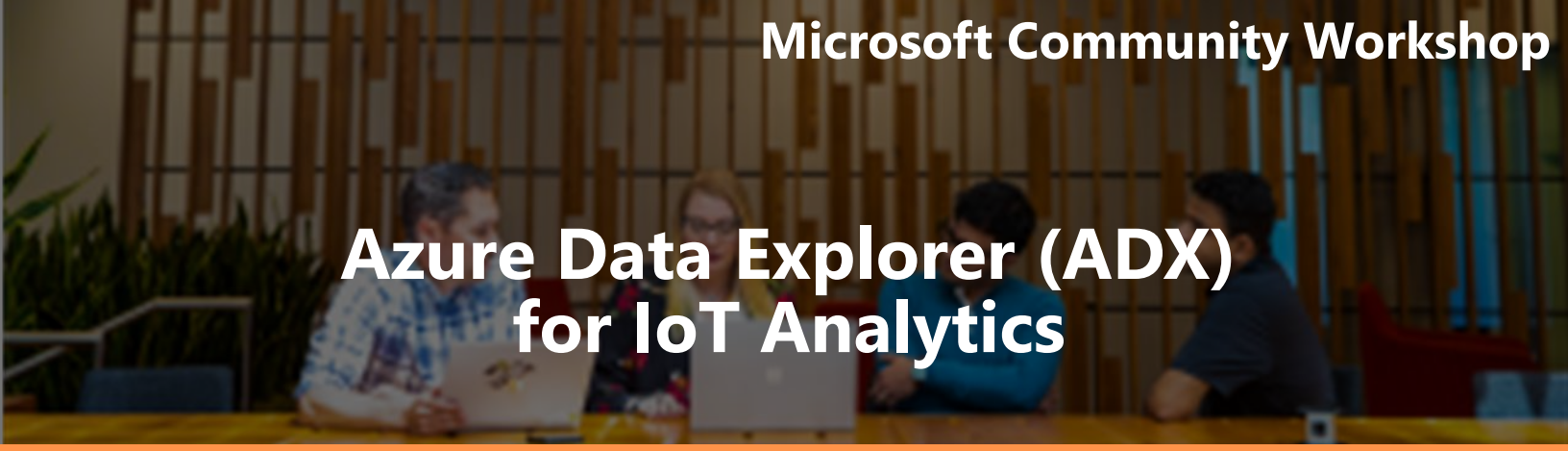

Microsoft Community Workshop

Azure Data Explorer (ADX) for IoT Analytics

Duration: 1 day [Onsite/Remote] | **Focus Area:** Performance and Scalability | **Difficulty:** 300 - Advanced

Intended Audience

Devs, Architects, Data Scientists Interested in Analyzing IoT data in Azure with ADX.

Primary Audience: Customers

Secondary Audience: Partners

Overview

Azure Data Explorer is a fast, fully managed data analytics service for real-time analysis on large volumes of data streaming from applications, websites, IoT devices, and more. Ask questions and iteratively explore data on the fly to improve products, enhance customer experiences, monitor devices, and boost operations. Quickly identify patterns, anomalies, and trends in your data. Explore new questions and get answers in minutes. Run as many queries as you need, thanks to the optimized cost structure. This workshop will bring you up to speed on creating world class I(I)oT solutions based on Azure Data Explorer. We'll cover topics around data representation in ADX, connections and visualization of data.

Objectives

After completing this training, you will be able to:

- ADX Overview
- ADX for IoT Analytics
- Azure Digital Twins (ADT) with ADX
- KQL for IoT Analytics
- Built-in Machine Learning & Time Series
- Visuals with ADX Dashboards & Power BI
- ADX Ops, Management, Monitoring, Troubleshooting
- Advanced Topics

Key takeaways

Course material

- Near-Real-Time ingestion from IoT Hub, Event Hub, Kafka, and Storage
- Built-in Time Series and Machine Learning
- Big Data and Partner integrations
- Deep control of data sources, schema, life cycle and cost.

Agenda

Day 1

- Introduction
- ADX Overview
- ADX + IoT
- Hands-on Lab
- Azure Digital Twins (ADT) Overview
- KQL
- ML & TS
- Visuals
- Ops & Mgmt
- Advanced

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Course details

Module 1: ADX Introduction & Overview

- Overview of the service
- ADX Architecture the Why/What/How
- Proven Technology & Customer Use-Cases
- Demos
- Knowledge check & Agenda

Module 2: ADX for IoT Analytics

- IoT essential + Feedback loop
- Reference Architecture
- More demos using Thermostat data and more.

Module 3: Hands-On Lab

- Full walkthrough of Hands-On Lab materials
- Execution of Lab steps throughout
- Help & encourage participants

Module 4: Azure Digital Twins (ADT)

- Introduction of ADT
- Next generation IoT solutions
- Integration with ADX

Module 5: KQL for IoT

- KQL in ADX for IoT Analytics
- Overview of KQL & Common usage for IoT
- Reinforce knowledge of queries from Hands-On Lab
- Incl. Materialized Views, External Tables, ADT Query, Python Unsupervised & Supervised ML.
- KQL Best Practices & Knowledge check

Module 6: ML & Time series for IoT

- Time series analysis
- Anomaly detection and forecasting
- Machine learning
- Language plugins (Python & R)

Module 7: Visuals

- Built-in Dashboards & Power BI

Module 8: Ops & Management

- Management (Cluster, Database & Data), BCDR
- Monitor & Troubleshoot

Module 9: Advanced

- Cmds, Policies, Cache
- API common usage (SDKs & Python)
- Optimize

Pre-requisites

Before attending this course, it is recommended that you meet the following criteria

- In order to execute the Hands-On Lab attendees **must have their own subscription** with access to create scripted resources. Lab Azure subscriptions will not be provided for the course.
- If attendee(s) has a Microsoft Account (**hotmail.com**, **live.com**, **outlook.com**), temporary access may be granted to workshop cluster to run queries.
- **Essentials:**
    - KQL from Scratch
    - Azure data exploring
    - How to start with Azure Data Explorer , (blog)
    - Advanced KQL , (blog)

Timeline

- Modules 1-3: ~3hrs (with lunch break)
- Module 4: 15 mins
- Modules 5-9: ~2 hr

For more information

Contact your Microsoft Account Representative for further details.