

# Microsoft Certified: Azure Developer Associate – Skills Measured

**This document contains the skills measured on the exams associated with this certification. It does not include any upcoming or recent changes that have been made to those skills. For more information about upcoming or recent changes, see the associated exam details page(s).**

## Develop Azure Infrastructure as a Service compute solution

### Implement solutions that use virtual machines (VM)

- provision VMs
- create ARM templates
- configure Azure Disk Encryption for VMs

### Implement batch jobs by using Azure Batch Services

- manage batch jobs by using Batch Service API
- run a batch job by using Azure CLI, Azure portal, and other tools
- write code to run an Azure Batch Services batch job

### Create containerized solutions

- create an Azure Managed Kubernetes Service (AKS) cluster
- create container images for solutions
- publish an image to the Azure Container Registry
- run containers by using Azure Container Instance or AKS

## Develop Azure Platform as a Service compute solution

### Create Azure App Service Web Apps

- create an Azure App Service Web App
- create an Azure App Service background task by using WebJobs
- enable diagnostics logging
- create an Azure Web App for containers
- monitor service health by using Azure Monitor

### Create Azure App Service mobile apps

- add push notifications for mobile apps
- enable offline sync for mobile app

- implement a remote instrumentation strategy for mobile devices

### **Create Azure App Service API apps**

- create an Azure App Service API app
- create documentation for the API by using open source and other tools

### **Implement Azure functions**

- implement input and output bindings for a function
- implement function triggers by using data operations, timers, and webhooks
- implement Azure Durable Functions
- create Azure Function apps by using Visual Studio
- implement Python Azure functions

## **Develop for Azure storage**

### **Develop solutions that use storage tables**

- design and implement policies for tables
- query table storage by using code
- implement partitioning schemes

### **Develop solutions that use Cosmos DB storage**

- create, read, update, and delete data by using appropriate APIs
- implement partitioning schemes
- set the appropriate consistency level for operations

### **Develop solutions that use a relational database**

- provision and configure relational databases
- configure elastic pools for Azure SQL Database
- create, read, update, and delete data tables by using code
- provision and configure Azure SQL Database serverless instances
- provision and configure Azure SQL and Azure PostgreSQL Hyperscale instances

### **Develop solutions that use blob storage**

- move items in Blob storage between storage accounts or containers
- set and retrieve properties and metadata
- implement blob leasing
- implement data archiving and retention
- implement Geo Zone Redundant storage

## **Implement Azure security**

### **Implement authentication**

- implement authentication by using certificates, forms-based authentication, or tokens
- implement multi-factor or Windows authentication by using Azure AD
- implement OAuth2 authentication
- implement Managed identities/Service Principal authentication
- implement Microsoft identity platform

### **Implement access control**

- implement CBAC (Claims-Based Access Control) authorization
- implement RBAC (Role-Based Access Control) authorization
- create shared access signatures

### **Implement secure data solutions**

- encrypt and decrypt data at rest and in transit
- create, read, update, and delete keys, secrets, and certificates by using the KeyVault API

## **Monitor, troubleshoot, and optimize Azure solutions**

### **Develop code to support scalability of apps and services**

- implement autoscaling rules and patterns (schedule, operational/system metrics, singleton applications)
- implement code that handles transient faults
- implement AKS scaling strategies

### **Integrate caching and content delivery within solutions**

- store and retrieve data in Azure Redis cache
- develop code to implement CDN's in solutions
- invalidate cache content (CDN or Redis)

### **Instrument solutions to support monitoring and logging**

- configure instrumentation in an app or service by using Application Insights
- analyze and troubleshoot solutions by using Azure Monitor
- implement Application Insights Web Test and Alerts

## **Connect to and consume Azure services and third-party services**

## **Develop an App Service Logic App**

- create a Logic App
- create a custom connector for Logic Apps
- create a custom template for Logic Apps

## **Integrate Azure Search within solutions**

- create an Azure Search index
- import searchable data
- query the Azure Search index
- implement cognitive search

## **Implement API management**

- establish API Gateways
- create an APIM instance
- configure authentication for APIs
- define policies for APIs

## **Develop event-based solutions**

- implement solutions that use Azure Event Grid
- implement solutions that use Azure Notification Hubs
- 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