



AlloyDB Essentials (ADBE)

ID ADBE **Price** 297.50 € (excl. tax) **Duration** 3 hours

Course Overview

This course explores the benefits of AlloyDB, especially compared to PostgreSQL on Cloud SQL. It will walk you through AlloyDB's unique architecture, and explain how to configure deployments on Google Cloud. The course is divided into two parts: AlloyDB Administration Essentials (architecture and configuration) and AlloyDB Optimization Essentials (performance tuning).

Who should attend

- Data Engineers
- Database Administrators

Prerequisites

- Comfortable working in Google Cloud with Cloud Shell and the Google Cloud Console.
- Basic knowledge of PostgreSQL management.
- Basic knowledge of Cloud SQL and database administrative tasks is useful.

Course Objectives

Part 1:

- Understand the differences between AlloyDB and Cloud SQL.
- Describe Alloy DB's architecture and its advantages for demanding workloads.
- Create and manage an AlloyDB instance.

Part 2:

- Leverage Index Advisor recommendations to improve query performance.
- Use Adaptive Autovacuum to free up database resources.
- Describe and configure the Columnar Engine to speed up analytical queries.

Detailed Course Outline

Topic 0 - Course Introduction

Topics:

- Introductions
- Course format
- Etiquette
- Target audience and Prerequisite knowledge
- Agenda

Learning Objectives:

- N/A

Part 1 - AlloyDB Administration Essentials

Topic 1 - The Value of AlloyDB

Topics:

- Traditional PostgreSQL: Monolithic limitations
- Cloud SQL: Monolithic scaling
- AlloyDB: Cloud-native design
- AlloyDB: Performance advantages
- AlloyDB: Intelligent storage

Learning Objectives:

- Understand the differences between AlloyDB and Cloud SQL

Topic 2 - Architecture Overview

Topics:

- Disaggregated storage
- WAL processing
- Read pool scaling
- Automatic data tiering
- Dynamic shard mapping

Learning Objectives:

- Describe AlloyDB's architecture and its advantages for demanding workloads.



Topic 3 - Get Started with AlloyDB

Topics

- Instance configuration
- Network connectivity
- Connection methods
- Scaling instances
- Backup and recovery
- Additional Resources

Learning Objectives:

- Create and manage an AlloyDB instance.

Topic 4 - AlloyDB Administration Essentials Quiz

Topics

- Knowledge checks re AlloyDB Administration Essentials

Learning Objectives:

- Understand the differences between AlloyDB and Cloud SQL.
- Describe AlloyDB's architecture and its advantages for demanding workloads
- Create and manage an Alloy DB instance

Part 2 - AlloyDB Optimization Essentials

Topic 1 - Index advisor

Topics

- DBA tasks
- Indexing challenges
- Database indexes
- Index advisor: Smart recommendations.
- Performance gains

Learning Objectives:

- Leverage Index Advisor recommendations to improve query performance.

Topic 2 -Adaptive autovacuum

Topics

- MVCC overview
- VACUUM purpose

- Adaptive autovacuum: Dynamic resource management.
- Performance improvement

Learning Objectives:

- Use Adaptive Autovacuum to free up database resources.

Topic 3 - Columnar Engine

Topics

- Row vs. Columnar: Storage differences.
- Analytical efficiency
- In-memory engine
- Metadata optimization
- Execution modes
- Additional Resources

Learning Objectives:

- Describe and configure the Columnar Engine to speed up analytical queries.

Topic 4 - AlloyDB Optimization Essentials Quiz

Topics

- Knowledge checks re AlloyDB Optimization Essentials

Learning Objectives:

- Leverage Index Advisor recommendations to improve query performance.
- Use Adaptive Autovacuum to free up database resources.
- Describe and configure the Columnar Engine to speed up analytical queries.

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