

Study guide for Exam AZ-204: Developing Solutions for Microsoft Azure

Purpose of this document

This study guide should help you understand what to expect on the exam and includes a summary of the topics the exam might cover and links to additional resources. The information and materials in this document should help you focus your studies as you prepare for the exam.

Useful links	Description
Review the skills measured as of April 18, 2023	This list represents the skills measured AFTER the date provided. Study this list if you plan to take the exam AFTER that date.
Review the skills measured prior to April 18, 2023	Study this list of skills if you take your exam PRIOR to the date provided.
Change log	You can go directly to the change log if you want to see the changes that will be made on the date provided.
How to earn the certification	Some certifications only require passing one exam, while others require passing multiple exams.
Certification renewal	Microsoft associate, expert, and specialty certifications expire annually. You can renew by passing a free online assessment on Microsoft Learn.
Your Microsoft Learn profile	Connecting your certification profile to Microsoft Learn allows you to schedule and renew exams and share and print certificates.
Exam scoring and score reports	A score of 700 or greater is required to pass.
Exam sandbox	You can explore the exam environment by visiting our exam sandbox.
Request accommodations	If you use assistive devices, require extra time, or need modification to any part of the exam experience, you can request an accommodation.

Useful links	Description
Take a free Practice Assessment	Test your skills with practice questions to help you prepare for the exam.

Updates to the exam

Our exams are updated periodically to reflect skills that are required to perform a role. We have included two versions of the Skills Measured objectives depending on when you are taking the exam.

We always update the English language version of the exam first. Some exams are localized into other languages, and those are updated approximately eight weeks after the English version is updated. Other available languages are listed in the **Schedule Exam** section of the **Exam Details** webpage. If the exam isn't available in your preferred language, you can request an additional 30 minutes to complete the exam.

Note

The bullets that follow each of the skills measured are intended to illustrate how we are assessing that skill. Related topics may be covered in the exam.

Note

Most questions cover features that are general availability (GA). The exam may contain questions on Preview features if those features are commonly used.

Skills measured as of April 18, 2023

Audience profile

Candidates are responsible for participating in all phases of development including requirements gathering, design, development, deployment, security, maintenance, performance tuning, and monitoring. They should be proficient in Azure: SDKs, data storage options, data connections, APIs, app authentication/authorization, compute/container deployment, and debugging.

Candidates partner with cloud solution architects, DBAs, DevOps, infrastructure admins, and other stakeholders to implement solutions.

Candidates should have at least 2 years of professional development experience and experience with Microsoft Azure. They should be able to program in an Azure-supported language, and should be proficient using Azure CLI, Azure PowerShell, and other tools.

- Develop Azure compute solutions (25–30%)
- Develop for Azure storage (15–20%)
- Implement Azure security (20–25%)
- Monitor, troubleshoot, and optimize Azure solutions (15–20%)
- Connect to and consume Azure services and third-party services (15–20%)

Develop Azure compute solutions (25–30%)

Implement containerized solutions

- Create and manage container images for solutions
- Publish an image to Azure Container Registry
- Run containers by using Azure Container Instance
- Create solutions by using Azure Container Apps

Implement Azure App Service Web Apps

- Create an Azure App Service Web App
- Enable diagnostics logging
- Deploy code to a web app
- Configure web app settings including SSL, API settings, and connection strings
- Implement autoscaling

Implement Azure Functions

- Create and configure an Azure Function App
- Implement input and output bindings
- Implement function triggers by using data operations, timers, and webhooks

Develop for Azure storage (15–20%)

Develop solutions that use Azure Cosmos DB

- Perform operations on containers and items by using the SDK
- Set the appropriate consistency level for operations
- Implement change feed notifications

Develop solutions that use Azure Blob Storage

- Set and retrieve properties and metadata
- Perform operations on data by using the appropriate SDK
- Implement storage policies and data lifecycle management
- Implement static site hosting

Implement Azure security (20–25%)

Implement user authentication and authorization

- Authenticate and authorize users by using the Microsoft Identity platform
- Authenticate and authorize users and apps by using Microsoft Azure Active Directory (Azure AD), part of Microsoft Entra
- Create and implement shared access signatures
- Implement solutions that interact with Microsoft Graph

Implement secure Azure solutions

- Secure app configuration data by using App Configuration or Azure Key Vault
- Develop code that uses keys, secrets, and certificates stored in Azure Key Vault
- Implement Managed Identities for Azure resources

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

Implement caching for solutions

- Configure cache and expiration policies for Azure Cache for Redis
- Implement secure and optimized application cache patterns including data sizing, connections, encryption, and expiration
- Implement Azure CDN endpoints and profiles

Troubleshoot solutions by using Application Insights

- Configure an app or service to use Application Insights
- Monitor and analyze metrics, logs, and traces
- Implement Application Insights web tests and alerts

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

Implement API Management

- Create an APIM instance
- Create and document APIs
- Configure authentication for APIs
- Implement policies for APIs

Develop event-based solutions

- Implement solutions that use Azure Event Grid
- Implement solutions that use Azure Event Hub

Develop message-based solutions

- Implement solutions that use Azure Service Bus
- Implement solutions that use Azure Queue Storage queues

Study resources

We recommend that you train and get hands-on experience before you take the exam. We offer self-study options and classroom training as well as links to documentation, community sites, and videos.

Study resources	Links to learning and documentation
Get trained	Choose from self-paced learning paths and modules or take an instructor led course
Find documentation	Azure documentation Container Registry Container Instances App Service Azure Functions Azure Cosmos DB Blob Storage Azure Active Directory (AD) Key Vault Azure Cache for Redis API Apps API Management Event Hubs Event Grid Service Bus Queue Storage
Ask a question	Microsoft Q&A Microsoft Docs
Get community support	Azure Community Support
Follow Microsoft Learn	Microsoft Learn - Microsoft Tech Community
Find a video	Exam Readiness Zone Azure Fridays Browse other Microsoft Learn shows

Change log

Key to understanding the table: The topic groups (also known as functional groups) are in bold typeface followed by the objectives within each group. The table is a comparison between the two versions of the exam skills measured and the third column describes the extent of the changes.

Skill area prior to April 18, 2023	Skill area as of April 18, 2023	Change
Audience profile		Minor
Develop Azure compute solutions	Develop Azure compute solutions	No change
Implement IaaS solutions	Implement containerized solutions	Major
Create Azure App Service Web Apps	Implement Azure App Service Web Apps	Minor
Implement Azure Functions	Implement Azure Functions	Major
Develop for Azure storage	Develop for Azure storage	No change
Develop solutions that use Cosmos DB storage	Develop solutions that use Azure Cosmos DB	Major
Develop solutions that use blob storage	Develop solutions that use Azure Blob Storage	Major
Implement Azure security	Implement Azure security	No change
Implement user authentication and authorization	Implement user authentication and authorization	No change
Implement secure cloud solutions	Implement secure Azure solutions	Minor
Monitor, troubleshoot, and optimize Azure solutions	Monitor, troubleshoot, and optimize Azure solutions	No change
Implement caching for solutions	Implement caching for solutions	Minor
Troubleshoot solutions by using metrics and log data	Troubleshoot solutions by using Application Insights	Minor
Connect to and consume Azure services and third-party services	Connect to and consume Azure services and third-party services	No change
Implement API Management	Implement API Management	Minor
Develop event-based solutions	Develop event-based solutions	No change
Develop message-based solutions	Develop message-based solutions	No change

Skills measured prior to April 18, 2023

Audience profile

Candidates for this exam are cloud developers who participate in all phases of development from requirements definition and design to development, deployment, and maintenance. They partner with cloud DBAs, cloud administrators, and clients to implement solutions.

Candidates should be proficient in Azure SDKs, data storage options, data connections, APIs, app authentication and authorization, compute, and container deployment, debugging, performance tuning, and monitoring.

Candidates should have 1-2 years professional development experience and experience with Microsoft Azure. They should be able to program in an Azure-supported language, and should be proficient using Azure CLI, Azure PowerShell, and other tools.

- Develop Azure compute solutions (25–30%)
- Develop for Azure storage (15–20%)
- Implement Azure security (20–25%)
- Monitor, troubleshoot, and optimize Azure solutions (15–20%)
- Connect to and consume Azure services and third-party services (15–20%)

Develop Azure compute solutions (25–30%)

Implement IaaS solutions

- Provision virtual machines (VMs)
- Configure, validate, and deploy ARM templates
- Configure container images for solutions
- Publish an image to Azure Container Registry
- Run containers by using Azure Container Instance

Create Azure App Service Web Apps

- Create an Azure App Service Web App
- Enable diagnostics logging
- Deploy code to a web app
- Configure web app settings including SSL, API settings, and connection strings
- Implement autoscaling rules including scheduled autoscaling and autoscaling by operational or system metrics

Implement Azure Functions

- Create and deploy Azure Functions apps
- Implement input and output bindings for a function
- Implement function triggers by using data operations, timers, and webhooks
- Implement Azure Durable Functions

Develop for Azure storage (15–20%)

Develop solutions that use Azure Cosmos DB storage

- Select the appropriate API and SDK for a solution
- Implement partitioning schemes and partition keys
- Perform operations on data and Azure Cosmos DB containers
- Set the appropriate consistency level for operations
- Manage change feed notifications

Develop solutions that use blob storage

- Move items in Blob storage between storage accounts or containers
- Set and retrieve properties and metadata
- Perform operations on data by using the appropriate SDK
- Implement storage policies, data archiving, and retention

Implement Azure security (20–25%)

Implement user authentication and authorization

- Authenticate and authorize users by using the Microsoft Identity platform
- Authenticate and authorize users and apps by using Microsoft Azure Active Directory (Azure AD), part of Microsoft Entra
- Create and implement shared access signatures
- Implement solutions that interact with Microsoft Graph

Implement secure cloud solutions

- Secure app configuration data by using App Configuration or Azure Key Vault
- Develop code that uses keys, secrets, and certificates stored in Azure Key Vault
- Implement Managed Identities for Azure resources

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

Implement caching for solutions

- Configure cache and expiration policies for Azure Cache for Redis
- Implement secure and optimized application cache patterns including data sizing, connections, encryption, and expiration

Troubleshoot solutions by using metrics and log data

- Configure an app or service to use Application Insights
- Review and analyze metrics and log data
- Implement Application Insights web tests and alerts

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

Implement API Management

- Create an APIM instance
- Create and document APIs
- Configure authentication for APIs
- Define policies for APIs

Develop event-based solutions

- Implement solutions that use Azure Event Grid
- Implement solutions that use Azure Event Hub

Develop message-based solutions

- Implement solutions that use Azure Service Bus
- Implement solutions that use Azure Queue Storage queues