

# Amazon RDS – Introduction to Amazon Relational Database System

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Amazon RDS is a relational database management system along with the facilities of the AWS cloud platform. It facilitates us in creating database instances as per our requirements, i.e. resizable, variety of database types, etc.

## What is Amazon Relational Database Service (Amazon RDS)?

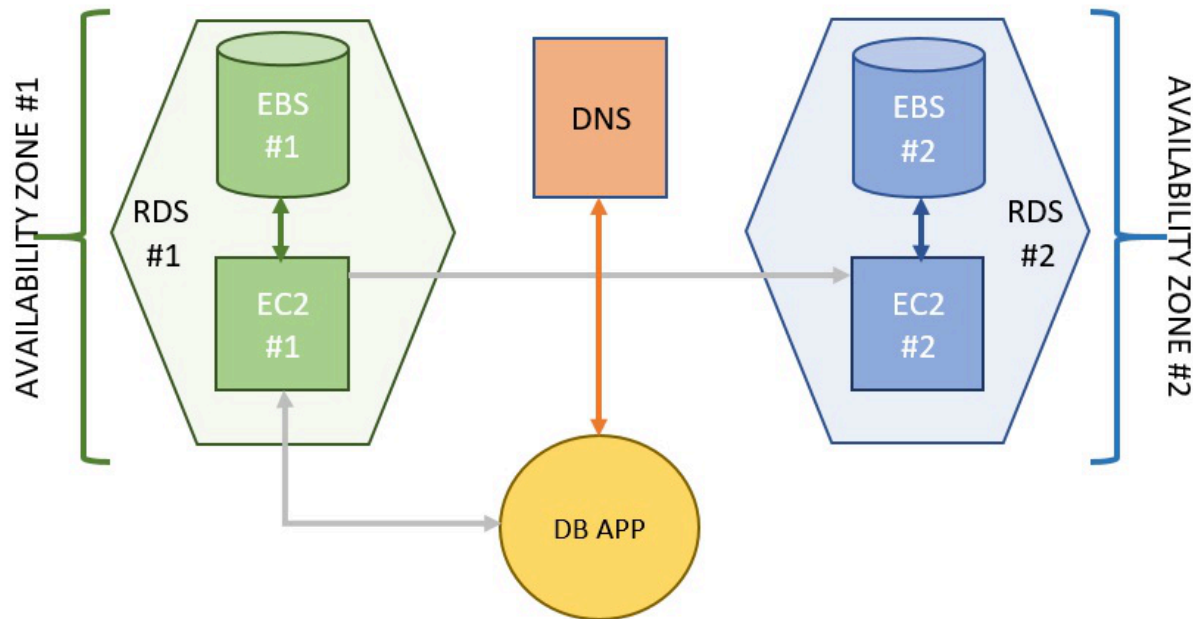
Amazon Web Services offers Amazon RDS a service where it is managed completely by AWS and also it offers wide range data base engines like the following:

1. [MySQL](#).
2. [PostgreSQL](#).
3. Oracle.
4. [SQL Server](#).

The backup of the data and the infrastructure will be taken care of by the AWS scaling and balancing the load the security is very high the data will be encrypted at rest can control the accesses to the data with the help of [\(Identity Access Management\)](#) IAM. The DR([Disaster Recovery](#)) will automatically take by the AWS automatically by the AWS

## How Amazon RDS Works?

Traditionally, database management used to be a very scattered service, from the webserver to the application server and then finally to the database. For the maintenance of such a vast system a team was required, to shrink this workforce, AWS came across an amazing all-in-one service, RDS. The whole architecture of RDS includes every aspect of the traditional management system, all in place. Thus, it includes everything from **EC2 (Elastic Compute Cloud)** to **DNS (Domain Name System)**. Every part of the RDS architecture has its own separate set of features completely different from each other. A diagrammatical representation of RDS has been attached ahead.



## Use Cases Of Amazon RDS (AWS)

Below are some use cases of Amazon RDS mostly used for secured and highly configured applications like gaming servers and health and financial applications.

1. **WebApplication:** The Amazon RDS is mainly used for the backend for web applications where it can support maximum no. of in and output operation. And also is easy to scale up and down.
2. **Managed Database:** Instead of you managing the database AWS will provide Amazon RDS as a service by just doing some configuration your database will be available to perform the operations.
3. **Isolation:** You can integrate and configure multiple applications with secure isolation by protecting the data of each application's customers while managing the underlying infrastructure.
4. **Highly Secured:** You can use Amazon RDS for domains like health care and banking because the data used in this type of application is highly secure which can be achieved with the help of AWS RDS.

## Features Of Amazon RDS

The following are some key features of Amazon RDS:

- **Availability:** The “**Automated Backup**” feature of RDS makes the recovery of the database instance much easier and makes it available for access quickly. Other than that, “**Database Snapshots**” are user-driven backup features initiated by Amazon RDS, which makes it easier for the user to

monitor all the alterations made on the Database Instance. These snapshots can be [shared](#) among multiple AWS accounts in order to expand the availability of the DB instance, along with maintaining the security of the confidential data.

- **Security:** While [creating](#) a new database, you have to create a password that is totally restricted and known to you only. And by default, you are given the “**Admin role**” which has the maximum authority on that particular database. Amazon RDS also allows its users to encrypt the databases using “**keys**” which is managed by **KMS** (Key Management Service) under Amazon RDS.
- **Backups:** RDS provides us the facility to have backups. We can have backups in multiple forms. **Snapshots** are basically non-editable backups used for maintaining records. We also can create **Automated Backups** simply by altering the configurations during creating the database. **Reserved instances** are also another type of backup facility available here.
- **Scalability:** RDS enables us to automatically scale up or scale down depending upon the number of transactions happening on your database per minute. We can do both “**Horizontal Scaling**” and “**Vertical Scaling**”. Let us go through the difference between both of them.
  - **Horizontal Scaling** deals with scenarios where the amount of traffic is increased on your database exponentially, in such cases, this scaling comes into the picture. This simply creates multiple hardware & software which are look-alike of the previously existing ones on the cloud in order to tackle the traffic.
  - **Vertical Scaling** deals with situations, where the traffic is not very much increased but the current configurations of the hardware & software are not able to handle the demands of the client anymore. Using this scaling method, we are capable of adding additional storage and processors to our pre-existing resources.
- **Performance:** RDS gives two SSD-backed storage options for its users, i.e. **General Purpose & Provisioned**. All these variants directly impact the level of performance of the resource and its attached services. The general SSD is very cost-effective and is used at places where a broad workforce is required. Provisioned, as the name suggests are designed for temporary or lower workloads purposes.

- **Pricing:** RDS only asks you to pay for what you use, once you are done with a certain resource delete it and don't pay for it anymore. There is no compulsory minimal charge decided for using RDS. Depending upon the **Database Engines** and the type of database, a bill is calculated and sent to you at the end of the month. For free tier accounts, special configurations are bound to choose and you won't get any bills if you delete all the resources you used before logging out.

## Amazon RDS Alternatives

1. **MySQL** – It is the 2nd most preferred open-source RDBMS in the world. It is developed by [Oracle](#). It is not typically cloud-based in nature like Amazon RDS, i.e. it can be used on PC as well. It is also offered as one of the options on RDS to choose as Database Engine. It supports five server operating systems. The main application of MySQL is in the e-commerce domain, data warehouse, and logging application.
2. **PostgreSQL** – It is one of the oldest RDBMS. It is also one of the popularly used open-source RDBMS. It was developed by [PostgreSQL Global Development Group](#) in 1989. It is a cross-platform software, and it supports more operating systems as compared to others. Its primary focus is maintaining the security of the data and it is a vast kingdom of user-defined functions.
3. **MariaDB** – It is the most compatible RDBMS, and it supports both secondary database models, i.e. **Spatial & Graph**. It was released in 2009, by [MariaDB Corporation Ab](#) (MariaDB Enterprise). It supports a wide range of programming languages and also allows users to introduce server-side scripts. One of the best features of MariaDB is that it focuses on high-level security in the community of MariaDB continuously finding and fixing the issues for MariaDB.

All these alternatives are found useful for users to meet their requirements at a certain level. AWS introduced, RDS to ensure that the ultimate control resides in the hands of the users. RDS is not of query-driven structure rather it is more like a console in its structure.

## Amazon DynamoDB

DynamoDB allows users to create databases capable of storing and retrieving any amount of data and comes in handy while serving any amount of traffic. It dynamically manages each customer's request and provides high performance by automatically distributing data and traffic over servers. It is a fully managed NoSQL database service that is fast, predictable in terms of performance, and

seamlessly scalable. It relieves the user from the administrative burdens of operating and scaling a distributed database as the user doesn't have to worry about hardware provisioning, patching Software, or cluster scaling. [AWS DynamoDB – Creating a Table](#)

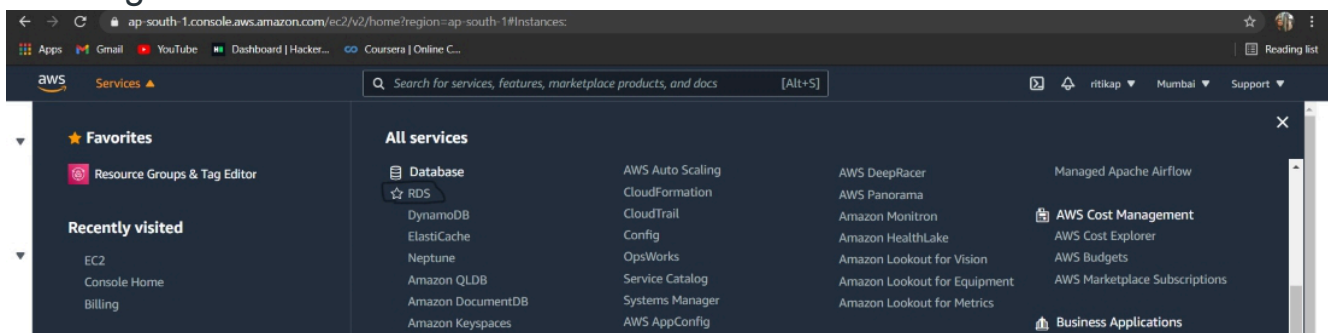
## Amazon RedShift

It is a data warehouse that is based on the cloud. Amazon Redshift has a commercial license and is a part of Amazon's web services. It handles large-scale of data and is known for its scalability. It does parallel processing of multiple data. It uses the ACID properties as its working principle and is very popular. It is implemented in C language and has high availability. To Know more about Amazon RedShift refer to [Amazon Redshift](#)

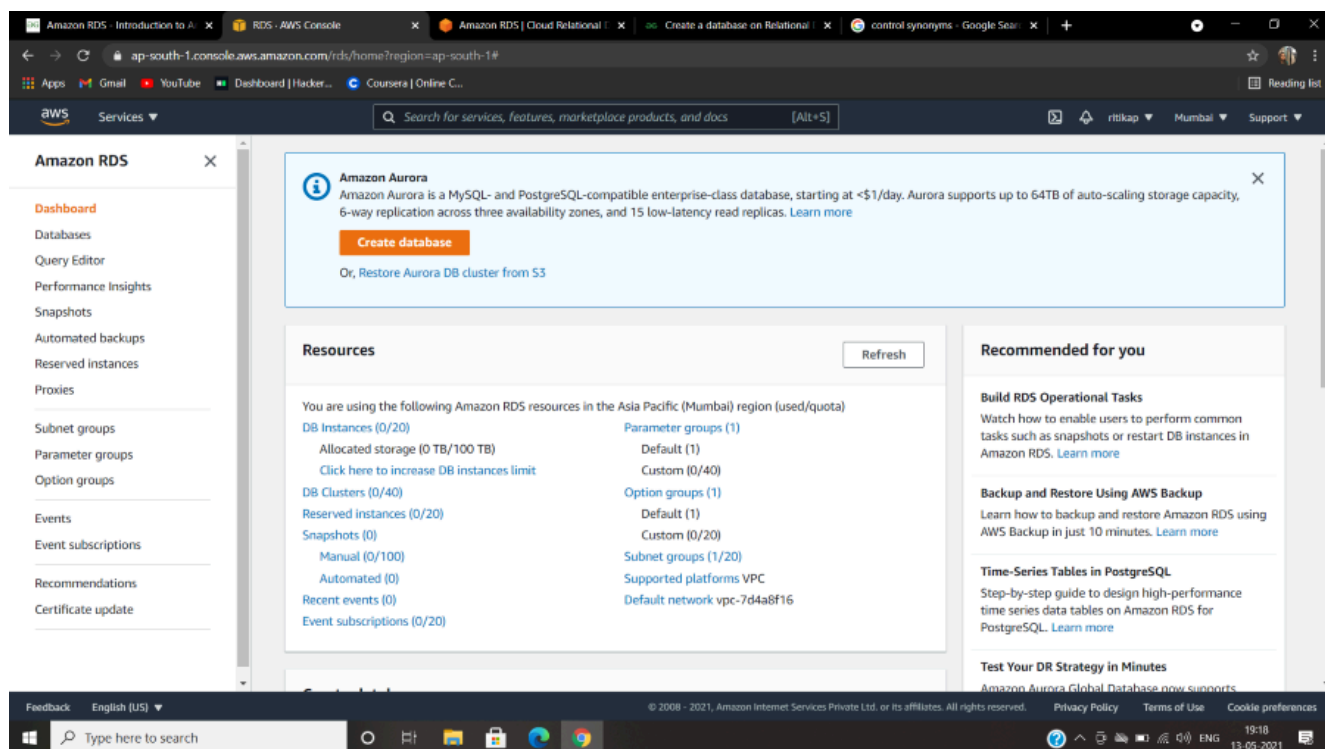
## Steps To Configure Amazon RDS

Now, let us look at the AWS Relational Database Service management console.

**Step 1:** To reach, the RDS management console. First login into your AWS account to create AWS free tier account refer to [Amazon Web Services \(AWS\) – Free Tier Account Set up](#). Once you are directed to the primary screen, at the leftmost part of it, click on “**Services**”. From the long list, look for the sub-heading “**Databases**” and under it, you will find “**RDS**”. Click on it. Here is the image to refer to.



**Step 2:** Once you tap on RDS, in a while, you will be able to see the RDS management console. Refer to the image attached ahead for a better understanding.



This is what the RDS dashboard looks like. On the left, there is the navigation pane to direct you to all the services under RDS. You can create your database from here, by tapping on the orange box saying, **“Create database”**. For [creating](#) a database in RDS follow the linked article.

## FAQs On Amazon RDS

### 1. Is Amazon RDS a Data Warehouse?

*Database servers in the cloud are managed by the Amazon Relational Database Service (RDS). To access and analyse massive amounts of data, Amazon Redshift provides data warehouse and data lake technologies.*

### 2. What Type Of Database Is RDS?

*A managed SQL database service offered by Amazon Web Services (AWS) is called Amazon Relational Database Service (RDS).*