

Elastic Cache

DMS (Database Migration Service)

SCT (Schema Conversion Tool)



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Agenda

- Overview of **Elastic Cache**
- Setup Elastic Cache in AWS
- Access Elastic Cache from EC2 instance
- Overview of **DMS** (Database Migration Service)
- Create Source & Target endpoints
- Create a DMS task
- Overview of **SCT** (Schema Conversion tool)
- SCT installation
- Create a SCT project

Elastic Cache Overview

- It is a distributed in-memory cache environment in the cloud.
- It provides a high-performance, scalable, and cost-effective caching solution.
- It makes it easy to deploy and manage a distributed cache environment.
- It can be used to enhance user experience with web application.
- AWS Elastic Cache can be used with **Redis** or **MemCache**.

ElastiCache - Redis

Redis settings

Ensure you have reviewed the five workload characteristics to consider when right sizing Amazon ElastiCache Redis clusters. [Learn more](#)

Name

my-elastic-cache-redis



Engine version compatibility

6.2



Port

6379



Parameter group

default.redis6.x



Node type

cache.t2.micro (0.5 GiB)



Number of replicas

0



Multi-AZ

☐

Multi-AZ

Multi-AZ can not be enabled when the number of replicas is set to 0. Select one or more replicas to enable Multi-AZ. [Learn more](#)

Elasticache - Redis

Subnet group

Create new

Name

subnet-group-redis

Description

Description

VPC ID

vpc-0707d289735d62cb8

Subnets

	Subnet ID	Availability zone	CIDR Block
<input checked="" type="checkbox"/>	subnet-04eb97467dc60b084	ap-southeast-1a	172.31.16.0/20
<input checked="" type="checkbox"/>	subnet-01aee82e05e412b9a	ap-southeast-1b	172.31.32.0/20
<input type="checkbox"/>	subnet-04876e82a3884ce33	ap-southeast-1c	172.31.0.0/20

Availability zones placement

☒ No preference

☐ Select zones

Elasticache - Redis

Backup

Enable automatic backups ☒



Backup retention period

1



day(s)

Backup window



No preference



Specify backup window



Maintenance

Maintenance window



No preference



Specify maintenance window



Topic for SNS notification

Disable notifications



Elasticache - Redis

To use, run

```
# sudo amazon-linux-extras install redis6
```

Learn more at

https://aws.amazon.com/amazon-linux-2/faqs/#Amazon_Linux_Extras

```
[ec2-user@ip-172-31-20-151 ~]$ sudo amazon-linux-extras install redis6
```

Installing redis

Loaded plugins: extras_suggestions, langpacks, priorities, update-motd

Cleaning repos: amzn2-core amzn2extra-docker amzn2extra-kernel-5.10 amzn2extra-redis6

17 metadata files removed

6 sqlite files removed

0 metadata files removed

Loaded plugins: extras_suggestions, langpacks, priorities, update-motd

amzn2-core

amzn2extra-docker

amzn2extra-kernel-5.10

amzn2extra-redis6

(1/9): amzn2-core/2/x86_64/group_gz

(2/9): amzn2-core/2/x86_64/updateinfo

(3/9): amzn2extra-docker/2/x86_64/updateinfo

(4/9): amzn2extra-kernel-5.10/2/x86_64/updateinfo

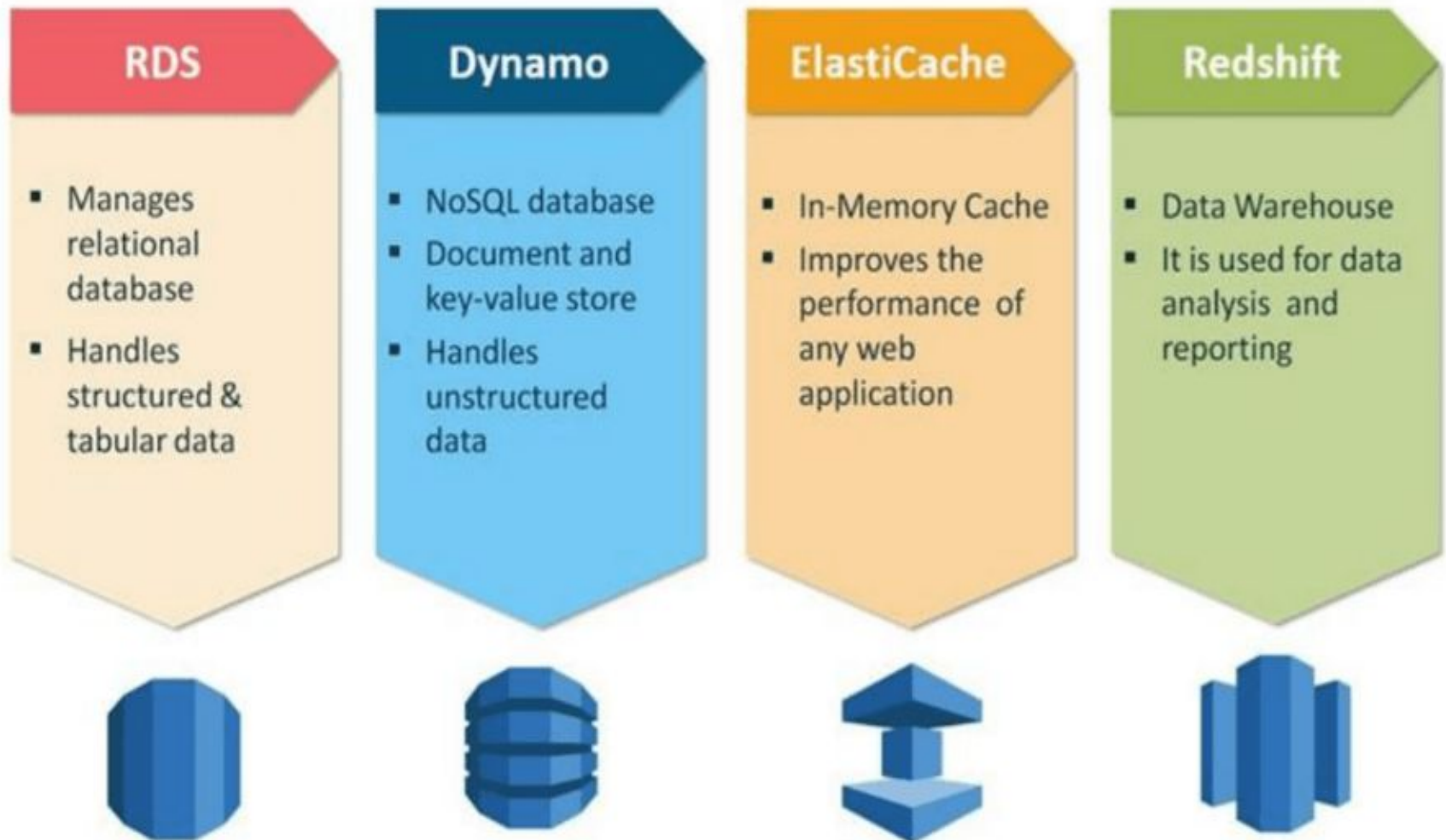
(5/9): amzn2extra-docker/2/x86_64/primary_db

(6/9): amzn2extra-redis6/2/x86_64/updateinfo

Elasticache - Redis

```
[ec2-user@ip-172-31-20-151 ~]$ redis-cli -h my-elastic-cache-redis.lc9mz4.0001.apse1.cache.amazonaws.com -p 6379
my-elastic-cache-redis.lc9mz4.0001.apse1.cache.amazonaws.com:6379>
my-elastic-cache-redis.lc9mz4.0001.apse1.cache.amazonaws.com:6379> set name Neeraj
OK
my-elastic-cache-redis.lc9mz4.0001.apse1.cache.amazonaws.com:6379> set dept Engineering
OK
my-elastic-cache-redis.lc9mz4.0001.apse1.cache.amazonaws.com:6379> set country Singapore
OK
my-elastic-cache-redis.lc9mz4.0001.apse1.cache.amazonaws.com:6379> keys *
1) "name"
2) "country"
3) "dept"
my-elastic-cache-redis.lc9mz4.0001.apse1.cache.amazonaws.com:6379> get name
"Neeraj"
my-elastic-cache-redis.lc9mz4.0001.apse1.cache.amazonaws.com:6379> get country
"Singapore"
my-elastic-cache-redis.lc9mz4.0001.apse1.cache.amazonaws.com:6379> █
```


Database comparison



DMS Overview

- It helps you migrate databases to AWS quickly and securely.
- The source database remains fully operational during the migration.
- It minimize the downtime for applications that rely on databases.
- It can migrate your data to and from the most widely used commercial and open-source databases.

DMS (Database Migration Service)

The screenshot displays the AWS DMS console interface. At the top, the AWS logo and 'Services' menu are visible. The main header shows 'DMS > Replication instances'. The left sidebar contains a navigation menu with items like 'Dashboard', 'Database migration tasks', 'Replication instances' (highlighted in yellow), 'Endpoints', 'Certificates', 'Subnet groups', 'Events', 'Event subscriptions', and 'Notifications'. The main content area is titled 'Replication instances' and includes a 'Create replication instance' button, a search bar, and a table with columns for Name, Class, Status, and Engine version.

Replication instances

Actions **Create replication instance**

Find replication instance

< 1 > ⚙

	Name ▼	Class ▼	Status ▼	Engine version
--	--------	---------	----------	----------------

DMS (Database Migration Service)

Replication instance configuration

Name

The name must be unique among all of your replication instances in the current AWS region.

dms-instance-1

Replication instance name must not start with a numeric value

Descriptive Amazon Resource Name (ARN) - *optional*

A friendly name to override the default DMS ARN. You cannot modify it after creation.

Friendly-ARN-name

Description

Type a short description for your replication instance

The description must only have unicode letters, digits, whitespace, or one of these symbols: _:/=+-@. 1000 maximum character.

Instance class [Info](#)

Choose an appropriate instance class for your replication needs. Each instance class provides differing levels of compute, network and memory capacity. [DMS pricing](#) 

dms.t3.micro

2 vCPUs 1 GiB Memory

DMS (Database Migration Service)

Allocated storage (GiB) [Info](#)

Choose the amount of storage space you want for your replication instance. AWS DMS uses this storage for log files and cached transactions while replication tasks are in progress.

50

VPC

Choose an Amazon Virtual Private Cloud (VPC) where your replication instance should run.

vpc-0493c53a5da440f1d - default-vpc ▼

Multi AZ

The Multi-AZ option deploys a primary replication instance in one Availability Zone (AZ) and a standby in another AZ. The Single-AZ option deploys a single replication instance in one AZ. Billing is based on DMS pricing.

Dev or test workload (Single-AZ) ▼

☒ Publicly accessible

If you choose this option, AWS DMS will assign a public IP address to your replication instance, and you'll be able to connect to databases outside of your Amazon VPC.

DMS (Database Migration Service)

The screenshot displays the AWS Management Console interface for the AWS Database Migration Service (DMS). The top navigation bar includes the AWS logo, a 'Services' menu, and search, home, notifications, and help icons. The region is set to 'N. Virginia'. The left-hand navigation pane shows the 'AWS DMS' section with a close button (X). Below this, there is a toggle for 'DMS Studio' with a 'Preview' link. A list of navigation items includes 'Dashboard', 'Database migration tasks', 'Replication instances', 'Endpoints' (highlighted in yellow), 'Certificates', 'Subnet groups', 'Events', 'Event subscriptions', and 'Notifications'. The main content area is titled 'DMS > Endpoints'. It features a 'Endpoints' header, a refresh button, an 'Actions' dropdown, and a prominent orange 'Create endpoint' button. A search bar labeled 'Find endpoint' is present. Below the search bar, a pagination control shows '< 1 >'. A table with columns for selection, Name, Type, Status, and an additional column (partially visible as 'E') is shown. The table currently contains no data rows. A horizontal scrollbar is visible at the bottom of the table area.

AWS DMS X

☐ DMS Studio [Preview](#)

Dashboard

Database migration tasks

Replication instances

Endpoints

Certificates

Subnet groups

Events

Event subscriptions

Notifications

DMS > Endpoints

Endpoints

Actions ▼ **Create endpoint**

Find endpoint

< 1 >

	Name ▼	Type ▼	Status ▼	E
--	--------	--------	----------	---

DMS (Source Endpoint)

DMS > Endpoints > Create endpoint

Create endpoint

Endpoint type [Info](#)

☒ Source endpoint

A source endpoint allows AWS DMS to read data from a database (on-premises or in the cloud), or from other data source such as Amazon S3.

☐ Target endpoint

A target endpoint allows AWS DMS to write data to a database, or to other data source.

☒ Select RDS DB instance

RDS Instance

Instances available only for current user and region

DMS (Source Endpoint)

Endpoint configuration

Endpoint identifier [Info](#)

A label for the endpoint to help you identify it.

mysql-endpoint-1

Descriptive Amazon Resource Name (ARN) - *optional*

A friendly name to override the default DMS ARN. You cannot modify it after creation.

Friendly-ARN-name



Source engine

The type of database engine this endpoint is connected to.

Microsoft SQL Server



Access to endpoint database

- ☐ AWS Secrets Manager
- ☒ Provide access information manually

DMS (Source endpoint)

Access to endpoint database

- ☐ AWS Secrets Manager
- ☒ Provide access information manually

Server name

test-mssql-server.com

Port

The port the database runs on for this endpoint.

1443

Secure Socket Layer (SSL) mode

The type of Secure Socket Layer enforcement

none

User name [Info](#)

mysql_user_1

Password [Info](#)

.....

Database name

dev

DMS (Target endpoint)

DMS > Endpoints > Create endpoint

Create endpoint

Endpoint type [Info](#)

☐ Source endpoint

A source endpoint allows AWS DMS to read data from a database (on-premises or in the cloud), or from other data source such as Amazon S3.

☒ Target endpoint

A target endpoint allows AWS DMS to write data to a database, or to other data source.

☐ Select RDS DB instance

DMS (Target endpoint)

Endpoint configuration

Endpoint identifier [Info](#)

A label for the endpoint to help you identify it.

dms-endpoint-target-1

Descriptive Amazon Resource Name (ARN) - *optional*

A friendly name to override the default DMS ARN. You cannot modify it after creation.

Friendly-ARN-name



Target engine

The type of database engine this endpoint is connected to.

PostgreSQL



Access to endpoint database

- ☐ AWS Secrets Manager
- ☒ Provide access information manually

DMS (Data Migration Task)

AWS DMS

DMS Studio

Preview

Dashboard

Database migration tasks

Replication instances

Endpoints

Certificates

Subnet groups

Events

Event subscriptions

Notifications

What's new

13

Create database migration task

Task configuration

Task identifier

dms-task-1

Descriptive Amazon Resource Name (ARN) - optional

A friendly name to override the default DMS ARN. You cannot modify it after creation.

Friendly-ARN-name

Replication instance

Choose a replication instance

Source database endpoint

Choose a source database endpoint

Target database endpoint

Choose a target database endpoint

Migration type

Info

Migrate existing data

SCT Overview

- It makes heterogeneous database migrations predictable.
- It automatically converts the source database schema into compatible format with the target database.
- It covers tables, views, stored procedures and functions.
- Any objects that cannot be automatically converted are clearly marked so that they can be manually converted to complete the migration.

SCT Installation

The screenshot shows the AWS documentation website for the AWS Schema Conversion Tool (SCT). The top navigation bar includes the AWS logo, a search bar with the placeholder text "Search in this guide", and a breadcrumb trail: "AWS > Documentation > AWS Schema Conversion Tool User Guide > User Guide". On the left, a sidebar menu for the "AWS Schema Conversion Tool User Guide" is visible, with the following items: "What is the AWS SCT?", "Installing, verifying, and updating" (highlighted in orange), "Using the AWS SCT user interface", "Getting started", and "Sources for AWS SCT" (indicated by a right-pointing arrow). The main content area on the right is titled "Installing AWS SCT" and contains the heading "To install the AWS SCT" followed by a numbered list starting with "1. Download the compressed file...". The list continues with three operating system options, each with an external link icon: "Microsoft Windows", "Ubuntu Linux (.deb)", and "Fedora Linux (.rpm)".

aws Search in this guide

AWS > Documentation > AWS Schema Conversion Tool User Guide > User Guide

AWS Schema Conversion Tool ×
User Guide

What is the AWS SCT?

Installing, verifying, and updating

Using the AWS SCT user interface

Getting started

► Sources for AWS SCT

Installing AWS SCT

To install the AWS SCT

1. Download the compressed file... using the link for your operating system. When you extract the file, it will be in the appropriate format for your operating system.
 - [Microsoft Windows](#)
 - [Ubuntu Linux \(.deb\)](#)
 - [Fedora Linux \(.rpm\)](#)

SCT Global Setting

Global settings

Logging

File path

Drivers

Performance and memory

JVM options

Assessment Report

AWS service profiles

Security

Notifications

Tree view

Driver settings

Oracle driver path

Microsoft SQL Server driver path

SQL Server Windows Authentication library

MySQL driver path

PostgreSQL driver path

Teradata drivers path

Amazon Redshift driver path

Netezza driver path

Greenplum driver path

Vertica driver path

DB2 driver path

Browse

Browse

Browse

Browse

Browse

Browse

Browse

Browse


Browse

Browse

Browse

C:\Users\Neeraj Kumar\AppData\Roaming\DBeaverData\drivers\maven\maven-central

Configure AWS profile in SCT

 Global settings

Logging

File path

Drivers

Performance and memory

JVM options

Assessment Report

AWS service profiles

Security

Notifications


Tree view

AWS service profiles

Define one or more service profiles to enable SCT to access your resources running on AWS. For each profile, be sure to specify the default profile for the current project in the Project environment.

+ Add a new AWS service profile

aws_profile_1

Profile name	aws_profile_1
AWS access key	AKIAVYCC6R... 
AWS secret key
Region	Asia Pacific (Singapore)
AWS S3 bucket folder	

Create a project in SCT

Create a new database migration project

Step 1. Choose a source

Step 2. Connect to the source database

Step 3. Choose a schema

Step 4. Run the database migration assessment

Step 5. Choose a target

The AWS Schema Conversion Tool can help migrate your database to the database platform of your choice. Specify the database to migrate to AWS.

Project name:

Location:

☒ SQL database

☐ NoSQL database

☐ ETL

Source engine:

☒ I want to switch engines and optimize for the cloud

☐ I want to keep the same engine but optimize for the cloud

☐ I want to see a combined report for database engine switch and optimization to cloud

Create a project in SCT

Create a new database migration project

Step 1. Choose a source

Step 2. Connect to the source database

Step 3. Choose a schema

Step 4. Run the database migration assessment

Step 5. Choose a target

Note: The AWS Schema Conversion Tool doesn't store the password. If you close your AWS Schema Conversion Tool project and reopen it, you are prompted for the password to connect your source database as needed.

Connect to MySQL

CONNECTION

SSL

Specify parameters for new connections to MySQL

Connection name

AWS Secret

Populate

Server name

Server port

User name

Password

☒ Use SSL

☐ Store password

Test connection

Previous

Next

Cancel

.....**Thank You**.....