)*
 - **Allocated storage:** 20

Storage

Storage type [Info](#)



General Purpose SSD (gp2)
▼

Baseline performance determined by volume size

Allocated storage

20
GiB

(Minimum: 20 GiB. Maximum: 16,384 GiB) Higher allocated storage **may improve** IOPS performance.

 Provisioning less than 100 GiB of General Purpose (SSD) storage for high throughput workloads could result in higher latencies upon exhaustion of the initial General Purpose (SSD) IO credit balance. [Learn more](#)


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 once the specified threshold is exceeded.

Maximum storage threshold [Info](#)

Charges will apply when your database autoscales to the specified threshold

1000
GiB

Minimum: 21 GiB. Maximum: 16,384 GiB

- 22. Under **Connectivity**, configure:
 - **Virtual Private Cloud (VPC):** *Lab VPC*
- 23. Under **Existing VPC security groups**, from the dropdown list:
 - Choose *DB Security Group*.
 - Deselect *default*.

Connectivity



Virtual private cloud (VPC) [Info](#)

VPC that defines the virtual networking environment for this DB instance.

Lab VPC (vpc-036c9e801edf220d0) ▼

Only VPCs with a corresponding DB subnet group are listed.

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

Subnet group [Info](#)

DB subnet group that defines which subnets and IP ranges the DB instance can use in the VPC you selected.

db-subnet-group ▼

Public access [Info](#)

☐ Yes

Amazon EC2 instances and devices outside the VPC can connect to your database. Choose one or more VPC security groups that specify which EC2 instances and devices inside the VPC can connect to the database.

☒ No

RDS will not assign a public IP address to the database. Only Amazon EC2 instances and devices inside the VPC can connect to your database.

VPC security group

Choose a VPC security group to allow access to your database. Ensure 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 VPC security groups ▼

DB Security Group ✕

► Additional configuration

24. Expand **Additional configuration**, then configure:

- **Initial database name:** lab
- Uncheck **Enable automatic backups.**
- Uncheck **Enable encryption**
- Uncheck **Enable Enhanced monitoring.**

▼ Additional configuration

Database options, encryption disabled, backup disabled, backtrack disabled, Enhanced Monitoring disabled, maintenance, CloudWatch Logs, delete protection enabled.

Database options

Initial database name [Info](#)

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

DB parameter group [Info](#)

Option group [Info](#)

Backup

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

Encryption

☐ Enable encryption
Choose to encrypt the given instance. Master key IDs and aliases appear in the list after they have been created using the AWS Key Management Service console. [Info](#)

Monitoring

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

Choose **Create database**

Choose **lab-db**

Wait until Info changes to **Modifying** or **Available**

Scroll down to the **Connectivity and Security** section and copy the **Endpoint** field

Connectivity & security

Endpoint & port

Endpoint

lab-db.cycqq01leain.us-east-1.rds.amazonaws.com

Port

3306

Networking

Availability Zone

us-east-1a

VPC

Lab VPC (vpc-036c9e801edf220d0)

Subnet group

db-subnet-group

Subnets

subnet-0037aae272c7391cb
subnet-0447bed5724816cf7

Security

VPC security groups

DB Security Group (sg-0ba650ccf5958f836)

✔ Active

Publicly accessible

No

Certificate authority

rds-ca-2019

Certificate authority date

August 22, 2024, 10:08
(UTC±10:08)

Paste the **Endpoint** value into a text editor

lab-db.cycqq01leain.us-east-1.rds.amazonaws.com

32. To copy the **WebServer** IP address, choose on the Details drop down menu above these instructions, and then choose Show.
33. Open a new web browser tab, paste the *WebServer* IP address and press Enter.

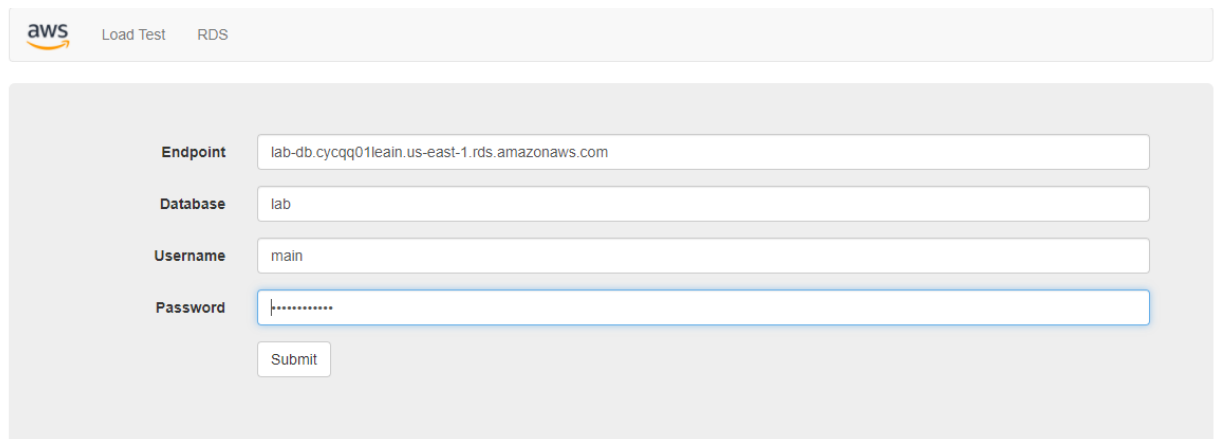
The web application will be displayed, showing information about the EC2 instance.

34. Choose the **RDS** link at the top of the page.

You will now configure the application to connect to your database.

35. Configure the following settings:

- **Endpoint:** Paste the Endpoint you copied to a text editor earlier
- **Database:** lab
- **Username:** main
- **Password:** lab-password
- Choose **Submit**



The screenshot shows the AWS Load Test RDS configuration interface. At the top, there is a header with the AWS logo, 'Load Test', and 'RDS'. Below this is a form with four input fields: 'Endpoint' (containing 'lab-db.cycqq01leain.us-east-1.rds.amazonaws.com'), 'Database' (containing 'lab'), 'Username' (containing 'main'), and 'Password' (containing 'lab-password'). A 'Submit' button is located at the bottom of the form.

A message will appear explaining that the application is running a command to copy information to the database. After a few seconds the application will display an **Address Book**.

The Address Book application is using the RDS database to store information.

36. Test the web application by adding, editing and removing contacts.

The data is being persisted to the database and is automatically replicating to the second Availability Zone.



Load Test

RDS

Address Book

Last name	First name	Phone	Email	Admin	
				Add Contact	
Doe	Jane	010-110-1101	janed@someotheraddress.org	Edit	Remove
Johnson	Roberto	123-456-7890	robertoj@someaddress.com	Edit	Remove