

# Study guide for Exam DP-300: Administering Microsoft Azure SQL Solutions

## 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
<a href="#">Review the skills measured as of February 2, 2023</a>	This list represents the skills measured AFTER the date provided. Study this list if you plan to take the exam AFTER that date.
<a href="#">Review the skills measured prior to February 2, 2023</a>	Study this list of skills if you take your exam PRIOR to the date provided.
<a href="#">Change log</a>	You can go directly to the change log if you want to see the changes that will be made on the date provided.
<a href="#">How to earn the certification</a>	Some certifications only require passing one exam, while others require passing multiple exams.
<a href="#">Certification renewal</a>	Microsoft associate, expert, and specialty certifications expire annually. You can renew by passing a <b>free</b> online assessment on Microsoft Learn.
<a href="#">Your Microsoft Learn profile</a>	Connecting your certification profile to Microsoft Learn allows you to schedule and renew exams and share and print certificates.
<a href="#">Exam scoring and score reports</a>	A score of 700 or greater is required to pass.
<a href="#">Exam sandbox</a>	You can explore the exam environment by visiting our exam sandbox.

Useful links	Description
<a href="#">Request accommodations</a>	If you use assistive devices, require extra time, or need modification to any part of the exam experience, you can request an accommodation.
<a href="#">Take a practice test</a>	Are you ready to take the exam or do you need to study a bit more?

## 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. Although Microsoft makes every effort to update localized versions as noted, there may be times when the localized versions of an exam are not updated on this schedule. 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 February 2, 2023

### Audience profile

Candidates for this exam should have subject matter expertise in building database solutions that are designed to support multiple workloads built with SQL Server on-premises and Azure SQL database services.

Candidates for this exam are database administrators who manage on-premises and cloud databases built with SQL Server and SQL database services.

The Azure database administrator implements and manages the operational aspects of cloud-native and hybrid data platform solutions built on SQL Server and SQL database services. Professionals in this role use a variety of methods and tools to perform and automate day-to-day operations, including applying knowledge of using T-SQL and other tools for administrative management purposes.

These professionals are responsible for management, availability, security, and performance monitoring and optimization of database solutions. They evaluate and implement migration strategies for moving databases between Azure and on-premises. Plus, they work with Azure data engineers, Azure solution architects, Azure developers, Data Scientist and other professionals to manage operational aspects of data platform solutions.

Candidates for this exam should have knowledge of and experience with Azure SQL Edge, Azure SQL Database, Azure SQL Managed Instance, and SQL Server on Azure Virtual Machines (Windows and Linux).

- Plan and implement data platform resources (20–25%)
- Implement a secure environment (15–20%)
- Monitor, configure, and optimize database resources (20–25%)
- Configure and manage automation of tasks (15–20%)
- Plan and configure a high availability and disaster recovery (HA/DR) environment (20–25%)

## **Plan and implement data platform resources (20–25%)**

### **Plan and deploy Azure SQL Database solutions**

- Deploy database offerings on selected platforms
- Understand automated deployment
- Apply patches and updates for hybrid and infrastructure as a service (IaaS) deployment
- Deploy hybrid SQL Server database solutions
- Recommend an appropriate database offering based on specific requirements
- Evaluate the security aspects of the possible database offering
- Recommend a table partitioning solution
- Recommend a database sharding solution

### **Configure resources for scale and performance**

- Configure Azure SQL Database for scale and performance
- Configure Azure SQL Managed Instance for scale and performance
- Configure SQL Server on Azure Virtual Machines for scale and performance
- Configure table partitioning
- Configure data compression

### **Plan and implement a migration strategy**

- Evaluate requirements for the migration
- Evaluate offline or online migration strategies
- Implement an online migration strategy
- Implement an offline migration strategy
- Perform post migration validations
- Troubleshoot a migration
- Set up SQL Data Sync for Azure

- Implement a migration to Azure
- Implement a migration between Azure SQL services

## **Implement a secure environment (15–20%)**

### **Configure database authentication and authorization**

- Configure authentication by using Active Directory and Microsoft Azure Active Directory (Azure AD), part of Microsoft Entra
- Create users from Azure AD identities
- Configure security principals
- Configure database and object-level permissions using graphical tools
- Apply principle of least privilege for all securables
- Troubleshoot authentication and authorization issues
- Manage authentication and authorization by using T-SQL

### **Implement security for data at rest and data in transit**

- Implement transparent data encryption (TDE)
- Implement object-level encryption
- Configure server- and database-level firewall rules
- Implement Always Encrypted
- Configure secure access
- Configure Transport Layer Security (TLS)

### **Implement compliance controls for sensitive data**

- Apply a data classification strategy
- Configure server and database audits
- Implement data change tracking
- Implement dynamic data masking
- Manage database resources by using Azure Purview
- Implement Azure SQL Database ledger
- Implement row-level security
- Configure Microsoft Defender for SQL

## **Monitor, configure, and optimize database resources (20–25%)**

### **Monitor resource activity and performance**

- Prepare an operational performance baseline
- Determine sources for performance metrics
- Interpret performance metrics
- Configure and monitor activity and performance
- Monitor by using SQL Insights

- Monitor by using Extended Events

## Monitor and optimize query performance

- Configure Query Store
- Monitor by using Query Store
- Identify sessions that cause blocking
- Identify performance issues using dynamic management views (DMVs)
- Identify and implement index changes for queries
- Recommend query construct modifications based on resource usage
- Assess the use of query hints for query performance
- Review execution plans

## Configure database solutions for optimal performance

- Implement index maintenance tasks
- Implement statistics maintenance tasks
- Implement database integrity checks
- Configure database automatic tuning
- Configure server settings for performance
- Configure Resource Governor for performance
- Implement database-scoped configuration
- Configure compute and storage resources for scaling
- Configure intelligent query processing (IQP)

## Configure and manage automation of tasks (15–20%)

### Create and manage SQL Server Agent jobs

- Manage schedules for regular maintenance jobs
- Configure job alerts and notifications
- Troubleshoot SQL Server Agent jobs

### Automate deployment of database resources

- Automate deployment by using Azure Resource Manager templates (ARM templates) and Bicep
- Automate deployment by using PowerShell
- Automate deployment by using Azure CLI
- Monitor and troubleshoot deployments

### Create and manage database tasks in Azure

- Create and configure elastic jobs
- Create and configure database tasks by using automation
- Automate database workflows by using Azure Logic Apps
- Configure alerts and notifications on database tasks

- Troubleshoot automated database tasks

## Plan and configure a high availability and disaster recovery (HA/DR) environment (20–25%)

### Recommend an HA/DR strategy for database solutions

- Recommend HA/DR strategy based on Recovery Point Objective/Recovery Time Objective (RPO/RTO) requirements
- Evaluate HA/DR for hybrid deployments
- Evaluate Azure-specific HA/DR solutions
- Recommend a testing procedure for an HA/DR solution

### Plan and perform backup and restore of a database

- Recommend a database backup and restore strategy
- Perform a database backup by using database tools
- Perform a database restore by using database tools
- Perform a database restore to a point in time
- Configure long-term backup retention
- Backup and restore a database by using T-SQL
- Backup and restore to and from cloud storage

### Configure HA/DR for database solutions

- Configure active geo-replication
- Configure an Always On availability group
- Configure auto-failover groups
- Configure quorum options for a Windows Server Failover Cluster
- Configure failover cluster instances on Azure Virtual Machines
- Configure log shipping
- Monitor an HA/DR solution
- Troubleshoot an HA/DR solution

## 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](#)

Study resources	Links to learning and documentation
<b>Find documentation</b>	<a href="#">Azure SQL documentation</a> <a href="#">Azure SQL Database documentation</a> <a href="#">Azure documentation</a>
<b>Ask a question</b>	<a href="#">Microsoft Q&amp;A   Microsoft Docs</a>
<b>Get community support</b>	<a href="#">Azure Data - Microsoft Tech Community</a>
<b>Follow Microsoft Learn</b>	<a href="#">Microsoft Learn - Microsoft Tech Community</a>
<b>Find a video</b>	<a href="#">Exam Readiness Zone</a> <a href="#">Data Exposed</a> <a href="#">Browse other Microsoft Learn shows</a>

## 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 February 2, 2023	Skill area as of February 2, 2023	Change
Audience profile	Audience profile	Minor
<b>Plan and implement data platform resources</b>	<b>Plan and implement data platform resources</b>	No change
Plan and deploy Azure SQL Database solutions	Plan and deploy Azure SQL Database solutions	Minor
Configure resources for scale and performance	Configure resources for scale and performance	Minor
Plan and implement a migration strategy	Plan and implement a migration strategy	No change
<b>Implement a secure environment</b>	<b>Implement a secure environment</b>	No change
Configure database authentication and authorization	Configure database authentication and authorization	No change

Skill area prior to February 2, 2023	Skill area as of February 2, 2023	Change
Implement security for data at rest and data in transit	Implement security for data at rest and data in transit	No change
Implement compliance controls for sensitive data	Implement compliance controls for sensitive data	No change
<b>Monitor, configure, and optimize database resources</b>	<b>Monitor, configure, and optimize database resources</b>	No change
Monitor resource activity and performance	Monitor resource activity and performance	No change
Monitor and optimize query performance	Monitor and optimize query performance	No change
Configure database solutions for optimal performance	Configure database solutions for optimal performance	No change
<b>Configure and manage automation of tasks</b>	<b>Configure and manage automation of tasks</b>	No change
Create and manage SQL Server Agent jobs	Create and manage SQL Server Agent jobs	No change
Automate deployment of database resources	Automate deployment of database resources	No change
Create and manage database tasks in Azure	Create and manage database tasks in Azure	No change
<b>Plan and configure a high availability and disaster recovery (HA/DR) environment</b>	<b>Plan and configure a high availability and disaster recovery (HA/DR) environment</b>	No change
Recommend an HA/DR strategy for database solutions	Recommend an HA/DR strategy for database solutions	No change
Plan and perform backup and restore of a database	Plan and perform backup and restore of a database	Minor
Configure HA/DR for database solutions	Configure HA/DR for database solutions	No change

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