

KOENIG SOLUTIONS • COURSE OUTLINE

Microsoft Azure Data Explorer with Advanced KQL

Learn to build, query, visualise and monitor real-time analytics solutions using Azure Data Explorer and advanced KQL.

2 Days

16 HOURS

11

MODULES

65

TOPICS

COURSE OVERVIEW

The Microsoft Azure Data Explorer with Advanced KQL course is a comprehensive learning path for professionals who aim to master data analytics within the Azure environment. This course dives deep into Azure Data Explorer (ADX), a high-performance analytics service designed for real-time analysis on large volumes of data streaming from applications, websites, IoT devices, and more. Starting with an overview of Azure Data Explorer and its architecture, learners will understand its key characteristics, use cases, and security aspects. They will then progress to building and managing the infrastructure, including cluster creation, scaling, and cost management. The core of the course focuses on querying data with KQL (Kusto Query Language), exploring its syntax, operators, and advanced features to manipulate and extract insights from data. Learners will also gain skills in visualizing data, leveraging various tools such as Power BI and Grafana for compelling data representation. The course includes modules on monitoring ADX for optimal performance, user analytics, geographic analysis, and diagnostic analysis. Advanced topics cover time series analysis, anomaly detection, forecasting, and extending ADX capabilities using inline Python and R for sophisticated data analysis. This course equips learners with the expertise to harness the full potential of Azure Data Explorer and KQL, making them valuable assets in data-driven organizations.

Who Should Attend

The Microsoft Azure Data Explorer with Advanced KQL course is ideal for IT professionals seeking to master data analytics and querying on Azure.

Data Engineers

Data Scientists

Data Analysts

Cloud Solutions Architects

Database Administrators

IT Professionals working with big data and analytics

DevOps Engineers focusing on monitoring and diagnostics

Business Intelligence Professionals

System Administrators looking to scale and secure Azure Data Explorer deployments

Developers integrating Azure Data Explorer into applications

Technical Team Leads managing data analytics projects

Security Analysts involved in monitoring and securing data on Azure

Data Consultants providing insights on Azure-based data solutions

Professionals preparing for Microsoft's data and AI certifications

LEARNING OBJECTIVES

- Explain Azure Data Explorer architecture, components and security
- Build and scale Azure Data Explorer clusters and databases
- Apply KQL operators to query and export data
- Configure dashboards using Power BI, Grafana and other tools
- Monitor cluster health using metrics and diagnostic logs
- Analyse user activity and engagement metrics
- Perform geographic analysis using geofencing and clustering
- Apply time series analysis for anomaly detection and forecasting

COURSE SYLLABUS

11 Modules, 65 Topics

01

Getting Started with Azure Data Explorer: Overview and Architecture

TOPICS

- What Is Azure Data Explorer and Why Should I Use It?
- ADX Key Characteristics and Use Cases
- ADX Architecture, Components, and Scalability
- ADX Security

02

Understanding and Creating Azure Data Explorer Infrastructure

TOPICS

- Understanding and Creating Azure Data Explorer Infrastructure
- **ADX Cost:** Selecting the SKU for Your Use Case
- Creating a Cluster
- Managing Cluster Scaling
- Creating a Database
- Managing Database Permissions
- The Azure Data Explorer Web UI

03

Querying Data in Azure Data Explorer

TOPICS

- Querying Data in Azure Data Explorer
- Getting to Know the Kusto Query Language (KQL)
- Querying Azure Data Explorer, the Help Cluster, and the Sample Database
- Getting Started with Kusto Control Commands
- The Basics of KQL - Most Commonly Used Operators
- More KQL Operators
- Advanced KQL
- Querying External Tables
- Querying Data in Azure Monitor and Using the Flow Kusto Connector
- Exporting Data

04

Visualizing Data in Azure Data Explorer

TOPICS

- Visualizing Data in Azure Data Explorer
- Visualizing the Results of a Query with the Render Operator
- Data Visualization Using the Azure Data Explorer Dashboard
- Visualizing Data Using Power BI
- Visualizing Data in Grafana
- Visualizing Data in Redash
- Visualizing Data in Kibana with the K2Bridge Open-source Connector
- Visualizing Data in Tableau with the ODBC Connector
- Visualizing Data in Sisense with the JDBC Connector

05

Monitoring in Azure Data Explorer

TOPICS

Using Metrics to Monitor Cluster Health · Adding Diagnostic Logs to Monitor Ingestion · Use Resource Health to Monitor Cluster Health · Troubleshooting

06

Exploring User Analytics

TOPICS

Introduction · Sliding Window Counts · Active User Counts · Activity Counts Metrics · Activity Metrics · Activity Engagement

07

Executing Geographic Analysis

TOPICS

Nearby Events: Circle · Nearby Events: Line · Geofencing · Clustering · Geospatial Joins

08

Performing Diagnostic and Root Cause Analysis

TOPICS

- Introduction to Diagnostic and Root Cause Analysis
- Using Auto Cluster
- Using Basket
- Using Diffpatterns
- Performing Verification

09

Time Series Analysis 1 - Creation and Core Functions

TOPICS

Make Series · Series FIR · Series Fit Line and Fit 2 Lines · Seasonality Detection · Series Subtract · Time Series at Scale

10

Time Series Analysis 2 - Anomaly Detection and Forecasting

TOPICS

Decomposition · Anomaly Detection · Forecasting · Scalability

11

Extensibility Using Inline Python / R

TOPICS

Introduction to Calling Python and R from KQL · The Mechanics of Calling Python · Time Series Analysis Using Python's Numpy · Using Python's K Means Clustering from KQL · Calling R from KQL

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training

Live Online Classes (ILO)

Fly-Me-A-Trainer (FMAT)

Flexi (Self-Paced)

1-on-1 Training

Ready to Get Started?

Talk to a learning advisor about schedules, group training and customised delivery.

Visit koenig-solutions.com

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