

MICROSOFT

# Microsoft Certified: Azure Database Administrator Associate

**Validate your technical skills and grow your career.**

This certification demonstrates that the recipient is proficient in using and managing every part of cloud-native and hybrid data platform solutions that are built with Microsoft SQL Server and Microsoft Azure Data Services.

Using a multitude of methods and tools, the candidate will perform these day to day operations, while applying their knowledge of T-SQL for administrative and management purposes.

## Why Take The Microsoft Certified: Azure Database Administrator Associate DP-300 Exam?

The need AI tech professionals is going to increase dramatically in the near future and passing the exam will help you secure an excellent position in the industry as an Azure Database Associate.

## Increase My Salary

- The average salary for someone who holds a Microsoft Certified: Azure Database Administrator Associate certification is around \$102,000 / year

## Be Part Of The Team

- As an Azure Database Administrator, you become part of the team that's dedicated to managing cloud-based or hybrid environments for your organization's cloud infrastructure.

## Abilities Validated By The Certification:

- Plan and implement data platform resources
- Implement a secure environment
- Monitor and optimize operational resources
- Optimize query performance
- Perform automation of tasks
- Plan and implement a High Availability and Disaster Recovery (HADR) environment
- Perform administration by using T-SQL

## Recommended Knowledge & Experience:

- Experienced database administrator or data management specialist who can handle managing on-premises and cloud relational databases built from an SQL Server and Azure Data Services.
- The DP-900 Microsoft Azure Data Fundamentals Exam will help prepare for this exam

## Exam Topics & Scoring:

### ***Administering Relational Databases on Microsoft Azure (DP-300) Exam***

#### **PLAN AND IMPLEMENT DATA PLATFORM RESOURCES (15-20%)**

##### ***Deploy resources by using manual methods***

- deploy database offerings on selected platforms
- configure customized deployment templates
- apply patches and updates for hybrid and IaaS deployment

##### ***Recommend an appropriate database offering based on specific requirements***

- evaluate requirements for the deployment
- evaluate the functional benefits/impact of possible database offerings
- evaluate the scalability of the possible database offering
- evaluate the HA/DR of the possible database offering
- evaluate the security aspects of the possible database offering

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

- configure Azure SQL database/elastic pools for scale and performance
- configure Azure SQL managed instances for scale and performance
- configure SQL Server in Azure VMs for scale and performance
- calculate resource requirements
- evaluate database partitioning techniques, such as database sharding

## ***Evaluate a strategy for moving to Azure***

- evaluate requirements for the migration
- evaluate offline or online migration strategies
- evaluate requirements for the upgrade
- evaluate offline or online upgrade strategies

## ***Implement a migration or upgrade strategy for moving to Azure***

- implement an online migration strategy
- implement an offline migration strategy
- implement an online upgrade strategy
- implement an offline upgrade strategy

## **IMPLEMENT A SECURE ENVIRONMENT (15-20%)**

### ***Configure database authentication by using platform and database tools***

- configure Azure AD authentication
- create users from Azure AD identities
- configure security principals

### ***Configure database authorization by using platform and database tools***

- configure database and object-level permissions using graphical tools
- apply principle of least privilege for all securables

### ***Implement security for data at rest***

- implement Transparent Data Encryption (TDE)
- implement object-level encryption
- implement Dynamic Data Masking
- implement Azure Key Vault and disk encryption for Azure VMs

### ***Implement security for data in transit***

- configure server and database-level firewall rules
- implement Always Encrypted

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

- apply a data classification strategy
- configure server and database audits
- implement data change tracking
- perform a vulnerability assessment

## **MONITOR AND OPTIMIZE OPERATIONAL RESOURCES (15-20%)**

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

- prepare an operational performance baseline
- determine sources for performance metrics
- interpret performance metrics
- assess database performance by using Azure SQL Database Intelligent Performance
- configure and monitor activity and performance at the infrastructure, server, service, and database levels

### ***Implement performance-related maintenance tasks***

- implement index maintenance tasks
- implement statistics maintenance tasks
- configure database auto-tuning
- automate database maintenance tasks
  - Azure SQL agent jobs, Azure automation, SQL server agent jobs
- manage storage capacity

### ***Identify performance-related issues***

- configure Query Store to collect performance data
- identify sessions that cause blocking
- assess growth/fragmentation of databases and logs
- assess performance-related database configuration parameters
  - including AutoClose, AutoShrink, AutoGrowth Configure resources for optimal performance
- configure storage and infrastructure resources
  - optimize IOPS, throughput, and latency
  - optimize tempdb performance
  - optimize data and log files for performance
- configure server and service account settings for performance
- configure Resource Governor for performance

### ***Configure a user database for optimal performance***

- implement database-scoped configuration
- configure compute resources for scaling
- configure Intelligent Query Processing (IQP)

## **OPTIMIZE QUERY PERFORMANCE (5-10%)**

### ***Review query plans***

- determine the appropriate type of execution plan

- live Query Statistics, Actual Execution Plan, Estimated Execution Plan
- identify problem areas in execution plans
- extract query plans from the Query Store

### ***Evaluate performance improvements***

- determine the appropriate Dynamic Management Views (DMVs) to gather query performance information
- identify performance issues using DMVs
- identify and implement index changes for queries
- recommend query construct modifications based on resource usage
- assess the use of hints for query performance

### ***Review database table and index design***

- identify data quality issues with duplication of data
- identify normal form of database tables
- assess index design for performance
- validate data types defined for columns
- recommend table and index storage including filegroups
- evaluate table partitioning strategy
- evaluate the use of compression for tables and indexes

## **PERFORM AUTOMATION OF TASKS (10-15%)**

### ***Create scheduled tasks***

- manage schedules for regular maintenance jobs
- configure multi-server automation
- configure notifications for task success/failure/non-completion

### ***Evaluate and implement an alert and notification strategy***

- create event notifications based on metrics
- create event notifications for Azure resources
- create alerts for server configuration changes
- create tasks that respond to event notifications

### ***Manage and automate tasks in Azure***

- perform automated deployment methods for resources
- automate Backups
- automate performance tuning and patching
- implement policies by using automated evaluation modes



## **PLAN AND IMPLEMENT A HIGH AVAILABILITY AND DISASTER RECOVERY (HADR) ENVIRONMENT (15-20%)**

### ***Recommend an HADR strategy for a data platform solution***

- recommend HADR strategy based on RPO/RTO requirements
- evaluate HADR for hybrid deployments
- evaluate Azure-specific HADR solutions
- identify resources for HADR solutions

### ***Test an HADR strategy by using platform, OS, and database tools***

- test HA by using failover
- test DR by using failover or restore

### ***Perform backup and restore a database by using database tools***

- perform a database backup with options
- perform a database restore with options
- perform a database restore to a point in time
- configure long-term backup retention

### ***Configure HA/DR by using OS, platform, and database tools***

- configure replication
- create an Availability Group
- integrate a database into an Availability Group
- configure quorum options for a Windows Server Failover Cluster
- configure an Availability Group listener

## **PERFORM ADMINISTRATION BY USING T-SQL (10-15%)**

### ***Examine system health***

- evaluate database health using DMVs
- evaluate server health using DMVs
- perform database consistency checks by using DBCC

### ***Monitor database configuration by using T-SQL***

- assess proper database autogrowth configuration
- report on database free space
- review database configuration options

### ***Perform backup and restore a database by using T-SQL***

- prepare databases for AlwaysOn Availability Groups

- perform transaction log backup
- perform restore of user databases
- perform database backups with options

### ***Manage authentication by using T-SQL***

- manage certificates
- manage security principals

### ***Manage authorization by using T-SQL***

- configure permissions for users to access database objects
- configure permissions by using custom roles

## **Prepare for your exam:**

The best way to prepare is with first-hand experience. Taking advantage of the opportunities that Phoenix TS provides will assist you with gathering all the knowledge and skills you'll need for certification.

## **Phoenix TS Microsoft Certified: Azure Database Administrator Associate - Learning Pathways**

### **• DP-300T00: Administering Relational Databases on Microsoft Azure**

Course Overview Phoenix TS' 4-day instructor-led Microsoft Administering Relational Databases on Microsoft Azure training and certification boot camp in Washington, DC Metro, Tysons Corner, VA, Columbia, MD or Live Online teaches the knowledge and skills to administer a SQL Server database infrastructure for cloud, on-premises and hybrid relational databases and who work with the Microsoft [...]

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### Exam Details

- Multiple choice, multiple answers
- Testing in person or online proctored exam
- 130 Min to take the test
- \$150 test fee
- Available in English, Japanese, Korean, and Simplified Chinese