AWS Certified Database - Specialty (DBS-C01) Exam Guide

Introduction

The AWS Certified Database - Specialty (DBS-C01) exam is intended for individuals who perform a database-focused role. This exam validates a candidate's comprehensive understanding of databases, including the concepts of design, migration, deployment, access, maintenance, automation, monitoring, security, and troubleshooting.

The exam also validates a candidate's ability to complete the following tasks:

- Understand and differentiate the key features of AWS database services.
- Analyze needs and requirements to design and recommend appropriate database solutions by using AWS services.

Target candidate description

The target candidate should have the following:

- At least 5 years of experience with common database technologies
- At least 2 years of hands-on experience working on AWS
- Experience and expertise working with on-premises and AWS Cloud relational and NoSQL databases

Job tasks that are out of scope for the target candidate

The following list contains job tasks that the target candidate is not expected to be able to perform. This list is non-exhaustive. These tasks are out of scope for the exam:

- Develop extract, transform, and load (ETL) operations.
- Design data pipelines.
- Design data lake architectures.
- Develop complex stored procedures.

Refer to the Appendix for a list of in-scope AWS services and features and a list of out-of-scope AWS services and features.

Exam content

Response types

There are two types of questions on the exam:

- **Multiple choice:** Has one correct response and three incorrect responses (distractors)
- **Multiple response:** Has two or more correct responses out of five or more response options

Select one or more responses that best complete the statement or answer the question. Distractors, or incorrect answers, are response options that a candidate with incomplete knowledge or skill might choose. Distractors are generally plausible responses that match the content area.

Unanswered questions are scored as incorrect; there is no penalty for guessing. The exam includes 50 questions that affect your score.

Unscored content

The exam includes 15 unscored questions that do not affect your score. AWS collects information about performance on these unscored questions to evaluate these questions for future use as scored questions. These unscored questions are not identified on the exam.

Exam results

The AWS Certified Database - Specialty (DBS-C01) exam has a pass or fail designation. The exam is scored against a minimum standard established by AWS professionals who follow certification industry best practices and guidelines.

Your results for the exam are reported as a scaled score of 100–1,000. The minimum passing score is 750. Your score shows how you performed on the exam as a whole and whether you passed. Scaled scoring models help equate scores across multiple exam forms that might have slightly different difficulty levels.

Your score report could contain a table of classifications of your performance at each section level. The exam uses a compensatory scoring model, which means that you do

not need to achieve a passing score in each section. You need to pass only the overall exam.

Each section of the exam has a specific weighting, so some sections have more questions than other sections have. The table of classifications contains general information that highlights your strengths and weaknesses. Use caution when you interpret section-level feedback.

Content outline

This exam guide includes weightings, content domains, and task statements for the exam. This guide does not provide a comprehensive list of the content on the exam. However, additional context for each task statement is available to help you prepare for the exam.

The exam has the following content domains and weightings:

- Domain 1: Workload-Specific Database Design (26% of scored content)
- Domain 2: Deployment and Migration (20% of scored content)
- Domain 3: Management and Operations (18% of scored content)
- Domain 4: Monitoring and Troubleshooting (18% of scored content)
- Domain 5: Database Security (18% of scored content)

Domain 1: Workload-Specific Database Design

Task Statement 1.1: Select appropriate database services for specific types of data and workloads.

- Differentiate between ACID and BASE workloads.
- Explain appropriate uses of types of databases (for example, relational, key-value, document, in-memory, graph, time series, ledger).
- Identify use cases for persisted data compared with ephemeral data.

Task Statement 1.2: Determine strategies for disaster recovery and high availability.

- Select Region and Availability Zone placement to optimize database performance.
- Determine implications of Regions and Availability Zones on disaster recovery and high availability strategies.
- Differentiate use cases for read replicas and Multi-AZ deployments.

Task Statement 1.3: Design database solutions for performance, compliance, and scalability.

- Recommend serverless compared with instance-based database architecture.
- Evaluate requirements for scaling read replicas.
- Define database caching solutions.
- Evaluate the implications of partitioning, sharding, and indexing.
- Determine appropriate instance types and storage options.
- Determine auto scaling capabilities for relational and NoSQL databases.
- Determine the implications of Amazon DynamoDB adaptive capacity.
- Determine data locality based on compliance requirements.

Task Statement 1.4: Compare the costs of database solutions.

- Determine cost implications of DynamoDB capacity units, including on-demand capacity compared with provisioned capacity.
- Determine costs associated with instance types and automatic scaling.
- Design for costs, including high availability, backups, multi-Region, Multi-AZ, and storage type options.
- Compare data access costs.

Domain 2: Deployment and Migration

Task Statement 2.1: Automate database solution deployments.

- Evaluate application requirements to determine components to deploy.
- Choose appropriate deployment tools and services (for example, AWS CloudFormation, AWS CLI).

Task Statement 2.2: Determine data preparation and migration strategies.

- Determine the data migration method (for example, snapshots, replication, restore).
- Evaluate database migration tools and services (for example, AWS Database Migration Service [AWS DMS], native database tools).
- Prepare data sources and targets.
- Determine schema conversion methods (for example, AWS Schema Conversion Tool [AWS SCT]).
- Determine heterogeneous compared with homogeneous migration strategies.

Task Statement 2.3: Perform and validate data migration.

- Design and script data migration.
- Run data extraction and migration scripts.
- Verify the successful load of data.

Domain 3: Management and Operations

Task Statement 3.1: Determine maintenance tasks and processes.

- Account for the AWS shared responsibility model for database services.
- Determine appropriate maintenance window strategies.
- Differentiate between major and minor engine upgrades.

Task Statement 3.2: Determine backup and restore strategies.

- Identify the need for automatic and manual backups and snapshots.
- Differentiate backup and restore strategies (for example, full backup, point-in-time, encrypting backups cross-Region).
- Define retention policies.
- Correlate the backup and restore to recovery point objective (RPO) and recovery time objective (RTO) requirements.

Task Statement 3.3: Manage the operational environment of a database solution.

- Orchestrate the refresh of lower environments.
- Implement configuration changes (for example, in Amazon RDS option groups and parameter groups, or DynamoDB indexing changes).
- Automate operational tasks.
- Take action based on AWS Trusted Advisor reports.

Domain 4: Monitoring and Troubleshooting

Task Statement 4.1: Determine monitoring and alerting strategies.

- Evaluate monitoring tools (for example, Amazon CloudWatch, Amazon RDS Performance Insights, database native).
- Determine appropriate parameters and thresholds for alert conditions.
- Use tools to notify users when thresholds are breached (for example, Amazon Simple Notification Service [Amazon SNS], Amazon Simple Queue Service [Amazon SQS], CloudWatch dashboards).

Task Statement 4.2: Troubleshoot and resolve common database issues.

- Identify, evaluate, and respond to categories of failures (for example, troubleshoot connectivity; instance, storage, and partitioning issues).
- Automate responses when possible.

Task Statement 4.3: Optimize database performance.

- Troubleshoot database performance issues.
- Identify appropriate AWS tools and services for database optimization.
- Evaluate the configuration, schema design, queries, and infrastructure to improve performance.

Domain 5: Database Security

Task Statement 5.1: Encrypt data at rest and in transit.

- Encrypt data in relational and NoSQL databases.
- Apply SSL connectivity to databases.
- Implement key management (for example, AWS Key Management Service [AWS KMS], AWS CloudHSM).

Task Statement 5.2: Evaluate auditing solutions.

- Determine auditing strategies for structural and schema changes (for example, DDL).
- Determine auditing strategies for data changes (for example, DML).
- Determine auditing strategies for data access (for example, queries).
- Determine auditing strategies for infrastructure changes (for example, AWS CloudTrail).
- Enable the export of database logs to Amazon CloudWatch Logs.

Task Statement 5.3: Determine access control and authentication mechanisms.

- Recommend authentication controls for users and roles (for example, IAM, native credentials, Active Directory).
- Recommend authorization controls for users (for example, policies).

Task Statement 5.4: Recognize potential security vulnerabilities within database solutions.

- Determine security group rules and network ACLs for database access.
- Identify relevant VPC configurations (for example, VPC endpoints, public subnets compared with private subnets, perimeter zone).
- Determine appropriate storage methods for sensitive data.

Appendix

In-scope AWS services and features

The following list contains AWS services and features that are in scope for the exam. This list is non-exhaustive and is subject to change. AWS offerings appear in categories that align with the offerings' primary functions:

Application Integration:

- Amazon EventBridge
- Amazon Simple Notification Service (Amazon SNS)
- Amazon Simple Queue Service (Amazon SQS)

Cloud Financial Management:

- AWS Budgets
- AWS Cost Explorer

Compute:

- AWS Auto Scaling
- Amazon EC2
- AWS Lambda

Containers:

- Amazon Elastic Container Service (Amazon ECS)
- Amazon Elastic Kubernetes Service (Amazon EKS)

Database:

- Amazon Aurora
- Amazon DocumentDB (with MongoDB compatibility)
- Amazon DynamoDB
- Amazon DynamoDB Accelerator (DAX)
- Amazon ElastiCache
- Amazon Keyspaces (for Apache Cassandra)
- Amazon Neptune
- Amazon Quantum Ledger Database (Amazon QLDB)
- Amazon RDS
- Amazon Redshift
- Amazon Timestream

Management and Governance:

- AWS CLI
- AWS CloudFormation
- AWS CloudTrail
- Amazon CloudWatch
- AWS Config
- AWS Trusted Advisor

Migration and Transfer:

- AWS Database Migration Service (AWS DMS)
- AWS DataSync
- AWS Schema Conversion Tool (AWS SCT)
- AWS Snow Family

Networking and Content Delivery:

- AWS Direct Connect
- Elastic Load Balancing (ELB)
- Amazon Route 53
- Amazon VPC (and associated features)

Security, Identity, and Compliance:

- AWS CloudHSM
- AWS Directory Service
- AWS Identity and Access Management (IAM)
- AWS Key Management Service (AWS KMS)
- AWS Secrets Manager

Storage:

- Amazon Elastic Block Store (Amazon EBS)
- Amazon S3
- Amazon S3 Glacier

Out-of-scope AWS services and features

The following list contains AWS services and features that are out of scope for the exam. This list is non-exhaustive and is subject to change. AWS offerings that are entirely unrelated to the target job roles for the exam are excluded from this list:

Analytics:

- Amazon QuickSight

Business Applications:

- Amazon Chime
- Amazon Connect
- Amazon WorkDocs
- Amazon WorkMail

Developer Tools:

- AWS CodeBuild
- AWS CodeCommit
- AWS CodeDeploy
- AWS CodeStar

Internet of Things (IoT):

- AWS IoT Button
- AWS IoT Greengrass
- AWS IoT Platform

Management and Governance:

- AWS Chatbot
- AWS Compute Optimizer
- AWS Console Mobile Application
- AWS Control Tower
- AWS Health Dashboard
- AWS License Manager
- Amazon Managed Grafana
- Amazon Managed Service for Prometheus
- AWS Managed Services (AMS)
- AWS Proton
- AWS Service Catalog
- AWS Well-Architected Tool

Media Services:

- All media services (for example, AWS Elemental MediaConnect)

Migration and Transfer:

- AWS Application Discovery Service
- AWS Application Migration Service
- AWS Migration Hub
- AWS Transfer Family

Survey

How useful was this exam guide? Let us know by taking our survey.