

Implementing a Data Warehouse with Microsoft SQL Server 2012-2014

(MOC 20463C)

Course 21463 – 40 Hours

Overview

This course describes how to implement a data warehouse platform to support a BI solution. Students will learn how to create a data warehouse with Microsoft SQL Server 2014, implement ETL with SQL Server Integration Services, and validate and cleanse data with SQL Server Data Quality Services and SQL Server Master Data Services.

On Completion, Delegates will be able to

- Describe data warehouse concepts and architecture considerations.
- Select an appropriate hardware platform for a data warehouse.
- Design and implement a data warehouse.
- Implement Data Flow in an SSIS Package.
- Implement Control Flow in an SSIS Package.
- Debug and Troubleshoot SSIS packages.
- Implement an ETL solution that supports incremental data extraction.
- Implement an ETL solution that supports incremental data loading.
- Implement data cleansing by using Microsoft Data Quality Services.
- Implement Master Data Services to enforce data integrity.
- Extend SSIS with custom scripts and components.
- Deploy and Configure SSIS packages.
- Describe how BI solutions can consume data from the data warehouse.

Who Should Attend

This course is intended for database professionals who need to create and support a data warehousing solution. Primary responsibilities include:

- Implementing a data warehouse.
- Developing SSIS packages for data extraction, transformation, and loading.
- Enforcing data integrity by using Master Data Services.
- Cleansing data by using Data Quality Services.

Prerequisites

This course requires that you meet the following prerequisites:

- At least 2 years' experience of working with relational databases, including:
- Designing a normalized database.
- Creating tables and relationships.
- Querying with Transact-SQL.
- Some exposure to basic programming constructs (such as looping and branching).

- An awareness of key business priorities such as revenue, profitability, and financial accounting is desirable.

Course Contents

Module 1: Introduction to Data Warehousing

This module provides an introduction to the key components of a data warehousing solution and the high-level considerations you must take into account when you embark on a data warehousing project.

- Overview of Data Warehousing
- Considerations for a Data Warehouse Solution

Module 2: Planning Data Warehouse Infrastructure

This module discusses considerations for selecting hardware and distributing SQL Server facilities across servers.

- Considerations for Data Warehouse Infrastructure
- Planning Data Warehouse Hardware

Module 3: Designing and Implementing a Data Warehouse

This module describes the key considerations for the logical design of a data warehouse, and then discusses best practices for its physical implementation.

- Data Warehouse Design Overview
- Designing Dimension Tables
- Designing Fact Tables
- Physical Design for a Data Warehouse

Module 4: Creating an ETL Solution with SSIS

This module discusses considerations for implementing an ETL process, and then focuses on Microsoft SQL Server Integration Services (SSIS) as a platform for building ETL solutions.

- Introduction to ETL with SSIS
- Exploring Data Sources
- Implementing Data Flow

Module 5: Implementing Control Flow in an SSIS Package

This module describes how to implement ETL solutions that combine multiple tasks and workflow logic.

- Introduction to Control Flow
- Creating Dynamic Packages
- Using Containers
- Managing Consistency

Module 6: Debugging and Troubleshooting SSIS Packages

This module describes how you can debug packages to find the cause of errors that occur during execution. It then discusses the logging functionality built into SSIS that you can use to log events for troubleshooting purposes. Finally, the module describes common approaches for handling errors in control flow and data flow.

- Debugging an SSIS Package

- Logging SSIS Package Events
- Handling Errors in an SSIS Package

Module 7: Implementing a Data Extraction Solution

This module describes the techniques you can use to implement an incremental data warehouse refresh process.

- Planning Data Extraction
- Extracting Modified Data

Module 8: Loading Data into a Data Warehouse

This module describes the techniques you can use to implement data warehouse load process.

- Planning Data Loads
- Using SSIS for Incremental Loads
- Using Transact-SQL Loading Techniques

Module 9: Enforcing Data Quality

This module introduces Microsoft SQL Server Data Quality Services (DQS), and describes how you can use it to cleanse and duplicate data.

- Introduction to Data Quality
- Using Data Quality Services to Cleanse Data
- Using Data Quality Services to Cleanse Data

Module 10: Master Data Services

Master Data Services provides a way for organizations to standardize data and improve the quality, consistency, and reliability of the data that guides key business decisions. This module introduces Master Data Services and explains the benefits of using it.

- Introduction to Master Data Services
- Implementing a Master Data Services Model
- Managing Master Data
- Creating a Master Data Hub

Module 11: Extending SQL Server Integration Services

This module describes the techniques you can use to extend SSIS. The module is not designed to be a comprehensive guide to developing custom SSIS solutions, but to provide an awareness of the fundamental steps required to use custom components and scripts in an ETL process that is based on SSIS.

- Using Scripts in SSIS
- Using Custom Components in SSIS

Module 12: Deploying and Configuring SSIS Packages

In this module, students will learn how to deploy packages and their dependencies to a server, and how to manage and monitor the execution of deployed packages.

- Overview of SSIS Deployment
- Deploying SSIS Projects
- Planning SSIS Package Execution

Module 13: Consuming Data in a Data Warehouse

This module introduces business intelligence (BI) solutions and describes how you can use a data warehouse as the basis for enterprise and self-service BI.

- Introduction to Business Intelligence
- Enterprise Business Intelligence
- Self-Service BI and Big Data