

Homework 03 - Part II


Zhicheng Zhang (ZZC)

Problem


Create an Oracle RDS Instance

Connect to the Oracle RDS Database Schema to Execute the steps from Part I to create the database schema in your new Oracle RDS instance, connect to the Oracle RDS using the Oracle SQL Developer, create the Oracle database schema using the DDL built for Part I.

Solution



My ClassroomsPortfolioCareer PathwaysBadgesJobs+AWS AccountLogout



Zhicheng Zhang

Consecutive Days: **1**
Pathways Completed: **0**
Badges Earned: **0**
Preferred Language: English


My Classrooms

View your list of Classroom invitations and accept or decline the invitation. Access a Classroom by clicking Go to my classroom.

Course Name ↑↓	Description	Educator ↑↓	Course End Date ↑↓	Credit Allocated Per Student ↑↓	Status
Spring 2020 Database Systems and Database Applications	Relational Database Theory. Data Modeling for OLTP, OLAP, and NO SQL databases. Indexing. AWS implementation of multi-AZ OLTP and OLAP application with replicated back-end databases	Rolando Fernandez	08/31/2020	\$200	Accepted Go to classroom
Spring 2020	Linux Systems				Accepted

Login to AWS Educate (<https://www.awseducate.com/signin/SiteLogin>) and go to My Classrooms. Select Database Systems 1.

Vocareum

 My Classes Help zzc_actual@gwu.edu


Welcome to your AWS Educate Account


AWS Educate provides you with access to a wide variety of AWS Services for you to get your hands on and build on AWS! To get started, click on the AWS Console button to log in to your AWS console.


Please read the FAQ below to help you get started on your Starter Account.

- What are the list of services supported?
- What regions are supported with Starter Accounts or Classroom Accounts?
- I can't start any resources. What happened?
- Can I create users within my Starter or Classroom Account for others to access?
- Can I create my own IAM policy within Starter Account or Classroom?
- Can I use marketplace software with my Starter Account or Classrooms?
- Are there any restrictions on AWS services in my AWS Educate Account?
- Are FPGA Instances Supported?
- How do I share image with my students?

Your AWS Account Status

 **Active**
full access (zzc_actual@gwu.edu)

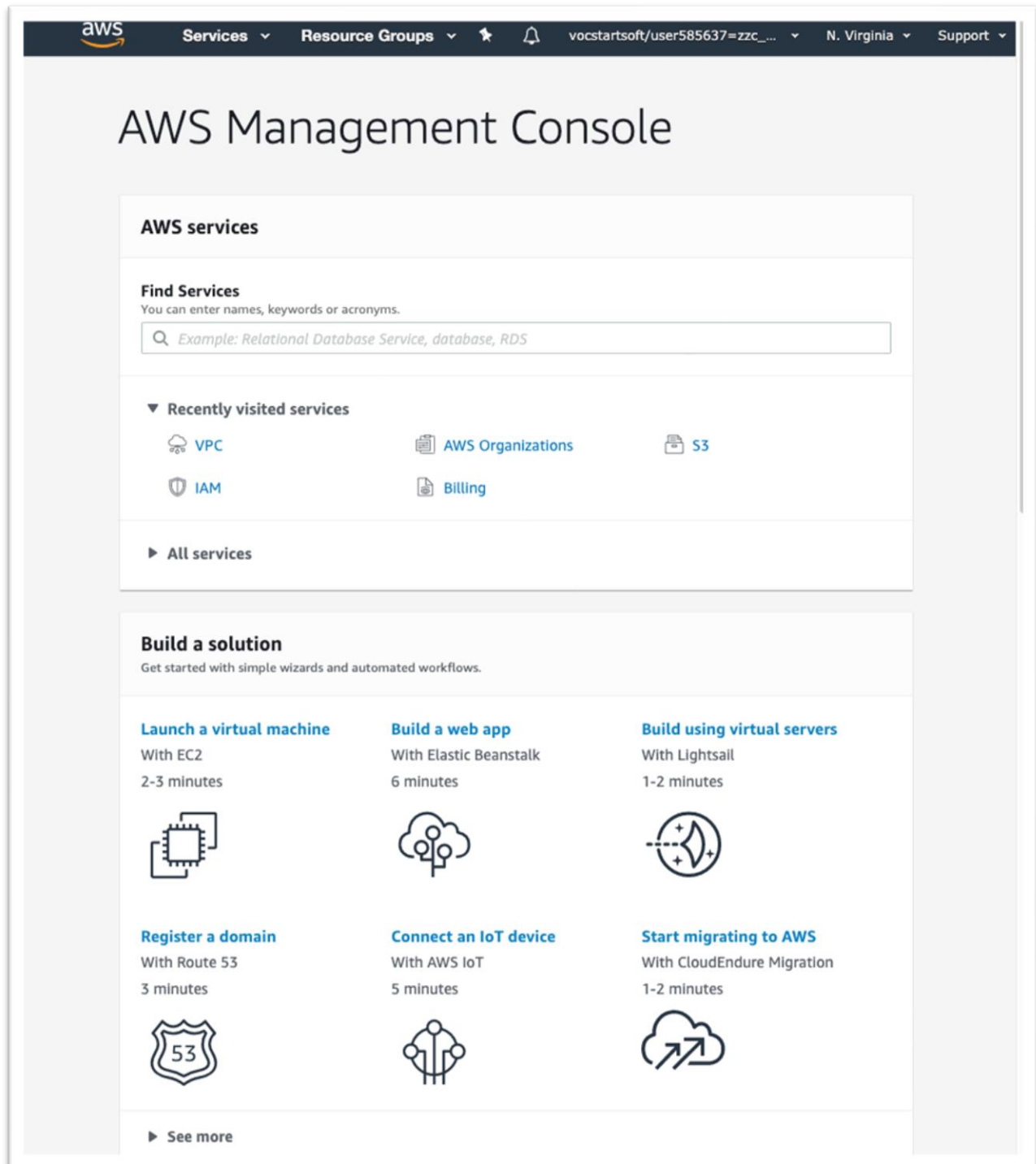
 **\$200**
remaining credits (estimated)

 **2:60**
session time

[Account Details](#) [AWS Console](#)

Please use AWS Educate Account responsibly. Remember to shut down your instances when not in use to make the best use of your credits. And, don't forget to logout once you are done with your work!

Click on AWS Console.



On the AWS Console, click on “Services” and in the Group search enter “rds” for Relational Database Services.

aws Services ▾ Resource Groups ▾ ☆ 🔔 vocstartsoft/user585637=zzc_... ▾ N. Virginia ▾ Support ▾

Amazon Aurora ✕

Amazon Aurora is a MySQL- and PostgreSQL-compatible enterprise-class database, starting at <\$1/day. Aurora supports up to 64TB of auto-scaling storage capacity, 6-way replication across three availability zones, and 15 low-latency read replicas. [Learn more](#)

Create database

Or, [Restore Aurora DB cluster from S3](#)

Resources Refresh

You are using the following Amazon RDS resources in the US East (N. Virginia) region (used/quota)

DB Instances (1/40)	Parameter groups (1)
Allocated storage (0.02 TB/100 TB)	Default (1)
Click here to increase DB instances limit	Custom (0/100)
DB Clusters (0/40)	Option groups (1)
Reserved instances (0/40)	Default (1)
Snapshots (10)	Custom (0/20)
Manual (0/100)	Subnet groups (1/50)
Automated (10)	Supported platforms VPC
Recent events (11)	Default network vpc-d64370ac
Event subscriptions (0/20)	

Recommended for you

RDS Multi-AZ Deployments
Enable Multi-AZ configurations to build a more resilient DR strategy. [Learn more](#)

RDS for Oracle Read Replicas
Increase performance and scale beyond capacity for read-heavy database workloads. [Learn more](#)

Aurora Serverless
Run an Aurora database without having to manage instances, and pay on a per-second basis for capacity. [Learn more](#)

RDS Proxy - Now in Preview
Pool and share database connections for improved application scaling and reduce database failover times. [Learn more](#)

Create database

Amazon Relational Database Service (RDS) makes it easy to set up, operate, and scale a relational database in the cloud.


Restore from S3 **Create database**



Note: your DB instances will launch in the US East (N. Virginia) region


Additional information


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Click on 'Create Database'.



Services ▾ Resource Groups ▾   vocstartsoft/user585637=zzc_... ▾ N. Virginia ▾ Support ▾



 **We listened to your feedback!**
Now, create a database with a single click using our pre-built configurations! Or choose your own configurations.
[Switch to your original Interface.](#)

Share your feedback 

RDS > Create database

Create database


Choose a database creation method [Info](#)


☒ **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 options


Engine type [Info](#)


☒ **Amazon Aurora**


☐ **MySQL**


☐ **MariaDB**


☐ **PostgreSQL**


☐ **Oracle**




☐ **Microsoft SQL Server**


Edition

☒ Amazon Aurora with MySQL compatibility

☐ Amazon Aurora with PostgreSQL compatibility

Templates
Choose a sample template to meet your use case.

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Select Oracle and Oracle Enterprise Edition.

Choose Dev/Test and click on Next.

For “DB engine version” click on the drop down and select the latest patch level for Oracle 12.2.0.1.

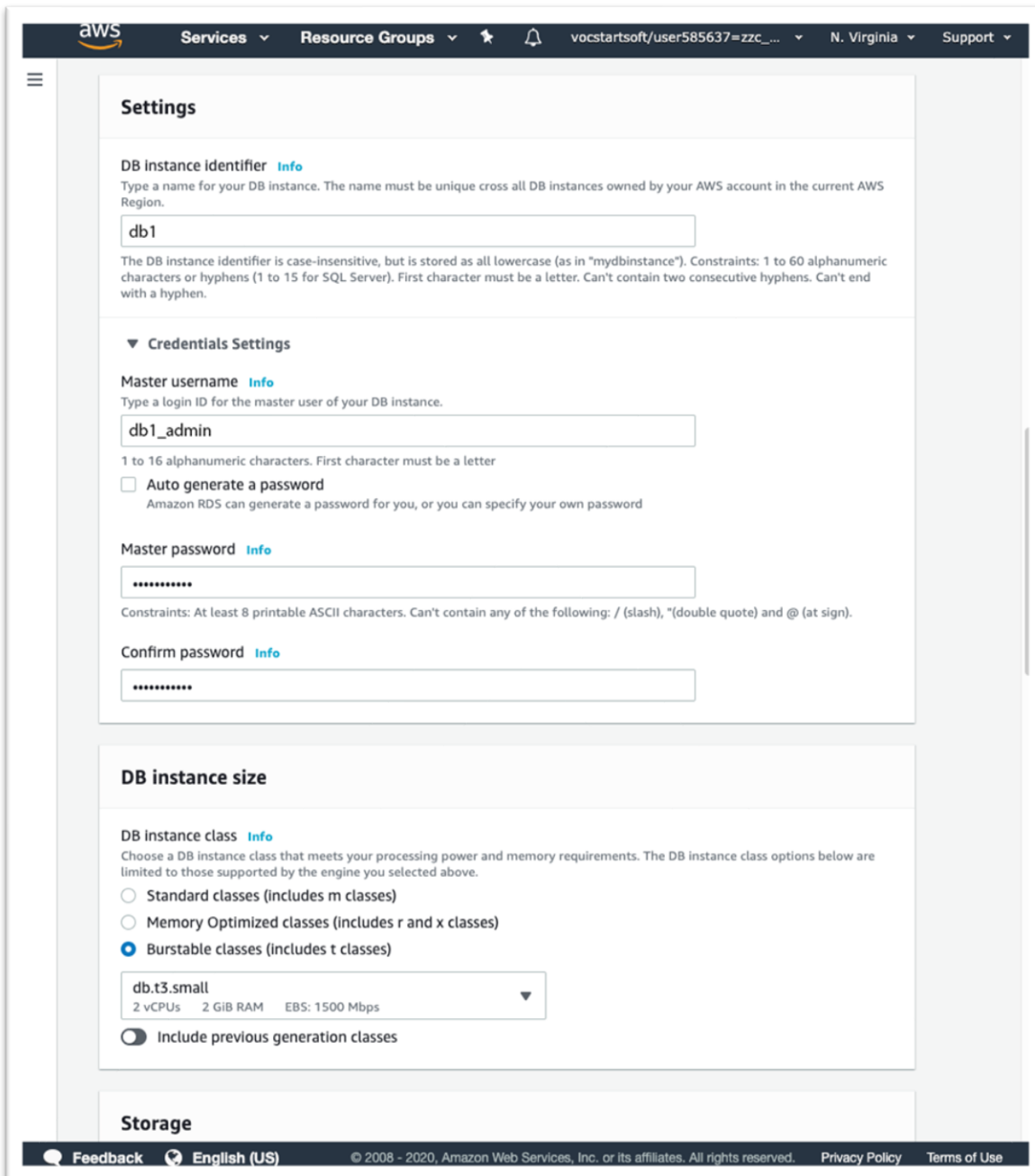
The screenshot displays the AWS Management Console interface for configuring an Amazon RDS instance. The top navigation bar includes the AWS logo, 'Services', 'Resource Groups', and user information. The main content area is titled 'Engine options' and contains several sections:

- Engine type**: A grid of six database engine options. 'Oracle' is selected with a blue radio button and a blue border. The other options are Amazon Aurora, MySQL, MariaDB, PostgreSQL, and Microsoft SQL Server.
- Edition**: A list of four Oracle editions. 'Oracle Enterprise Edition' is selected with a blue radio button. The other options are Oracle Standard Edition, Oracle Standard Edition One, and Oracle Standard Edition Two.
- Version**: A dropdown menu showing 'Oracle 12.2.0.1.ru-2019-01.ru-2019-01.r1'.
- License**: A text field showing 'bring-your-own-license'.
- Templates**: A section with two template options. 'Dev/Test' is selected with a blue radio button and a blue border. The other option is 'Production'.

The bottom of the console shows a footer with 'Feedback', 'English (US)', copyright information, and links to 'Privacy Policy' and 'Terms of Use'.

Enter a DB instance name. Example: First letter of first name + First 3 letters of last name + any number

Enter a username and password of your choice.



The screenshot shows the AWS Management Console interface for configuring a new DB instance. The top navigation bar includes the AWS logo, 'Services', 'Resource Groups', and user information. The main content area is titled 'Settings' and contains several sections:

- DB instance identifier**: A text input field containing 'db1'. Below it, a note states: 'The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 60 alphanumeric characters or hyphens (1 to 15 for SQL Server). First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.'
- Credentials Settings**:
 - Master username**: A text input field containing 'db1_admin'. Below it, a note states: '1 to 16 alphanumeric characters. First character must be a letter'.
 - ☐ **Auto generate a password**: A checkbox option. Below it, a note states: 'Amazon RDS can generate a password for you, or you can specify your own password'.
 - Master password**: A password input field showing masked characters. Below it, a note states: 'Constraints: At least 8 printable ASCII characters. Can't contain any of the following: / (slash), " (double quote) and @ (at sign)'.
 - Confirm password**: A second password input field showing masked characters.
- DB instance size**:
 - DB instance class**: A section with a note: 'Choose a DB instance class that meets your processing power and memory requirements. The DB instance class options below are limited to those supported by the engine you selected above.' It includes three radio button options: 'Standard classes (includes m classes)', 'Memory Optimized classes (includes r and x classes)', and 'Burstable classes (includes t classes)' (which is selected).
 - A dropdown menu shows the selected class 'db.t3.small' with its specifications: '2 vCPUs', '2 GiB RAM', and 'EBS: 1500 Mbps'.
 - ☐ **Include previous generation classes**: A radio button option.
- Storage**: A section header at the bottom of the visible form.

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Enable Public accessibility and select availability zone.

Select 'Create new VPC security group'.

Enter the database name same as your DB instance identifier to make it easier to remember.

The screenshot shows the 'Connectivity' configuration page in the AWS Management Console. The page is titled 'Connectivity' and includes a refresh button. It contains several sections for configuring the database's network environment:

- Virtual Private Cloud (VPC):** A dropdown menu showing 'Default VPC (vpc-d64370ac)'. A note states: 'After a database is created, you can't change the VPC selection.'
- Additional connectivity configuration:**
 - Subnet group:** A dropdown menu showing 'default-vpc-d64370ac'.
 - Publicly accessible:** Two radio buttons are present. 'Yes' is selected, with a note: '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.' The 'No' option is also present with its own note.
 - VPC security group:** Two options are shown: 'Choose existing' (with a note to 'Choose existing VPC security groups') and 'Create new' (with a note to 'Create new VPC security group'). The 'Create new' option is selected.
- New VPC security group name:** A text input field containing 'db1'.
- Availability zone:** A dropdown menu showing 'us-east-1a'.
- Database port:** A text input field containing '1521'.

The footer of the console shows 'Feedback', 'English (US)', and copyright information for Amazon Web Services, Inc. (© 2008 - 2020).

Enter the database name same as your DB instance identifier (step 8) to make it easier to remember.

aws

Services ▾ Resource Groups ▾ ★ 🔔 vocstartsoft/user585637=zzc_... ▾ N. Virginia ▾ Support ▾

▼ Additional configuration

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

Database options

Initial database name [Info](#)

db1

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

DB parameter group [Info](#)

default.oracle-ee-12.2 ▼

Option group [Info](#)

default.oracle-ee-12-2 ▼

Character set

AL32UTF8 ▼

Backup

Creates a point in time snapshot of your database

☒ Enable automatic backups
Enabling backups will automatically create backups of your database during a certain time window.

Backup retention period [Info](#)

Choose the number of days that RDS should retain automatic backups for this instance.

7 days ▼

Backup window [Info](#)

Select the period you want automated backups of the database to be created by Amazon RDS.

☐ Select window

☒ No preference

☒ Copy tags to snapshots

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 Key Management Service(KMS) console. [Info](#)

Master key [Info](#)

Feedback 🗨 English (US)

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Select 'Enable enhanced monitoring' and select all checkboxes under 'Log exports'.

The screenshot shows the AWS Management Console interface for configuring an Amazon RDS instance. The top navigation bar includes the AWS logo, 'Services', 'Resource Groups', a star icon, a notification bell, the user profile 'vocstartsoft/user585637=zzc_...', the region 'N. Virginia', and a 'Support' link. A hamburger menu icon is on the left. The main content area is titled 'Monitoring' and contains several sections:

- Enable Enhanced monitoring:** A checkbox is checked. Below it, text states: 'Enabling Enhanced monitoring metrics are useful when you want to see how different processes or threads use the CPU'.
- Granularity:** A dropdown menu is set to '60 seconds'.
- Monitoring Role:** A dropdown menu is set to 'default'. Below this, a note says: 'Clicking "Create database" will authorize RDS to create the IAM role rds-monitoring-role'.
- Log exports:** A heading followed by the instruction 'Select the log types to publish to Amazon CloudWatch Logs'. Four checkboxes are all checked: 'Alert log', 'Audit log', 'Listener log', and 'Trace log'.
- IAM role:** A heading followed by the text 'The following service-linked role is used for publishing logs to CloudWatch Logs.'
- RDS Service Linked Role:** A light blue box contains an information icon and the text: 'Ensure that General, Slow Query, and Audit Logs are turned on. Error logs are enabled by default. [Learn more](#)'.
- Maintenance:** A heading followed by 'Auto minor version upgrade [Info](#)'. A checkbox for 'Enable auto minor version upgrade' is unchecked. Below it, text explains: 'Enabling auto minor version upgrade will automatically upgrade to new minor versions as they are released. The automatic upgrades occur during the maintenance window for the database.'
- Maintenance window:** A heading followed by '[Info](#)'. Text says: 'Select the period you want pending modifications or maintenance applied to the database by Amazon RDS.' Two radio buttons are present: 'Select window' (unchecked) and 'No preference' (checked).
- Deletion protection:** A heading followed by a checkbox for 'Enable deletion protection' which is unchecked. Text below states: 'Protects the database from being deleted accidentally. While this option is enabled, you can't delete the database.'

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Click on 'Create Database'.

The screenshot shows the AWS Management Console interface for the 'Databases' section. The top navigation bar includes the AWS logo, 'Services', 'Resource Groups', and user information. The breadcrumb trail shows 'RDS > Databases'. The main content area is titled 'Databases' and includes a 'Group resources' toggle, 'Modify', 'Actions', 'Restore from S3', and a prominent orange 'Create database' button. A search bar labeled 'Filter databases' is present. Below the search bar is a table listing the databases.

	DB identifier	Role	Engine	Region & Availability Zones
<input type="radio"/>	db1	Instance	Oracle Enterprise Edition	us-east-1a
<input type="radio"/>	zzha1	Instance	Oracle Enterprise Edition	us-east-1a

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Wait until displays 'Available'. This may take several minutes.

aws

Services

Resource Groups

vocstartsoft/user585637=zzc_...

N. Virginia

Support

RDS > Databases > db1

db1

Modify

Actions

Summary

DB identifier db1	CPU <div>1.00%</div>	Info Available	Class db.t3.small
Role Instance	Current activity	Engine Oracle Enterprise Edition	Region & AZ us-east-1a

Connectivity & security

Monitoring

Logs & events

Configuration

Maintenance & backups

Tags

Connectivity & security

<div>Endpoint & port</div> <div>Endpoint db1.cw1jseybyxbu.us-east-1.rds.amazonaws.com</div> <div>Port 1521</div>	<div>Networking</div> <div>Availability zone us-east-1a</div> <div>VPC vpc-d64370ac</div> <div>Subnet group default-vpc-d64370ac</div> <div>Subnets subnet-847b99a5 subnet-ba88a384 subnet-050fef5a subnet-041fc60a subnet-e09b7c86 subnet-da4bfc97</div>	<div>Security</div> <div>VPC security groups db1 (sg-0c19e5aad88273d69) (active)</div> <div>Public accessibility Yes</div> <div>Certificate authority rds-ca-2019</div> <div>Certificate authority date Aug 22nd, 2024</div>
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Security group rules (2)

Feedback

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Scroll down to the security section and click on the security group name.

aws Services Resource Groups vocstartsoft/user585637=zzc_... N. Virginia Support

EC2 > Security Groups

Security Groups (1/1) Info

Filter security groups

search: db1 X Clear filters

<input checked="" type="checkbox"/>	Security group ID	Security group name	VPC ID	Description
<input checked="" type="checkbox"/>	sg-0c19e5aad88273d69	db1	vpc-d64370ac	Created by

sg-0c19e5aad88273d69 - db1

Details Inbound rules Outbound rules Tags

Details

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Change on Inbound.

aws

Services

Resource Groups

vocstartsoft/user585637=zzc_...

N. Virginia

Support

EC2 > Security Groups

Security Groups (1/1) Info

Filter security groups

search: zzha1 X Clear filters

☒

Security group ID

Security group name

VPC ID

Description

☒

sg-09db6baa70b8b515c

zzha1

vpc-d64370ac

Created by

sg-09db6baa70b8b515c - zzha1

Details

Inbound rules

Outbound rules

Tags

Inbound rules

Edit inbound rules

Type	Protocol	Port range	Source	Description - optional
Oracle-RDS	TCP	1521	0.0.0.0/0	-
Oracle-RDS	TCP	1521	::/0	-

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Change on Outbound.

aws

Services

Resource Groups

vocstartsoft/user585637=zzc_...

N. Virginia

Support

EC2 > Security Groups

Security Groups (1/1) Info

Filter security groups

search: db1 X Clear filters

☒

Security group ID

Security group name

VPC ID

Description

☒

sg-0c19e5aad88273d69

db1

vpc-d64370ac

Created by

sg-0c19e5aad88273d69 - db1

Details

Inbound rules

Outbound rules

Tags

Outbound rules

Edit outbound rules

Type	Protocol	Port range	Destination	Description - optional
All traffic	All	All	0.0.0.0/0	-

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Finish.

aws

Services

Resource Groups

vocstartsoft/user585637=zzc_...

N. Virginia

Support

RDS

Databases

db1

db1

Modify

Actions

Summary

DB identifier db1	CPU <div>1.00%</div>	Info <div>Available</div>	Class db.t3.small
Role Instance	Current activity	Engine Oracle Enterprise Edition	Region & AZ us-east-1a

Connectivity & security

Monitoring

Logs & events

Configuration

Maintenance & backups

Tags

Connectivity & security

<div>Endpoint & port</div> <div>Endpoint db1.cw1jseybyxbu.us-east-1.rds.amazonaws.com</div> <div>Port 1521</div>	<div>Networking</div> <div>Availability zone us-east-1a</div> <div>VPC vpc-d64370ac</div> <div>Subnet group default-vpc-d64370ac</div> <div>Subnets subnet-847b99a5 subnet-ba88a384 subnet-050fef5a subnet-041fc60a subnet-e09b7c86 subnet-da4bfc97</div>	<div>Security</div> <div>VPC security groups db1 (sg-0c19e5aad88273d69) (active)</div> <div>Public accessibility Yes</div> <div>Certificate authority rds-ca-2019</div> <div>Certificate authority date Aug 22nd, 2024</div>
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Security group rules (2)

Feedback

English (US)

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