

# Study Guide

## Exam AZ-204: Developing Solutions for Microsoft Azure

### Quick navigation

[Purpose of this document](#)

[Certification](#)

[Certification journey](#)

[Certification renewal](#)

[About the exam](#)

[Passing score](#)

[What to expect on the exam](#)

[Prepare to take the exam](#)

[Request accommodations](#)

[Take practice tests](#)

[Objective domain: skills the exam measures](#)

[Skills measured](#)

[Functional groups](#)

[Corresponding learning paths and modules](#)

[Additional study resources](#)

# Purpose of this document

This study guide should help you understand what to expect on *Exam AZ-204: Developing Solutions for Microsoft Azure*, 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.

## Certification

### Certification journey

For an overview of attaining Microsoft Certification, including prerequisites (if any) and additional resources, explore [The journey to Microsoft Certified: Azure Developer Associate](#).

### Certification renewal

Once you earn your certification, don't let it expire. When you have an active certification that's expiring within six months, you should renew it—at no cost—by passing a [renewal assessment on Microsoft Learn](#). Remember to renew your certification annually if you want to retain it.

To identify which certifications are available for you to renew, visit your Certifications in your Microsoft Learn profile:

- Ensure your certification profile is connected to your Learn profile.
- Expect an email that directs you to the applicable assessment that you must pass on Microsoft Learn. You'll receive this email as soon as you have a certification that you're eligible to renew.
- When you pass an online assessment, your certification will extend by one year from the current expiration date.
- To help prepare for the assessment, explore the collection of free modules on the certification renewal page.

## About the exam

[Exam AZ-204: Developing Solutions for Microsoft Azure](#) is required to earn the [Azure Developer Associate certification](#).

This exam measures your ability to accomplish the following technical tasks: develop Azure compute solutions; develop for Azure storage; implement Azure security; monitor, troubleshoot, and optimize Azure solutions; and connect to and consume Azure services and third-party services. You'll be able to select the code language (C# or Python) that's included in the questions when you launch the exam.

As an exam candidate, you should have 1–2 years professional development experience and experience with Microsoft Azure. In addition, you should be able 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.

## Passing score

A passing score is 700. [Learn more about exam scoring and score reports.](#)

## What to expect on the exam

Are you new to Microsoft certification exams? You can explore the exam environment by visiting our [exam sandbox](#). We created the sandbox so you have an opportunity to experience an exam before you take it. In the sandbox, you can interact with different question types, such as *build list*, *case studies*, and others that you might encounter in the user interface when you take an exam. Additionally, it includes the introductory screens, instructions, and help topics related to the different types of questions that your exam might include. It also includes the non-disclosure agreement that you must accept before you can launch the exam.

## Prepare to take the exam

There are several points to consider, or pursue, as you prepare for an exam. The following sections detail those points.

## Request accommodations

We're committed to ensuring all learners are set up for success. If you use assistive devices, require extra time, or need modification to any part of the exam experience, you can request an accommodation. We encourage you to learn more about available accommodations and how to obtain them by [visiting this page](#).

## Take practice tests

Taking a practice test is a great way to know whether you're ready to take the exam or if you need to study a bit more. Subject-matter experts write the Microsoft Official Practice Tests, which are designed to assess all exam objectives. Take the [AZ-204: Developing Solutions for Microsoft Azure Microsoft Official Practice Test](#).

## Objective domain: skills the exam measures

The English language version of this exam was updated on April 19, 2022. If you're taking this exam's English version on or after this date, this is the correct study guide.

Some exams are localized into other languages, and those are updated approximately eight weeks after the English version is released. 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

- 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%)

## Functional groups

### 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 Cosmos DB storage**

- Select the appropriate API and SDK for a solution
- Implement partitioning schemes and partition keys
- Perform operations on data and 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 Azure Active Directory
- 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

## Corresponding learning paths and modules

The design of learning paths and modules should teach you how to perform a role and will help you study for the applicable exam. However, learning paths aren't always in the same order as an exam's "skills measured" list. Therefore, we've created a convenient table that links the skills measured to specific paths and modules.

Exam skills measured	Links to learning paths
<b>Develop Azure compute solutions (25–30%)</b>	<a href="#">AZ-204 Learning Path: Create Azure App Service web apps</a> <ul style="list-style-type: none"> <li>• <a href="#">Explore Azure App Service</a></li> <li>• <a href="#">Configure web app settings</a></li> <li>• <a href="#">Scale apps in Azure App Service</a></li> <li>• <a href="#">Explore Azure App Service deployment slots</a></li> </ul> <a href="#">AZ-204 Learning Path: Implement Azure Functions</a> <ul style="list-style-type: none"> <li>• <a href="#">Explore Azure Functions</a></li> <li>• <a href="#">Develop Azure Functions</a></li> <li>• <a href="#">Implement Durable Functions</a></li> </ul>
<b>Develop for Azure storage (15–20%)</b>	<a href="#">AZ-204 Learning Path: Develop solutions that use Blob storage</a> <ul style="list-style-type: none"> <li>• <a href="#">Explore Azure Blob storage</a></li> <li>• <a href="#">Manage the Azure Blob storage lifecycle</a></li> <li>• <a href="#">Work with Azure Blob storage</a></li> </ul>

Exam skills measured	Links to learning paths
	<p><a href="#">AZ-204 Learning Path: Develop solutions that use Azure Cosmos DB</a></p> <ul style="list-style-type: none"> <li>• <a href="#">Explore Azure Cosmos DB</a></li> <li>• <a href="#">Implement partitioning in Azure Cosmos DB</a></li> <li>• <a href="#">Work with Azure Cosmos DB</a></li> </ul> <p><a href="#">AZ-204 Learning Path: Implement Infrastructure as a service solutions</a></p> <ul style="list-style-type: none"> <li>• <a href="#">Provision virtual machines in Azure</a></li> <li>• <a href="#">Create and deploy Azure Resource Manager templates</a></li> <li>• <a href="#">Manage container images in Azure Container Registry</a></li> <li>• <a href="#">Run container images in Azure Container Instances</a></li> </ul>
<b>Implement Azure security (20–25%)</b>	<p><a href="#">AZ-204 Learning Path: Implement user authentication and authorization</a></p> <ul style="list-style-type: none"> <li>• <a href="#">Explore the Microsoft identity platform</a></li> <li>• <a href="#">Implement authentication by using the Microsoft Authentication Library</a></li> <li>• <a href="#">Implement shared access signatures</a></li> <li>• <a href="#">Explore Microsoft Graph</a></li> </ul> <p><a href="#">AZ-204 Learning Path: Implement secure cloud solutions</a></p> <ul style="list-style-type: none"> <li>• <a href="#">Implement Azure Key Vault</a></li> <li>• <a href="#">Implement managed identities</a></li> <li>• <a href="#">Implement Azure App Configuration</a></li> </ul>
<b>Monitor, troubleshoot, and optimize Azure solutions (15–20%)</b>	<p><a href="#">AZ-204 Learning Path: Instrument solutions to support monitoring and logging</a></p> <ul style="list-style-type: none"> <li>• <a href="#">Monitor app performance</a></li> </ul> <p><a href="#">AZ-204 Learning Path: Integrate caching and content delivery within solutions</a></p> <ul style="list-style-type: none"> <li>• <a href="#">Develop for Azure Cache for Redis</a></li> <li>• <a href="#">Develop for storage on CDNs</a></li> </ul>
<b>Connect to and consume Azure services and third-party services (15–20%)</b>	<p><a href="#">AZ-204 Learning Path: Implement API Management</a></p> <ul style="list-style-type: none"> <li>• <a href="#">Explore API Management</a></li> </ul> <p><a href="#">AZ-204 Learning Path: Develop message-based solutions</a></p> <ul style="list-style-type: none"> <li>• <a href="#">Discover Azure message queues</a></li> </ul>

## Exam skills measured

## Links to learning paths

[AZ-204 Learning Path: Develop event-based solutions](#)

- [Explore Azure Event Grid](#)
- [Explore Azure Event Hubs](#)

## Additional study resources

We offer several resources to help you prepare for the exam and stay current and engaged with the Microsoft Azure community. These resources range from formal training to blogs and even interviews with Microsoft team members.

## Study resource link

## Resource description

[Course AZ-204T00: Developing Solutions for Microsoft Azure](#)

Take a five-day, instructor-led course that teaches developers how to create end-to-end solutions in Microsoft Azure.

[Exam Prep Videos](#)

Visit our Exam Readiness Zone for short videos on strategies and tips to prepare for this exam.

[Azure documentation](#)

Stay informed on the latest products, tools, and features, and get information on pricing, partners, support, solutions, and more.

[Azure Community Support](#)

Ask questions, get answers, and connect with Microsoft engineers and Azure community experts.

[Microsoft Learn Community Blog](#)

Get the latest information about certification tests and exam study groups.

[Azure Fridays](#)

Scott Hanselman, Partner Program Manager, speaks with Azure engineers as they demo capabilities and share insights.

[Microsoft Azure Blog](#)

Keep current on what's happening in Azure, including what's in preview and what's generally available, along with Azure news, updates, and much more.