

# HPE Digital Learner AWS Certified SysOps Administrator (Intermediate) Content Pack

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<b>Content Pack length</b>	20 Hours
<b>Content Pack category</b>	Category 2
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This self-paced eLearning Content Pack represents a baseline training series for IT ops individuals who are transitioning to a cloud sysops administrator role utilizing the Amazon Web Services (AWS) public cloud environment. This is a comprehensive intermediate training series segmented into two (2) main areas, “AWS Certified SysOps Administrator” and “AWS SysOps Associate.” Both training areas are required to operate and manage a typical AWS public cloud environment. This training is intended for IT ops personnel who possess the baseline IT and/or cloud skills needed to rapidly move forward with managing cloud infrastructures, applications and data within the AWS public cloud domain

## Audience

- Systems operations engineers with one year’s experience in cloud operations or who are transitioning operations skills to cloud skills
- Individuals and organizations seeking to gain insight into the benefits of Amazon Web Services

## Content Pack objectives

This Content Pack provides the information necessary for a cloud administrator to manage a typical Amazon Web Services (AWS) public cloud environment. The “AWS Certified SysOps Administrator” training area includes AWS sysops introductory training as well AWS services training that includes AWS networking, security and IAM, and compute. The “AWS SysOps Associate” training area includes baseline information around

AWS monitoring, metrics, analytics, deployment, high availability, data management, security, networking, tools, virtual machines and baseline information around identity and access control. Other key AWS management training areas include core and advanced AWS management, GUI and command line VM management, EBS snapshots, monitoring and logging. This training will enable the student to transition to the cloud sysops administrator role within a typical AWS public cloud environment and will also assist with the path to AWS Certification.

## Detailed Content Pack outline

### AWS Certified SysOps Administrator: Introduction

In this course, you will explore sysops administration, core AWS services and the three-tier architecture.

- Describe the AWS SysOps Administrator - Associate certification
- Realize the objectives of the AWS SysOps Administrator - Associate exam
- Define core AWS compute services
- Define core AWS storage services
- Define core database services
- Define core security services
- Define key network and content delivery solutions
- Define AWS serverless solutions
- Describe the three-tier reference architecture

### AWS Certified SysOps Administrator: Preparing for Cloud Service Management

In this course, you will explore the process of creating the first AWS account as well as various management fundamentals and service control activities.

- Create the first AWS account
- Describe credentials and password fundamentals
- Install the Windows AWS CLI
- Work with AWS services
- Define software development kits
- Examine additional AWS management resources

### AWS Certified SysOps Administrator: Networking Services

Explore the various networking components and services that form a virtual private cloud (VPC) in AWS.

- Implement an AWS VPC
- Utilize route tables
- Describe NACLs and security groups
- Explore DHCP in the Virtual Private Cloud
- Describe AWS gateways
- Describe ENIs and EIPs
- Define VPC flow logs
- Describe AWS direct connect
- Describe AWS load balancing
- Define Amazon Route 53

### AWS Certified SysOps Administrator: Security and IAM Services

In this course, you will explore various security services in AWS including IAM, NACLs, security groups, WAF and Shield.

- Describe security in the cloud
- Secure managed services
- Define compliance services
- Describe fundamentals of IAM
- Work with IAM roles
- Secure AWS cloud services
- Work with NACLs and security groups
- Explore the Web Application Firewall (WAF)
- Describe AWS Shield and GuardDuty
- Define cloud service-specific security
- Apply security monitoring and reporting

### AWS Certified SysOps Administrator: Compute Services

In this course, you will explore the various compute services in AWS and the aspects that make them distinctive and powerful.

- Describe compute services and EC2
- Define AMIs and instance types
- Describe EC2 additional settings
- Monitor compute services
- Describe EC2 container service
- Describe AWS Elastic Beanstalk
- Define AWS Lambda
- Describe Amazon Lightsail
- Define AWS Batch
- Deploy Amazon CloudFront

### AWS Certified SysOps Administrator: Storage Services

In this course, you will explore the main components of storage services including Simple Storage Service (S3), Elastic Block Store (EBS), Elastic File System (EFS) and Amazon Glacier.

- Describe AWS storage services
- Compare AWS block and object storage
- Define the AWS EC2 instance store
- Describe Amazon Elastic File System
- Describe EBS
- Configure EBS
- Describe S3
- Configure S3
- Define Amazon Glacier
- Configure Glacier
- Describe additional storage services

### AWS Certified SysOps Administrator: Database Services

In this course, you will discover various AWS database services including RDS, DynamoDB, ElastiCache and Redshift. You will also explore monitoring, maintenance and security.

- Define database technology in AWS
- Describe AWS Relational Database Service (RDS)
- Describe Amazon Aurora
- Configure RDS
- Configure Aurora
- Monitor RDS
- Describe Amazon DynamoDB
- Configure Amazon DynamoDB
- Describe Amazon Redshift

**AWS SysOps Associate: Monitoring, Metrics, Analysis, and Deployment**

Monitoring cloud systems is even more crucial than on-premises equipment. Fortunately Amazon Web Services has CloudWatch which has an unprecedented level of control and power for monitoring applications and systems on the AWS cloud. In this course, you will learn about monitoring and the system metrics used. The course also covers deployment, an area that is streamlined and efficient when compared to the on-premises equivalent.

- Describe the features of Amazon Web Services CloudWatch
- Troubleshoot different status messages in Amazon Web Services Elastic Compute Cloud instances
- Create an Amazon Web Services Identity and Access Management role for CloudWatch
- Monitor Amazon Web Services Elastic Compute Cloud instances using custom metrics
- Manage Amazon Web Services using Trusted Advisor best practices
- Monitor Amazon Web Services Elastic Block Store Volumes with CloudWatch
- Monitor Amazon Web Services Elastic Block Store Volumes with Status Checks
- Monitor Amazon Web Services Elastic Block Store Volume Events
- Work with an impaired Amazon Web Services Elastic Block Store Volume
- Monitor Amazon Web Services Relational Database Service availability
- Monitor Amazon Web Services Relational Database Service performance
- Monitor Amazon Web Services Elastic Load Balancer using CloudWatch
- Log Amazon Web Services Elastic Load Balancer requests
- Monitor Amazon Web Services ElastiCache availability
- Monitor Amazon Web Services ElastiCache performance
- Implement a centralized monitoring system in Amazon Web Services
- Describe billing and cost management principles on Amazon Web Services
- Manage billing for Amazon Web Services accounts
- Use Amazon Web Services Cost Explorer to view and analyze spending on Amazon Web Services
- Create and view a budget on Amazon Web Services
- Describe consolidated billing for multiple Amazon Web Services accounts
- Get root access to the underlying OS on an Amazon Web Services Elastic Compute Cloud instance
- Describe Amazon Web Services Elastic Load Balancer Internet facing and internal configurations
- Describe Amazon Web Services Elastic Load Balancer internal configurations
- Describe the process of pre-warming an Amazon Web Services Elastic Load Balancer and the reasons for doing so
- Describe Amazon Web Services OpsWorks
- Configure Amazon Web Services OpsWorks
- Configure an internal and internet-facing load balancer and monitor them

**AWS SysOps Associate: High Availability and Data Management**

One of the key benefits of cloud computing, in general, and AWS, in particular, is the ability to build fault tolerance into everything. The globally dispersed and virtual nature of AWS means that it is possible to have redundant everything if you manage your services right. In this course, you will learn about elasticity and scalability along with the all-important fault tolerance of web applications on AWS. The course also covers ways of managing data via Elastic Block Store, and log and backup management.

- Describe how scaling is enabled by Amazon Web Services and the concept of elasticity
- Resize an EC2 instance and an EBS-backed EC2 Instance
- Plan Amazon Web Services Elastic Compute Cloud Auto Scaling
- Describe how Amazon Web Services Elastic Compute Cloud Auto Scaling is implemented
- Configure Amazon Web Services Elastic Compute Cloud Auto Scaling
- Configure high availability for an Amazon Web Services Elastic Compute Cloud bastion host
- Troubleshoot instance launch issues and AMI issues in Amazon Web Services Elastic Compute Cloud Auto Scaling
- Troubleshoot load balancer issues and capacity issues with Amazon Web Services Elastic Compute Cloud Auto Scaling
- Configure Amazon Web Services Relational Database Service using the management console
- Configure Amazon Web Services Relational Database Service with multi-availability zone failover
- Configure Amazon Web Services Relational Database Service read replicas
- Use Amazon Web Services Elastic Block Store for backup and disaster recovery
- Use Amazon Web Services Simple Storage Service for backup and disaster recovery
- Use Amazon Web Services Relational Database Service for backup and disaster recovery
- Configure automated backup for Amazon Web Services
- Configure different storage types for Amazon Web Services Elastic Block Storage volumes
- Change Amazon Web Services Elastic Block Storage volume type to improve performance
- Configure Amazon Web Services Elastic Block Storage optimized instances
- Create snapshots in Amazon Web Services Elastic Block Storage
- Configure replication for Amazon Web Services Elastic Block Storage volumes
- Configure storage for log files and backups using Amazon Web Services
- Configure an auto scaling group and use Simple Storage Service, Elastic Block Store and Relational Database Service for backup using Amazon Web Services

**AWS SysOps Associate: Security and Networking**

Security on cloud computing and AWS could be considered the greatest challenge. The always-available-everywhere mantra of cloud brings a host of potential issues. Knowledge of the AWS toolset will help you solve them. In this course, you will learn about security, Route 53 DNS, Virtual Private Clouds and Direct Connect.

- Describe the basic concepts of Identity and Access Management on the Amazon Web Services platform
- List best practices pertaining to Identity and Access Management on the Amazon Web Services platform
- Configure Microsoft Active Directory integration with Amazon Web Services
- Navigate the Identity and Access Management console in Amazon Web Services
- Configure Identity and Access Management for an account in Amazon Web Services
- Manage Identity and Access Management users in Amazon Web Services
- Configure two-factor authentication in Amazon Web Services
- Configure securing token service on Amazon Web Services
- Describe the Route 53 DNS service on Amazon Web Services
- Register a DNS domain through the Route 53 DNS service on Amazon Web Services
- Configure Route 53 as your DNS service provider
- Configure regional failover in Amazon Web Services Route 53 DNS
- Configure weighted DNS in Amazon Web Services Route 53 DNS
- Configure latency-based routing in Amazon Web Services Route 53 DNS
- Configure geolocation in Amazon Web Services Route 53 DNS
- Create a Virtual Private Cloud on Amazon Web Services
- Configure network subnets in Amazon Web Services Virtual Private Clouds
- Launch an EC2 instance into a Virtual Private Cloud on Amazon Web Services
- Configure security groups on Amazon Web Services Virtual Private Clouds
- Configure network address translation on Amazon Web Services Virtual Private Clouds
- Configure access control lists on Amazon Web Services Virtual Private Clouds
- Describe Amazon Web Services Direct Connect
- Create and delete an Amazon Web Services Direct Connect connection
- View and delete a virtual interface in Amazon Web Services Direct Connect
- Configure two-factor authentication and a Virtual Private Cloud in Amazon Web Services

**AWS: Management Tools**

In this course, you will learn about the many tools available to manage AWS resources. One-off configurations are often executed using the AWS management console but automation is possible using PowerShell and the AWS command line interface.

- List various AWS management tools
- Log in to and navigate the AWS Management Console
- Use the AWS Management Console to launch an EC2 instance
- Describe when to use AWS PowerShell
- Download and install the AWS PowerShell module
- Use basic AWS PowerShell cmdlets
- Describe when to use the AWS CLI
- Download and install the AWS CLI
- Use basic AWS CLI commands
- Specify when specific tools should be used to manage AWS

**AWS: Virtual Machines and Identity and Access Management**

This course covers EC2 virtual machine deployment, configuration and management. It also covers the role of Identity and Access Management.

- Describe how virtual machines underlie many cloud services
- Understand how Amazon Machine Images play a role in virtual machine configurations
- Connect to Windows and Linux virtual machines
- Describe how security groups are used to control network traffic to virtual machines
- Set rules within security groups to restrict traffic in to and out of virtual machines
- Use the AWS Management Console to create a Windows virtual machine
- Connect to an EC2 Windows virtual machine on-premises
- Use the AWS Management Console to create a Linux virtual machine
- Connect to an EC2 Linux virtual machine on-premises
- Describe the purpose of snapshots
- Create a virtual machine snapshot
- Describe how CloudWatch is used to monitor AWS resources
- Enable EC2 virtual machine monitoring using CloudWatch
- Describe the role of Identity and Access Management in AWS
- Configure settings for an IAM user
- Describe how Active Directory can integrate with AWS
- Enhance security by enabling two-factor authentication
- Deploy EC2 virtual machines and configure IAM

**Core AWS Management**

This course covers common AWS management tools at the GUI and command line levels. It includes content covered on the AWS Certified Solutions Architect - Associate exam.

- Identify tools to manage AWS
- Use the AWS Management Console
- Manage AWS using the mobile app
- Describe AWS CLI management
- Obtain and install the AWS CLI
- Use the AWS CLI
- Describe AWS PowerShell management
- Obtain and install the AWS PowerShell module
- Use PowerShell to learn about AWS cmdlets
- Connect to AWS through PowerShell
- Outline how Systems Manager works
- Determine when to use specific management tools

**Advanced AWS Management**

This course covers AWS cost optimization methods, CloudTrail monitoring, app provisioning with Elastic Beanstalk, and OpsWorks and CloudFormation stacks for both Windows and Linux.

- List ways that cost can be optimized with a cloud solution
- Specify the purpose of Elastic Beanstalk
- Use Beanstalk to deploy a simple web application
- View settings for a Beanstalk app
- Describe what OpsWorks is and its use cases
- Use OpsWorks to create a Windows stack
- Describe what CloudFormation is and its use cases
- Use the console to configure a CloudFormation stack
- Leverage Beanstalk, OpsWorks, and CloudFormation to automate resource deployment

**GUI VM Management**

AWS virtual machines, or EC2 instances, can be created and managed using the AWS console as well as command line utilities. This course focuses on the console and prepares you for the AWS Certified Solutions Architect - Associate exam.

- Describe how virtual machines underlie many cloud services
- Describe how Amazon Machine Images play a role in virtual machine configurations
- Describe how to connect to Windows and Linux virtual machines
- Describe how security groups are used to control network traffic to virtual machines
- Set rules within security groups to restrict traffic in to and out of virtual machines
- Use the AWS Management console to create a Windows virtual machine
- Connect to an EC2 Windows virtual machine on-premises
- Use the AWS Management console to create a Linux virtual machine
- Connect to an EC2 Linux virtual machine on-premises
- Use the console to create a custom AMI
- Deploy a virtual machine using a custom AMI
- Use the console to manage EC2 instances

**Command Line VM Management**

This course shows you how to use the AWS CLI and PowerShell to create and manage EC2 instances.

- Use the CLI to create a security group
- Use PowerShell to create a security group
- Use the CLI to deploy a Windows VM
- Use PowerShell to deploy a Windows VM
- Use the CLI to deploy a Linux VM
- Use PowerShell to deploy a Linux VM
- Use the CLI to create a custom AMI
- Use PowerShell to create a custom AMI
- Create a cloud service design given a set of requirements
- Use the calculator to estimate AWS charges
- Specify when to use reserved EC2 instances
- Specify when to use on-demand EC2 instances
- Describe the purpose of Spot EC2 instances
- Describe AWS SQS
- Work with EC2 instances from the command line

**EBS Snapshots, Monitoring and Logging**

In this course, you will learn when and how to work with EBS volume snapshots. This course also covers monitoring and logging through CloudWatch.

- Describe the purpose of snapshots
- Create a virtual machine snapshot
- Use a snapshot as the source of a new EBS volume
- Use an EBS snapshot to restore a VM
- Use the CLI to create an EBS snapshot
- Use PowerShell to create an EBS snapshot
- Describe how CloudWatch is used to monitor AWS resources
- Enable EC2 virtual machine monitoring using CloudWatch
- Enable alarms when the AWS charges reach a specific value
- Recognize how CloudWatch logging works
- Identify the purpose of CloudTrail
- Download and install the latest SSM agent for Windows Server 2016 EC2 instances
- Configure the Windows EC2 service to send Windows log data to CloudWatch
- Locate logs and metrics in CloudWatch sent from EC2 instances
- Quickly monitor AWS operation health using a CloudWatch dashboard
- Manage EBS snapshots and configure CloudWatch

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