

# Orchestrate BigQuery Workloads with Dataform

The best training on Dataform to orchestrate BigQuery workloads

1 jour / 7h

## Learning outcomes

- Understand the components of Dataform core.
- Create tables and views in BigQuery using Dataform.
- Document BigQuery tables and views.
- Understand BigQuery security settings using Dataform.
- Use assertions to validate data in Dataform workflows.
- Execute Dataform SQL workflows in an automated fashion.

## Who this course is for

Data Analysts, Data Engineers and everyone interested to orchestrate BigQuery Workloads with Dataform

## Prerequisites

Knowledge of SQL data analysis and BigQuery as discussed in BigQuery for Data Analysis.

## Course Outline

## **Module 01 : Dataform Core Components**

### **Topics**

- SQL workflow
- Repositories and workspaces
- Default files and folders
- Compiled graphs

### **Objectives**

- Understand the components of Dataflow core.

## **Module 02 : Table Definitions and Dependencies**

### **Topics**

- Declare a data source.
- Create a table.
- Create an incremental table.
- Set partitioning and clustering options.
- Create an empty table.
- Create an external BigLake table.
- Create views and materialized views.
- Define dependencies

### **Objectives**

- Create tables and views in BigQuery using Dataform.

## **Module 03 : Document BigQuery Tables and Views**

### **Topics**

- Use column descriptions.
- Use globally defined JavaScript constants.
- Add labels.

### **Objectives**

- Document BigQuery tables and views.

### **Activities**

- Lab: Build SQL Workflows with Dependencies in Dataform

## **Module 04: BigQuery Security Settings**

## Topics

- IAM dataset and table/view access
- Column-level security
- Row-level security

## Objectives

- Understand BigQuery security settings using Dataform.

## Module 05: Assertions

### Topics

- Use built-in assertions.
- Create manual assertions.

### Objectives

- Use assertions to validate data in Dataform workflows

### Activities

- Lab: Work with Assertions and BigQuery Security Settings in Dataform

## Module 06: SQL Workflow Executions

### Topics

- Dataform code lifecycle.
- What happens during compilation.
- Customize and schedule compilation results.
- Execute workflows (UI, Cloud Scheduler, Cloud Composer).
- Logging and monitoring

### Objectives

- Execute Dataform SQL workflows in an automated fashion.

### Activities

- Lab: Automate and Monitor SQL Workflow Executions in Dataform

## Module 07: Advanced Use Cases

### Topics

- Create a BigLake table after file upload using Cloud Run functions.
- Build a Machine Learning pipeline with BigQuery ML.

- Work with Slowly Changing Dimensions Type 2.

## **Objectives**

- Explore additional use cases for Dataform.

## **Activities**

- Lab: Create a BigLake Table with Dataform Using Cloud Run Functions