SSIS Design Patterns for Data Warehousing

Introduction and Setup

Robert C. Cain, MVP
http://arcanecode.com
@arcanecode

pluralsight
hardcore dev and IT training

SSIS Design Patterns – The Agenda

- **Design Patterns Defined**
- **Setup**
  - Required Software
  - Version of SQL Server
  - Setting up sample database
- **13 Design Patterns**

What Is a Design Pattern?

- **Pattern – A design for a package that solves a certain scenario**
- **Over time certain SSIS logic flows have emerged as best practices**
- **These designs have been classified into patterns for reference purposes**
- **Standard Design Patterns**
  - Learn from others
  - Common patterns make it easy for new personnel to understand and work with
  - Easy to apply in new projects

Design Patterns and Data Warehousing

- **SSIS most commonly used in Data Warehousing**
- **Patterns in this course most commonly used in Data Warehousing**
- **Applicable to non DW projects**
- **Definitions**
  - Type 1 – Dimension updates simply overwrite pre-existing values
  - Type 2 – Each update to a dimension causes a new record to be created
  - Fact – Records the measures for a transaction and associates with dimensions
- **For more see my course "Introduction to Data Warehousing and Business Intelligence"**

What You Need

- **SQL Server Data Tools – BI Components**
  - http://bit.ly/acssdtdl
  - For SQL Server 2012 use Visual Studio 2012
  - For SQL Server 2014 use Visual Studio 2013
- **SQL Server Data Tools – Database Project – SQL Server 2012**
  - http://bit.ly/acssdtdl
  - Uses Visual Studio 2012
- **SQL Server Data Tools – Database Project – SQL Server 2014**
  - http://bit.ly/acvs2013c
  - Included in Visual Studio 2013 Community Edition
  - Included in other versions of VS 2013 out of box
  - Make sure to install update 4 – http://bit.ly/acvs2013up4

Versions of SQL Server

- **Course uses SQL Server 2014 Project Deployment Mode**
- **Material works identically in 2012 (Project Deployment Mode)**
  - Package Deployment Mode for 2012/2014 requires older style configurations for Master/Child
- **Patterns applicable in 2008R2 & 2008 with limitations**
  - CDC has to be manually implemented, no controls in SSIS Toolbox
  - Master / Child works differently – uses configurations
- **Limited applicability to SQL Server 2005**
  - No Hashbytes
  - No Merge
  - No CDC
  - Master / Child works differently – uses configurations

Deploying the Test Database

- Before running project you will need to deploy and setup the test database
- Uses SSDT Database Project as part of the solution
- Deploy a database
- After deploy run stored procedure DDL.CreateAllObjects

The 13 Patterns

- **Truncate and Load**
- **SCD Wizard**
  - Type 1
  - Type 2
- **Set Based Updates**
  - Type 1
  - Type 2
- **Hashbytes**
  - Different Databases
  - Same Database
- **Change Data Capture**
- **Merge**
- **Date Based**
- **Fact Table Pattern**
- **Master / Child**
  - Basic
  - Passing Parameters
  - Load Balancing