Course : Data Warehousing with BigQuery: Storage Design, Query Optimization, and Administration

Official course, preparation for Google Cloud certification exams

Practical course - 3d - 21h00 - Ref. DWQ
Price : 2890 € E.T.

With this training, you will discover the internal components of BigQuery and best practices for designing, optimizing, and administering your data warehouse. You will learn about BigQuery's architecture and how to design optimal storage and schemas for data ingestion and modifications. You will learn techniques for improving read performance, optimizing queries, managing workloads, using logging and monitoring tools, as well as various methods for securing data, and more.

Teaching objectives

At the end of the training, the participant will be able to:

- Describe BigQuery architecture and apply appropriate storage and schema models
- Data engineering with DML and scheduled transfers
- Optimize performance through best practices in reading, querying and capacity management
- Monitor usage and apply best safety practices
- Create and deploy different machine learning models with BigQuery ML

Intended audience

Data analysts, data scientists, data engineers and developers working on large-scale projects requiring advanced knowledge of BigQuery to optimize performance.

Prerequisites

Completion of the course "Big Data and Machine Learning Fundamentals" or equivalent knowledge.

PARTICIPANTS

Data analysts, data scientists, data engineers and developers working on large-scale projects requiring advanced knowledge of BigQuery to optimize performance.

PREREQUISITES

Completion of the course "Big Data and Machine Learning Fundamentals" or equivalent knowledge.

TRAINER QUALIFICATIONS

The experts who lead the training courses are specialists in the subjects covered. They are approved by the publisher and certified for the course. They have also been validated by our teaching teams in terms of both professional knowledge and teaching skills for each course they teach. They have at least three to ten years of experience in their field and hold or have held positions of responsibility in companies.

ASSESSMENT TERMS

Assessment of targeted skills prior to training.
Assessment by the participant, at the end of the training course, of the skills acquired during the training course.
Validation by the trainer of the participant's learning outcomes, specifying the tools used: multiple-choice questions, role-playing exercises, etc.
At the end of each training course, ITTCERT provides participants with a course evaluation questionnaire, which is then analysed by our teaching teams. Participants also complete an official evaluation of the publisher.
An attendance sheet for each half-day of attendance is provided at the end of the training course, along with a certificate of completion if the participant has attended the entire session.

Certification

We recommend you take this course if you want to prepare for certification as a "Google Cloud Professional Data Engineer".
Comment passer votre examen ?

Practical details

Teaching methods

Training in French. Official course material in English and digital format. Good understanding of written English.

TEACHING AIDS AND TECHNICAL RESOURCES

The teaching resources used are the publisher's official materials and practical exercises.

TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training course.

ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you have specific accessibility requirements? Contact Ms FOSSE, disability advisor, at the following address: psh-accueil@orsys.fr so that we can assess your request and its feasibility.

Course schedule

1 Basic principles of BigQuery architecture

- BigQuery core infrastructure.
- BigQuery storage.
- BigQuery query processing.
- Shuffling BigQuery data.

Demonstration

2 Storage and schema optimization

- Best practices.
- BigQuery storage.
- Partitioning and clustering.
- Nested and repeated fields.
- ARRAY and STRUCT syntax.

Demonstration

3 Data ingestion

- BigQuery Storage Write API.
- Query materialization.
- Query external data sources.
- Data transfer service.
- Data integration options.
- Batch ingestion.
- Ingestion of continuous diffusion.
- Legacy Streaming API.

Demonstration

4 Data modification

- Change management in data warehouses.
- Slowly Changing Dimensions (SCD) management.
- DML declarations.
- DML best practices and common problems.

5 Improve reading performance

- BigQuery cache.
- Materialized views.
- BI Engine.
- High-speed reading.
- BigQuery storage reading API.

6 Query optimization and troubleshooting

- Simple query execution.
- SELECT and Aggregation.
- JOIN and JOIN biased.
- Filtering and classification.
- Best practices for functions.

Demonstration

7 Workload management and pricing

- BigQuery locations.
- Pricing models and estimates.
- Reservation of slots.
- Cost control.

Demonstration

8 Logging and monitoring

- Cloud Monitoring.
- BigQuery Admin Panel.
- Cloud Audit Logs.
- INFORMATION_SCHEMA.
- Query path and common errors.

Demonstration

9 Security in BigQuery

- Secure resources with IAM.
- Views allowed.
- Secure data with classification.
- Encryption.
- Data discovery and governance.

Demonstration

10 Workload automation

- Schedule queries.
- Script.
- Stored procedures.
- Integration with Big Data products.

Demonstration

11 Machine learning in BigQuery

- Introducing BigQuery ML.
- How to make predictions with BigQuery ML.
- How to create and deploy a recommendation system with BigQuery ML.
- How to create and deploy a demand forecasting solution with BigQuery ML.
- Time series models with BigQuery ML.
- BigQuery ML Explainability.

Demonstration

Dates and locations

REMOTE CLASS
2026 : 24 Mar., 19 May, 13 Oct., 15 Dec.

PARIS LA DÉFENSE
2026 : 24 Mar., 19 May, 13 Oct., 15 Dec.