

ExamLabs

**AWS Certified SysOps
Administrator - Associate**

Study Guide

Exam SOA-C02

Table of Contents

1. Overview of AWS Certified SysOps Administrators and Associated Certification

- The exam blueprint
- The exam's requirements
- The exam's structure
- The scoring
 - The passing score
- The exam knowledge domains
- The questions structure
- Taking the exam

2. The Fundamentals of Amazon Web Services

- Technical requirements
- What is the AWS platform?
 - Infrastructure as a Service
 - Platform as a Service
- The shared responsibility model
- Advantages of using AWS
- AWS Foundation Services

ExamLabs

- Network services
- Compute services
- Storage services
- Security and identity services
- End user applications
- AWS Platform Services
 - Databases
 - Management tools
 - Analytics tools
 - Application services
 - Developer tools
 - Mobile and IoT services
- Using AWS services
 - AWS Management Console
 - The AWS Command-Line Interface
 - The AWS Software Development Kit
- Cloud-native and serverless designs
- Choosing availability zones and regions
 - Regional high availability
 - Cross-regional high availability
 - Edge locations
- Summary
- Questions
- Further reading

3. Managing AWS Security with Identity and Access Management

- Technical requirements
- Overview of Identity and Access Management
 - Getting started with IAM
- Managing access with IAM
 - Managing Users
 - Managing Groups
 - Managing Roles
 - Types of credentials in AWS
 - Managing policies and assigning permissions
- Integration with external directories
- IAM best practices
- Summary
- Questions
- Further reading

4. Networking with the Virtual Private Cloud

- Technical requirements

- VPC overview

- VPC subnets

 - Default VPC and default subnets

 - Defining networks in a VPC

 - Public and private subnets

- Connecting to on-premises resources

 - AWS VPN connectivity options

 - AWS Direct Connect

- VPC endpoints and AWS PrivateLink

 - Gateway endpoints

 - Interface endpoints – powered by AWS PrivateLink

- VPC peering connections

- Network security in the VPC

 - Security groups

 - Network ACLs or NACLs

- Building a custom VPC

 - Managing ACLs and security policies

- Summary

- Questions

- Further reading

5. Managing Servers on AWS with Elastic Compute Cloud

- Technical requirements

- EC2 overview

 - Virtualization types

 - EC2 shared responsibility and availability

 - EC2 instance pricing models

 - On-Demand Instances

 - Reserved Instances

 - Spot Instances

 - Dedicated Instances and Dedicated Hosts

- Components of a virtual machine instance

 - Amazon Machine Images (AMIs)

 - Amazon Linux AMI

 - Amazon EC2 instance types

- Instance store and EBS volumes

 - The root device

 - Amazon instance store

 - Amazon EBS

 - Amazon EBS snapshots

ExamLabs

- Volume web console

- Connecting instances to the network

- EC2 high availability scenarios

- Stateful EC2 instance high availability

- Stateless EC2 instance high availability

- EC2 placement groups

- Cluster placement groups

- Spread placement groups

- Building an EC2 instance in AWS

- Summary

- Questions

- Further reading

6. Handling Server Traffic with Elastic Load Balancing

- Technical requirements

- The AWS Elastic Load Balancing service

- Classic Load Balancer

- Application Load Balancer

- Network Load Balancer

- Maintaining session state

- Building an ELB for EC2 instances

- Prerequisite

- Building the Load Balancer

- Deleting the highly available application

- Summary

- Questions

- Further reading

7. Understanding Simple Storage Service and Glacier

- Technical requirements

- Overview of Amazon S3 and Glacier

- S3 storage classes

- S3 Standard

- S3 Infrequent Access

- S3 One Zone-Infrequent Access

- S3 Reduced Redundancy Storage (RRS)

- Amazon Glacier

- S3 bucket restrictions and limitations

- S3 performance recommendations

- Amazon S3 and Glacier use cases

- Serverless hosting

ExamLabs

- Web-scale content delivery
- Data lakes for big data and machine learning
- Extending the capabilities of enterprise applications
- Backup and disaster recovery
- Archiving
- Working with S3
 - Creating a bucket
 - Setting up a static website
 - Versioning bucket content
 - Life cycling data to Glacier
 - Deleting S3 buckets
- Summary
- Questions
- Further reading

8. Understanding Content Distribution with CloudFront

- Technical requirements
- Overview of CloudFront
 - Features of CloudFront
 - Security
 - Edge Locations
 - Regional Edge Cache
- Content delivery methods
- Cache behavior
- Working with CloudFront
 - Creating a CloudFront distribution
 - Deleting a CloudFront distribution
- Summary
- Questions
- Further reading

9. AWS Storage Options

- Technical requirements
- Overview of storage options on AWS
- Introduction to Elastic File System (EFS)
 - Performance
 - Security and resilience of EFS
- Introduction to Storage Gateway
- Introduction to Snowball
 - Security
 - Snowball Edge
- Introduction to Snowmobile

ExamLabs

Security

Summary

Questions

Further reading

10. Working with the Route 53 Domain Name System

Technical requirements

Introduction to Route 53

Traditional DNS system design features

Amazon Route 53 features

Route 53 supported DNS resource record types

Registering a domain and creating a zone

Routing policies

Simple routing

Latency-based routing

Weighted routing

Failover routing

Geolocation routing

Multi-value response

Health checking

Best practices

Summary

Questions

Further reading

11. Working with Relational Database Services

Technical requirements

Introduction to RDS

Features of RDS

RDS engine types

RDS for MySQL, MariaDB, and PostgreSQL

Amazon Aurora

Oracle and Microsoft SQL on RDS

Deploying an RDS database

Best practices for deploying RDS instances

RDS security

Multi-AZ RDS

Performance best practices

Changing RDS instance types

Read replicas

Sharding data over RDS instances

ExamLabs

Creating and restoring snapshots

Multi-AZ snapshots

Automated backups

Restoring RDS instances from a snapshot

Summary

Questions

Further reading

12. Introduction to ElastiCache

Technical requirements

What is ElastiCache?

Engine types

Memcached

Redis

Creating an ElastiCache service

Caching strategies

Write-through

Lazy loading

Best practices

Summary

Questions

Further reading

13. Amazon DynamoDB - A NoSQL Database Service

Technical requirements

Introduction to DynamoDB

ACID versus BASE

ACID compliant data

BASE-compliant data

Relational versus non-relational DB

DynamoDB core concepts

Tables

Items

Attributes

Naming rules and data types

Scalar type key-value pairs

Document type; a map attribute

Set type; a set of strings

Primary and sort key

Secondary indexes

DynamoDB streams

Read consistency

ExamLabs

Eventually consistent reads

Strongly consistent reads

Creating a DynamoDB table

DynamoDB provisioned throughput

Determining required read/write capacity units

On-demand capacity mode

DynamoDB partitions and distribution

Accessing DynamoDB

Accessing DynamoDB through the CLI

Table scans and queries

Pagination and limits

Conditional and atomic writes

User authentication and access control

DynamoDB service ceiling

Summary

Questions

Further reading

14. Working with Simple Queue Service

Technical requirements

Introduction to queuing

How a queue works

Standard queues versus FIFO queues

Visibility timeout

Dead letter queues

Use cases for queues

Example 1 – decoupling

Example 2 – buffering

Example 3 – request offloading

Example 4 – batch operations

Managing queues

Creating and listing queues

Adding user permissions to a queue

Deleting a queue

Working with messages

Sending a message in a queue

Receiving and deleting a message

Purging a queue

Queue limits

Queue security

Summary

Questions

Further reading

15. Handling Messaging with Simple Notification Service

Technical requirements

Introduction to SNS

SNS use cases

SNS fan-out

Application and system alerts

Push email and text messaging

Mobile push notifications

Working with topics

Creating a topic

Subscribing to a topic

Publishing to a topic

Deleting a topic

Managing SNS access

Access control

Access policy concepts

Access request evaluation logic

Summary

Questions

Further reading

16. Getting Started with Simple Workflow Service

Technical requirements

Introduction to SWF

Components of the SWF

Workflows

Workflow execution history

Activities and tasks

Actors

Domains

Object identifiers

Task lists

The workflow life cycle and execution closure

Polling for tasks

Endpoints

Managing access with IAM

Summary

ExamLabs

Questions

Further reading

17. Overview of AWS Lambda

Technical requirements

Introduction to AWS Lambda

Packaging a function

Functions, runtimes, sources, and resources

Supported languages

Creating a Lambda function

Supported AWS services

Business cases

Web applications, microservices, and backends

Asynchronous data processing

Live support and chatbots

Intelligent scaling and IT automation

Summary

Questions

Further reading

18. Monitoring Resources with Amazon CloudWatch

Technical requirements

Introduction to Amazon CloudWatch

How CloudWatch works

Elements of CloudWatch

Namespaces

Metrics

Normal and detailed metrics

Data retention for metrics

Dimensions

Statistics

Percentile

CloudWatch Logs

Alarms

Creating a CloudWatch alarm

CloudWatch dashboards

Creating a CloudWatch dashboard

Monitoring EC2

EC2 status troubleshooting

EC2 custom metrics

Reporting custom metrics using the AWS CLI

Reporting memory utilization using the CloudWatch enhanced

ExamLabs

monitoring scripts

Monitoring EBS

Monitoring ELB

Monitoring RDS

Monitoring ElastiCache

SQS monitoring and logging

Monitoring SNS with CloudWatch

Monitoring Elastic Beanstalk environments

Billing alerts

Summary

Questions

Further reading

19. Understanding Elastic Beanstalk

Technical requirements

Introduction to Elastic Beanstalk

Elastic Beanstalk basics

Supported platforms

Supported AWS services

Deploying an application with Elastic Beanstalk

Managing Elastic Beanstalk environments

Managing application versions

Configuring application version life cycle settings

Creating a source bundle

Updating Elastic Beanstalk environments

All at once

Rolling updates

Immutable updates

Blue/green deployment

Summary

Questions

Further reading

20. Automation with the CloudFormation Service

Technical requirements

Introduction to CloudFormation

CloudFormation basic elements

Templates

Stacks

Change sets

How does CloudFormation work?

ExamLabs

- Stack creation

- Stack deletion

- Creating an EC2 instance using a template (code example)

- Template analysis

- Version and description

- Parameters

- Mappings

- Resources

- Outputs

- Template deployment

- Summary

- Questions

- Further reading

21. Cloud Orchestration with OpsWorks

- Technical requirements

- Introduction to OpsWorks

- OpsWorks examples

- Legacy applications

- Hybrid environments

- Compliance

- Clusters with small dynamic changes

- Updating and patching

- Migration of Chef or Puppet

- How OpsWorks works

- AWS OpsWorks for Chef Automate

- AWS OpsWorks for Puppet Enterprise

- Components of OpsWorks

- Stacks

- Layers

- Service layers

- Instances

- Apps

- Cookbooks, recipes, manifests, and modules

- Life cycle events

- Timed and manual deployments

- Summary

- Questions

- Further reading

22. Exam Tips and Tricks

- Technical requirements

ExamLabs

Introduction

Monitoring metrics and managing cost

High availability and scaling

Analysis of your AWS environment

Deployment and provisioning

Data management

Security

Networking

Summary

Further reading

23. Mock Tests

Mock test 1

Mock test 2

Assessments

Chapter 2 – The Fundamentals of Amazon Web Services

Chapter 3 – Managing AWS Security with Identity and Access Management

Chapter 4 – Networking with Virtual Private Cloud

Chapter 5 – Managing Servers on AWS with Elastic Compute Cloud

Chapter 6 – Handling Server Traffic with Elastic Load Balancing

Chapter 7 – Understanding Simple Storage Service and Glacier

Chapter 8 – Understanding Content Distribution with CloudFront

Chapter 9 – AWS Storage Options

Chapter 10 – Working with Route 53 Domain Name System

Chapter 11 – Working with Relational Database Services

Chapter 12 – Introduction to ElastiCache

Chapter 13 – Amazon DynamoDB – a NoSQL Database Service

Chapter 14 – Working with Simple Queue Service

Chapter 15 – Handling Messaging with SNS

Chapter 16 – Getting Started with Simple Workflow Service

Chapter 17 – Overview of AWS Lambda

Chapter 18 – Monitoring Resources with Amazon CloudWatch

Chapter 19 – Understanding Elastic Beanstalk

Chapter 20 – Automation with CloudFormation service

Chapter 21 – Cloud Orchestration with OpsWorks

Chapter 23 – Mock Test