Study guide for Exam DP-500: Designing and Implementing Enterprise-Scale Analytics Solutions Using Microsoft Azure and Microsoft Power BI

Purpose of this document

This study guide should help you understand what to expect on the exam and includes a summary of the topics the exam might cover and links to additional resources. The information and materials in this document should help you focus your studies as you prepare for the exam.

Useful links	Description
Review the skills measured as of February 6, 2023	This list represents the skills measured AFTER the date provided. Study this list if you plan to take the exam AFTER that date.
Review the skills measured prior to February 6, 2023	Study this list of skills if you take your exam PRIOR to the date provided.
Change log	You can go directly to the change log if you want to see the changes that will be made on the date provided.
How to earn the certification	Some certifications only require passing one exam, while others require passing multiple exams.
Certification renewal	Microsoft associate, expert, and specialty certifications expire annually. You can renew by passing a **free** online assessment on Microsoft Learn.
Your Microsoft Learn profile	Connecting your certification profile to Microsoft Learn allows you to schedule and renew exams and share and print certificates.
Exam scoring and score reports	A score of 700 or greater is required to pass.
Exam sandbox	You can explore the exam environment by visiting our exam sandbox.
Request accommodations	If you use assistive devices, require extra time, or need modification to any part of the exam experience, you can request an accommodation.

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Useful links	Description
Take a practice test	Are you ready to take the exam or do you need to study a bit more?

Updates to the exam

Our exams are updated periodically to reflect skills that are required to perform a role. We have included two versions of the Skills Measured objectives depending on when you are taking the exam.

We always update the English language version of the exam first. Some exams are localized into other languages, and those are updated approximately eight weeks after the English version is updated. Although Microsoft makes every effort to update localized versions as noted, there may be times when the localized versions of an exam are not updated on this schedule. Other available languages are listed in the **Schedule Exam** section of the **Exam Details** webpage. If the exam isn't available in your preferred language, you can request an additional 30 minutes to complete the exam.

Note

The bullets that follow each of the skills measured are intended to illustrate how we are assessing that skill. Related topics may be covered in the exam.

Note

Most questions cover features that are general availability (GA). The exam may contain questions on Preview features if those features are commonly used.

Skills measured as of February 6, 2023

Audience profile

Candidates for the Azure Enterprise Data Analyst Associate certification should have subject matter expertise in designing, creating, and deploying enterprise-scale data analytics solutions.

Responsibilities for this role include performing advanced data analytics at scale, such as cleaning and transforming data, designing, and building enterprise data models, incorporating advanced analytics capabilities, integrating with IT infrastructure, and applying development lifecycle practices. These professionals help collect enterprise-level requirements for data analytics solutions that include Azure and Power BI. They also advise on data governance and configuration settings for Power BI administration, monitor data usage, and optimize performance of the data analytics solutions.

Azure enterprise data analysts collaborate with other roles, such as solution architects, data engineers, data scientists, AI engineers, database administrators, and Power BI data analysts.

Candidates for this exam should have advanced Power BI skills, including managing data repositories and data processing in the cloud and on-premises, along with using Power Query and Data Analysis Expressions (DAX). They should also be proficient in consuming data from Azure Synapse Analytics and

should have experience querying relational databases, analyzing data by using Transact-SQL (T-SQL), and visualizing data.

- Implement and manage a data analytics environment (25–30%)
- Query and transform data (20–25%)
- Implement and manage data models (25–30%)
- Explore and visualize data (20–25%)

Implement and manage a data analytics environment (25–30%)

Govern and administer a data analytics environment

- Manage Power BI assets by using Microsoft Purview
- Identify data sources in Azure by using Microsoft Purview
- Recommend settings in the Power BI admin portal
- Recommend a monitoring and auditing solution for a data analytics environment, including Power BI REST API and PowerShell cmdlets

Integrate an analytics platform into an existing IT infrastructure

- Identify requirements for a solution, including features, performance, and licensing strategy
- Configure and manage Power BI capacity
- Recommend and configure an on-premises gateway in Power BI
- Recommend and configure a Power BI tenant or workspace to integrate with Azure Data Lake Storage Gen2
- Integrate an existing Power BI workspace into Azure Synapse Analytics

Manage the analytics development lifecycle

- Commit code and artifacts to a source control repository in Azure Synapse Analytics
- Recommend a deployment strategy for Power BI assets
- Recommend a source control strategy for Power BI assets
- Implement and manage deployment pipelines in Power BI
- Perform impact analysis of downstream dependencies from dataflows and datasets
- Recommend automation solutions for the analytics development lifecycle, including Power BI REST API and PowerShell cmdlets
- Deploy and manage datasets by using the XMLA endpoint
- Create reusable assets, including Power BI templates, Power BI data source (.pbids) files, and shared datasets

Query and transform data (20–25%)

Query data by using Azure Synapse Analytics

- Identify an appropriate Azure Synapse pool when analyzing data
- Recommend appropriate file types for querying serverless SQL pools

- Query relational data sources in dedicated or serverless SQL pools, including querying partitioned data sources
- Use a machine learning **PREDICT** function in a query

Ingest and transform data by using Power BI

- Identify data loading performance bottlenecks in Power Query or data sources
- Implement performance improvements in Power Query and data sources
- Create and manage scalable Power BI dataflows
- Identify and manage privacy settings on data sources
- Create queries, functions, and parameters by using the Power Query Advanced Editor
- Query advanced data sources, including JSON, Parquet, APIs, and Azure Machine Learning models

Implement and manage data models (25–30%)

Design and build tabular models

- Choose when to use DirectQuery for Power BI datasets
- Choose when to use external tools, including DAX Studio and Tabular Editor 2
- Create calculation groups
- Write calculations that use DAX variables and functions, for example handling blanks or errors, creating virtual relationships, and working with iterators
- Design and build a large format dataset
- Design and build composite models, including aggregations
- Design and implement enterprise-scale row-level security and object-level security

Optimize enterprise-scale data models

- Identify and implement performance improvements in queries and report visuals
- Troubleshoot DAX performance by using DAX Studio
- Optimize a data model by using Tabular Editor 2
- Analyze data model efficiency by using VertiPaq Analyzer
- Implement incremental refresh (including the use of query folding)
- Optimize a data model by using denormalization

Explore and visualize data (20–25%)

Explore data by using Azure Synapse Analytics

- Explore data by using native visuals in Spark notebooks
- Explore and visualize data by using the Azure Synapse SQL results pane

Visualize data by using Power BI

- Create and import a custom report theme
- Create R or Python visuals in Power BI

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- Connect to and query datasets by using the XMLA endpoint
- Design and configure Power BI reports for accessibility
- Enable personalized visuals in a report
- Configure automatic page refresh
- Create and distribute paginated reports in Power BI Report Builder

Study resources

We recommend that you train and get hands-on experience before you take the exam. We offer self-study options and classroom training as well as links to documentation, community sites, and videos.

Study resources	Links to learning and documentation
Get trained	Choose from self-paced learning paths and modules or take an instructor-led course
Find documentation	Azure Cosmos DB documentation Azure documentation
Ask a question	Microsoft Q&A | Microsoft Docs
Get community support	Analytics on Azure - Microsoft Tech Community Azure Data Factory - Microsoft Tech Community Azure - Microsoft Tech Community
Follow Microsoft Learn	Microsoft Learn - Microsoft Tech Community
Find a video	Exam Readiness Zone Data Exposed Browse other Microsoft Learn shows

Change log

Key to understanding the table: The topic groups (also known as functional groups) are in bold typeface followed by the objectives within each group. The table is a comparison between the two versions of the exam skills measured and the third column describes the extent of the changes.

Skill area prior to February 6, 2023	Skill area as of February 6, 2023	Change
Audience profile	Audience profile	Minor
Implement and manage a data analytics environment	**Implement and manage a data analytics environment**	No change
Govern and administer a data analytics environment	Govern and administer a data analytics environment	Minor

Skill area prior to February 6, 2023	Skill area as of February 6, 2023	Change
Integrate an analytics platform into an existing IT infrastructure	Integrate an analytics platform into an existing IT infrastructure	No change
Manage the analytics development lifecycle	Manage the analytics development lifecycle	No change
Query and transform data	**Query and transform data**	No change
Query data by using Azure Synapse Analytics	Query data by using Azure Synapse Analytics	No change
Ingest and transform data by using Power BI	Ingest and transform data by using Power BI	No change
Implement and manage data models	**Implement and manage data models**	No change
Design and build tabular models	Design and build tabular models	No change
Optimize enterprise-scale data models	Optimize enterprise-scale data models	Minor
Explore and visualize data	**Explore and visualize data**	No change
Explore data by using Azure Synapse Analytics	Explore data by using Azure Synapse Analytics	No change
Visualize data by using Power BI	Visualize data by using Power BI	No change

Skills measured prior to February 6, 2023

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- Query and transform data (20–25%)
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