DP-3015 Get started with Azure Cosmos DB NoSQL development

Category: AI, Data & Analytics | **Vendor:** Microsoft Technical

Duration: 8.00 hours (1 days) **6.5 CPD Hours** **Rating:** ⭐ 4.6 (5,878 reviews)

Course Information

Delivery Format:	Instructor Led - Online
Certification:	Microsoft Applied Skills: Get started with Azure Cosmos DB for NoSQL development
Related Exam:	DP-3015

Course Overview

This course teaches developers to utilize Azure Cosmos DB for NoSQL API and SDK. Students will learn query execution, resource configuration, SDK operations, and design strategies for non-relational data modeling and data partitioning.

About This Course

This course teaches developers to utilize Azure Cosmos DB for NoSQL API and SDK. Students will learn query execution, resource configuration, SDK operations, and design strategies for non-relational data modeling and data partitioning.

Who Should Attend

Software engineers tasked with authoring cloud-native solutions that leverage Azure Cosmos DB for NoSQL and its various SDKs. They are familiar with C# programming. They also have experience writing code that interacts with a SQL or NoSQL database platform.

Prerequisites & Entry Requirements

General Prerequisites:

- Familiarity with C# programming.
- Experience writing code that interacts with a SQL or NoSQL database platform.

Learning Outcomes

Upon successful completion of this course, participants will be able to:

Introduction to Azure Cosmos DB for NoSQL

Try Azure Cosmos DB for NoSQL

Plan Resource Requirements

Configure Azure Cosmos DB for NoSQL database and containers

Use the Azure Cosmos DB for NoSQL SDK

Configure the Azure Cosmos DB for NoSQL SDK

Implement Azure Cosmos DB for NoSQL point operations

Query the Azure Cosmos DB for NoSQL

Author complex queries with the Azure Cosmos DB for NoSQL

Implement a non-relational data model

Design a data partitioning strategy

Detailed Course Outline

1 - Introduction to Azure Cosmos DB for NoSQL

- What is Azure Cosmos DB for NoSQL
- How does Azure Cosmos DB for NoSQL work
- When should you use Azure Cosmos DB for NoSQL

2 - Try Azure Cosmos DB for NoSQL

- Explore resources
- Review basic operations

3 - Plan Resource Requirements

- Understand throughput
- Evaluate throughput requirements
- Evaluate data storage requirements
- Time-to-live (TTL)
- Plan for data retention with time-to-live (TTL)

4 - Configure Azure Cosmos DB for NoSQL

- Serverless
- Compare serverless vs. provisioned throughput
- Autoscale throughput
- Compare autoscale vs. standard (manual) throughput
- Migrate between standard (manual) and autoscale throughput

5 - Move data into and out of Azure Cosmos DB for NoSQL

- Move data by using Azure Data Factory
- Move data by using a Kafka connector
- Move data by using Stream Analytics
- Move data by using the Azure Cosmos DB Spark connector

6 - Use the Azure Cosmos DB for NoSQL SDK

- Understand the SDK
- Import from package manager
- Connect to an online account
- Implement client singleton
- Configure connectivity mode

7 - Configure the Azure Cosmos DB for NoSQL SDK

- Enable offline development
- Handle connection errors
- Implement threading and parallelism
- Configure logging

8 - Implement Azure Cosmos DB for NoSQL point operations

- Understand point operations
- Create documents
- Read a document
- Update documents
- Configure time-to-live (TTL) value for a specific document
- Delete documents

9 - Perform cross-document transactional operations with the Azure Cosmos DB for NoSQL

- Create a transactional batch with the SDK
- Review batch operation results with the SDK
- Implement optimistic concurrency control

10 - Process bulk data in Azure Cosmos DB for NoSQL

- Create bulk operations with the SDK
- Review bulk operation caveats
- Implement bulk best practices

11 - Query the Azure Cosmos DB for NoSQL

- Understand NoSQL query language
- Create queries with NoSQL
- Project query results
- Implement type-checking in queries
- Use built-in functions
- Execute queries in the SDK

12 - Author complex queries with the Azure Cosmos DB for NoSQL

- Create cross-product queries
- Implement correlated subqueries
- Implement variables in queries
- Paginate query results

13 - Build Generative AI applications with Azure Cosmos DB

- Configure the Vector Search and storage feature of Azure Cosmos DB NoSQL
- Generate embeddings using Azure OpenAI Service
- Build Generative AI applications with Azure Cosmos DB NoSQL and Python
- Perform vector searches using Azure Cosmos DB for NoSQL from a Generative AI application
- Integrate LangChain orchestration to improve efficiency and code maintainability in a Python Generative AI application

14 - Define indexes in Azure Cosmos DB for NoSQL

- Understand indexes
- Understand indexing policies
- Review indexing policy strategies

15 - Customize indexes in Azure Cosmos DB for NoSQL

- Customize the indexing policy
- Evaluate composite indexes

16 - Consume an Azure Cosmos DB for NoSQL change feed using the SDK

- Understand change feed features in the SDK
- Implement a delegate for the change feed processor
- Implement the change feed processor
- Implement the change feed estimator

17 - Handle events with Azure Functions and Azure Cosmos DB for NoSQL change feed

- Understand Azure Function bindings for Azure Cosmos DB for NoSQL
- Configure function bindings
- Develop function

18 - Search Azure Cosmos DB for NoSQL data with Azure Cognitive Search

- Create an indexer for data in Azure Cosmos DB for NoSQL
- Implement a change detection policy
- Manage a data deletion detection policy

19 - Implement a non-relational data model

- What's the difference between NoSQL and relational databases?
- Identify access patterns for your app
- When to embed or reference data
- Choose a partition key
- Model small lookup entities

20 - Design a data partitioning strategy

- Denormalize data in your model
- Manage referential integrity by using change feed
- Combine multiple entities in the same container
- Denormalize aggregates in the same container
- Finalize the data model

21 - Configure replication and manage failovers in Azure Cosmos DB

- Understand replication
- Distribute data across regions
- Evaluate the cost of distributing data globally
- Define automatic failover policies
- Perform manual failovers
- Configure SDK region

22 - Use consistency models in Azure Cosmos DB for NoSQL

- Understand consistency models
- Configure default consistency model in the portal
- Change consistency model with the SDK
- Use session tokens

23 - Configure multi-region write in Azure Cosmos DB for NoSQL

- Understand multi-region write
- Configure multi-region support in the SDK
- Understand conflict resolution policies
- Create custom conflict resolution policy

24 - Customize an indexing policy in Azure Cosmos DB for NoSQL

- Index usage
- Review read-heavy index patterns
- Review write-heavy index patterns
- Module assessment

25 - Measure index performance in Azure Cosmos DB for NoSQL

- Enable indexing metrics
- Analyze indexing metrics results
- Measure query cost
- Measure point operation cost

26 - Implement integrated cache in Azure Cosmos DB for NoSQL

- Review workloads that benefit from the cache
- Enable integrated cache
- Configure cache staleness

27 - Measure performance in Azure Cosmos DB for NoSQL

- Understand Azure Monitor
- Measure throughput
- Observe rate-limiting events
- Query logs

28 - Monitor responses and events in Azure Cosmos DB for NoSQL

- Review common response codes
- Understand transient errors
- Review rate-limiting errors
- Configure Alerts
- Audit security

29 - Implement backup and restore for Azure Cosmos DB for NoSQL

- Evaluate periodic backup
- Configure continuous backup and recovery
- Perform a point-in-time recovery
- Module assessment

30 - Implement security in Azure Cosmos DB for NoSQL

- Implement network-level access control
- Review data encryption options
- Use role-based access control (RBAC)
- Access account resources using Microsoft Entra ID
- Understand Always Encrypted

31 - Write management scripts for Azure Cosmos DB for NoSQL

- Create resources
- Manage index policies
- Configure database or container-provisioned throughput
- Migrate between standard and autoscale throughput
- Change region failover priority
- Initiate failovers
- Module assessment

32 - Create resource template for Azure Cosmos DB for NoSQL

- Understand Azure Resource Manager resources
- Author Azure Resource Manager templates
- Configure database or container resources
- Configure throughput with an Azure Resource Manager template
- Manage index policies through Azure Resource Manager templates

33 - Build multi-item transactions with the Azure Cosmos DB for NoSQL

- Understand transactions in the context of JavaScript SDK
- Author Stored procedures
- Rollback transactions
- Create stored procedures with the JavaScript SDK

34 - Expand query and transaction functionality in Azure Cosmos DB for NoSQL

- Create user-defined functions
- Create user-defined functions with the SDK
- Add triggers to an operation
- Create and use triggers with the SDK

, Get started with Azure Cosmos DB for NoSQL

Introduction to Azure Cosmos DB for NoSQL

Evaluate whether Azure Cosmos DB for NoSQL is the right database for your application

Describe how the features of the Azure Cosmos DB for NoSQL are appropriate for modern applications

Try Azure Cosmos DB for NoSQL

Create a new Azure Cosmos DB for NoSQL account

Create database, container, and item resources for an Azure Cosmos DB for NoSQL account

Plan and implement Azure Cosmos DB for NoSQL

Plan Resource Requirements

Evaluate various requirements of your application

Configure Azure Cosmos DB for NoSQL database and containers

Compare the various service and throughput offerings for Azure Cosmos DB

Migrate between standard and autoscale throughput

Move data into and out of Azure Cosmos DB for NoSQL

Migrate data using Azure services

Migrate data using Spark or Kafka

Connect to Azure Cosmos DB for NoSQL with the SDK

Use the Azure Cosmos DB for NoSQL SDK

Integrate the Microsoft.Azure.Cosmos SDK library from NuGet

Connect to an Azure Cosmos DB for NoSQL account using the SDK and .NET

Configure the Azure Cosmos DB for NoSQL SDK

Configure the SDK for offline development

Troubleshoot common connection errors

Implement parallelism in the SDK

Configure logging using the SDK

Access and manage data with the Azure Cosmos DB for NoSQL SDKs

Implement Azure Cosmos DB for NoSQL point operations

Perform CRUD operations using the SDK

Configure TTL for a specific item

Perform cross-document transactional operations with the Azure Cosmos DB for NoSQL

Create a transactional batch and review results

Implement optimistic concurrency control for an operation

Process bulk data in Azure Cosmos DB for NoSQL

Use C# task asynchronous programming model and "bulk" support in the Azure Cosmos DB for NoSQL .NET SDK

Execute queries in Azure Cosmos DB for NoSQL

Query the Azure Cosmos DB for NoSQL

Create and execute a SQL query

Project query results

Use built-in functions in a query

Author complex queries with the Azure Cosmos DB for NoSQL

Implement a correlated subquery

Create a cross-product query

Define and implement an indexing strategy for Azure Cosmos DB for NoSQL

Define indexes in Azure Cosmos DB for NoSQL

Create and execute a SQL query

Project query results

Use built-in functions in a query

Customize indexes in Azure Cosmos DB for NoSQL

Implement a correlated subquery

Create a cross-product query

Integrate Azure Cosmos DB for NoSQL with Azure services

Consume an Azure Cosmos DB for NoSQL change feed using the SDK

Create a change feed processor in the .NET SDK

Author a delegate to handle a batch of changes in a client-side application

Handle events with Azure Functions and Azure Cosmos DB for NoSQL change feed

Create an Azure Function using the Azure Cosmos DB trigger

Search Azure Cosmos DB for NoSQL data with Azure Cognitive Search

Create an indexer to migrate data from Azure Cosmos DB for NoSQL to an Azure Cognitive Search index

Implement a data modeling and partitioning strategy for Azure Cosmos DB for NoSQL

Implement a non-relational data model

Determine access patterns for data

Apply data model and partitioning strategies to support an efficient and scalable NoSQL database

Design a data partitioning strategy

Manage relationships between data entities by using advanced modeling and partitioning strategies

Maintain the referential integrity of your data by using change feed

Implement pre-aggregating and denormalizing data strategies to improve data-model performance and scaling

Optimizing storage and compute by mixing entity types in a single container

Design and implement a replication strategy for Azure Cosmos DB for NoSQL

Configure replication and manage failovers in Azure Cosmos DB

Distribute data across global data centers

Configure automatic failover and perform a manual failover

Configure the Azure Cosmos DB for NoSQL .NET SDK to use a specific region

Use consistency models in Azure Cosmos DB for NoSQL

Configure default consistency level for an Azure Cosmos DB account

Change the consistency level on a per-request basis

Configure multi-region write in Azure Cosmos DB for NoSQL

Configure Azure Cosmos DB for multi-region write

Use the .NET SDK to select a write region for operations

Optimize query and operation performance in Azure Cosmos DB for NoSQL

Customize an indexing policy in Azure Cosmos DB for NoSQL

Customize an indexing policy for read-heavy workloads

Customize an indexing policy for write-heavy workloads

Measure index performance in Azure Cosmos DB for NoSQL

Tune an indexing policy for specific queries

Measure the cost for a query or operation

Implement integrated cache in Azure Cosmos DB for NoSQL

Implement the integrated cache

Configure integrated cache options

Monitor and troubleshoot an Azure Cosmos DB for NoSQL solution

Measure performance in Azure Cosmos DB for NoSQL

Understand how Azure Cosmos DB uses Azure Monitor to monitor server-side metrics

Measure Cosmos DB's throughput

Observe rate-limiting events

Query telemetry logs

Measure cross-partition storage distribution throughput

Monitor responses and events in Azure Cosmos DB for NoSQL

Review common response codes

Understand transit errors

Review rate-limiting errors

Configure Alerts

Audit Security

Implement backup and restore for Azure Cosmos DB for NoSQL

Understand the different backup and restore options Azure Cosmos DB provides

Evaluate periodic backups

Configure continuous backups

Do point in time recovery

Implement security in Azure Cosmos DB for NoSQL

Implement network level access control

Review data encryption options

Use role-based access control (RBAC)

Access Account Resources using Microsoft Entra ID

Understand Always Encrypted

Manage an Azure Cosmos DB for NoSQL solution using DevOps practices

Write management scripts for Azure Cosmos DB for NoSQL

View arguments, groups, and subgroups for a specific CLI command

Create Azure Cosmos DB accounts, databases, and containers using the CLI

Manage an indexing policy using the CLI

Configure database or container throughput using the CLI

Initiate failovers and manage failover regions using the CLI

Create resource template for Azure Cosmos DB for NoSQL

Identify the three most common resource types for Azure Cosmos DB for NoSQL accounts

Create and deploy a JSON Azure Resource Manager template for an Azure Cosmos DB for NoSQL account, database, or container

Create and deploy a Bicep template for an Azure Cosmos DB for NoSQL account, or container

Manage throughput and index policies using JSON or Bicep templates

Create server-side programming constructs in Azure Cosmos DB for NoSQL

Build multi-item transactions with the Azure Cosmos DB for NoSQL

Author stored procedure

Rollback stored procedure transactions

Expand query and transaction functionality in Azure Cosmos DB for NoSQL

Create user-defined functions

Create triggers

Certification Path

Microsoft Applied Skills: Get started with Azure Cosmos DB for NoSQL development

Exam: DP-3015

Upcoming Schedule

Available training dates for DP-3015 Get started with Azure Cosmos DB NoSQL development:

Start Date	End Date	Location	Delivery	Price
15 Dec 2026	15 Dec 2026	Online	Virtual	€695.00

Frequently Asked Questions

Q: What delivery options are available for DP-3015 Get started with Azure Cosmos DB NoSQL development?

We offer multiple delivery formats:

- Live Instructor-Led Classroom Online (Virtual/Live Online)
- Traditional Instructor-Led Classroom Training (ILT)
- On-site delivery at your offices anywhere in United Kingdom
- Private dedicated courses customized for your team

Q: What certification does this course prepare me for?

The DP-3015 Get started with Azure Cosmos DB NoSQL development course helps prepare you for the Microsoft Applied Skills: Get started with Azure Cosmos DB for NoSQL development certification path.

Q: Which exam does this course prepare me for?

This course prepares you for the DP-3015 official exam. You can take this exam at any exam center across United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online wherever you are located.

Q: How many CPD hours does this course provide?

The 1-day DP-3015 Get started with Azure Cosmos DB NoSQL development course provides up to 6.5 CPD hours of structured learning. CPD certificates can be provided upon request.

Q: What is the duration of the DP-3015 Get started with Azure Cosmos DB NoSQL development training?

The training takes place over 1 day(s), with each day lasting approximately 8.00 hours including breaks for lunch and refreshments.

Q: Do you provide corporate training for DP-3015 Get started with Azure Cosmos DB NoSQL development?

Yes, we provide corporate training, dedicated training, and closed classes for DP-3015 Get started with Azure Cosmos DB NoSQL development. Training can take place anywhere in United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online allowing teams from across United Kingdom or internationally to attend.

Q: What related terms do people search for?

Popular related searches include: DP-3015: Get started with Azure Cosmos DB NoSQL development, Microsoft, vILT, DP-3015

Q: Why choose Nexus Human for DP-3015 Get started with Azure Cosmos DB NoSQL development?

Nexus Human is recognized as one of the leading training providers. Our trainers have won multiple awards including:

- Small Firms Best Trainer Award
- National Training Partner of the Year (Ireland) - Multiple Years
- Global Top 30 Instructor Awards (2012, 2019, 2021)
- Tech Excellence Award Nominations
- Learning Performance Institute (LPI) External Training Provider Sponsor 2024

Q: Are there any discount codes available?

Yes! Use discount code **PENPAL5** when booking your DP-3015 Get started with Azure Cosmos DB NoSQL development training. Please note that only one discount code can be used per booking and cannot be combined with other special offers.

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