Chapter-5

Deploying & Configuring SSIS Packages, Consuming Data In Data Warehouse

❖Overview Of SSIS Development

- The integrated development environment (IDE) of SSDT provide a united & comprehensive approach to database development
- Analytical services, reporting services & integration services solutions.
- SSIS project in entirely might more that just a single data movement.
- The IDE provides the ability to developed, maintain & reply multiple data management process that in the real world continue the same complete logic unit of work as one project typically in data warehouse scenarios.
- Data movement actually represent just one of many elements of the data equation maintains & consumption required to support a business environment.
- SSIS is a platform for building high performance data integration & work flow solution.
- It allows creation of package of SSIS package which are made of task that can move data from source to destination & after it is required.
- Most of the SSIS developer is done graphicallyrather than by typing in the command using the keyboard.
- SSIS development model is extensible the built it tool set can be extended by adding task & custom component either provide by third party vendor on developed by you.
- The SSIS development environment is a 32- bit environment.
- A design time you only have access to 32- bit data provider.

- SSDI & integrated service project store groups the file that relate to the package.
- **For Example:-** Project include the files that are required to create a specific ETL solution before you can create & integrate service package you should become familiar with the basic contain of this kind of project.
- After you understand what a project contain you can begin creating & working with an integration service project.
- SSDI for developing the integration service packages that a business solution requires.
- SSDI provides the integration services project in which you can create package.
- SQL Server Management Studio (SSMS) from managing package in a production environment.

❖Deploying SSIS Project

- A new project deployment model use it's a design database on employment is perform which contain all packages & configuration variables.
- SSIS is a platform for data integration & work flow application.
- SSIS include graphical tools & wizard for building & debugging packages such as FDP operations, SQL statement, E-mail messaging, data source & destination for extracting & loading of data.
- The project deployment model was introduced in SQL server 2012 integration service.
- If you change the SSIS service account from the default you may have to give additional permission to the non-default service account before you can deploy packages successfully.
- The integration service to enable you to manage package, run package & configure package by using environment.

- The incremental package deployment feature introduced in SQL Server 2016 integration service deploy one or more package to & existing or new project without deploying the whole project.

❖ Project Deployment Model :-

1. **Select Source.**
2. **Select Destination.**
3. **Review Or Deploy.**
4. **Result.**

1) Select Server:

- To deploy a project deployment file that you created selected project deployment file & enter the path to the extension .ispac.

2) Select Destination:

- To select the destination folder for the project in integration service & enter the SQL server instance or click browse & to select from a list of servers.

3) Review Or Deploy:

- The page allows you to review to setting you have selected.
- You can change your selection by clicking previous clicking any of steps of left panel.

4) Result:

- After the deployment process is complete you should see the result page.
- This page displays the success or failure of each action.
- If the action is failed the failed in the result the column display & explanation of the error.

❖Planning Of SSIS Package Execution

- The simplest approach deployment is probably to deploy file system.
- SSIS package is actually just an XML file & it can simply be copied from its project folder location to a folder on the deployment target.
- Package you save to MSDB are stored in a table.
- The package stored can consist of either one or more MSDB database & file system with SQL integration service configure.
- SSIS & SSMS also list package saved to the file system in folder & in sub folder.
- Packages relationship between deployment & planning of the destination environment.
- The backup of package that are saved to the file system should be included in the plan for backing up the file system of the server,
- SSIS package is all about extracting data from different sources transform it & load it in a completely different destination,
- SSIS packages can be categorized as following based on the functionality like:
  1) Extract Package.
  2) Transform & Load Package.
  3) Maintain Package.
  4) Refresh Package.
  5) Driver Packages.
- A work thread may contain both input & output work list.

❖Introduction To Business Intelligence

- SQL Server Business Intelligence Development Studio (BIDS) is the formal IDE form Microsoft.
- It is used to develop data analysis &Business Intelligence solution utilizing the Microsoft SQL Server integration service, analytical service &reporting service.

- **Features Of Business Intelligence:**
  1) Semantic Model.
  2) Column Store Index.
  3) Data Quality Service,
  4) Power View.
  5) Semantic Search.

✓ **Semantic Model:**

- SQL Server 2012 introduces the BISM (Business Intelligence Semantic Model) to provide conceptual framework for BI to support analysis & reporting platform.
- BISM are of two types:
  1) Multidimensional
  2) Tabular.
- SQL Server 2012 is a tabular model which unlike the multidimensional model.
- The tabular model uses the Data Analysis Expression (DAX) language for data access & can retrieve data from a variety of sources like relational databases.

✓ **Column Store Index:**

- SQL Server 2012 business intelligence features the non clustered column store index.
- Unlike non- clustered index the data exist in a column index.
- Non-cluster index is on the other hand store data by rows.

✓ **Data Quality Services (DQS):**

- SQL Server 2012 & DQS provides the tool needed to resolve data in accurate and duplication.
- Data Quality Service in environment
  1) Data Quality Server.
  2) Data Quality Client.
- The Data Quality client provides an interface for administration DQS & managing the knowledge bases & runtime data quality apply the knowledge to the data.

✓ **Power View:**

- SQL Server 2012 BI powerview a SQL Server Reporting Service (SSRS) add in sharepoint server.
- Powerview is building on the Silverlight application framework & provides user with a web base tool.

✓ **Semantic Search:**

- SQL Server in corporation unstructured data into its analysis & reporting operation.
- BI to provide full text such capabilities built in to the database.

- Semantic search more powerful introduction of SQL Server 2012 features like file table.
- Semantic search on documents rather than on simply its words.

❖ **BI Terms:**

1) Adhoc Query.
2) Aggregation.
3) Atomic Data.
4) Attributes.
5) Cub.
6) Data.
7) Data Mart.
8) Data Warehouse.
9) Database.
10) OLEDB.
11) Data Mapping.
12) ETL.
13) Measures.
14) Matrix.
15) Normalization.
16) Snap sort.

❖Introduction To Reporting Services

- SQL Server Reporting Services (SSRS) is Microsoft business reporting provide undefined server base, extensible & scalable platform form deliver & present information.

- SSRS can also be configured to deliver report to file share & so on.
- SSRS is capable of generating reports in various formats such as excel, CSV & web oriented format.
- SSRS is just one of the components in the Microsoft BI platform.
- SSRS is unique in the Microsoft BI because it covers a variety of information user.
- Microsoft device into three:
  1) Information Customers.
  2) Information Explorers.
  3) Analysis.
- A report server is a computer that has an instance of reporting service installed.
- BI studio & SSDI (SQL Server Data Tool) are important to develop reports.

❖ **SSRS Features:**

✓ Aggregation & Summarize Data.
✓ Add in Report Navigation.
✓ Retrieve Data From Provider, OLEDB & ODBC Connection.
✓ Display Data in Variety of Including Tabular, Freeform & Charts.
✓ URL based Report Access.
✓ Provide Sub.
✓ SOAP (Simple Object Access Protocol), API (Application Programming Interface) & Pluggable Architecture.
✓ Embedded Graphics, Images & External Content.
✓ Integrated With Share-Point.

- SQL Server manages & provides a extensible architecture that you can use to customize report.
- SSRS is a service component of SQL Server products that allows you to design reader nice report from SQL Server database.
- Data Warehouse with SSRS provides the tool necessary to create reports to better understand your data.
- SSRS can extend reporting functionality using C# & Visual- Basic as programming languages.
- SSRS provide a host of security feature in order to control who see which report.
- SSRS allow reports to be delivered via email or dropped to a share location in automatic.

❖Introduction To Data Analysis

- SQL Server Analysis Service (SSAS) is a technology from the Microsoft BI to develop Online Analytical Processing (OLAP) solution.
- SSAS model is called the BI Semantic Model (BISM) to compare SQL Server database model, BISM include much additional metadata.
- SSAS has two types of storage:
  1) Dimensional.
  2) Tabular.
- SSAS database is done by using client tools that read the schema & build a User Interface (UI) for select measures& attributes.
- SSAS with BISM tabular model does not support many to much relationship at all in its current version.
- SSAS many too many relationship from an existing fact table & not directly from the source transactional system.

- SQL Server analysis service you can store column physically in database.
- Analysis service connection manager provide access to SSAS database.
- SSAS database for creating, modifying & deleting multidimensional objects & data mining model.
- A typical higher level cube development process using SSAS the following steps:
  1) Reading data from a dimensional model.
  2) Configuring a schema in BIDS.
  3) Creating dimension measures & cubes from schema.
  4) Find tuning the cube as per the requirements.
  5) Deploying the cube.

- Cube share multidimensional sources which have dimension & fact tables.
- SSAS data mining engine run the algorithm automatically after you set up.
- When you process a mining model SSAS typically perform many parses through the whole databases/dataset.