AZ-204: Developing Solution for Microsoft Azure Exam Resources

Overview

The following resources have been assembled to help you prepare for the AZ-204 Microsoft Developer Associate learning track during Microsoft Certification Week.

Use this guide to understand what knowledge is needed to complete the exam and as a learning tool to help you understand areas where you feel you need additional training. It is not required that you leverage all the resources in this guide to participate in Microsoft Certification Week.

Contents

Audience Profile for the Exam

A candidate for this certification should have 1-2 years professional development experience and experience with Microsoft Azure. In addition, the candidate for this role should have the ability to program in a language supported by Azure and proficiency in Azure SDKs, Azure PowerShell, Azure CLI, data storage options, data connections, APIs, app authentication and authorization, compute and container deployment, debugging, performance tuning, and monitoring.

Microsoft Developer Associate exam is an opportunity to prove knowledge of defining solution requirements and designing, developing, and maintaining those solutions.

Candidates should be familiar with the performance tuning and monitoring of the solutions they create

Microsoft Developer Associate can be used to prepare for other Azure role-based or specialty certifications, but it is not a prerequisite for any of them.

Preparing with an Azure subscription

It is highly recommended when preparing for a Microsoft exam, that you have had some level of hands-on experience with the services within the objectives. Microsoft courses have a GitHub repository for labs that are recommended and available to the public.

- Azure Free Trial: Create your Azure free account today | Microsoft Azure.
- Suggested Lab Guides: https://github.com/MicrosoftLearning/AZ-204-DevelopingSolutionsforMicrosoftAzure.

Virtual Training Series for AZ-204 – Azure AI Fundamentals

In this online course you will learn how to create Azure Functions, how to implement and manage web apps, how to develop solutions utilizing Azure storage, how to implement authentication and authorization, how to secure solutions by using KeyVault, how to connect to and consume Azure services and include event and message-based models in applications, and how to monitor, troubleshoot, and optimize Azure solutions.. This course will also prepare you for the AZ-204 exam.

AZ-204 – Microsoft Developer Associate
Microsoft Developer Associate (AZ-204)

All Virtual Training Series
http://aka.ms/vts

Exam Objectives

The following are the learning objectives for the exam. Inline with each objective are links to Microsoft documentation around the specific concept or service. In addition to the documentation, there are also online courses from Microsoft Learn and the Microsoft Partner virtual training series available for additional learning resources.
https://docs.microsoft.com/en-us/learn/certifications/exams/az-204

Develop Azure compute solutions (25-30%)

Implement IaaS solutions

- provision virtual machines (VMs)
    - Quickstart: Create a Windows virtual machine in the Azure portal
    - Tutorial: Create and Manage Windows VMs with Azure PowerShell
    - How to connect and sign on to an Azure virtual machine running Windows
    - Quick steps: Create and use an SSH public-private key pair for Linux VMs in Azure
- configure, validate, and deploy ARM templates
    - Extend ARM templates by using deployment scripts
    - Advanced Azure Resource Manager template functionality
    - Azure Resource Manager templates overview
    - Tutorial: Create and deploy your first Azure Resource Manager template
- configure container images for solutions
    - Tutorial: Build and deploy container images in the cloud with Azure Container Registry Tasks
    - Tutorial: Create container images on a Linux Service Fabric cluster
    - Tutorial: Create a container image for deployment to Azure Container Instances
    - Build and store container images with Azure Container Registry (Microsoft Learn Module)
- publish an image to the Azure Container Registry
    - Push your first image to a private Docker container registry using the Docker CLI
- run containers by using Azure Container Instance
    - Run Docker containers with Azure Container Instances (Microsoft Learn Module)
    - What is Azure Container Instances?
    - Quickstart: Deploy a container instance in Azure using the Azure CLI
    - Quickstart: Deploy a container instance in Azure using the Azure portal
    - Quickstart: Deploy a container instance in Azure using Azure PowerShell
    - Tutorial: Deploy a container application to Azure Container Instances

Create Azure App Service Web Apps

- create an Azure App Service Web App
  - Create an ASP.NET Core web app in Azure
- enable diagnostics logging
  - Enable diagnostics logging for apps in Azure App Service
  - Capture Web Application Logs with App Service Diagnostics Logging (Microsoft Learn Module)
- deploy code to a web app
  - Deploy your app to Azure App Service with a ZIP or WAR file
  - Deploy an Azure Web App
  - Provision and deploy microservices predictably in Azure
- configure web app settings including SSL, API, and connection strings
  - Custom configuration and application settings in Azure Web Sites
  - Configure an App Service app in the Azure portal
  - Buy a custom domain name for Azure App Service
  - Add a TLS/SSL certificate in Azure App Service
- implement autoscaling rules, including scheduled autoscaling, and scaling by operational or system metrics
  - Scale up an app in Azure App Service
  - Get started with Autoscale in Azure

Implement Azure functions

- create and deploy Azure Functions apps
  - Getting started with Azure Functions
- implement input and output bindings for a function
  - Azure Functions triggers and bindings concepts
  - Azure Functions trigger and binding example
- implement function triggers by using data operations, timers, and webhooks
  - Azure Functions triggers and bindings concepts
  - Azure Functions trigger and binding example
  - Azure Functions HTTP triggers and bindings overview
- implement Azure Durable Functions
  - What are Durable Functions?
  - Create your first durable function in C#
- implement custom handlers
  - Azure Functions custom handlers

Develop for Azure storage (10-20%)

Develop solutions that use Cosmos DB storage

- select the appropriate API and SDK for a solution
  - Choose the appropriate API for Azure Cosmos DB storage (Microsoft Learn module)

    - Welcome to Azure Cosmos DB
    - Tutorial: Develop an ASP.NET Core MVC web application with Azure Cosmos DB by using .NET SDK
    - Tutorial: Build a .NET console app to manage data in Azure Cosmos DB SQL API account
    - Tutorial: Query Azure Cosmos DB by using the SQL API
    - Tutorial: Set up Azure Cosmos DB global distribution using the SQL API
- implement partitioning schemes and partition keys
    - Partitioning in Azure Cosmos DB
- perform operations on data and Cosmos DB containers
    - Azure Cosmos DB resource model
    - Provision standard (manual) throughput on an Azure Cosmos container – SQL API
- set the appropriate consistency level for operations
    - Partitioning and horizontal scaling in Azure Cosmos DB
    - Work with databases, containers, and items in Azure Cosmos DB
    - Choose the right consistency level
    - Consistency levels and Azure Cosmos DB APIs
    - Consistency, availability, and performance tradeoffs
- manage change feed notifications
    - Stored Procedures
    - Triggers
    - Change feed in Azure Cosmos DB

Develop solutions that use blob storage

- move items in Blob storage between storage accounts or containers
    - Copy and move blobs from one container or storage account to another from the command line and in code (Microsoft Learn module)
    - Transfer data with AzCopy and Blob storage
    - Using the Azure CLI with Azure Storage
- set and retrieve properties and metadata
    - Manage container properties and metadata with .NET
- perform operations on data by using the appropriate SDK
    - Quickstart: Azure Blob storage client library v12 for .NET
- implement storage policies, and data archiving and retention
    - Store business-critical blob data with immutable storage
    - Azure Blob storage: hot, cool, and archive access tiers
    - Rehydrate blob data from the archive tier
    - Azure Blob storage: hot, cool, and archive access tiers

Implement Azure security (20-25%)

Implement user authentication and authorization

- authenticate and authorize users by using the Microsoft Identity platform
    - What is the Microsoft identity platform?
    - Authentication vs. authorization
- authenticate and authorize users and apps by using Azure Active Directory
    - Develop line-of-business apps for Azure Active Directory
    - Authentication basics
- create and implement shared access signatures
    - Grant limited access to Azure Storage resources using shared access signatures (SAS)

Implement secure cloud solutions

- secure app configuration data by using App Configuration Azure Key Vault
    - Centralized app configuration and security
    - Securely save secret application settings for a web application
    - Use Key Vault references for App Service and Azure Functions
    - What is Azure App Configuration?
- develop code that uses keys, secrets, and certificates stored in Azure Key Vault
    - Azure Key Vault Developer's Guide
    - About keys, secrets, and certificates
    - Configure and manage secrets in Azure Key Vault (Microsoft Learn module)
- implement Managed Identities for Azure resources
    - What are managed identities for Azure resources?
- implement solutions that interact with Microsoft Graph
    - Build apps with Microsoft Graph
    - What are managed identities for Azure resources?
    - Tutorial: Use a user-assigned managed identity on a Windows VM to access Azure Resource Manager

Monitor, troubleshoot, and optimize Azure solutions (15-20%)

Integrate caching and content delivery within solutions

- configure cache and expiration policies for FrontDoor, CDNs, or Redis caches
    - Control Azure CDN caching behavior with caching rules
    - Caching with Azure Front Door
    - Quickstart: Create an Azure Cache for Redis instance
    - Best practices for Azure Cache for Redis
- implement secure and optimized application cache patterns including data sizing, connections, encryption, and expiration
    - Caching
    - Azure CDN Documentation
    - Best practices for using content delivery networks (CDNs)
    - Create an Azure CDN endpoint

    - What is Azure Front Door?
    - Azure Cache for Redis

Instrument solutions to support monitoring and logging

- configure an app or service to use Application Insights
    - Application Insights for ASP.NET Core applications
    - Quickstart: Start monitoring your website with Azure Monitor Application Insights
- analyze log data and troubleshoot solutions by using Azure Monitor
    - Monitoring solutions in Azure Monitor
    - Logs in Azure Monitor
    - Find and diagnose run-time exceptions with Azure Application Insights
    - Find and diagnose performance issues with Azure Application Insights
- implement Application Insights Web Test and Alerts
    - Creating an Application Insights Web Test and Alert Programmatically
    - Monitor the availability of any website

Connect to and consume Azure services and third-party services (15-20%)

Implement API management

- create an APIM instance
    - Create a new Azure API Management service instance
- configure authentication for APIs
    - How to secure APIs using client certificate authentication in API Management
- define policies for APIs
    - Policies in Azure API Management
    - API Management policies

Develop event-based solutions

- Choose between Azure messaging services – Event Grid, Event Hubs, and Service Bus
- implement solutions that use Azure Event Grid
    - What is Azure Event Grid?
    - Event-Driven Architecture in the Cloud with Azure Event Grid
    - Quickstart: Route custom events to web endpoint with the Azure portal and Event Grid
    - Tutorial: Monitor virtual machine changes by using Azure Event Grid and Logic Apps
- implement solutions that use Azure Event Hubs
    - Features and terminology in Azure Event Hubs
    - Quickstart: Create an event hub using Azure portal
    - Tutorial: Stream data into Azure Databricks using Event Hubs

Develop message-based solutions

- implement solutions that use Azure Service Bus
    - What is Azure Service Bus?
    - Quickstart: Use Azure portal to create a Service Bus queue
    - Get started with Service Bus queues
- implement solutions that use Azure Queue Storage queues
    - What are Azure queues?
    - Get started with Azure Queue storage using .NET