Azure Administrator Associate (Exam AZ-104)

Edufane Overview

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Our Training Courses

- Microsoft .NET
- Python
- Azure Fundamentals (AZ-900)
- Azure Administration Associate (AZ-104)
- Azure Developer Associate (AZ-204)
- Azure DevOps Engineer Expert (AZ-400)
- Azure Solutions Architect Expert (AZ-305)
- Azure Data Fundamentals (DP-900)
- Azure Data Engineer Associate (DP-203)
- Power BI Data Analyst Associate (DA-100)

Course Overview

As a candidate for this certification, you should have subject matter expertise in implementing, managing, and monitoring an organization's Azure environment, including:

- Virtual networks
- Storage
- Compute
- Identity
- Security
- Governance

As an Azure administrator, you often serve as part of a larger team dedicated to implementing an organization's cloud infrastructure. You also coordinate with other roles to deliver Azure networking, security, database, application development, and DevOps solutions.

You should be familiar with:

- Operating systems
- Networking
- Servers
- Virtualization

In addition, you should have experience with:

- PowerShell
- Azure CLI
- The Azure portal
- Azure Resource Manager templates
- Microsoft Entra ID

Prerequisites: Microsoft Azure Fundamentals (Exam-900)

➢ Microsoft Azure Fundamentals: Describe Cloud Concepts

• Describe Cloud Computing

- Introduction to Microsoft Azure Fundamentals
- Introduction to cloud computing
- What is cloud computing
- Describe shared responsibility model
- Define cloud models
- Describe the consumption-based model
- Knowledge check
- Summary

• Describe the benefits of using Cloud Services

- Introduction
- Describe the benefits of high availability and scalability in the cloud
- Describe the benefits of reliability and predictability in the cloud
- Describe the benefits of security and governance in the cloud
- Describe the benefits of manageability in the cloud
- Knowledge check
- Summary

- Describe Cloud Service Types
  - Introduction
  - Describe Infrastructure as a Service
  - Describe Platform as a Service
  - Describe Software as a Service
  - Knowledge check
  - Summary

➢ Microsoft Azure Fundamentals: Describe Azure Architecture and Services

- Describe the Core Architectural Components of Azure
  - Introduction
  - What is Microsoft Azure
  - Get started with Azure accounts
  - Exercise - Explore the Learn sandbox
  - Describe Azure physical infrastructure
  - Describe Azure management infrastructure
  - Exercise - Create an Azure resource
  - Knowledge check
  - Summary

- Describe the Azure Compute and Networking Services
  - Introduction
  - Describe Azure virtual machines
  - Exercise - Create an Azure virtual machine
  - Describe Azure virtual desktop
  - Describe Azure containers
  - Describe Azure functions
  - Describe application hosting options
  - Describe Azure virtual networking
  - Exercise - Configure network access
  - Describe Azure virtual private networks
  - Describe Azure ExpressRoute
  - Describe Azure DNS
  - Knowledge check
  - Summary

- Describe Azure Storage Services
  - Introduction
  - Describe Azure storage accounts
  - Describe Azure storage redundancy
  - Describe Azure storage services
  - Exercise - Create a storage blob
  - Identify Azure data migration options
  - Identify Azure file movement options
  - Knowledge check
  - Summary

- Describe Azure Identity, Access, and Security
  - Introduction
  - Describe Azure directory services
  - Describe Azure authentication methods
  - Describe Azure external identities
  - Describe Azure conditional access
  - Describe Azure role-based access control
  - Describe zero trust model
  - Describe defense-in-depth
  - Describe Microsoft Defender for Cloud
  - Knowledge check
  - Summary

➢ Microsoft Azure Fundamentals: Describe Azure Management and Governance

- Describe Cost Management in Azure
  - Introduction
  - Describe factors that can affect costs in Azure
  - Compare the Pricing and Total Cost of Ownership calculators
  - Exercise - Estimate workload costs by using the Pricing calculator
  - Exercise - Compare workload costs using the TCO calculator
  - Describe the Microsoft Cost Management tool
  - Describe the purpose of tags
  - Knowledge check
  - Summary

- Describe Features and Tools in Azure for Governance and Compliance
  - Introduction
  - Describe the purpose of Microsoft Purview
  - Describe the purpose of Azure Policy
  - Describe the purpose of resource locks
  - Exercise - Configure a resource lock
  - Describe the purpose of the Service Trust portal
  - Knowledge Check
  - Summary

- Describe Features and Tools in Azure for Managing and Deploying Azure Resources
  - Introduction
  - Describe tools for interacting with Azure
  - Describe the purpose of Azure Arc
  - Describe Azure Resource Manager and Azure ARM templates
  - Knowledge check
  - Summary

- Describe Monitoring Tools in Azure
  - Introduction
  - Describe the purpose of Azure Advisor
  - Describe Azure Service Health
  - Describe Azure Monitor
  - Knowledge check
  - Summary

Module 1: Manage Azure Identities and Governance

➢ Configure Microsoft Entra ID

- Introduction
- Describe Microsoft Entra ID benefits and features
- Describe Microsoft Entra concepts
- Compare Active Directory Domain Services to Microsoft Entra ID
- Select Microsoft Entra editions
- Implement Microsoft Entra self-service password reset
- Knowledge check
- Summary and resources

➢ Configure User and Group Accounts

- Introduction
- Create user accounts
- Manage user accounts
- Create bulk user accounts
- Create group accounts
- Create administrative units
- Interactive lab simulation
- Knowledge check
- Summary and resources

➢ Configure Subscriptions

- Introduction
- Identify Azure regions
- Implement Azure subscriptions
- Obtain an Azure subscription
- Identify Azure subscription usage
- Implement Microsoft Cost Management
- Apply resource tagging
- Apply cost savings
- Knowledge check
- Summary and resources

➢ Configure Azure Policy

- Introduction
- Create management groups
- Implement Azure policies
- Create Azure policies
- Create policy definitions
- Create an initiative definition
- Scope the initiative definition
- Determine compliance
- Interactive lab simulation
- Knowledge check
- Summary and resources

➢ Configure Role-based Access Control

- Introduction
- Implement role-based access control
- Create a role definition
- Create a role assignment
- Compare Azure roles to Microsoft Entra roles
- Apply role-based access control
- Review fundamental Azure RBAC roles
- Interactive lab simulation
- Knowledge check
- Summary and resources

➢ Create Azure Users and Groups in Microsoft Entra ID

- Introduction
- What are user accounts in Microsoft Entra ID?
- Exercise - Add and delete users in Microsoft Entra ID
- Manage app and resource access by using Microsoft Entra groups
- Exercise - Assign users to Microsoft Entra groups
- Collaborate by using guest accounts and Microsoft Entra B2B
- Exercise - Give guest users access in Microsoft Entra B2B
- Summary

➢ Secure your Azure Resources with Azure Role-based Access Control (Azure RBAC)

- Introduction
- What is Azure RBAC?
- Knowledge check - What is Azure RBAC?
- Exercise - List access using Azure RBAC and the Azure portal
- Exercise - Grant access using Azure RBAC and the Azure portal
- Exercise - View activity logs for Azure RBAC changes
- Knowledge check - Using Azure RBAC
- Summary

➢ Allow Users to Reset their Password with Microsoft Entra Self-Service Password Reset

- Introduction
- What is self-service password reset in Microsoft Entra ID?
- Implement Microsoft Entra self-service password reset
- Exercise - Set up self-service password reset
- Exercise - Customize directory branding
- Summary

Module 2: Implement and Manage Storage in Azure

➢ Configure Storage Accounts

- Introduction
- Implement Azure Storage
- Explore Azure Storage services
- Determine storage account types
- Determine replication strategies
- Access storage
- Secure storage endpoints
- Knowledge check
- Summary and resources

➢ Configure Azure Blob Storage

- Introduction
- Implement Azure Blob Storage
- Create blob containers
- Assign blob access tiers
- Add blob lifecycle management rules
- Determine blob object replication
- Upload blobs
- Determine Blob Storage pricing
- Interactive lab simulation
- Knowledge check
- Summary and resources

➢ Configure Azure Storage Security

- Introduction
- Review Azure Storage security strategies
- Create shared access signatures
- Identify URI and SAS parameters
- Determine Azure Storage encryption
- Create customer-managed keys
- Apply Azure Storage security best practices
- Interactive lab simulation
- Knowledge check
- Summary and resources

➢ Configure Azure Files and Azure File Sync

- Introduction
- Compare storage for file shares and blob data
- Manage Azure file shares
- Create file share snapshots
- Implement Azure File Sync
- Identify Azure File Sync components
- Deploy Azure File Sync
- Knowledge check
- Summary and resources

➢ Configure Azure Storage with Tools

- Introduction
- Use Azure Storage Explorer
- Use the Azure Import/Export service
- Use the WAImportExport tool
- Use the AzCopy tool
- Knowledge check
- Summary and resources

➢ Create an Azure Storage Account

- Introduction
- Decide how many storage accounts you need
- Choose your account settings
- Choose an account creation tool
- Exercise - Create a storage account using the Azure portal
- Knowledge check - Create a storage account
- Summary

➢ Control Access to Azure Storage with Shared Access Signatures

- Introduction
- Authorization options for Azure Storage
- Use shared access signatures to delegate access to Azure Storage
- Exercise - Use shared access signatures to delegate access to Azure Storage
- Use stored access policies to delegate access to Azure Storage
- Exercise - Use stored access policies to delegate access to Azure Storage
- Summary

➢ Upload, Download and Manage Data with Azure Storage Explorer

- Introduction
- Connect Azure Storage Explorer to a storage account
- Exercise - Connect Azure Storage Explorer to a storage account
- Connect Azure Storage Explorer to Azure Data Lake Storage
- Exercise - Connect Azure Storage Explorer to Azure Data Lake Storage
- Summary

Module 3: Deploy and Manage Azure Compute Resources

➢ Configure Virtual Machines

- Introduction
- Review cloud services responsibilities
- Plan virtual machines
- Determine virtual machine sizing
- Determine virtual machine storage
- Create virtual machines in the Azure portal
- Connect to virtual machines
- Interactive lab simulation
- Knowledge check
- Summary and resources

➢ Create a Windows Virtual Machine in Azure

- Introduction
- Create a Windows virtual machine in Azure
- Exercise - Create a Windows virtual machine

- Use RDP to connect to Windows Azure virtual machines
- Exercise - Connect to a Windows virtual machine using RDP
- Configure Azure virtual machine network settings
- Summary

➢ Configure Virtual Machine Availability

- Introduction
- Plan for maintenance and downtime
- Create availability sets
- Review update domains and fault domains
- Review availability zones
- Compare vertical and horizontal scaling
- Implement Azure Virtual Machine Scale Sets
- Create Virtual Machine Scale Sets
- Implement autoscale
- Configure autoscale
- Interactive lab simulation
- Knowledge check
- Summary and resources

➢ Configure Azure App Service Plans

- Introduction
- Implement Azure App Service plans
- Determine Azure App Service plan pricing
- Scale up and scale out App Service
- Configure Azure App Service autoscale
- Knowledge check
- Summary and resources

➢ Configure Azure Container Instances

- Introduction
- Compare containers to virtual machines
- Review Azure Container Instances
- Implement container groups
- Review the Docker platform
- Interactive lab simulation
- Knowledge check
- Summary and resources

➢ Manage Virtual Machines with the Azure CLI

- What is the Azure CLI?
- Exercise - Create a virtual machine
- Exercise - Test your new virtual machine
- Exercise - Explore other VM images
- Exercise - Sizing VMs properly
- Exercise - Query system and runtime information about the VM
- Exercise - Start and stop your VM with the Azure CLI
- Exercise - Install software on your VM
- Summary and cleanup

➢ Host a Web Application with Azure App Services

- Introduction
- Create a web app in the Azure portal
- Exercise - Create a web app in the Azure portal
- Prepare the web application code
- Exercise - Write code to implement a web application
- Deploy code to App Service
- Exercise - Deploy your code to App Service
- Summary

Module 4: Configure and Manage Virtual Networks for Azure Administrators

➢ Configure Virtual Networks

- Introduction
- Plan virtual networks
- Create subnets
- Create virtual networks
- Plan IP addressing
- Create public IP addressing
- Associate public IP addresses
- Allocate or assign private IP addresses
- Interactive lab simulation
- Knowledge check
- Summary and resources

➢ Configure Network Security Groups

- Introduction
- Implement network security groups
- Determine network security group rules
- Determine network security group effective rules
- Create network security group rules
- Implement application security groups
- Interactive lab simulation
- Knowledge check
- Summary and resources

➢ Configure Azure DNS

- Introduction
- Identify domains and custom domains
- Verify custom domain names
- Create Azure DNS zones
- Delegate DNS domains
- Add DNS record sets
- Plan for Azure Private DNS zones
- Review Azure Private DNS zone scenarios
- Interactive lab simulation
- Knowledge check
- Summary and resources

➢ Configure Azure Virtual Network Peering

- Introduction
- Determine Azure Virtual Network peering uses
- Determine gateway transit and connectivity
- Create virtual network peering
- Extend peering with user-defined routes and service chaining
- Interactive lab simulation
- Knowledge check
- Summary and resources

➢ Configure Network Routing and Endpoints

- Introduction
- Review system routes
- Identify user-defined routes
- Determine service endpoint uses
- Determine service endpoint services
- Identify private link uses
- Interactive lab simulation
- Knowledge check
- Summary and resources

➢ Configure Azure Load Balancer

- Introduction
- Determine Azure Load Balancer uses
- Implement a public load balancer
- Implement an internal load balancer
- Determine load balancer SKUs
- Create back-end pools
- Create health probes
- Create load balancer rules
- Interactive lab simulation
- Knowledge check
- Summary and resources

➢ Configure Azure Application Gateway

- Introduction
- Implement Azure Application Gateway
- Determine Azure Application Gateway routing
- Configure Azure Application Gateway components
- Knowledge check
- Summary and resources

➢ Design an IP Addressing Schema for your Azure Deployment

- Introduction
- Network IP addressing and integration
- Public and private IP addressing in Azure
- Plan IP addressing for your networks
- Exercise - Design and implement IP addressing for Azure virtual networks
- Summary

➢ Distribute your Services across Azure Virtual Networks and Integrate them by using Virtual Network Peering

- Introduction
- Connect services by using virtual network peering
- Exercise - Prepare virtual networks for peering by using Azure CLI commands
- Exercise - Configure virtual network peering connections by using Azure CLI commands
- Exercise - Verify virtual network peering by using SSH between Azure virtual machines
- Summary

➢ Host your Domain on Azure DNS

- Introduction
- What is Azure DNS?
- Configure Azure DNS to host your domain
- Exercise - Create a DNS zone and an A record by using Azure DNS
- Dynamically resolve resource name by using alias record
- Exercise - Create alias records for Azure DNS
- Summary

➢ Manage and Control Traffic flow in your Azure Deployment with Routes

- Introduction
- Identify routing capabilities of an Azure virtual network
- Exercise - Create custom routes
- What is an NVA?
- Exercise - Create an NVA and virtual machines
- Exercise - Route traffic through the NVA
- Summary

➢ Improve Application Scalability and Resiliency by using Azure Load Balancer

- Introduction
- Azure Load Balancer features and capabilities
- Configure a public load balancer
- Exercise - Configure a public load balancer
- Internal load balancer
- Summary

Module 5: Monitor and Backup Azure Resources

➢ Configure File and Folder Backups

- Introduction
- Describe Azure Backup benefits
- Implement Backup Center for Azure Backup
- Configure Azure Recovery Services vault backup options
- Use the Microsoft Azure Recovery Services (MARS) agent
- Configure on-premises file and folder backups
- Interactive lab simulation
- Knowledge check
- Summary and resources

➢ Configure Virtual Machine Backups

- Introduction
- Explore options to protect virtual machine data
- Create virtual machine snapshots in Azure Backup
- Set up Azure Recovery Services vault backup options
- Back up your virtual machines
- Restore your virtual machines
- Implement System Center DPM and Azure Backup Server
- Compare the MARS agent and Azure Backup Server
- Implement soft delete for your virtual machines
- Implement Azure Site Recovery
- Interactive lab simulation
- Knowledge check
- Summary and resources

➢ Configure Azure Monitor

- Introduction
- Describe Azure Monitor key capabilities
- Describe Azure Monitor components
- Define metrics and logs
- Identify monitoring data and tiers
- Describe activity log events
- Query the activity log
- Interactive lab simulation
- Knowledge check
- Summary and resources

➢ Configure Log Analytics

- Introduction
- Determine Log Analytics uses
- Create a Log Analytics workspace
- Create Kusto (KQL) queries
- Structure Log Analytics queries
- Knowledge check
- Summary and resources

➢ Configure Network Watcher

- Introduction
- Describe Azure Network Watcher features
- Review IP flow verify diagnostics
- Review next hop diagnostics
- Visualize the network topology
- Knowledge check
- Summary and resources

➢ Improve Incident Response with Alerting on Azure

- Introduction
- Explore the different alert types that Azure Monitor supports
- Use metric alerts for alerts about performance issues in your Azure environment
- Exercise - Use metric alerts to alert on performance issues in your Azure environment
- Use log alerts to alert on events in your application
- Use activity log alerts to alert on events within your Azure infrastructure
- Use action groups and alert processing rules to send notifications when an alert is fired
- Exercise -Use an activity log alert and an action group to notify users about events in your Azure infrastructure
- Summary

➢ Analyze your Azure Infrastructure by using Azure Monitor Logs

- Introduction
- Features of Azure Monitor logs
- Create basic Azure Monitor log queries to extract information from log data
- Exercise - Create basic Azure Monitor log queries to extract information from log data
- Summary

➢ Monitor your Azure Virtual Machines with Azure Monitor

- Introduction
- Monitoring for Azure VMs
- Monitor VM host data
- Use Metrics Explorer to view detailed host metrics
- Collect client performance counters by using VM insights
- Collect VM client event logs
- Summary