

# Case Studies

For

MS BI

## **Customer (US) – SSIS 2013**

### **The Challenges**

Our customer basically receives the zip file(s) for the health care data from various medications units and organisations (who are their clients) to be loaded to their Pre staging databases. Each zip file has one or more CSV, TXT, or any other flat file type of source with very bulky data to be loaded to Pre staging database.

### **The Solution**

We have developed a load package to accomplish this task.

The first 4 rows of each of this file contain the meta data details like the table structure, column name, data type, and size.

In some cases, only the column names are available and other details like data type and size are missing. The load package handles such cases by using default varchar(255) columns.

First they manually run the Build Pre Staging schema package that reads each of this file and creates SQL table in the specified database server, it's a one time job.

Then, the load package runs on daily basis to load the data to these tables dynamically, it performs Upsert operation based on the given unique primary key.

Overall, it performs each following step,

1. It extracts the given zip file.
2. Process the extracted files whether it's TXT or CSV or any other flat file source one by one in For each loop container, the file extension is configurable parameter.
3. It performs Upsert as the data is incremental.
4. After loading the data of all files, it archives the processed files.
5. The customer is using their own ETL framework, so during the package the details about the Batch, Batch set, task, package step, source count, destination count, updated count, inserted count, deleted count, etc. managed for the internal ETL Framework database.

It's really a big package and many ifs and buts were elegantly handled in this package.

We also implemented parallelism into it to load the data very quickly into the Pre staging database.

## **Customer (US) – SSIS 2013**

### **The Challenges**

Our customer basically needs to extract health care data from their databases into flat files. The data is very bulky. The customer is well versed in SQL and wishes to utilize this fact and develop an SSIS package that eliminates the need of SSIS knowledge for their employees, leverage their knowledge of SQL and make extracts possible by just writing stored procedure(s).

## **The Solution**

We have developed a generic extract package that fulfils the requirement.

There was an evident challenge here, that the package would have no idea of the meta data of the extract result that the stored procedure would return. The meta data of the result would be different every time. So, we could not use simple input/output mappings that SSIS offers. There are third party tools available that allow handling such dynamic inputs, but the customer was not willing to use any third party tool due to licensing and other maintenance issues.

Another challenge, as the data is very bulky, was handling memory issues.

The package provides a solution that overcomes these challenges and performs the following steps,

1. Execute one or more stored procedure(s)
2. Write results of these stored procedure(s) to file(s)
3. Archive(s) files if specified
4. Send file(s) to SFTP if specified
5. Log execution details in customer's ETL Framework

The package offers flexibility to configure certain parameters. The package is configured to fetch these parameters from customer's ETL Framework.

These parameters include,

1. List of stored procedure(s) to be executed
2. Server and Database on which to execute these stored procedures
3. Type of file (CSV, TXT, any other) to be generated
4. Format of file (add column names in extract?, add text qualifier?)
5. Location where the output file(s) need to be generated
6. Whether to archive file(s) and location of archiving.
7. Whether to send extracted files to specified SFTP location

## **Customer (US) – SSIS 2013**

### **The Challenges**

Our customer often wants us to develop custom packages which either extract data from their databases to flat files or load data from flat files in their databases.

### **The Solution**

We have developed several custom packages which meet the requirements of the customer.

The packages offer flexibility to configure certain parameters like, server/database from which to extract data and, the location of output files.

Apart from the custom business requirement that varies from package to package, a common logging mechanism is implemented in each package.

Logs keep track of the following,

1. Name of file from which the data was loaded(in case of import packages)
2. Execution time taken by the packages
3. Number of records affected(read/inserts/updates/duplicates)
4. Values of dynamic inputs (e.g. the location where the file was extracted for a particular execution of the package)
5. Errors, if any

### **Customer (US) – SSIS 2013**

#### **The Challenges**

Our customer from retail sector possesses bulky databases, which are populated with huge data on a daily basis. They required an efficient data purge mechanism so as to get rid of data that is of no use in future and improve overall system performance and retain “clean” databases.

#### **The Solution**

We have developed several packages, which purge customer databases based on requirements.

The interval for which the data needs to be purged is configurable. The objects which need to be purged vary from package to package. Some packages are configured to delete the data permanently whereas, others are configured to archive data in history tables.

In some cases, logs indicating number of records deleted and date of deletion for individual objects are also maintained in log tables.

### **Customer (UK) – SSIS 2013**

#### **The Challenges**

Our customer wants to periodically collect data from different sources to a pre staging database.

#### **The Solution**

We have developed a package that catered to customer’s needs. The package dumps data from different flat files/excel sheets and in a pre-staging database. The package effectively handles varied business needs of the customer. The package incorporates detailed error handling and logging mechanism. Some of the files the package receives are ragged flat files. The package is

designed to correctly read data from such files. Truncation of data is handled as per customer's specifications.

### **The Client**

Our client belongs to the health care industry.

### **The challenge**

Our client wanted to improve their health care services. A detailed analysis and reporting was required on various aspects like,

- 1) The ratio and severity of various health problems faced by the patients
- 2) Treatments used and their effectiveness
- 3) Expected requirements of staff/instruments

### **The Solutions**

We used SSAS to model the data. Cubes, dimensions, measure groups and measures were created as per requirements. MDX expressions were used to generate calculated measures.

Based on the SSAS model prepared, number of reports were prepared using SSRS.

Our combined solution helped the client gain an insight of where they went wrong and improve the processes.

### **Environment**

**SSAS**, SSRS, MS SQL Server 2012

### **Marketing and Predictive Analytics**

**Version** - SSIS, **SSRS**, MS SQL Server 2008 (upgraded to MS SQL Server 2012)

**Client based in - USA**

### **The Challenge**

Our client was in search of a streamlined solution that would serve their purpose of delivering information on the sales of their products for marketing and predictive analytics. Essentially they needed reports which would help them make smart decisions for generating more revenue.

## **The Solution**

We were able to meet the needs of our client by making use of Microsoft BI in a two step process.

First, the SSIS platform was used for the ETL phase of loading data in the data ware house. The business logic demanded for extensive use of Row Count, Data Conversion, Conditional Split, Aggregate, Merge and Merge join transformations.

Then, SSRS platform was used to generate weekly, monthly, quarterly, and annual reports. A comprehensive reporting approach was used so as to provide our customer with detailed analysis facilities without compromising on readability of the reports. Drill Down and Drill Through functionalities were utilized to ensure the same. We developed a variety of reports like tabular, matrix, graphs and bar charts.

## **Reports for an ERP**

**Version** - C# 2.0/4.0, SSIS, **SSRS**, MS SQL Server 2008 (upgraded to MS SQL Server 2012)

**Client based in** - India

## **The Challenge**

Our client wanted an ERP to manage their internal operations and also help them in managing customer relations.

## **The Solution**

We developed an automated system for them that covered all the processes including but not limited to manufacturing, accounting and business forecasting. Minute details of the client's business processes were considered to develop an easy to use system.

We used SSRS for the reporting requirements of the system. Reports covered all the aspects ranging from invoicing to generating pay slips. Real time reports were designed to aid top level executives in making decisions.

SSAS was used to model the required data in multidimensional format. This data was fed to SSRS and required reports were generated. Various sort of graphs, charts and KPIs were developed for top level executives. For easy sharing of reports, these reports were also made available in other forms like pdf and excel.

## **Billing and Invoicing**

**Version** - C# 2.0/4.0, SSIS, **SSRS**, MS SQL Server 2008

**Client based in** - USA

### **The challenge**

The client wanted a reporting solution for generating bills and invoices based on power meter readings.

### **The Solution**

We used SSRS for reporting requirements of the client. All the required bills and invoices were developed using SSRS. Tabular reports were used for bills and invoices. Some graphical reports - comparative analytical reports like consumption history by a particular customer, area wise power consumption etc. were also developed to help our client know the prospective market of their business.

## **Analytical Reports**

**Version** - **SSRS**, MS SQL Server 2008

**Client based in** - USA

### **The challenge**

The client wanted various detailed analysis reports which would help them optimize their business processes.

### **The Solution**

The client already had their SSAS data model ready. We generated 100+ reports for them. Charts, Graphs, Sparklines and KPIs were developed. The task required extensive use of MDX expressions.