AZ-204: Developing Solutions for Microsoft Azure

Microsoft - Azure Apps & Infrastructure

Live Training (também disponível em presencial)

- **Localidade:** Aveiro
- **Data:** 17 Jul 2023
- **Preço:** 1400 € (Os valores apresentados não incluem IVA. Oferta de IVA a particulares e estudantes.)
- **Horário:** Laboral das 09h00 - 17h00
- **Nível:** Intermédio
- **Duração:** 35h

Sobre o curso

This course teaches developers how to create end-to-end solutions in Microsoft Azure.

Students will learn how to implement Azure compute solutions, create Azure Functions, implement and manage web apps, develop solutions utilizing Azure storage, implement authentication and authorization, and secure their solutions by using KeyVault and Managed Identities.

Students will also learn how to connect to and consume Azure services and third-party services, and include event- and message-based models in their solutions.

The course also covers monitoring, troubleshooting, and optimizing Azure solutions.

Destinatários

- Students in this course are interested in Azure development or in passing the Microsoft Azure Developer Associate certification exam.

Objetivos

- Prepare for Exam AZ-204: Developing Solutions for Microsoft Azure
- Explore hosting options, bindings, triggers, and how to use Durable Functions to define stateful workflows
- Create Azure Blob storage resources, manage data through the blob storage lifecycle, and work with containers and items by using the Azure Blob storage client library V12 for .NET
- Create Azure Cosmos DB resources with the appropriate consistency levels, choose and create a partition key, and perform data operations by using the .NET SDK V3 for Azure Cosmos DB
- Create and deploy virtual machine, deploy resources using Azure Resource Manager templates, and manage and deploy containers
- Implement authentication and authorization to resources by using the Microsoft identity platform, Microsoft Authentication Library, shared access signatures, and use Microsoft Graph
- Deploy apps in Azure by using Azure Key Vault, managed identities, and Azure App Configuration
- Create a backend API
- Build applications with event-based architectures by integrating Azure Event Grid and Azure Event Hubs in to your solution
- Build applications with message-based architectures by integrating Azure Service Bus and Azure Queue Storage in to your solution
- Instrument apps to enable Application Insights to monitor performance and help troubleshoot issues
- Improve the performance and scalability of your applications by integrating Azure Cache for Redis and Azure Content Delivery Network in to your solution

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Condições

Ao concluir com aproveitamento esta formação, cumprindo a percentagem mínima de 70% de assiduidade e após avaliação ao curso, o formando poderá receber o seu Certificado Microsoft de conclusão e o badge digital para partilhar com a sua rede profissional online.

Pré-requisitos

Students should have 1-2 years professional development experience and experience with Microsoft Azure. They must be able to program in an Azure Supported Language.

Programa

- Explore Azure App Service
- Configure web app settings
- Scale apps in Azure App Service
- Explore Azure App Service deployment slots
- Explore Azure Functions
- Develop Azure Functions
- Explore Azure Blob storage
- Manage the Azure Blob storage lifecycle
- Work with Azure Blob storage
- Explore Azure Cosmos DB
- Work with Azure Cosmos DB
- Manage container images in Azure Container Registry
- Run container images in Azure Container Instances
- Implement Azure Container Apps
- Explore the Microsoft identity platform
- Implement authentication by using the Microsoft Authentication Library
- Implement shared access signatures
- Explore Microsoft Graph
- Implement Azure Key Vault
- Implement managed identities
- Implement Azure App Configuration
- Explore API Management
- Explore Azure Event Grid
- Explore Azure Event Hubs
- Discover Azure message queues
- Monitor app performance
- Develop for Azure Cache for Redis
- Develop for storage on CDNs

Explore Azure App Service

Learn about the key components of Azure App Service and how App Service can help you create, maintain, and deploy web apps more efficiently.

After completing this module, you'll be able to:

- Describe Azure App Service key components and value.
- Explain how Azure App Service manages authentication and authorization.
- Identify methods to control inbound and outbound traffic to your web app.

- Deploy an app to App Service using Azure CLI commands.

- Introduction
- Examine Azure App Service
- Examine Azure App Service plans
- Deploy to App Service
- Explore authentication and authorization in App Service
- Discover App Service networking features
- Exercise: Create a static HTML web app by using Azure Cloud Shell
- Knowledge check
- Summary

Configure web app settings

Learn how to create and manage application settings, install SSL/TLS certificates to secure web traffic, enable diagnostic logging, create virtual app to directory mappings, and manage app features.

After completing this module, you'll be able to:

- Create application settings that are bound to deployment slots.
- Explain the options for installing SSL/TLS certificates for your app.
- Enable diagnostic logging for your app to aid in monitoring and debugging.
- Create virtual app to directory mappings.

- Introduction
- Configure application settings
- Configure general settings
- Configure path mappings
- Enable diagnostic logging
- Configure security certificates
- Knowledge check
- Summary

Scale apps in Azure App Service

Learn how autoscale operates in App Service and how to identify autoscale factors, enable autoscale,

and how to create sound autoscale conditions.

After completing this module, you'll be able to:

- Identify scenarios for which autoscaling is an appropriate solution.
- Create autoscaling rules for a web app.
- Monitor the effects of autoscaling.

- Introduction
- Examine autoscale factors
- Identify autoscale factors
- Enable autoscale in App Service
- Explore autoscale best practices
- Knowledge check
- Summary

Explore Azure App Service deployment slots

In this module you'll learn how slot swapping operates and how to perform a swap. You'll also learn how to route traffic to different slots manually and automatically.

After completing this module, you'll be able to:

- Describe the benefits of using deployment slots.
- Understand how slot swapping operates in App Service.
- Perform manual swaps and enable auto swap.
- Route traffic manually and automatically.

- Introduction
- Explore staging environments
- Examine slot swapping
- Swap deployment slots
- Route traffic in App Service
- Knowledge check
- Summary

Explore Azure Functions

Learn how Azure Functions can be a great solution for data processing, systems integration, and building simple APIs and microservices.

After completing this module, you will be able to:

- Explain functional differences between Azure Functions, Azure Logic Apps, and WebJobs
- Describe Azure Functions hosting plan options
- Describe how Azure Functions scale to meet business needs

- Introduction
- Discover Azure Functions
- Compare Azure Functions hosting options
- Scale Azure Functions
- Knowledge check
- Summary

Develop Azure Functions

Learn how to create and deploy Azure Functions.

After completing this module, you will be able to:

- Explain the key components of a function and how they are structured
- Create triggers and bindings to control when a function runs and where the output is directed
- Connect a function to services in Azure
- Create a function by using Visual Studio Code and the Azure Functions Core Tools

- Introduction
- Explore Azure Functions development
- Create triggers and bindings
- Connect functions to Azure services
- Exercise: Create an Azure Function by using Visual Studio Code
- Knowledge check
- Summary

Explore Azure Blob storage

Learn the core features and functionality of Azure Blob storage.

After completing this module, you'll be able to:

- Identify the different types of storage accounts and the resource hierarchy for blob storage.
- Explain how data is securely stored.
- Enable a storage account for static website hosting.

- Introduction
- Explore Azure Blob storage
- Discover Azure Blob storage resource types
- Explore Azure Storage security features
- Discover static website hosting in Azure Storage
- Knowledge check
- Summary

Manage the Azure Blob storage lifecycle

Learn how to manage data availability throughout the Azure Blob storage lifecycle.

After completing this module, you will be able to:

- Describe how each of the access tiers is optimized.
- Create and implement a lifecycle policy.
- Rehydrate blob data stored in an archive tier.

- Introduction
- Explore the Azure Blob storage lifecycle
- Discover Blob storage lifecycle policies
- Implement Blob storage lifecycle policies
- Rehydrate blob data from the archive tier
- Knowledge check
- Summary

Work with Azure Blob storage

Learn how to use the Azure Blob storage client library to create and update Blob storage resources.

After completing this module, you'll be able to:

- Create an application to create and manipulate data by using the Azure Storage client library for Blob storage.
- Manage container properties and metadata by using .NET and REST.

- Introduction
- Explore Azure Blob storage client library
- Create a client object
- Exercise: Create Blob storage resources by using the .NET client library
- Manage container properties and metadata by using .NET
- Set and retrieve properties and metadata for blob resources by using REST
- Knowledge check
- Summary

Explore Azure Cosmos DB

Learn the core features and functionality of Azure Cosmos DB.

After completing this module, you'll be able to:

- Identify the key benefits provided by Azure Cosmos DB
- Describe the elements in an Azure Cosmos DB account and how they are organized
- Explain the different consistency levels and choose the correct one for your project
- Explore the APIs supported in Azure Cosmos DB and choose the appropriate API for your solution
- Describe how request units impact costs
- Create Azure Cosmos DB resources by using the Azure portal.

- Introduction
- Identify key benefits of Azure Cosmos DB
- Explore the resource hierarchy
- Explore consistency levels
- Choose the right consistency level
- Explore supported APIs

- Discover request units
- Exercise: Create Azure Cosmos DB resources by using the Azure portal
- Knowledge check
- Summary

Work with Azure Cosmos DB

Learn how to develop client and server-side programming solutions on Azure Cosmos DB.

After completing this module, you'll be able to:

- Identify classes and methods used to create resources
- Create resources by using the Azure Cosmos DB .NET v3 SDK
- Write stored procedures, triggers, and user-defined functions by using JavaScript

- Introduction
- Explore Microsoft .NET SDK v3 for Azure Cosmos DB
- Exercise: Create resources by using the Microsoft .NET SDK v3
- Create stored procedures
- Create triggers and user-defined functions
- Explore change feed in Azure Cosmos DB
- Knowledge check
- Summary

Manage container images in Azure Container Registry

Learn how to use Azure Container Registry to store your container images, and automate builds and deployments.

After completing this module, you'll be able to:

- Explain the features and benefits Azure Container Registry offers.
- Describe how to use ACR Tasks to automate builds and deployments.
- Explain the elements in a Dockerfile.
- Build and run an image in the ACR by using Azure CLI.

- Introduction
- Discover the Azure Container Registry
- Explore storage capabilities
- Build and manage containers with tasks
- Explore elements of a Dockerfile
- Exercise: Build and run a container image by using Azure Container Registry Tasks
- Knowledge check
- Summary

Run container images in Azure Container Instances

Learn how Azure Container Instances can help you quickly deploy containers, how to set environment variables, and specify container restart policies.

After completing this module, you'll be able to:

- Describe the benefits of Azure Container Instances and how resources are grouped.
- Deploy a container instance in Azure by using the Azure CLI.
- Start and stop containers using policies.
- Set environment variables in your container instances.
- Mount file shares in your container instances.

- Introduction
- Explore Azure Container Instances
- Exercise – Deploy a container instance by using the Azure CLI
- Run containerized tasks with restart policies
- Set environment variables in container instances
- Mount an Azure file share in Azure Container Instances
- Knowledge check
- Summary

Implement Azure Container Apps

Learn how Azure Container Apps can help you deploy and manage microservices and containerized apps on a serverless platform that runs on top of Azure Kubernetes Service.

After completing this module, you'll be able to:

- Describe the benefits of Azure Container Instances and how resources are grouped
- Deploy a container instance in Azure by using the Azure CLI
- Start and stop containers using policies
- Set environment variables in your container instances
- Mount file shares in your container instances

- Introduction
- Explore Azure Container Apps
- Exercise – Deploy a container app
- Explore containers in Azure Container Apps
- Implement authentication and authorization in Azure Container Apps
- Manage revisions and secrets in Azure Container Apps
- Explore Dapr integration with Azure Container Apps
- Knowledge check
- Summary

Explore the Microsoft identity platform

Learn the core features and functionality of the Microsoft identity platform including authentication, libraries, and app management tools.

After completing this module, you'll be able to:

- Identify the components of the Microsoft identity platform.
- Describe the three types of service principals and how they relate to application objects.
- Explain how permissions and user consent operate, and how conditional access impacts your application.

- Introduction
- Explore the Microsoft identity platform
- Explore service principals
- Discover permissions and consent
- Discover conditional access
- Knowledge check
- Summary

Implement authentication by using the Microsoft Authentication Library

Learn how to implement authentication by using the Microsoft Authentication Library.

After completing this module, you'll be able to:

- Explain the benefits of using Microsoft Authentication Library and the application types and scenarios it supports.
- Instantiate both public and confidential client apps from code.
- Register an app with the Microsoft identity platform.
- Create an app that retrieves a token by using the MSAL.NET library.

- Introduction
- Explore the Microsoft Authentication Library
- Initialize client applications
- Exercise – Implement interactive authentication by using MSAL.NET
- Knowledge check
- Summary

Implement shared access signatures

Learn how to use shared access signatures to authorize access to storage resources.

After completing this module, you'll be able to:

- Identify the three types of shared access signatures.
- Explain when to implement shared access signatures.
- Create a stored access policy.

- Introduction
- Discover shared access signatures
- Choose when to use shared access signatures
- Explore stored access policies
- Knowledge check
- Summary

Explore Microsoft Graph

Learn how Microsoft Graph facilitates the access and flow of data and how to form queries through REST and code.

After completing this module, you'll be able to:

- Explain the benefits of using Microsoft Graph.
- Perform operations on Microsoft Graph by using REST and SDKs.
- Apply best practices to help your applications get the most out of Microsoft Graph.

- Introduction
- Discover Microsoft Graph
- Query Microsoft Graph by using REST
- Query Microsoft Graph by using SDKs
- Apply best practices to Microsoft Graph
- Knowledge check
- Summary

Implement Azure Key Vault

Learn how Azure Key Vault can help you keep your apps more secure, and how to set and retrieve secrets by using the Azure CLI.

After completing this module, you'll be able to:

- Describe the benefits of using Azure Key Vault
- Explain how to authenticate to Azure Key Vault
- Set and retrieve a secret from Azure Key Vault by using the Azure CLI

- Introduction
- Explore Azure Key Vault
- Discover Azure Key Vault best practices
- Authenticate to Azure Key Vault
- Exercise: Set and retrieve a secret from Azure Key Vault by using Azure CLI
- Knowledge check
- Summary

Implement managed identities

Learn how managed identities can help you deploy secure solutions on Azure without the need to manage credentials.

After completing this module, you'll be able to:

- Explain the differences between the two types of managed identities
- Describe the flows for user- and system-assigned managed identities
- Configure managed identities
- Acquire access tokens by using REST and code

- Introduction
- Explore managed identities
- Discover the managed identities authentication flow
- Configure managed identities
- Acquire an access token
- Knowledge check
- Summary

Implement Azure App Configuration

Learn how to use Azure App Configuration service to centrally manage and secure your configuration settings, and to manage app features.

After completing this module, you'll be able to:

- Explain the benefits of using Azure App Configuration
- Describe how Azure App Configuration stores information
- Implement feature management
- Securely access your app configuration information

- Introduction
- Explore the Azure App Configuration service
- Create paired keys and values
- Manage application features

- Secure app configuration data
- Knowledge check
- Summary

Explore API Management

Learn how the API Management service functions, how to transform and secure APIs, and how to create a backend API.

After completing this module, you'll be able to:

- Describe the components (and their functions) of the API Management service.
- Explain how API gateways can help manage calls to your APIs.
- Secure access to APIs by using subscriptions and certificates.
- Create a backend API.

- Introduction
- Discover the API Management service
- Explore API gateways
- Explore API Management policies
- Create advanced policies
- Secure APIs by using subscriptions
- Secure APIs by using certificates
- Exercise – Create a backend API
- Knowledge check
- Summary

Explore Azure Event Grid

Learn how to integrate Azure Event Grid in to your solution, implement access control to events, and how to route custom events to web endpoint by using Azure CLI.

After completing this module, you'll be able to:

- Describe how Event Grid operates and how it connects to services and event handlers.
- Explain how Event Grid delivers events and how it handles errors.
- Implement authentication and authorization.
- Route custom events to web endpoint by using Azure CLI.

- Introduction
- Explore Azure Event Grid
- Discover event schemas
- Explore event delivery durability
- Control access to events
- Receive events by using webhooks
- Filter events
- Exercise – Route custom events to web endpoint by using Azure CLI
- Knowledge check
- Summary

Explore Azure Event Hubs

Learn how Azure Event Hubs captures events and how to scale your processing application.

After completing this module, you'll be able to:

- Describe the benefits of using Event Hubs and how it captures streaming data.
- Explain how to process events.
- Perform common operations with the Event Hubs client library.

- Introduction
- Discover Azure Event Hubs
- Explore Event Hubs Capture
- Scale your processing application
- Control access to events
- Perform common operations with the Event Hubs client library
- Knowledge check
- Summary

Discover Azure message queues

Learn how to integrate Azure Service Bus and Azure Queue storage in to your solution, and how to send and receive message by using .NET.

After completing this module, you'll be able to:

- Choose the appropriate queue mechanism for your solution.
- Explain how the messaging entities that form the core capabilities of Service Bus operate.
- Send and receive message from a Service Bus queue by using .NET.
- Identify the key components of Azure Queue Storage
- Create queues and manage messages in Azure Queue Storage by using .NET.

- Introduction
- Choose a message queue solution
- Explore Azure Service Bus
- Discover Service Bus queues, topics, and subscriptions
- Explore Service Bus message payloads and serialization
- Exercise: Send and receive message from a Service Bus queue by using .NET.
- Explore Azure Queue Storage
- Create and manage Azure Queue Storage and messages by using .NET
- Knowledge check
- Summary

Monitor app performance

Learn how to use the tools offered in Application Insights to enhance the performance and stability of your applications.

After completing this module, you'll be able to:

- Explain how Azure Monitor operates as the center of monitoring in Azure.
- Describe how Application Insights works and how it collects events and metrics.
- Instrument an app for monitoring, perform availability tests, and use Application Map to help you monitor performance and troubleshoot issues

- Introduction
- Explore Application Insights
- Discover log-based metrics
- Instrument an app for monitoring
- Select an availability test
- Troubleshoot app performance by using Application Map
- Knowledge check
- Summary

Develop for Azure Cache for Redis

Learn how to configure Azure Cache for Redis, interact with the cache, and connect an application to Azure Cache for Redis by using .NET.

After completing this module, you'll be able to:

- Explain the key scenarios Azure Cache for Redis covers and its service tiers.
- Identify the key parameters for creating an Azure Cache for Redis instance and interact with the cache.
- Connect an app to Azure Cache for Redis by using .NET Core.

- Introduction
- Explore Azure Cache for Redis
- Configure Azure Cache for Redis
- Interact with Azure Cache for Redis by using .NET
- Exercise – Connect an app to Azure Cache for Redis by using .NET Core
- Knowledge check
- Summary

Develop for storage on CDNs

Learn how the Azure Content Delivery Network (CDN) functions, how to control cache behavior, and how to perform actions by using .NET.

After completing this module, you'll be able to:

- Explain how the Azure Content Delivery Network works and how it can improve the user experience.
- Control caching behavior and purge content.
- Perform actions on Azure CDN by using the Azure CDN Library for .NET.

- Introduction
- Explore Azure Content Delivery Networks
- Control cache behavior on Azure Content Delivery Networks
- Interact with Azure Content Delivery Networks by using .NET
- Knowledge check
- Summary