

MS-DP700T00: MICROSOFT FABRIC DATA ENGINEER



DURATION	LEVEL	TECHNOLOGY	DELIVERY METHOD	TRAINING CREDITS
4 Days	Intermediate	Azure	Instructor-led	NA

INTRODUCTION

This course covers methods and practices to implement data engineering solutions by using Microsoft Fabric. Students will learn how to design and develop effective data loading patterns, data architectures, and orchestration processes. Objectives for this course include ingesting and transforming data and securing, managing, and monitoring data engineering solutions. This course is designed for experienced data professionals skilled at data integration and orchestration, such as those with the DP-203: Azure Data Engineer certification.

AUDIENCE PROFILE

This audience for this course is data professionals with experience in data extraction, transformation, and loading. DP-700 is designed for professionals who need to create and deploy data engineering solutions using Microsoft Fabric for enterprise-scale data analytics.

PREREQUISITES

Learners should also have experience at manipulating and transforming data with one of the following programming languages: Structured Query Language (SQL), PySpark, or Kusto Query Language (KQL).

COURSE OBJECTIVES

The key objectives are:

- Ingesting and Transforming Data: Students will learn how to implement efficient data loading patterns using various data ingestion and transformation techniques.
- Securing and Managing Data Engineering Solutions: The course covers best practices for securing data, managing data storage, and handling data privacy.
- Monitoring and Optimizing Analytics Solutions: You will gain skills in monitoring data engineering solutions and optimizing them for performance.

COURSE CONTENT

Module 1: Ingest Data with Dataflows Gen2 in Microsoft Fabric

Data ingestion is crucial in analytics. Microsoft Fabric's Data Factory offers Dataflows for visually creating multi-step data ingestion and transformation using Power Query Online.

Lessons

- Introduction
- Understand Dataflows Gen2 in Microsoft Fabric
- Explore Dataflows Gen2 in Microsoft Fabric
- Integrate Dataflows Gen2 and Pipelines in Microsoft Fabric
- Exercise - Create and use a Dataflow Gen2 in Microsoft Fabric
- Knowledge check
- Summary

After completing this module, students will be able to:

- Describe Dataflow capabilities in Microsoft Fabric
- Create Dataflow solutions to ingest and transform data
- Include a Dataflow in a pipeline

Module 2: Orchestrate processes and data movement with Microsoft Fabric

Microsoft Fabric includes Data Factory capabilities, including the ability to create pipelines that orchestrate data ingestion and transformation tasks.

Lessons

- Introduction
- Understand pipelines
- Use the Copy Data activity
- Use pipeline templates
- Run and monitor pipelines
- Exercise - Ingest data with a pipeline
- Knowledge check

- Summary

After completing this module, students will be able to:

- Describe pipeline capabilities in Microsoft Fabric.
- Use the Copy Data activity in a pipeline.
- Create pipelines based on predefined templates.
- Run and monitor pipelines.

Module 3: Get started with Real-Time Intelligence in Microsoft Fabric

Analysis of real-time data streams is a critical capability for any modern data analytics solution. You can use the Real-Time Intelligence capabilities of Microsoft Fabric to ingest, query, and process streams of data.

Lessons

- Introduction

- What is real-time data analytics?
- Real-Time Intelligence in Microsoft Fabric
- Ingest and transform real-time data
- Store and query real-time data
- Visualize real-time data
- Automate actions
- Exercise - Explore Real-Time Intelligence in Fabric
- Knowledge check
- Summary

After completing this module:

- Microsoft Fabric includes Real-Time Intelligence capabilities that you can use to capture, analyze, visualize, and act on real-time streams of event data.

Module 4: Use real-time eventstreams in Microsoft Fabric

Microsoft Fabric Eventstreams within Real-Time Intelligence (RTI) enable you to ingest and transform real-time data.

Lessons

- Introduction
- Components of eventstreams
- Eventstream sources and destinations
- Eventstream transformations
- Exercise - Ingest real-time data with Eventstream in Microsoft Fabric
- Knowledge check
- Summary

After completing this module, students will be able to:

- Establish source and destinations in Microsoft Fabric Eventstreams.
- Capture, transform, and route data using Microsoft Fabric Eventstreams.

Module 5: Work with real-time data in a Microsoft Fabric eventhouse

An eventhouse in Microsoft Fabric provides a scalable and flexible store for real-time data.

Lessons

- Introduction
- Get started with an eventhouse
- Use KQL effectively
- Materialized views and stored functions
- Exercise - Work with data in a Microsoft Fabric eventhouse
- Knowledge check
- Summary

After completing this module, students will be able to:

- Create an eventhouse in Microsoft Fabric
- Query real-time data by using Kusto Query Language (KQL).

- Create materialized views and stored functions in a KQL database.

Module 6: Introduction to end-to-end analytics using Microsoft Fabric

Discover how Microsoft Fabric can meet your enterprise's analytics needs in one platform. Learn about Microsoft Fabric, how it works, and identify how you can use it for your analytics needs.

Lessons

- Introduction
- Explore end-to-end analytics with Microsoft Fabric
- Data teams and Microsoft Fabric
- Enable and use Microsoft Fabric
- Knowledge Check
- Summary

After completing this module, students will be able to:

- Describe end-to-end analytics in Microsoft Fabric

Module 7: Get started with lakehouses in Microsoft Fabric

Lakehouses merge data lake storage flexibility with data warehouse analytics. Microsoft Fabric offers a lakehouse solution for comprehensive analytics on a single SaaS platform.

Lessons

- Introduction
- Explore the Microsoft Fabric lakehouse
- Work with Microsoft Fabric lakehouses
- Explore and transform data in a lakehouse
- Exercise - Create a Microsoft Fabric lakehouse
- Summary

After completing this module, students will be able to:

- Describe core features and capabilities of lakehouses in Microsoft Fabric.
- Create a lakehouse.
- Ingest data into files and tables in a lakehouse.
- Query lakehouse tables with SQL.

Module 8: Use Apache Spark in Microsoft Fabric

Apache Spark is a core technology for large-scale data analytics. Microsoft Fabric provides support for Spark clusters, enabling you to analyze and process data in a Lakehouse at scale.

Lessons

- Introduction
- Prepare to use Apache Spark
- Run Spark code
- Work with data in a Spark dataframe

- Work with data using Spark SQL
- Visualize data in a Spark notebook
- Exercise - Analyze data with Apache Spark
- Knowledge check
- Summary

After completing this module, students will be able to:

- Configure Spark in a Microsoft Fabric workspace
- Identify suitable scenarios for Spark notebooks and Spark jobs
- Use Spark dataframes to analyze and transform data
- Use Spark SQL to query data in tables and views
- Visualize data in a Spark notebook

Module 9: Work with Delta Lake tables in Microsoft Fabric

Tables in a Microsoft Fabric lakehouse are based on the Delta Lake storage format commonly used in Apache Spark. By using the enhanced capabilities of delta tables, you can create advanced analytics solutions.

Lessons

- Introduction
- Understand Delta Lake
- Create delta tables
- Optimize delta tables
- Work with delta tables in Spark
- Use delta tables with streaming data
- Exercise - Use delta tables in Apache Spark
- Knowledge check
- Summary

After completing this module, students will be able to:

- Understand Delta Lake and delta tables in Microsoft Fabric
- Create and manage delta tables using Spark
- Optimize delta tables
- Use Spark to query and transform data in delta tables
- Use delta tables with Spark structured streaming

Module 10: Organize a Fabric lakehouse using medallion architecture design

Explore the potential of the medallion architecture design in Microsoft Fabric. Organize and transform your data across bronze, silver, and gold layers of a lakehouse for optimized analytics.

Lessons

- Introduction
- Describe medallion architecture
- Implement a medallion architecture in Fabric
- Query and report on data in your Fabric lakehouse

- Considerations for managing your lakehouse
- Exercise - Organize your Fabric lakehouse using a medallion architecture
- Knowledge check
- Summary

After completing this module, students will be able to:

- Describe the principles of using the medallion architecture in data management.
- Apply the medallion architecture framework within the Microsoft Fabric environment.
- Analyze data stored in the lakehouse using DirectLake in Power BI.
- Describe best practices for ensuring the security and governance of data stored in the medallion architecture.

Module 11: Create Real-Time Dashboards with Microsoft Fabric

Real-time Dashboard is a Real-Time Intelligence capability in Microsoft Fabric that you can use to create real-time data visualizations.

Lessons

- Introduction
- Get started with real-time dashboards
- Advanced features
- Real-Time Dashboard best practices
- Exercise - Get started with real-time dashboards
- Knowledge check
- Summary

After completing this module, students will be able to:

- Create a real-time dashboard in Microsoft Fabric.
- Use advanced feature of real-time dashboards.
- Apply best practices for real-time dashboards.

Module 12: Get started with data warehouses in Microsoft Fabric

Data warehouses are analytical stores built on a relational schema to support SQL queries. Microsoft Fabric enables you to create a relational data warehouse in your workspace and integrate it easily with other elements of your end-to-end analytics solution.

Lessons

- Introduction
- Understand data warehouse fundamentals
- Understand data warehouses in Fabric
- Query and transform data
- Prepare data for analysis and reporting
- Secure and monitor your data warehouse

- Exercise - Analyze data in a data warehouse
- Knowledge check
- Summary

After completing this module, students will be able to:

- Describe data warehouses in Fabric.
- Understand a data warehouse vs a data Lakehouse.
- Work with data warehouses in Fabric.
- Create and manage fact tables and dimensions within a data warehouse.

Module 13: Load data into a Microsoft Fabric data warehouse

Data warehouse in Microsoft Fabric is a comprehensive platform for data and analytics, featuring advanced query processing and full transactional T-SQL capabilities for easy data management and analysis.

Lessons

Introduction

- Explore data load strategies
- Use data pipelines to load a warehouse
- Load data using T-SQL
- Load and transform data with Dataflow Gen2
- Exercise: Load data into a warehouse in Microsoft Fabric
- Knowledge check
- Summary

After completing this module, students will be able to:

- Learn different strategies to load data into a data warehouse in Microsoft Fabric.
- Learn how to build a data pipeline to load a warehouse in Microsoft Fabric.
- Learn how to load data in a warehouse using T-SQL.
- Learn how to load and transform data with dataflow (Gen 2).

Module 14: Query a data warehouse in Microsoft Fabric

Data warehouse in Microsoft Fabric is a comprehensive platform for data and analytics, featuring advanced query processing and full transactional T-SQL capabilities for easy data management and analysis.

Lessons

- Introduction
- Query data
- Use the SQL query editor
- Explore the visual query editor
- Use client tools to query a warehouse
- Exercise: Query a data warehouse in Microsoft Fabric
- Knowledge check
- Summary

After completing this module, students will be able to:

- Use SQL query editor to query a data warehouse.
- Explore how visual query editor works.
- Learn how to connect and query a data warehouse using SQL Server Management Studio.

Module 15: Monitor a Microsoft Fabric data warehouse

Data warehouse in Microsoft Fabric is a comprehensive platform for data and analytics, featuring advanced query processing and full transactional T-SQL capabilities for easy data management and analysis.

Lessons

- Introduction
- Monitor capacity metrics
- Monitor current activity
- Monitor queries
- Exercise – Monitor a data warehouse in Microsoft Fabric
- Knowledge check
- Summary

After completing this module, students will be able to:

- Monitor capacity unit usage with the Microsoft Fabric Capacity Metrics app.
- Monitor current activity in the data warehouse with dynamic management views.
- Monitor querying trends with query insights views.

Module 16: Secure a Microsoft Fabric data warehouse

Data warehouse in Microsoft Fabric is a comprehensive platform for data and analytics, featuring advanced query processing and full transactional T-SQL capabilities for easy data management and analysis.

Lessons

- Introduction
- Explore dynamic data masking
- Implement row-level security
- Implement column-level security
- Configure SQL granular permissions using T-SQL
- Exercise: Secure a warehouse in Microsoft Fabric
- Knowledge check
- Summary

After completing this module, students will be able to:

- Learn the concepts of securing a data warehouse in Microsoft Fabric.
- Learn how to implement dynamic data masking to obscure sensitive information.
- Learn how to configure row-level security to provide granular control.

- Learn how to implement column-level security to protect sensitive data.
- Learn how to configure granular permissions using T-SQL.

Module 17: Implement continuous integration and continuous delivery (CI/CD) in Microsoft Fabric

Microsoft Fabric implements CI/CD using Git integration and deployment pipelines. These tools help you collaborate with your development team and provide you with an efficient process for delivering and updating content.

Lessons

- Introduction
- Understand Continuous Integration and Continuous Delivery (CI/CD)
- Implement version control and Git integration
- Implement deployment pipelines
- Automate CI/CD using Fabric APIs
- Exercise: Implement deployment pipelines in Microsoft Fabric
- Knowledge check
- Summary

After completing this module, students will be able to:

- Define CI/CD and describe how it's implemented in Fabric.
- Implement version control and Git integration.
- Use deployment pipelines to automate the deployment process.

- Automate CI/CD using Fabric APIs.

Module 18: Monitor activities in Microsoft Fabric

Monitoring helps you gain visibility into the health of your data systems. Monitoring Hub in Microsoft Fabric collects and aggregates data from Fabric activities. Microsoft Fabric Activator helps you take actions when patterns or conditions are detected in streaming data.

Lessons

- Introduction
- Understand monitoring
- Use Microsoft Fabric Monitor Hub
- Take action with Microsoft Fabric Activator
- Exercise - Monitor Fabric activity in the Monitor hub
- Knowledge check
- Summary

After completing this module, students will be able to:

- Apply monitoring concepts to Microsoft Fabric
- Use Monitoring Hub in Microsoft Fabric
- Trigger actions using Activator in Microsoft Fabric

Module 19: Secure data access in Microsoft Fabric

Microsoft Fabric uses a multi-layer security model with access controls at different levels.

Lessons

- Introduction

- Understand the Fabric security model
- Configure workspace and item permissions
- Apply granular permissions
- Exercise: Secure data access in Microsoft Fabric
- Knowledge check
- Summary

After completing this module, students will be able to:

- Describe the permissions model in Microsoft Fabric.
- Configure workspace and item permissions.
- Apply granular permissions.

Module 20: Administer a Microsoft Fabric environment

Microsoft Fabric is a SaaS solution for end-to-end data analytics. As an administrator, you can configure features and manage access to suit your organization's needs.

Lessons

- Introduction
- Understand the Fabric Architecture
- Understand the Fabric administrator role
- Manage Fabric security
- Govern data in Fabric
- Knowledge check
- Summary

After completing this module, students will be able to:

- Describe Fabric admin tasks
- Navigate the admin center
- Manage user access
- Govern data in Fabric

ASSOCIATED CERTIFICATIONS & EXAM

This course will prepare delegates to write the DP-700: Microsoft Certified: Fabric Data Engineer Associate exam.