

RDS (Relational Database Service)


RDS → create database


☐ 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.


Configuration


Engine type [Info](#)


☐ Aurora (MySQL Compatible)



☐ Aurora (PostgreSQL Compatible)


☐ MySQL


☒ MariaDB


☐ PostgreSQL


☐ Oracle


☐ Microsoft SQL Server


DB instance size

☐ Production
db.r6g.xlarge
4 vCPUs
32 GiB RAM

☐ Dev/Test
db.r6g.large
2 vCPUs
16 GiB RAM

☒ Free tier
db.t3.micro
2 vCPUs
1 GiB RAM

-

Create an instance

Name and tags [Info](#)

Name

[Add additional tags](#)

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

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Recents

Quick Start

Amazon Linux

macOS

Ubuntu

Windows

Red Hat

SUSE Li

[Browse more AMIs](#)

▼ Summary

Number of instances [Info](#)

Software Image (AMI)

Amazon Linux 2023 AMI 2023.5.2...[read more](#)

ami-02b49a24cfb95941c

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

Cancel

Launch instance

Edit Security group whitelist SSH, HTTP,3306 ,8080 port

Security group rule ID	Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info	
sgr-068f8ea2270c5739e	HTTP	TCP	80	Cust...	<input type="text" value="0.0.0.0"/>	Delete
sgr-0307b21d903ce2aca	SSH	TCP	22	Cust...	<input type="text" value="0.0.0.0"/>	Delete
sgr-090f6688345066058	MYSQL/Aurora	TCP	3306	Cust...	<input type="text" value="0.0.0.0"/>	Delete
sgr-030f31eb3cb8d8be4	Custom TCP	TCP	8080	Cust...	<input type="text" value="0.0.0.0"/>	Delete

Add rule

Cancel

Preview changes

Save rules

Install Mariadb*

Systemctl start Mariadb

```
No VM guests are running outdated hypervisor (qemu) binaries on this host.  
root@ip-172-31-7-110:~# systemctl start mariadb  
root@ip-172-31-7-110:~#
```

Connect to Database

mysql -h database-1.ctq2s4eqkzog.ap-south-1.rds.amazonaws.com -u admin -p

Create a database → create databases studentapp;

Use studentapp;

Download file for query

<https://s3-us-west-2.amazonaws.com/studentapi-cit/student-rds.sql>

```
CREATE TABLE if not exists students(student_id INT NOT
NULL AUTO_INCREMENT,
    student_name VARCHAR(100) NOT NULL,
    student_addr VARCHAR(100) NOT NULL,
    student_age VARCHAR(3) NOT NULL,
    student_qual VARCHAR(20) NOT NULL,
    student_percent VARCHAR(10) NOT NULL,
    student_year_passed VARCHAR(10) NOT NULL,
    PRIMARY KEY (student_id)
);
```

```
MariaDB [(none)]> create database studentapp;
Query OK, 1 row affected (0.004 sec)

MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| innodb |
| mysql |
| performance_schema |
| studentapp |
| sys |
+-----+
6 rows in set (0.002 sec)

MariaDB [(none)]> use studentapp;
Database changed
MariaDB [studentapp]> CREATE TABLE if not exists students(student_id INT NOT NULL AUTO_INCREMENT,
-> student_name VARCHAR(100) NOT NULL,
-> student_addr VARCHAR(100) NOT NULL,
-> student_age VARCHAR(3) NOT NULL,
-> student_qual VARCHAR(20) NOT NULL,
-> student_percent VARCHAR(10) NOT NULL,
-> student_year_passed VARCHAR(10) NOT NULL,
-> PRIMARY KEY (student_id)
-> );
Query OK, 0 rows affected (0.013 sec)

MariaDB [studentapp]>
```

Install apache-tomcat

wget<https://archive.apache.org/dist/tomcat/tomcat-8/v8.5.78/bin/apache-tomcat-8.5.78.tar.gz>

Extract the apache file

Tar -xvzf(filename)

Install java environment

Sudo apt-get install openjdk-11-jdk

Changes in webapps

Change the directory to apache-tomcat

Cd webapps → ls

```
<Contents>
  <Key>student.war</Key>
  <LastModified>2019-02-07T02:53:06.000Z</LastModified>
  <ETag>"59ad1ce0f50cb1a6265941f3498a69eb"</ETag>
  <Size>89423</Size>
  <StorageClass>STANDARD</StorageClass>
</Contents>
```

Add url →

wget <https://s3-us-west-2.amazonaws.com/studentapi-cit/student.war>

Changes in library

Change dir to lib

Add url →

wget <https://s3-us-west-2.amazonaws.com/studentapi-cit/mysql-connector.jar>

```
▼<Contents>
  <Key>mysql-connector.jar</Key>
  <LastModified>2019-02-06T15:50:16.000Z</LastModified>
  <ETag>"80e4321ee33dd6670e3643d85bf5c7c0"</ETag>
  <Size>1007502</Size>
  <StorageClass>STANDARD</StorageClass>
</Contents>
```

Changes in configuration

Change directory to conf & edit context.xml

Sudo vim context.xml

```
<Resource name="jdbc/TestDB" auth="Container"
type="javax.sql.DataSource"
```

```
    maxTotal="500" maxIdle="30"
maxWaitMillis="1000"
```

```
    username="admin" password="Pratham123"
driverClassName="com.mysql.jdbc.Driver"
```

```
    url="jdbc:mysql://database-
1.ctq2s4eqkzog.ap-south-
1.rds.amazonaws.com3306/studentapp"/>
```

```
<!-- The contents of this file will be loaded for each web application -->
<Context>
<Resource name="jdbc/TestDB" auth="Container" type="javax.sql.DataSource"
    maxTotal="500" maxIdle="30" maxWaitMillis="1000"
    username="admin" password="Pratham123" driverClassName="com.mysql.jdbc.Driver"
    url="jdbc:mysql://database-1.ctq2s4eqkzog.ap-south-1.rds.amazonaws.com3306/studentapp"/><!-- The contents of this file will be loaded
for each web application -->
<Context>Default set of monitored resources. If one of these changes, the -->
    <!-- web application will be reloaded. -->
```

Changes in bin

Change directory to bin

Give execute permission to catalina.sh file

./catalina.sh start

```
root@ip-172-31-7-110:~/apache-tomcat-8.5.78/bin# ./catalina.sh start
Using CATALINA_BASE:   /root/apache-tomcat-8.5.78
Using CATALINA_HOME:   /root/apache-tomcat-8.5.78
Using CATALINA_TMPDIR: /root/apache-tomcat-8.5.78/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /root/apache-tomcat-8.5.78/bin/bootstrap.jar:/root/apache-tomcat-8.5.78/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
root@ip-172-31-7-110:~/apache-tomcat-8.5.78/bin#
```

Output

<http://13.232.233.141:8080/student>

Student Registration Form

Student Name	<input type="text" value="shubham"/>
Student Address	<input type="text" value="jalna"/>
Student Age	<input type="text" value="25"/>
Student Qualification	<input type="text" value="bcom"/>
Student Percentage	<input type="text" value="65.00"/>
Year Passed	<input type="text" value="2020"/>
<input type="button" value="register"/>	

[Register Student](#)

Students List

Student ID	StudentName	Student Addr	Student Age	Student Qualification	Student Percentage	Student Year Passed	Edit	Delete
1	pratham	pune	23	MCA	70.00	2024	edit	delete

```
MariaDB [(none)]> use studentapp;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
MariaDB [studentapp]> select * from students;
+-----+-----+-----+-----+-----+-----+-----+
| student_id | student_name | student_addr | student_age | student_qual | student_percent | student_year_passed |
+-----+-----+-----+-----+-----+-----+-----+
| 1 | pratham | pune | 23 | MCA | 70.00 | 2024 |
| 2 | nutan | pune | 23 | MCA | 75.00 | 2024 |
+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.001 sec)

MariaDB [studentapp]>
```

Activate V
C to S

[Register Student](#)

Students List

Student ID	StudentName	Student Addr	Student Age	Student Qualification	Student Percentage	Student Year Passed	Edit	Delete
1	pratham	pune	23	MCA	70.00	2024	edit	delete
2	nutan	pune	23	MCA	75.00	2024	edit	delete
3	shubham	jalna	25	bcom	65.00	2020	edit	delete
4	Gourav	Nagpur	22	MBA	60.00	2023	edit	delete
5	Dinesh	Bhadrawati	24	BCA	55.00	2024	edit	delete

-

Backup of database (both data & schema) using cli

mysqldump -h database-1.ctq2s4eqkzog.ap-south-1.rds.amazonaws.com -u admin -p studentapp > mydatabase_backup.sql

```
mysqldump: Got error: 1698: "Access denied for user 'root'@'172.31.15.237'" when trying to connect
root@ip-172-31-15-237:~# sudo mysqldump -h database-1.ctq2s4eqkzog.ap-south-1.rds.amazonaws.com -u admin -p studentapp > mydatabase_backup.sql
Enter password:
root@ip-172-31-15-237:~# ls
apache-tomcat-8.5.78  apache-tomcat-8.5.78.tar.gz  backup.sql  mydatabase_backup  mydatabase_backup.sql  snap
root@ip-172-31-15-237:~# cat mydatabase_backup.sql
/*!999999\~ enable the sandbox mode */
-- MariaDB dump 10.19 Distrib 10.11.8-MariaDB, for debian-linux-gnu (x86_64)
--
-- Host: database-1.ctq2s4eqkzog.ap-south-1.rds.amazonaws.com    Database: studentapp
--
-- Server version          10.11.8-MariaDB-log
--
/*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
/*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;
/*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;
/*!40101 SET NAMES utf8mb4 */;
/*!40103 SET @OLD_TIME_ZONE=@@TIME_ZONE */;
/*!40103 SET TIME_ZONE='+00:00' */;
/*!40014 SET @OLD_UNIQUE_CHECKS=@@UNIQUE_CHECKS, UNIQUE_CHECKS=0 */;
/*!40014 SET @OLD_FOREIGN_KEY_CHECKS=@@FOREIGN_KEY_CHECKS, FOREIGN_KEY_CHECKS=0 */;
/*!40101 SET @OLD_SQL_MODE=@@SQL_MODE, SQL_MODE='NO_AUTO_VALUE_ON_ZERO' */;
/*!40111 SET @OLD_SQL_NOTES=@@SQL_NOTES, SQL_NOTES=0 */;
--
-- Table structure for table `students`
--
DROP TABLE IF EXISTS `students`;
/*!40101 SET @saved_cs_client      = @@character_set_client */;
```

cat mydatabase_backup.sql

```
PRIMARY KEY (`student_id`)  
ENGINE=InnoDB AUTO_INCREMENT=6 DEFAULT CHARSET=latin1 COLLATE=latin1_swedish_ci;  
/*!40101 SET character_set_client = @saved_cs_client */;  
  
--  
-- Dumping data for table `students`  
--  
  
LOCK TABLES `students` WRITE;  
/*!40000 ALTER TABLE `students` DISABLE KEYS */;  
INSERT INTO `students` VALUES  
(1,'pratham','pune','23','MCA','70.00','2024'),  
(2,'nutan','pune','23','MCA','75.00','2024'),  
(3,'shubham','jalna','25','bcom','65.00','2020'),  
(4,'Gourav','Nagpur','22','MBA','60.00','2023'),  
(5,'Dinesh','Bhadrawati','24','BCA','55.00','2024');  
/*!40000 ALTER TABLE `students` ENABLE KEYS */;  
UNLOCK TABLES;  
/*!40103 SET TIME_ZONE=@OLD_TIME_ZONE */;  
  
/*!40101 SET SQL_MODE=@OLD_SQL_MODE */;  
/*!40014 SET FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY_CHECKS */;  
/*!40014 SET UNIQUE_CHECKS=@OLD_UNIQUE_CHECKS */;  
/*!40101 SET CHARACTER_SET_CLIENT=@OLD_CHARACTER_SET_CLIENT */;  
/*!40101 SET CHARACTER SET RESULTS=@OLD_CHARACTER_SET_RESULTS */;  
/*!40101 SET COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */;  
/*!40111 SET SQL_NOTES=@OLD_SQL_NOTES */;  
  
-- Dump completed on 2024-08-22 18:08:17  
root@ip-172-31-15-237:~# ls  
apache-tomcat-8.5.78      backup.sql      mydatabase_backup.sql  pratham backup      snap
```

Backup of data only

```
mysqldump -h database-1.ctq2s4eqkzog.ap-south-1.rds.amazonaws.com -u admin -p --no-create-info studentapp > databackup.sql
```

```

removed directory 'mydatabase_backup'
root@ip-172-31-15-237:~# ls
apache-tomcat-8.5.78  apache-tomcat-8.5.78.tar.gz  backup.sql  mydatabase_backup.sql  nutan.sql  pratham_backup.sql  snap
root@ip-172-31-15-237:~# mysqldump -h database-1.ctq2s4eqkzqg.ap-south-1.rds.amazonaws.com -u admin -p --no-create-info studentapp > databackup.s
ql
Enter password:
root@ip-172-31-15-237:~# ls
apache-tomcat-8.5.78  apache-tomcat-8.5.78.tar.gz  backup.sql  databackup.sql  mydatabase_backup.sql  nutan.sql  pratham_backup.sql  snap
root@ip-172-31-15-237:~# cat databackup.sql
/*!999999\~ enable the sandbox mode */
-- MariaDB dump 10.19  Distrib 10.11.8-MariaDB, for debian-linux-gnu (x86_64)
--
-- Host: database-1.ctq2s4eqkzqg.ap-south-1.rds.amazonaws.com    Database: studentapp
-- Server version        10.11.8-MariaDB-log

/*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
/*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;
/*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;
/*!40101 SET NAMES utf8mb4 */;
/*!40103 SET @OLD_TIME_ZONE=@@TIME_ZONE */;
/*!40103 SET TIME_ZONE='+00:00' */;
/*!40014 SET @OLD_FOREIGN_KEY_CHECKS=@@FOREIGN_KEY_CHECKS, FOREIGN_KEY_CHECKS=0 */;
/*!40101 SET @OLD_SQL_MODE=@@SQL_MODE, SQL_MODE='NO_AUTO_VALUE_ON_ZERO' */;
/*!40111 SET @OLD_SQL_NOTES=@@SQL_NOTES, SQL_NOTES=0 */;

```

```

EC2  EFS  VPC  S3  IAM  Systems Manager  CloudWatch  RDS

/*!40103 SET @OLD_TIME_ZONE=@@TIME_ZONE */;
/*!40103 SET TIME_ZONE='+00:00' */;
/*!40014 SET @OLD_FOREIGN_KEY_CHECKS=@@FOREIGN_KEY_CHECKS, FOREIGN_KEY_CHECKS=0 */;
/*!40101 SET @OLD_SQL_MODE=@@SQL_MODE, SQL_MODE='NO_AUTO_VALUE_ON_ZERO' */;
/*!40111 SET @OLD_SQL_NOTES=@@SQL_NOTES, SQL_NOTES=0 */;

--
-- Dumping data for table `students`
--

LOCK TABLES `students` WRITE;
/*!40000 ALTER TABLE `students` DISABLE KEYS */;
INSERT INTO `students` VALUES
(1,'pratham','pune','23','MCA','70.00','2024'),
(2,'nutan','pune','23','MCA','75.00','2024'),
(3,'shubham','jalna','25','bcom','65.00','2020'),
(4,'Gourav','Nagpur','22','MBA','60.00','2023'),
(5,'Dinesh','Bhадrawati','24','BCA','55.00','2024');
/*!40000 ALTER TABLE `students` ENABLE KEYS */;
UNLOCK TABLES;
/*!40103 SET TIME_ZONE=@OLD_TIME_ZONE */;

/*!40101 SET SQL_MODE=@OLD_SQL_MODE */;
/*!40014 SET FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY_CHECKS */;
/*!40101 SET CHARACTER_SET_CLIENT=@OLD_CHARACTER_SET_CLIENT */;
/*!40101 SET CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */;
/*!40101 SET COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */;
/*!40111 SET SQL_NOTES=@OLD_SQL_NOTES */;

-- Dump completed on 2024-08-22 18:18:47
root@ip-172-31-15-237:~#

```

Backup of schema only

mysqldump -h database-1.ctq2s4eqkzog.ap-south-1.rds.amazonaws.com -u admin -p --no-data studentapp > rsdbbackup.sql

```
-- Dump completed on 2024-08-22 18:18:47
root@ip-172-31-15-237:~# mysqldump -h database-1.ctq2s4eqkzog.ap-south-1.rds.amazonaws.com -u admin -p --no-data studentapp > rsdbbackup.sql
Enter password:
root@ip-172-31-15-237:~# ls
apache-tomcat-8.5.78      backup.sql      mydatabase_backup.sql  pratham_backup.sql  snap
apache-tomcat-8.5.78.tar.gz  databackup.sql  nutan.sql             rsdbbackup.sql
root@ip-172-31-15-237:~# ^C
root@ip-172-31-15-237:~# cat rsdbbackup.sql
/*!999999\~ enable the sandbox mode */
-- MariaDB dump 10.19 Distrib 10.11.8-MariaDB, for debian-linux-gnu (x86_64)
--
-- Host: database-1.ctq2s4eqkzog.ap-south-1.rds.amazonaws.com    Database: studentapp
--
-- Server version          10.11.8-MariaDB-log

/*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
/*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;
/*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;
/*!40101 SET NAMES utf8mb4 */;
/*!40103 SET @OLD_TIME_ZONE=@@TIME_ZONE */;
/*!40103 SET TIME_ZONE='+00:00' */;
/*!40014 SET @OLD_UNIQUE_CHECKS=@@UNIQUE_CHECKS, UNIQUE_CHECKS=0 */;
/*!40014 SET @OLD_FOREIGN_KEY_CHECKS=@@FOREIGN_KEY_CHECKS, FOREIGN_KEY_CHECKS=0 */;
/*!40101 SET @OLD_SQL_MODE=@@SQL_MODE, SQL_MODE='NO_AUTO_VALUE_ON_ZERO' */;
/*!40111 SET @OLD_SQL_NOTES=@@SQL_NOTES, SQL_NOTES=0 */;
```

Activate Windows

Go to Settings to activate Windows.

```
--
-- Table structure for table `students`
--

DROP TABLE IF EXISTS `students`;
/*!40101 SET @saved_cs_client      = @@character_set_client */;
/*!40101 SET character_set_client = utf8 */;
CREATE TABLE `students` (
  `student_id` int(11) NOT NULL AUTO_INCREMENT,
  `student_name` varchar(100) NOT NULL,
  `student_addr` varchar(100) NOT NULL,
  `student_age` varchar(3) NOT NULL,
  `student_qual` varchar(20) NOT NULL,
  `student_percent` varchar(10) NOT NULL,
  `student_year_passed` varchar(10) NOT NULL,
  PRIMARY KEY (`student_id`)
) ENGINE=InnoDB AUTO_INCREMENT=6 DEFAULT CHARSET=latin1 COLLATE=latin1_swedish_ci;
/*!40101 SET character_set_client = @saved_cs_client */;
/*!40103 SET TIME_ZONE=@OLD_TIME_ZONE */;

/*!40101 SET SQL_MODE=@OLD_SQL_MODE */;
/*!40014 SET FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY_CHECKS */;
/*!40014 SET UNIQUE_CHECKS=@OLD_UNIQUE_CHECKS */;
/*!40101 SET CHARACTER_SET_CLIENT=@OLD_CHARACTER_SET_CLIENT */;
/*!40101 SET CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */;
/*!40101 SET COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */;
/*!40111 SET SQL_NOTES=@OLD_SQL_NOTES */;

-- Dump completed on 2024-08-22 18:24:16
root@ip-172-31-15-237:~#
```