Transitioning from SQL to Azure Data Certification

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Javier Villegas

IT Director – Data and BI at Mediterranean Shipping Company

Involved with the SQL Server since early versions. Azure SQL

Specialization in SQL Server Administration, Performance Tuning and High Availability

Microsoft MVP Data Platform

Microsoft Certified Trainer (MCT)

Technical Speaker

SQL PASS, 24 HOP, SQL Saturdays , PASS Marathon and PASS Virtual Groups,

vOpen, Microsoft AI+ Tour, GroupBy and DataPlatformGeeks

SQL ARGENTINA

Azure SQL

History

- Microsoft Certified Professional - 2003
- Microsoft Certified Professional - 2012
- Microsoft Certified Technology Specialist: SQL Server 2005 - 2007
- Microsoft Certified Technology Specialist: SQL Server 2008, Implementation & Maintenance - 2009
- Microsoft Certified: Azure Data Fundamentals (DP-900) – 2020
- Microsoft Certified: Administering Relational Databases on Microsoft Azure (DP-300) - 2020
- Microsoft Certified Trainer – 2020

Microsoft Certifications

Certification History	Achievement Date
Microsoft® Certified Technology Specialist: SQL Server 2005 Certification Number: B876-1094	February 17, 2007
Microsoft Certified Professional: Microsoft Certified Professional Certification Number: B876-1087	May 14, 2003

Microsoft Certifications

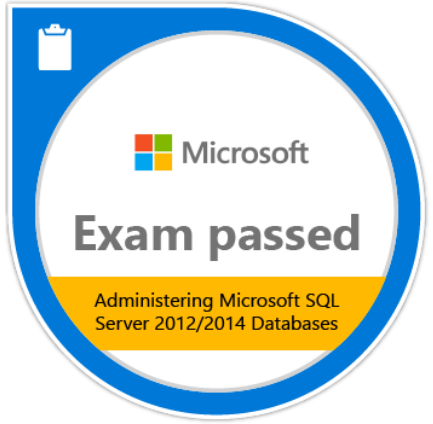
Exams		Date Completed
DP-300	Administering Relational Databases on Microsoft Azure	August 13, 2020
DP-900	Microsoft Azure Data Fundamentals	July 10, 2020
764	Administering a SQL Database Infrastructure	November 10, 2016
462	Administering Microsoft SQL Server 2012/2014 Databases	April 10, 2012
432	Microsoft SQL Server 2008, Implementation and Maintenance	March 30, 2009
431	TS: Microsoft SQL Server™ 2005 - Implementation and Maintenance	February 17, 2007
228	Installing, Configuring, and Administering Microsoft SQL Server™ 2000 Enterprise Edition	May 14, 2003

Microsoft Certifications

Active Certifications		Achievement Date
Trainer: MCT Enrollment Certification Number: H506-7383		September 3, 2020
Microsoft Certified: Azure Database Administrator Associate Certification Number: H490-8290	Valid until	August 13, 2020 August 13, 2022
Microsoft Certified: Azure Data Fundamentals Certification Number: H485-8776		July 10, 2020
Microsoft Certified Professional: Microsoft Certified Professional Certification Number: E071-9518		April 16, 2012
Microsoft® Certified Technology Specialist: SQL Server 2008, Implementation and Maintenance Certification Number: B876-1105		March 30, 2009

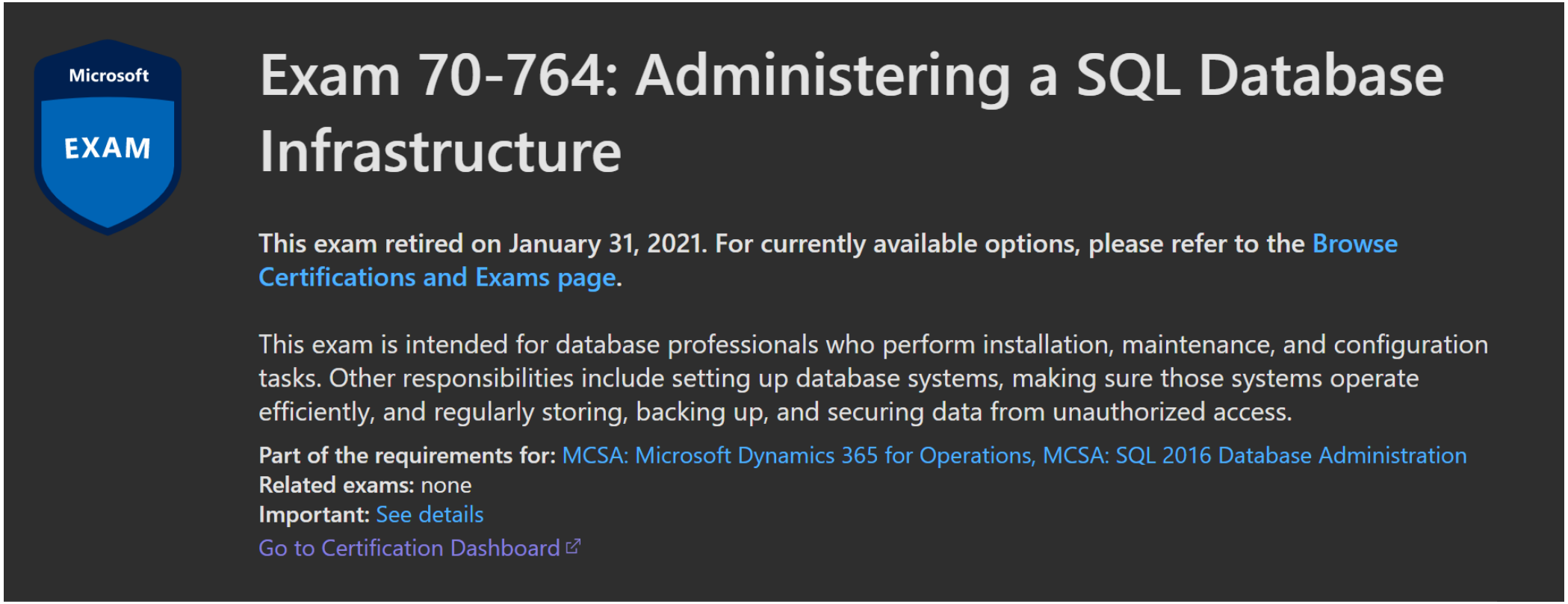
Microsoft Certified Trainer History	Active From	To
MCT History	September 03, 2020	September 3, 2021

Exam 764: Administering a Microsoft SQL Database Infrastructure



Exam 462: Administering Microsoft SQL Server 2012/2014 Databases

Exam 70-764: Administering a SQL Database Infrastructure



Exam 70-764: Administering a SQL Database Infrastructure

Audience Profile

This exam is intended for database professionals who perform installation, maintenance, and configuration tasks. Other responsibilities include setting up database systems, making sure those systems operate efficiently, and regularly storing, backing up, and securing data from unauthorized access.

Skills Measured

NOTE: The bullets that appear below each of the skills measured are intended to illustrate how we are assessing that skill. This list is not definitive or exhaustive.

NOTE: In most cases, exams do NOT cover preview features, and some features will only be added to an exam when they are GA (General Availability).

Exam 70-764: Administering a SQL Database Infrastructure

Configure data access and auditing (20–25%)

Configure encryption

- implement cell-level encryption, implement Always Encrypted, implement backup encryption, configure transparent data encryption, configure encryption for connections, troubleshoot encryption errors

Configure data access and permissions

- manage database object permissions, create and maintain users, create and maintain custom roles, configure user options for Azure SQL Database, configure row-level security, configure dynamic data masking

Configure auditing

- configure an audit on SQL Server, query the SQL Server audit log, manage a SQL Server audit, configure an Azure SQL Database audit, analyze audit logs and reports from Azure SQL Database

Exam 70-764: Administering a SQL Database Infrastructure

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Exam 70-764: Administering a SQL Database Infrastructure

Manage backup and restore of databases (20–25%)

Develop a backup strategy

- back up very large databases, configure alerting for failed backups, back up databases to Azure, manage transaction log backups, configure database recovery models, configure backup automation

Restore databases

- perform piecemeal restores, perform page recovery, perform point-in-time recovery, restore file groups, develop a plan to automate and test restores

Manage database integrity

- implement database consistency checks, identify database corruption, recover from database corruption

Exam 70-764: Administering a SQL Database Infrastructure

Manage and monitor SQL Server instances (35–40%)

Monitor database activity

- monitor current sessions, identify sessions that cause blocking activity, identify sessions that consume tempdb resources, configure the data collector

Monitor queries

- manage the Query Store, configure Extended Events and trace events, identify problematic execution plans, troubleshoot server health using Extended Events

Manage indexes

- identify and repair index fragmentation, identify and create missing indexes, identify and drop underutilized indexes, manage existing columnstore indexes

Exam 70-764: Administering a SQL Database Infrastructure

(CONT)

Manage statistics

- identify and correct outdated statistics, implement Auto Update Statistics, implement statistics for large tables

Monitor SQL Server instances

- create and manage operators, create and manage SQL Agent alerts, define custom alert actions, define failure actions, configure database mail, configure Policy-Based Management, identify available space on data volumes, identify the cause of performance degradation

Exam 70-764: Administering a SQL Database Infrastructure

Manage high availability and disaster recovery (20–25%)

Implement log shipping

- configure log shipping, monitor log shipping

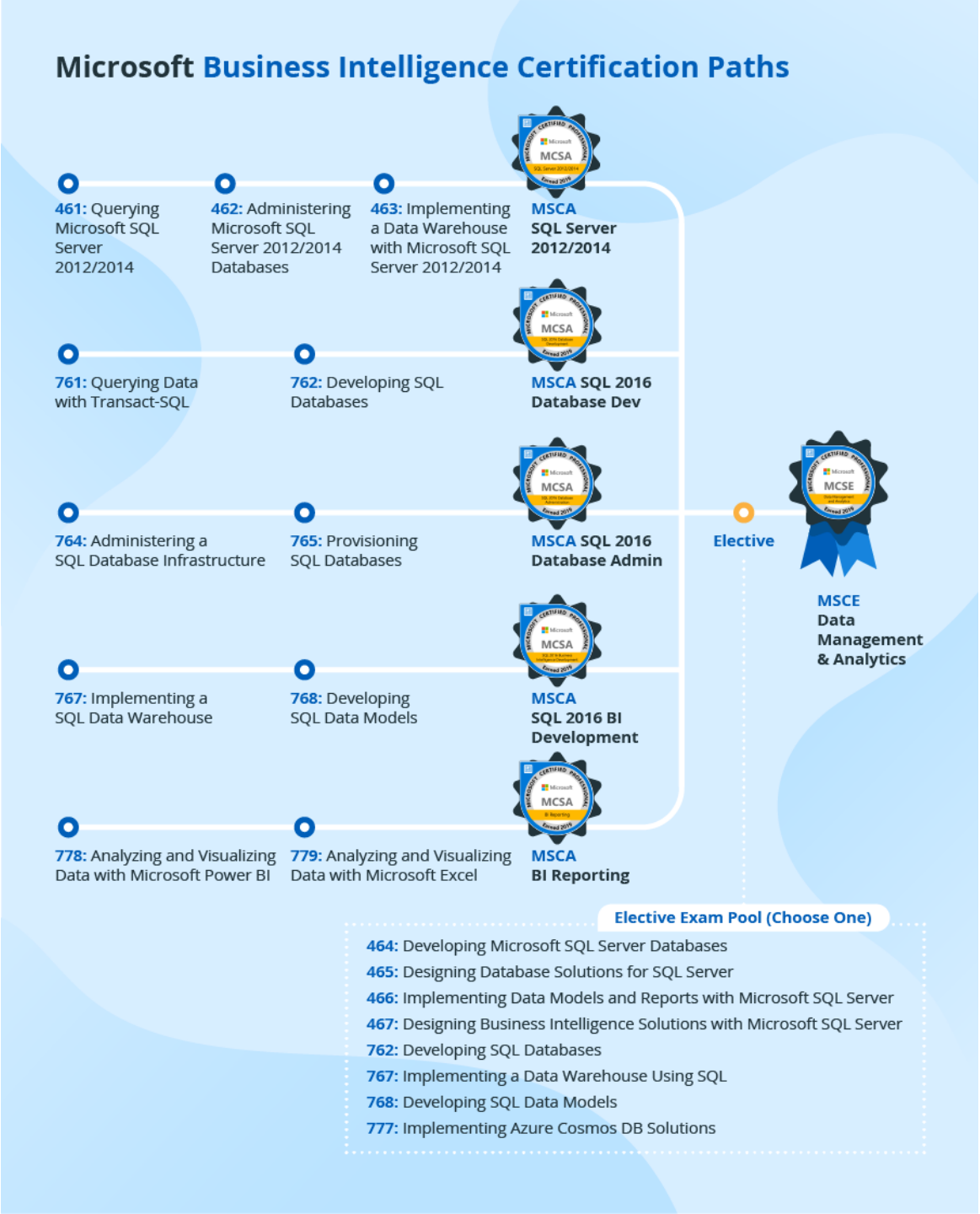
Implement AlwaysOn Availability Groups

- configure Windows clustering, create an availability group, configure read-only routing, manage failover, create distributed availability groups

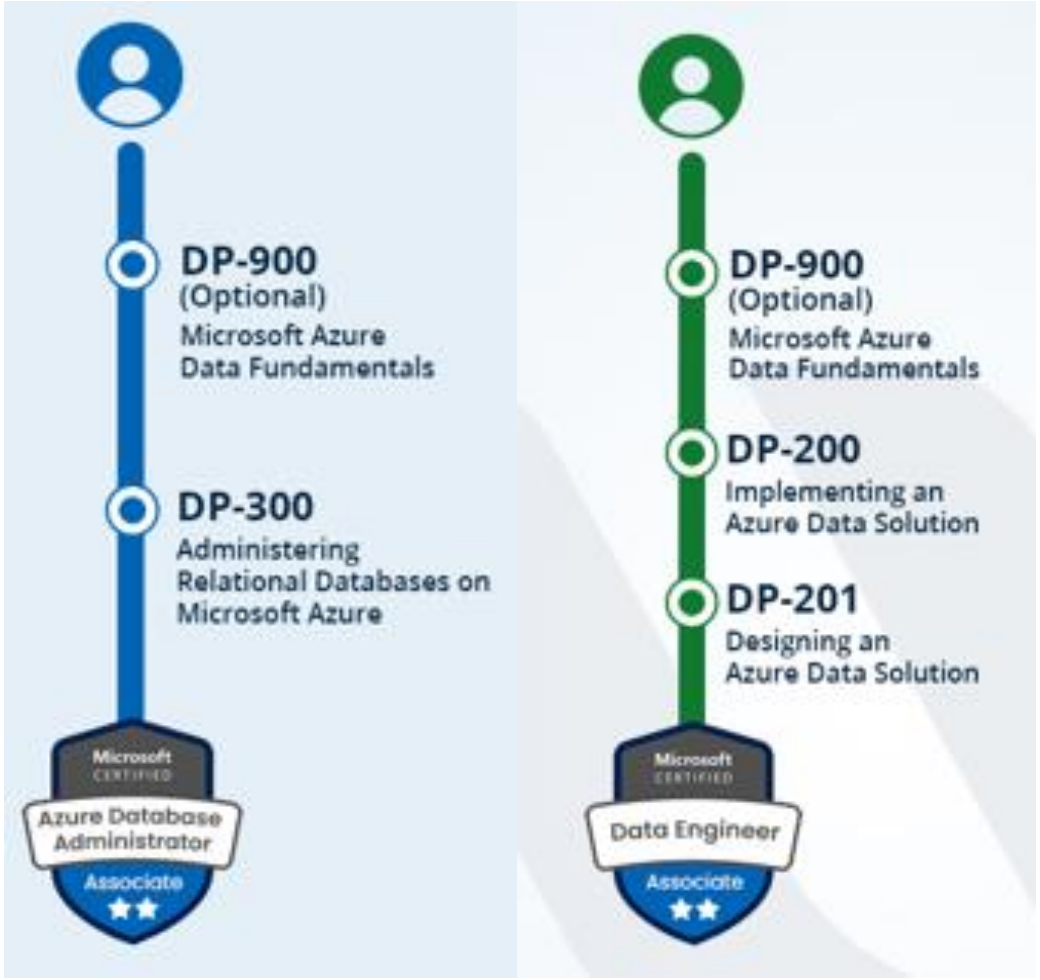
Implement failover cluster instances

- manage shared disks, configure cluster shared volumes

SQL Certification Path



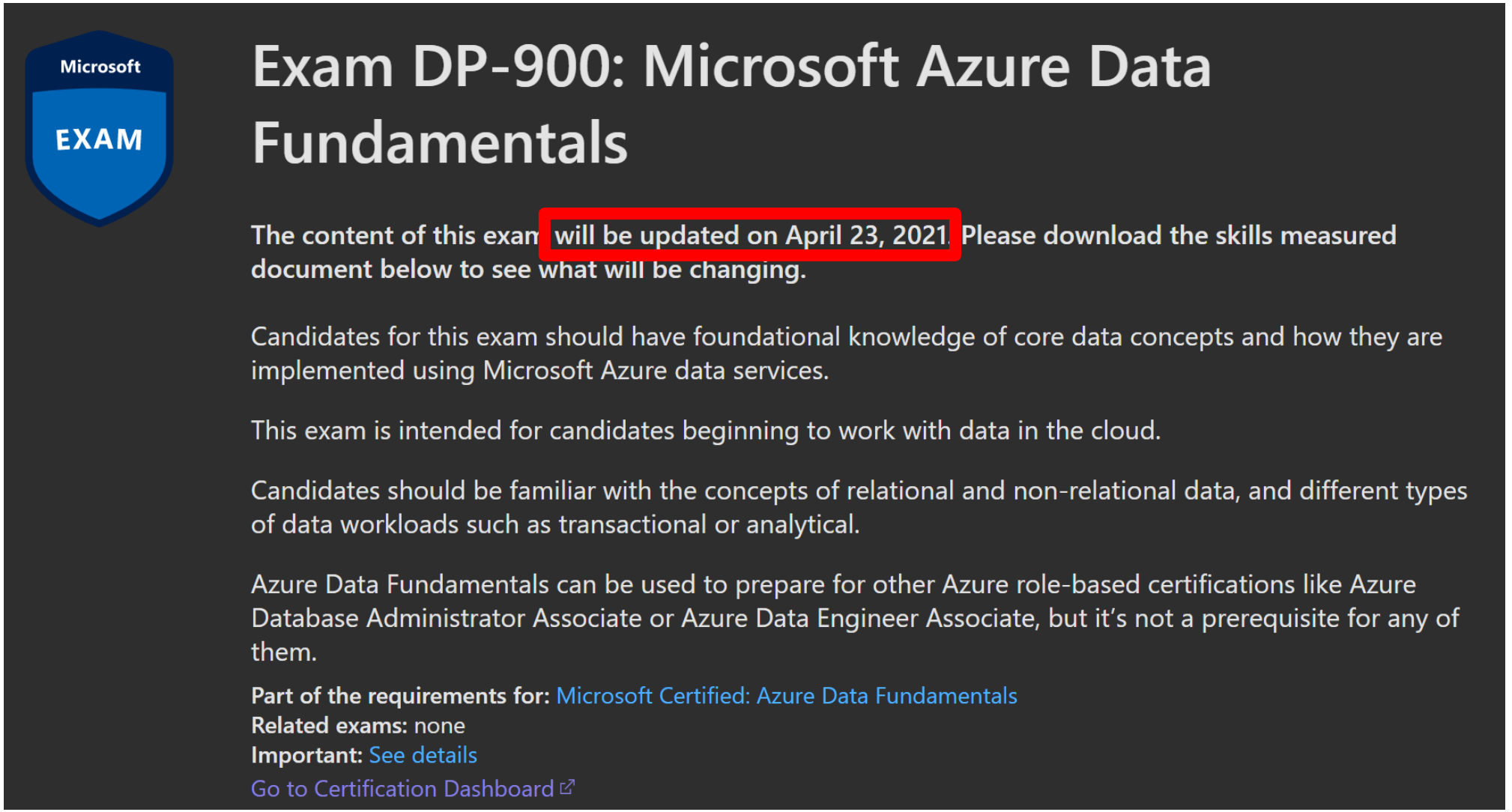
Azure Data Certification Path



Azure Data Certification Path

Exam DP-300: Administering Relational Databases on Microsoft Azure

Exam DP-900: Microsoft Azure Data Fundamentals



Microsoft Certified: Azure Data Engineer Associate

Exam DP-300: Administering Relational Databases on Microsoft Azure

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

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Exam DP-300: Administering Relational Databases on Microsoft Azure

Plan and Implement Data Platform Resources (15-20%)

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

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Exam DP-300: Administering Relational Databases on Microsoft Azure

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

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Exam DP-300: Administering Relational Databases on Microsoft Azure

Implement a Secure Environment (15-20%)

Implement security for data in transit

- Configure SQL DB and database-level firewall rules
- Implement Always Encrypted
- Configure Azure Data Gateway

Implement compliance controls for sensitive data

- Apply a data classification strategy
- Configure server and database audits
- Implement data change tracking
- Perform vulnerability assessment

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Exam DP-300: Administering Relational Databases on Microsoft Azure

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

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Exam DP-300: Administering Relational Databases on Microsoft Azure

Monitor and Optimize Operational Resources (15-20%)

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)

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Exam DP-300: Administering Relational Databases on Microsoft Azure

Optimize Query Performance (5-10%)

Review query plans
- Determine the appropriate type of execution plan
  - Live Query Statistics, Actual Execution Plan, Estimated Execution Plan, Showplan
- 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
- 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

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Exam DP-300: Administering Relational Databases on Microsoft Azure

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

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Exam DP-300: Administering Relational Databases on Microsoft Azure

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

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Exam DP-300: Administering Relational Databases on Microsoft Azure

Plan and Implement a High Availability and Disaster Recovery (HADR) Environment (15-20%)

Configure DR by using platform and database tools
- Configure replication
- Configure Azure Site Recovery for a database offering

Configure HA using platform, OS and database tools
- 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

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Exam DP-300: Administering Relational Databases on Microsoft Azure

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

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Exam DP-300: Administering Relational Databases on Microsoft Azure

Perform Administration by Using T-SQL (10-15%)

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

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Exam DP-300: Administering Relational Databases on Microsoft Azure

Summary

Plan and Implement Data Platform Resources (15-20%)
Implement a Secure Environment (15-20%)
Monitor and Optimize Operational Resources (15-20%)
Optimize Query Performance (5-10%)
Perform Automation of Tasks (10-15%)
Plan and Implement a High Availability and Disaster Recovery (HADR) Environment (15-20%)
Perform Administration by Using T-SQL (10-15%)

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Summary

Working Experience

Training

Learning materials

Practice

Test

How to Learn

https://docs.microsoft.com/en-us/learn/

https://docs.microsoft.com/en-us/welcome-to-docs

https://docs.microsoft.com/en-us/learn/tv/

How to Learn

https://developer.microsoft.com/en-us/offers/30-days-to-learn-it

How to Learn

https://www.youtube.com/channel/UCNsev6sULZ_Zp06VL7uktuA

How to Learn

Learn more

What’s new in SQL Server 2019

QR: https://cutt.ly/khnFloC

Training

Azure SQL Fundamentals

QR: https://cutt.ly/ngnX9ob

Study Guide

DP-300

https://cutt.ly/lc1LxJF

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THANK YOU!!!

GRACIAS!!!